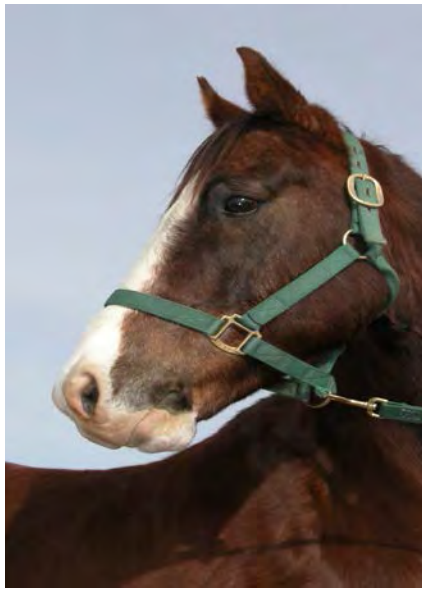
NAHMS Equine 2015-16 Coordinator Training Manual



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Introduction

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Equine 2015-16 Coordinator Training Agenda

VMO Questionnaire Training, March 22, 2016

- 9:00 - 9:10 Opening remarks from Jason Baldwin on the recording and how to move forward
- 9:10 – 9:15 Welcome, Kath
- 9:15 – 10:15 Questionnaire Review, Josie
- 10:15 – 10:30 BREAK
- 10:30 – 11:15 Questionnaire Scenarios, Josie
- 11:15 – 12:00 Wrap up, Abby
    - Letter status, start making appointments the week of April 4th for a May 1st start
    - Participant agreements – do not send to NAHMS (one to participant, one for coordinator to file until told to destroy)
    - Shipping of completed questionnaires to NAHMS
    - Aglearn/NAHMS website for prerecorded presentations (CE credits)
    - Reminder of biologics webinar on the 30th

Biologics and Biosecurity Assessment Training, March 30, 2016

- 9:00 - 9:10 Opening remarks from Jason Baldwin on the recording and how to move forward
- 9:10 – 9:15 Welcome, Kath
- 9:15 – 10:15 Biologics Component Review, Josie
    - Review of Biologics Manual
    - Tick Scratch Exam Video
- 10:15 – 10:30 BREAK
- 10:30 – 11:15 Biologics Kit Review, Alyson
- 11:15 – 11:30 Review of Biosecurity Assessment
- 11:30 – 12:00 Questions and Discussion

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Speaker Biographies for Training Modules

Jerry B. Black, DVM

Dr. Black is Wagonhound Land and Livestock Chair in Equine Sciences, Associate Professor in the Departments of Clinical Sciences and Animal Sciences at Colorado State University.

He is a 1971 graduate of the veterinary school at Colorado State University and is currently the Director of the Equine Reproduction Laboratory in the College of Veterinary Medicine and Biomedical Sciences as well as the Director of Equine Sciences in the College of Agriculture Sciences.

Dr. Black is a past president of the American Association of Equine Practitioners and a past president of the Pacific Coast Cutting Horse Association. He continues to be involved in the horse industry by serving as the chairman of the Board of Trustees of the American Horse Council, is a Director of the AQHA and serves on the AQHA Animal Welfare Commission. Dr. Black serves as the immediate past chairman of the AAEP's Welfare and Public Policy Counsel and is also the Chair of the Medication Review Committee for the National Cutting Horse Association. Dr. Black has received the distinguished alumnus award from Colorado State University, College of Veterinary Medicine and Biomedical Sciences and is an American Association of Equine Practitioners Distinguished Life Member. Jerry.Black@Colostate.edu

Donna Hambric

Donna has been working for the NASS for about a year. Donna was the lead statistician for the Mountain Region for the NAHMS Equine Survey. Prior to coming to NASS, Donna was employed at the Census Bureau at headquarters for 23 years, working on various economic surveys and the Economic Census.

Angela M. James, MS, PhD

Angela received a Bachelor's of Science in Biology and a Master's in Science from Georgia Southern University studying Lyme disease ecology throughout the southeastern United States. In addition, she received a Ph.D. in Entomology from the University of Georgia with an emphasis in vector-borne disease agents and tick physiology. She did her post-doctoral studies at the Centers for Disease Control and Prevention as an Emerging Infectious Diseases Fellow and the Arthropod-borne and Infectious Diseases Laboratory at Colorado State University.

Angela's research interests include landscape ecology of vectors and vector-borne disease pathogens as well as invasive species. She joined the USDA staff at CEAH in Fort Collins in 2000 to pursue studies on the spatial epidemiology of animal diseases particularly related to ticks, using GIS, species distribution modeling, and remote sensing methods.

Dawn Keen

Dawn graduated with a B.A. in Business Administration from Lynchburg College in Virginia in 2001. Dawn has been with NASS for 14 years, and has worked in 2 State NASS Field offices (before NASS reorganization into regions). Dawn worked in Austin, TX for 2 years, and while there worked on the NAHMS Non-ambulatory study in 2004. Dawn also worked in Annapolis, MD for 2 years. The rest of Dawn's career has been spent in NASS Head Quarters in Washington DC. Dawn has worked on the data analytical and publication side as well as on the survey administration side of NASS activities.

Martin K. Nielsen, DVM, Ph.D., DipEVPC, DipACVM

Dr. Nielsen graduated with his DVM degree from the Royal Veterinary and Agricultural University, Denmark in 2001. He spent three years in equine veterinary practice before joining graduate school. He received his Ph.D. in equine parasitology at University of Copenhagen in 2007, and served as assistant professor there until 2011. He then joined the M.H. Gluck Equine Research Center at University of Kentucky. He is board certified in veterinary parasitology with European Veterinary Parasitology College (EVPC) and with American College of Veterinary Microbiologists (ACVM). Dr. Nielsen is chair of the AAEP Parasite Control Subcommittee which published its guidelines in 2013. He has published more than 60 peer-reviewed publications and over 100 peer-reviewed conference abstracts.

Angela Pelzel-McCluskey, DVM

Dr. Angela Pelzel-McCluskey is the Equine Epidemiologist for the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services and is based in Fort Collins, Colorado. She obtained her Doctorate in Veterinary Medicine in 2001 from Texas A&M University in College Station, Texas. Dr. Pelzel-McCluskey was in equine private practice in both Texas and Colorado and has served as an epidemiologist with state and federal animal health agencies since 2004. Dr. Pelzel-McCluskey currently oversees the federal response to reportable equine disease outbreaks nationwide and has been the lead epidemiologist for more than 25 state, regional, and national disease outbreak responses during her combined state and federal service.

Josie L. Traub-Dargatz

Dr. Traub-Dargatz is a professor of equine medicine at Colorado State University (CSU), College of Veterinary Medicine and Biomedical Sciences in Fort Collins, Colorado. She joined the veterinary faculty of the Veterinary Teaching Hospital at CSU in 1983 and worked in the clinics until the past few years when she has put her entire focus into the area of equine population based studies. Since 1994, Dr. Traub-Dargatz has served as the Equine Commodity Specialist for USDA APHIS VS Center for Epidemiology and Animal Health and has been involved in all of the National Animal Health Monitoring System (NAHMS) Equine Studies.

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Equine 2015-16 Team Members and Contributors

Dr. Josie Traub-Dargatz	Study Lead
Dr. Lindsey Garber	SME
Dr. Katherine Marshall	SME
Dr. Angela Pelzel-McCluskey	SME
Abigail Zehr	Field Liaison
Camilla Kristensen, MS	Lab Liaison, Biologics Coordinator
Dr. Alyson Wiedenheft	Biologics Coordinator
Rose Digianantonio, MPH	Biologics Assistant
Sarah Wynkoop	Biosecurity Assessment Development Assistant

Other contributing NAHMS members

Anne Berry, MS	Technical Specialist
Brad Doty	Editor
Bill Kelley, MS	Project Manager
Christine Kopral, MS	Survey Statistician

Other contributing members

Dr. Angela James, CEAH	SME for ticks
Kamina Johnson, MS, CEAH	SME for economics
Dr. Al Kane, VS	SME for lameness
Dr. Jack Schlater, NVSL	SME for ticks
Dr. Martin Nielsen, Univ. of KY	SME for parasite portion of study
Dawn Keen, NASS	National project lead for implementation of Phase I of the study
Dr. Matt Erdman, NVSL	Point of contact
Dr. Rick Meinersman, ARS, BEAR	Point of contact

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Study Background and Contacts

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NAHMS Equine 2015-2016 Study Timelines

Action	Timeframe	Status
NASS Data Collection	May 1- July 31, 2015	Complete
NASS turns names over to NAHMS	October 2015	Complete
NASS turns questionnaires over to NAHMS	October 2015	Complete
County numbers to coordinators	Emailed 12/21/15	Complete
AgLearn training modules	January – April 2016 Abby sent an email on 12/23/15 with course names. A cd/dvd or a link to the videos on the website will be sent to our state folks once I have all the recordings done.	
Participant names turned over to coordinators	Fed Ex by March 18, 2016	
Coordinator/VMO/AHT training	March 22 (Questionnaire) & March 30 (Biologics)	
VMO Visits	May 1 – Sept. 30, 2016	
Biologic Collections	May 1 – Sept. 30, 2016 *parasite testing will likely go longer	

Status Update Schedule

***Abby will send an email stating what status info she is looking for.**

- 1st status report due the week of May 16, 2016.
- 2nd status report due the week of June 27, 2016
- 3rd status report due the week of July 25, 2016
- 4th and final status report due the week of August 29, 2016

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NAHMS Equine 2015 Study

In May 2015, the U.S. Department of Agriculture's (USDA) National Animal Health Monitoring System (NAHMS) will launch its third national equine study. Equine 2015 will take an in-depth look at U.S. equine operations and provide the industry with new and valuable information regarding trends in the equine industry from 1998 to 2015.

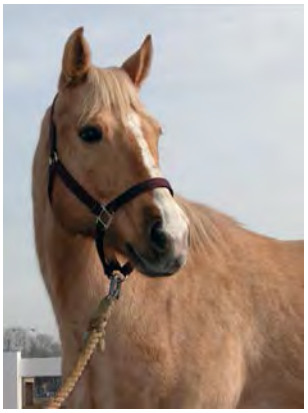
Study focus

For the study, NAHMS asked equine owners, industry stakeholders, and government officials to provide input and define the information needs of the equine industry. During this process, seven study objectives were identified:

- Describe trends in equine care and health management for study years 1998, 2005, and 2015.
- Estimate the occurrence of owner-reported lameness and describe practices associated with the management of lameness.
- Describe health and management practices associated with important equine infectious diseases.
- Describe animal health related costs of equine ownership.
- Evaluate control practices for gastrointestinal parasites.
- Evaluate equines for presence of ticks and describe tick-control practices used on equine operations.
- Collect equine sera along with equine demographic information in order to create a serum bank for future studies.

"Past NAHMS equine studies have been used as an important resource for horse owners and all parts of the horse industry. NAHMS Equine 2015 will provide valuable information about disease prevalence and the impact disease has on horse health. This will help create awareness, improve horse husbandry to prevent disease, and focus research on the most important diseases affecting horses, including evaluating parasite and tick control. I urge all selected horse owners to participate."

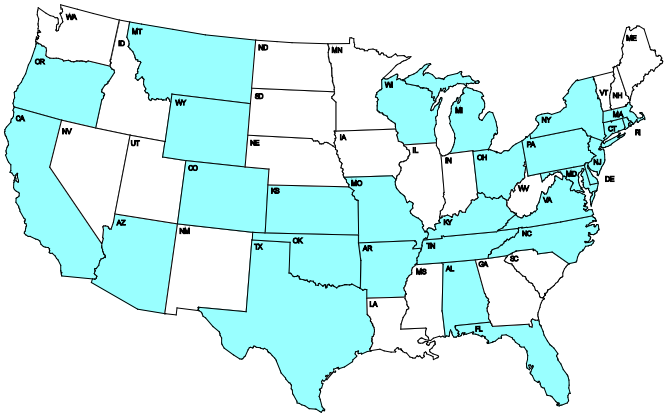
—Nathaniel A. White II, DVM, MS Diplomate ACVS
Professor Emeritus of Equine Surgery
Marion duPont Scott Equine Medical Center
Past President of the American Association of Equine Practioners



What your participation involves

From May through July 2015, representatives from the USDA's National Agricultural Statistics Service (NASS) will contact selected equine owners in 28 States (see map below). NASS representatives will conduct personal interviews with all participating operations that have one or more equines[1] and qualify as a farm, as defined by the 2012 Agricultural Census[2] conducted by NASS. For operations that choose to continue to phase II of the study and are eligible to do so, representatives from USDA's Veterinary Services will visit from summer to mid-December 2015 to administer the phase II questionnaire, collect blood and fecal samples, perform a tick exam, and collect tick specimens.

Equine 2015 Participating States



[1] Horses, ponies, donkeys, mules, and other domestic equine species.
[2] The current definition of a farm is a place that could or does actually sell $1,000 of agricultural products annually or that has five or more equids (other than commercial enterprises such as race tracks).

Benefits of participating in the Equine 2015 study

Participating equine owners will receive:

- Customized reports describing animal health information, including enteric parasite status, tick identification, and information regarding how to address and manage health risks.
- Best management practices/industry goals.
- Information sheets derived from study data.

The equine industry will benefit from:

- Current and scientifically valid estimates of management practices, disease prevalence, and other information important for trade and the health of the equine industry (e.g., benchmarking).
- Data on trends in the implementation of equine health management practices and the antibiotic susceptibility of selected enteric bacteria.

"By participating in the NAHMS Equine 2015 study, you'll be providing equine population experts with valuable information on issues such as the prevalence of lameness and how you and other horse owners treat it, what preventive care practices you consider most important, and how you control internal parasites. Ultimately, results from this study will help direct you and other horse owners in caring for your beloved charges in the best possible way. I strongly encourage you to participate in this important study."

—Stephanie L. Church
Editor-in-Chief
"The Horse: Your Guide To Equine Health Care"
and TheHorse.com

A scientific approach

NAHMS collects and reports accurate and useful information on animal health and management in the United States. Since 1990, NAHMS has developed national estimates on disease prevalence and other factors related to the health of U.S. beef cattle, sheep, goat, dairy cattle, swine, equines, poultry, and catfish populations. The science-based results produced by NAHMS have proven to be of considerable value to the U.S. livestock, poultry, and aquaculture industries, as well as other animal health stakeholders.

NAHMS studies are:

☐ National in scope

☐ Science based

☐ Statistically valid

☐ Collaborative

☐ Voluntary

☐ Anonymous

Privacy

Because NAHMS studies rely on voluntary participation, the privacy of every participant is protected. Only those collecting the data know the identity of the respondent. No name or contact information will be associated with individual data, and no data will be reported in a way that could reveal the identity of a participant. Data are presented only in an aggregate manner.

For more information, contact:
USDA–APHIS–VS–CEAH–NAHMS
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526-8117
970.494.7000
http://nahms.aphis.usda.gov
#712.0315

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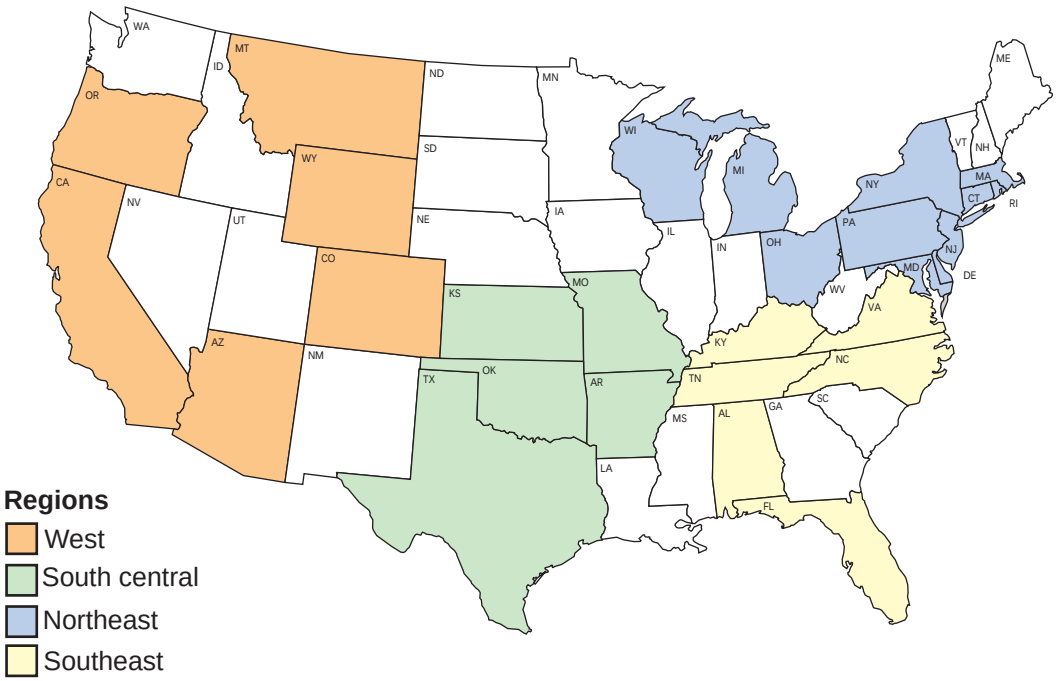
NAHMS Equine 2015 study regions



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Benefits of Participating
In the NAHMS Equine 2015 study

As part of its Equine 2015 study, NAHMS is offering study participants free biological testing and a free biosecurity assessment.

Biologic testing

The study's biologic portion will focus on the following:

Gastrointestinal parasites
Participants will receive fecal egg counts for up to 6 equines before and after deworming. Results will provide participants with information about parasite resistance to dewormers for the operation.

Tick exam and tick identification
The species of ticks found on up to 10 equines on the operation will be identified. Participants will be provided data regarding the location of ticks found on their equines and the type of ticks found.

Biosecurity Assessment

Participants will be provided with a summary report after the study is completed that will allow them to compare their biosecurity practices with those of other participants at a regional and national level. Results from the biosecurity assessment will provide participants with an idea of what biosecurity practices should be implemented on their operation to decrease risk of disease introduction or spread.

The only way to receive free biologic testing and a free biosecurity assessment for your operation is to participate!

Reports

At the end of the study, participants will receive reports customized for their operation, and descriptive reports and information sheets describing animal health issues, including enteric parasite status; tick identification; information regarding how to address and manage animal health risks.

In addition to providing participants with valuable information about their operation, data collected during the Equine 2015 study will help the equine industry as a whole by providing current and scientifically valid estimates about the challenges facing equine owners and operations.

All NAHMS equine reports can be accessed at:
http://nahms.aphis.usda.gov

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NAHMS Equine 2015-16
Equine Operations by County

Alabama

3	Baldwin
1	Bullock
1	Butler
1	Calhoun
1	Chambers
1	Chilton
2	Clarke
3	Clay
1	Cleburne
1	Coffee
1	Colbert
1	Cullman
1	Dale
3	Escambia
1	Franklin
1	Houston
1	Lawrence
1	Monroe
1	Montgomery
3	Shelby
1	Tallapoosa

30 Total Alabama

Arizona

3	Apache
1	Cochise
3	Coconino
1	Graham
7	Maricopa
13	Navajo
1	Pima
1	Pinal
4	Yavapai
3	Yuma

37 Total Arizona

Arkansas

1	Arkansas
1	Ashley
3	Baxter
2	Benton
2	Cleburne
1	Cleveland
1	Crawford
2	Faulkner
1	Garland
1	Izard
2	Lafayette
1	Logan
1	Lonoke
1	Madison
1	Miller
1	Newton
1	Pope
1	Saline
1	Union
1	Washington
3	White
1	Yell

30 Total Arkansas

California

1	Alameda
1	Butte
4	Contra Costa
1	Kings
1	Los Angeles
1	Madera
1	Mariposa
1	Monterey
1	Nevada
3	Placer
1	Plumas
1	Riverside
1	San Benito
8	San Diego
2	San Luis Obispo
2	San Mateo
1	Santa Barbara
3	Santa Clara
2	Shasta
1	Solano
3	Sonoma
2	Stanislaus
1	Tehama
1	Trinity
2	Tulare
1	Tuolumne
1	Ventura

48 Total California

Colorado

1	Alamosa
1	Delta
1	Douglas
1	Elbert
2	El Paso
1	Fremont
1	Garfield
1	Jackson
1	Jefferson
3	Larimer
2	Mesa
1	Montezuma
1	Morgan
1	Park
2	Weld

20 Total Colorado

New England - Connecticut

1	Fairfield
2	Litchfield
1	New London
1	Tolland

5 Total Connecticut

New England - Massachussetts

1	Dukes
1	Essex
1	Franklin
4	Middlesex
1	Plymouth
3	Worcester

11 Total Massachussetts

New England – Rhode Island

1	Providence

Delaware

1	Kent
1	New Castle
2	Sussex
4	**Total Delaware**

Florida

5	Alachua
1	Brevard
2	Broward
1	Duval
1	Escambia
1	Hardee
1	Hernando
1	Highlands
1	Holmes
1	Jefferson
1	Lake
1	Lee
1	Leon
1	Levy
1	Marion
2	Palm Beach
2	Pasco
2	Saint Johns
1	Saint Lucie
1	Santa Rosa
1	Sarasota
1	Seminole
1	Sumter
1	Suwannee
1	Washington
33	**Total Florida**

Kansas

1	Butler
1	Clark
1	Cloud
2	Decatur
1	Elk
1	Ford
1	Gray
1	Jackson
1	Jefferson
2	Kingman
1	Kiowa
1	Labette
1	Logan
1	McPherson
1	Montgomery
1	Ottawa
1	Reno
1	Saline
3	Sedgwick
2	Thomas
2	Wilson
27	**Total Kansas**

Kentucky

2	Allen
3	Barren
1	Bell
1	Butler
2	Edmonson
3	Fayette
1	Garrard
1	Graves
5	Grayson
2	Green
1	Hardin
1	Henderson
1	Henry
1	Larue
1	Logan
1	Nelson
1	Oldham
2	Pulaski
1	Scott
3	Shelby
1	Warren
1	Wayne
36	**Total Kentucky**

Maryland

1	Allegany
1	Caroline
1	Charles
1	Garrett
2	Harford
4	Montgomery
1	Washington
2	Wicomico
13	**Total Maryland**

Michigan

1	Alcona
1	Antrim
1	Eaton
1	Genesee
1	Gladwin
1	Hillsdale
1	Isabella
3	Jackson
1	Lapeer
2	Lenawee
1	Manistee
1	Mecosta
3	Monroe
1	Montcalm
1	Muskegon
2	Newaygo
1	Oceana
2	Oscoda
1	Ottawa
3	Saint Clair
2	Shiawassee
31	**Total Michigan**

Missouri

1	Barry
2	Bates
1	Boone
1	Clinton
1	Cooper
4	Daviess
1	Franklin
1	Gentry
1	Greene
1	Grundy
1	Henry
1	Howell
1	Jackson
1	Jasper

3	Jefferson
1	Johnson
1	Laclede
1	Lafayette
1	Lawrence
1	Lewis
2	Maries
1	Marion
1	Mercer
2	Miller
1	Mississippi
1	Montgomery
2	Ozark
1	Pemiscot
1	Phelps
2	Polk
1	Ralls
2	Texas
1	Vernon
3	Warren
2	Washington
6	Webster
55	**Total Missouri**

Montana

2	Beaverhead
1	Big Horn
2	Cascade
1	Fallon
1	Flathead
1	Garfield
6	Glacier
1	Judith Basin
1	Lewis and Clark
2	Madison
3	Missoula
1	Musselshell
1	Park
3	Pondera
1	Powder River
2	Powell
4	Ravalli
1	Rosebud
2	Valley
1	Yellowstone
37	**Total Montana**

New Jersey

1	Atlantic
2	Burlington
2	Camden
1	Cumberland
2	Gloucester
3	Middlesex
1	Monmouth
1	Morris
1	Ocean
1	Salem
1	Somerset
1	Warren
17	**Total New Jersey**

New York

1	Albany
2	Allegany
1	Broome
2	Chautauqua
1	Clinton
3	Columbia
1	Delaware
2	Dutchess
2	Erie
2	Fulton
1	Greene
1	Jefferson
1	Livingston
2	Madison
3	Montgomery
2	Onondaga
2	Orange
1	Oswego
1	Otsego
1	Putnam
1	Saratoga
1	Schenectady
1	Steuben
2	Suffolk
1	Sullivan
1	Warren
1	Wayne
40	**Total New York**

North Carolina

1	Alamance
2	Alexander
1	Alleghany
1	Anson
1	Bertie
3	Buncombe
1	Catawba
4	Chatham
1	Cleveland
1	Cumberland
1	Currituck
2	Durham
2	Granville
1	Guilford
2	Henderson
1	Hoke
2	Macon
1	New Hanover
1	Person
1	Polk
2	Robeson
1	Rutherford
1	Sampson
1	Transylvania
1	Wake
1	Watauga
2	Wilkes
1	Yadkin
40	**Total North Carolina**

Ohio

1	Athens
2	Clark
1	Coshocton
1	Fairfield
2	Geauga
1	Hocking
1	Holmes
2	Logan
1	Mahoning
1	Montgomery
1	Morrow
1	Putnam
1	Seneca
2	Stark

1	Trumbull
2	Tuscarawas
1	Union
1	Washington
23	**Total Ohio**

Oklahoma

1	Adair
1	Atoka
2	Bryan
1	Caddo
3	Canadian
1	Carter
3	Choctaw
2	Cleveland
2	Coal
1	Cotton
1	Craig
8	Creek
1	Delaware
3	Garfield
3	Garvin
2	Grady
1	Haskell
1	Johnston
1	Kay
3	Le Flore
1	Lincoln
1	Logan
1	Love
2	McClain
1	McCurtain
2	Major
1	Marshall
1	Nowata
1	Okfuskee
2	Oklahoma
2	Okmulgee
1	Osage
3	Ottawa
2	Payne
2	Pittsburg
1	Pontotoc
3	Pottawatomie
3	Pushmataha
1	Rogers
2	Seminole
3	Sequoyah
2	Stephens
2	Wagoner
1	Washington
2	Woods
1	Woodward
85	**Total Oklahoma**

Oregon

3	Baker
3	Clackamas
1	Crook
1	Douglas
1	Harney
1	Hood River
1	Jackson
2	Klamath
1	Lane
3	Multnomah
1	Polk
1	Umatilla
1	Union
1	Wallowa
2	Washington
1	Wheeler
1	Yamhill
25	**Total Oregon**

Pennsylvania

1	Adams
1	Bedford
1	Blair
6	Chester
1	Clarion
1	Clinton
2	Cumberland
1	Delaware
1	Forest
1	Franklin
1	Huntingdon
6	Lancaster
1	Lebanon
1	Lehigh
1	Lycoming
1	Perry
1	Susquehanna
1	Tioga
1	Union
1	Warren
1	Westmoreland
1	York
33	**Total Pennsylvania**

Tennessee

1	Anderson
5	Bedford
1	Bradley
1	Cannon
1	Chester
1	Cocke
1	Coffee
2	Decatur
6	Fayette
2	Franklin
2	Giles
1	Grainger
4	Greene
1	Hamblen
1	Hardin
1	Hawkins
1	Henderson
1	Lawrence
1	Lewis
2	Lincoln
1	Macon
2	Madison
2	Marshall
2	Putnam
1	Rhea
4	Robertson
4	Rutherford
1	Sevier
1	Sumner
1	Tipton
1	Union
1	Wayne
4	Wilson
61	**Total Tennessee**

Texas

1	Archer
1	Atascosa
2	Austin
1	Bandera
3	Bastrop
1	Bell
1	Brazoria
1	Brazos
2	Brooks
1	Brown
1	Caldwell
1	Camp
1	Clay
1	Collingsworth
1	Colorado
1	Cooke
1	Coryell
1	Delta
1	Denton
1	Ector
1	El Paso
1	Falls
1	Fannin
1	Fayette
1	Fort Bend
1	Gillespie
1	Goliad
2	Gonzales
1	Grayson
2	Harris
1	Henderson
2	Hidalgo
1	Hood
2	Hunt
1	Jim Wells
1	Johnson
1	Kaufman
3	Leon
1	Limestone
2	McLennan
1	Marion
1	Martin
1	Midland
1	Milam
1	Montague
2	Montgomery
1	Navarro
1	Orange
4	Parker
1	Rains
1	Red River
1	Starr
2	Tarrant
1	Taylor
1	Tyler
1	Val Verde
1	Van Zandt
1	Walker
5	Waller
1	Washington
1	Williamson
1	Wood
1	Zapata

83 Total Texas

Virginia

2	Albemarle
1	Bedford
1	Botetourt
1	Buckingham
2	Campbell
3	Carroll
2	Clarke
1	Fauquier
1	Floyd
2	Franklin
2	Frederick
2	Grayson
1	Hanover
1	Henry
1	Louisa
2	Mecklenburg
1	Nottoway
2	Powhatan
1	Rappahannock
1	Russell
1	Scott
2	Smyth
1	Warren
2	Washington
1	Wythe
1	York
1	Suffolk City
1	Virginia Beach City

40 Total Virginia

Wisconsin

1	Ashland
2	Barron
5	Clark
3	Columbia
2	Crawford
2	Dane
2	Dodge
1	Door
1	Douglas
2	Eau Claire
1	Grant
2	Green Lake
1	Iowa
1	Lincoln
1	Manitowoc
1	Marathon
1	Marinette
1	Monroe
1	Oconto
1	Ozaukee
1	Pepin
1	Pierce
1	Polk
1	Price
4	Saint Croix
1	Sauk
2	Shawano
1	Sheboygan
2	Vernon
2	Waukesha
1	Waupaca
2	Winnebago
1	Wood

52 Total Wisconsin

Wyoming

1	Albany
1	Big Horn
1	Campbell
2	Carbon
7	Fremont
3	Goshen
4	Johnson

Equine operations by county continued

2	Laramie	1	Park	1	Washakie
1	Lincoln	4	Sheridan		
1	Natrona	1	Sweetwater	**32**	**Total Wyoming**
1	Niobrara	1	Uinta		

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VMO Questionnaire Manual

Contents

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Before the VS Visit

This section covers several topics regarding the VS field visit. It is important to thoroughly review this material before you make the initial call to the participants.

Materials Received from NAHMS

NASS Enumerators administered the General Equine Health and Management Questionnaire (GEHMQ)from May 1 to July 31, 2015.

Consent Form

To meet confidentiality requirements, NASS obtained the participant's written permission on a Consent Form to release their name, address, and telephone number to APHIS personnel. Signing a Consent Form does not obligate the operation to participate in Phase II of the study, it only indicates that they have agreed to be contacted by a VS representative to get more information about participation in Phase II. Respondents do not need to make a decision about participating in the various aspects of Phase II of the study until the time of the visit by the VMO/AHT.

CEAH will send a letter to each of the operations that signed a Consent Form reminding them that a VMO will contact them to schedule a visit. This letter can be found below.

NOTE: Information obtained from NASS is confidential and MUST remain that way. The identity of participants in the Equine 2015-16 study as well as data collected as part of the study is confidential and MUST be protected.

The NAHMS Equine 2015-16 Coordinators will receive a master list of contact information for equine operations that agreed to be contacted for phase II of the study. The list will include information about whether the operation has completed the 2015 Internal Parasite portion of the study including parasite testing.

CEAH Reminder Letter to Operations

United States Department of Agriculture

Animal and Plant Health Inspection Service

Veterinary Services

Science, Technology, and Analysis Services

Center for Epidemiology and Animal Health

Natural Resources Research Center
2150 Centre Avenue
Building B
Mail Stop 2E3
Fort Collins, CO
80526-8117

970-494-7200

April 2016

Dear Equine Owner:

We are pleased to inform you that USDA's National Animal Health Monitoring System (NAHMS) is initiating Phase II of its Equine 2015-2016 study. Visits are to begin in spring/summer 2016. We ask for your participation to assist us in compiling equine health information that will enhance equine health and management in the United States.

When you were visited by the National Agricultural Statistics Service between May and July 2015 you agreed to be contacted by USDA to participate in Phase II of the NAHMS Equine 2015-2016 study later in 2015. Unfortunately we had to postpone Phase II of the study for almost a year to respond to the highly pathogenic avian influenza outbreak in 2015.

Phase II of the NAHMS Equine 2015-2016 study consists of a person-to-person interview with a veterinary medical officer or animal health technician and should take an average of about 60 minutes. We are also offering some biologic sampling. All operations are eligible to participate in the following activities:

- Fecal sampling. Samples will be tested for dewormer resistance to internal parasites if the operation did not participate in the testing last fall. Samples will be collected by the participant before and after administration of the dewormer, from up to six equines per operation. Participants will receive a report containing results of parasite testing and dewormer resistance evaluation from each equine tested. A subset of participants will be eligible to have fecal samples tested for *Salmonella*.
- Tick exam. Ticks will be collected from up to 10 equines. Participants will receive a report containing the results of the tick identification for each equine examined.
- Biosecurity assessment of the operation performed by a veterinary medical officer or animal health technician. Participants will receive a report on the results of the biosecurity assessment.
- Blood sampling. Blood samples will be collected from 1 to 20 equines per operation (depending on how many total equines the operation has) to be banked for future research.

You can agree to participate in all, some, or none of the biological testing being offered. The only prerequisite for participating in biologic testing is to complete the Phase II questionnaire interview.

We look forward to your participation in this study. The results will allow individual owners to compare their equine management and equine health events

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to national and regional estimates. The data generated can assist the equine industry in improving overall equine health in the United States.

For more information on NAHMS and the equine study, please visit our Web site at:

http://www.aphis.usda.gov/nahms

or contact your State NAHMS Coordinator:

<we will mail merge name, email, phone number of each Federal coordinator for each state>

Sincerely,

Katherine Marshall, DVM MSc
Monitoring & Modeling Director, acting
Center for Epidemiology and Animal Health
Science, Technology, and Analysis Services
USDA, APHIS, Veterinary Services

2015 Internal Parasite Study Participation Information

Following the NASS visit and the postponement of Phase II (the VMO portion of the study), operations that agreed to be contacted for Phase II participation were mailed a consent form asking if they would participate in the parasite portion of the study. They were provided with Section C, the Internal Parasite Control Management section of the Equine VMO Questionnaire. Operations that returned the consent form and completed Section C of the questionnaire were mailed fecal sample collection kits. Please check your master list to determine if the operation already completed this section of the questionnaire and was provided kits for parasite testing. If the operation already completed Section C, go to Section C in the Equine 2015-16 VMO Questionnaire and enter "Yes" for question C1. During the interview, skip Section C and continue to Section D.

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Data Collection Materials

You will receive the following material from your NAHMS Coordinator:

Participant Agreement

The "Equine 2015-16 Participant Agreement" is the contract between APHIS and the participant. Both pages must be filled out completely and signed before any information is collected from the equine operation in Phase II. Leave the yellow copy with the participant and give the original to your NAHMS Coordinator.

NOTE: Please do NOT send the signed Participant Agreements to NAHMS staff. We cannot retain participant identities and will return all completed agreements to the NAHMS coordinator.

VMO Questionnaire

The VMO Questionnaire will be administered during the on site visit by a VS or State representative between May 1 and September 30, 2016.

Reference Lists

Four reference lists are provided with each questionnaire:

- List of codes for licensed vaccine products that contain Equine Herpesvirus (EHV)
- List of codes for anthelmintic products
- List of codes for tick control products
- List of codes for tick habitats

These lists contain information including trade/brand names, active ingredient(s), and photos of containers. The lists can be used to help the participant answer some of the questions in the questionnaire and will be

useful when completing the blood and tick data collection forms. They are also available electronically on the NAHMS website and the Equine 2015-16 SharePoint site (URL provided below).

Biologics Data Collection Forms and Kits

The Biologics Manual (Tab 5) in this notebook has in depth information about the biological testing components of the study.

Kits containing supplies and paperwork needed to collect biologic samples will be shipped to the NAHMS Coordinators or directly to field staff. The kits include data collection forms, specimen containers, pre-printed sample labels, ice packs and pre-printed shipping labels.

Parasite testing kits

Fecal parasite kits will be left with the participant during the VS visit and the participant will collect samples and ship the samples directly to the lab according to instructions included in the kit.

Note that fecal collection kits should not be left with participants that have already completed the internal parasite testing.

All kits can be ordered through Abby Zehr, abigail.c.zehr@aphis.usda.gov or by calling (970) 494–7252.

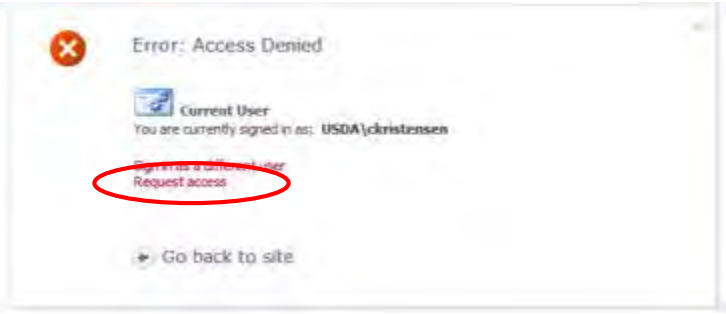
Equine 2015-16 SharePoint site: Reference Documents

Informational documents, training documents, training presentations, questionnaires and data collection forms are available on the NAHMS website: http://www.aphis.usda.gov/nahms

And also at the Equine 2015-16 SharePoint site:

http://sp.we.aphis.gov/vs/sites/STAS/ceah/NAHMS/Equine2015/SitePages/Home.aspx

If you reach a page that says you are denied access to the site, click on the "Request Access" link. This will send a request for access to NAHMS staff. You will receive an email confirmation once access has been granted. Access requires an APHIS email address so the SharePoint site is only available to APHIS employees.



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Before the Interview

Contacting the Participant

Familiarize yourself with the VMO Questionnaire and the Biologics components of Phase II using this manual before you call the participants.

During the NASS visit, the participant was provided with a study Fact Sheet and the Benefits of Participating Infosheet describing benefits of participation in Phase II of the study. These documents are included under Tab 2 in this binder, on the NAHMS website and on the Equine 2015-16 SharePoint site.

Some participants may need encouragement from you to participate in Phase II of the study. Please discuss the benefits of taking part in the study with the participant. Include benefits to the equine industry, individual equine owners and overall equine health and welfare.

Knowledge about the operation type, primary use of equine and number of equine on the operation can be very helpful when answering questions from the respondent. This information will also be useful when planning your visit and when interpreting the participant's responses during the interview.

To help you collect information about the operation, we have provided a phone script that includes an operation information list. The phone script is provided below and is also available electronically on the NAHMS website and at the Equine 2015-16 SharePoint site. Feel free to duplicate the script for each operation you will be visiting. In past studies, this information has been provided by NASS. However, NASS has new information security procedures in place this year and will not be providing that information for this study.

Call the participant and introduce yourself. Explain you are contacting them to provide information about participation in Phase II of the NAHMS Equine 2015-16 study and that their name and phone number was provided to you by NASS because they requested to be contacted regarding participation in the next phase of the study. Ask if you can make an appointment to discuss Phase II of the study.

NAHMS ID: _____

Phone Script: *Hello, I am (give your name and position). I am calling about your participation in the Phase II of the National Animal Health Monitoring System Equine 2015 study. Do you have a few minutes to talk to me now or is there a better time for me to call you back?*

If they say now is OK time to talk:

I am hoping to provide you with further information about the NAHMS Equine study and if you are willing to schedule a time I would like to come meet with you to provide more details about the Phase II of the study. Once you know more about participation in the study I am hoping you will be willing to participate. Just as a reminder, you received a few informational items about the Phase II of the study when you met with the National Agricultural Statistics Services representative on (mention the date consent form from NASS was signed). Did you have any questions I could answer on the phone today about the second phase of the study?

Once you have answered their questions about Phase II, gather some background information that will help you prepare for the on-site visit.

Operation Information: *NASS only provided me with your name, operation name, address and phone number, so in order to better prepare for when I come out to your equine operation, I would like to ask you a few questions about your operation.*

What type of equine operation is this?

- *Equine boarding facility*
- *Riding stable (give lessons, rent equine)*
- *Rescue or rehabilitation facility*
- *Equine breeding farm*
- *Guest ranch*
- *Farm or ranch*
- *Residence with equine for personal use*
- *Other*

How many resident equine do you have? _____

If possible, it will be very helpful to have equine medical records and a list of costs for equine health care available when we meet. It will save time during the interview.

When would you be available to meet with me?

Can you give me directions to where I can meet you to complete the consent form, the questionnaire and examine the equine?

It is important to administer the questionnaire to the person that is most knowledgeable about equine health and management on the operation. This person needs to have the authority to participate in the study on behalf of the operation and will need to sign the participant agreement.

Make an appointment for the interview. Get directions to the site, explain what will be covered and the time involved (about 1 to 1.5 hours to review the study and complete the VMO Questionnaire). The time required to complete the questionnaire will vary based on the number of equine and how prepared the participant is. Tell the participant that it will help a great deal to have equine health and equine financial records available during the interview in order to answer some of the questions.

VS Visit Checklist

Items to Take to the VS Visit

- Equine 2015-16 Training Manual
- Study Fact Sheet (to give to the participant)
- VMO Questionnaire (with Participant Agreement and Reference lists)
- Calculator, pen/pencils, extra fine permanent marker to label samples with
- Business card (to leave your name and telephone number with the participant).
- Any items needed for biological sampling, tick exams and biosecurity assessments including one of each of the biologics kits (Blood/Tick, Fecal Culture, Fecal Parasite – Box A and B)
- Fecal Culture testing will only be offered to operations visited on Mon-Wed, so Fecal Culture kits are only needed on those days. Fecal Parasite testing will only be offered to operations that have not already completed this part of the study.
- Biosecurity Assessment form

Detailed information about the biological sampling is located in the Biologics Manual under the Tab 5.

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VS Visit

Introduction

The VMO Questionnaire is administered during an in-person interview. It includes a Participant Agreement that needs to be completed before the interview begins. The questionnaire includes questions about health and management practices associated with important equine infectious diseases, lameness, equine health care costs, practices for control of gastrointestinal parasites, and practices used for tick control on equine operations.

Participant Agreement

The Equine 2015-16 Participant Agreement is the contract between APHIS and the participant. A sample agreement is included below. The first page of the agreement must be filled out completely and signed by the participant before the interview begins. The second page is completed after you explain the biological sampling, tick exam and biosecurity assessment to the participant.

It is important to administer the questionnaire to the person with the most knowledge of equine health and management on the operation. This person needs to have the authority to participate in the study on behalf of the operation and will need to sign the Participant Agreement.

The YELLOW copy is given to the participant; the WHITE copy is sent to the NAHMS Coordinator.

NOTE: Retain your copies of the Participant Agreements until notified by NAHMS staff to destroy them. DO NOT SEND THE AGREEMENTS TO FORT COLLINS STAFF.

Confidentiality

Items 3 and 4 in the Participant Agreement specifically state that data collected by NAHMS will be kept confidential and will not be used for regulatory purposes. However, there is an exception to data confidentiality if there is suspicion or diagnosis of a dangerously contagious, infectious, or exotic disease foreign to the United States on the participant's premises. Examples of such diseases are vesicular disease of livestock or Avian Influenza.

Signatures

At the bottom of the first page of the Equine 2015-16 Participant Agreement, the VS or State representative signs and fills in the date on the appropriate line. The participant or authorized representative signs and dates on the line indicated.

Biological Sampling, Tick Exam and Biosecurity Assessment

The participant must initial the appropriate column for each type of biological sampling offered. Participation in any of the biologic sampling is voluntary; however, the equine operation must complete the VMO Questionnaire in order to qualify for the biologic sampling, tick exam and biosecurity assessment. For example, if the participant agrees to have the Biosecurity Assessment, tick exam and collect fecal samples for anthelmintic resistance evaluation, the I AGREE TO PARTICIPATE column for Question 10c, d, and e must all be initialed.

The following pages show a copy of the Participant Agreement for your review and information.

USDA

Animal and Plant Health Inspection Service

Veterinary Services

NAHMS Equine 2015-16 Participant Agreement

National Animal Health Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS), the State of _____, and the Participant hereby enter into this National Animal Health Monitoring System (NAHMS) Equine 2015-16 study PARTICIPANT AGREEMENT, the terms of which are set forth below.

1. APHIS and/or the State of _____ will provide personnel who will be referred to as the Data Collector. The Data Collector and the Participant will participate together in implementing a statistically valid NAHMS study for determining national estimates of equine health practices and for compiling health information to enhance equine health and management. The Data Collector will complete one person-to-person interview with the Participant.

2. The Participant will assist APHIS by providing accurate information regarding equine health and management practices related to the study objectives. The Participant retains the right to refuse any questions deemed inappropriate.

3. The Data Collector will protect the origin of the data by recording the data with the Participant's unique code number only. The Data Collector will not keep any key to the code after the completion of the study. The Data Collector and all other project personnel acknowledge that the Participant is providing information that he/she does not customarily share and is providing it with the expectation that it will not be made public. The one exception to this data protection is the suspicion or diagnosis of a dangerously contagious, infectious, or exotic disease foreign to the United States on the Participant's premises (e.g.,vesicular disease), in which case further investigation and possible action may occur.

4. Data collected by the Data Collector *will not be used for regulatory purposes*. However, information on a Participant's animals revealed from sources unrelated to the Equine 2015-16 study, such as testing and inspection for movement or sale of animals, may cause regulatory action to be initiated by the State or APHIS.

5. APHIS may publish, or authorize others to publish, the aggregate (summary) findings acquired from NAHMS for the benefit of the equine industry, private industry, and other interested groups, but will ensure that the identity of the Participant is withheld. APHIS may not publish, or authorize others to publish, individual responses.

6. After completion of data reporting by the Participant, APHIS will provide the Participant with several reports containing summary results from all Participants. The Participant can obtain any further information available from this study by accessing the NAHMS Web site or subscribing to the NAHMS equine mailing list.

7. The Participant will complete a brief evaluation of the Equine 2015-16 study, the results of which will be used to assist APHIS in the design and implementation of future NAHMS surveys.

8. Any changes to or waivers of the terms of this PARTICIPANT AGREEMENT shall be binding on APHIS and the State of _____ and the Participant only if they are put in writing by each party.

9. The effective data collection period of this PARTICIPANT AGREEMENT shall begin with today's date of ____/____/____ and end no later than September 30, 2016.

Continued on next page with biological testing.

_____ /date
VS Employee, U. S. Department of Agriculture, APHIS
OR _____ Department of Agriculture

_____ /date
Participant or authorized representative

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average .25 hour per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collected.	**NAHMS-332 JUL 2014**

	I AGREE TO PARTICIPATE	I DO NOT AGREE TO PARTICIPATE
10. *(Participant's initials are needed in the appropriate column)* The Participant consents and authorizes the Data Collector (a Federal or State veterinary medical officer or animal health technician) to collect biologic samples, perform tick examination and/or biosecurity assessment as follows:		
a. Collection of blood samples: All operations are eligible to participate. Do you consent to participate in this testing?	_____	_____
1. The blood samples will be collected from 1 to 20 equines per operation. The blood samples will be banked for future research.		
b. Collection of fecal samples for pathogen testing: A subset of operations will be eligible to participate in fecal pathogen testing. Do you consent to participate in this testing if selected?	_____	_____
1. The fecal samples will be collected from 1 to 20 equines on the operation. Samples will be tested for *Salmonella* and *E. coli*. A Participant report will contain results for *Salmonella* status of individual equines. In addition, *Salmonella* isolates and a subset of *E. coli* isolates will be tested for antibiotic resistance.		
c. Operations that did not participate in the 2015 internal parasite study are eligible to have fecal samples collected to test for dewormer resistance of internal parasites. Do you consent to participate in this testing?	_____	_____
1. Samples will be collected from up to six equines per operation. Samples will be collected by the participant (you) pre- and post-administration of dewormer. The fecal samples will be evaluated for fecal egg counts and dewormer resistance. A Participant report will contain results of parasite testing and dewormer resistance evaluation for each equine tested.		
d. All operations are eligible to have tick exams performed on up to 10 equines. Ticks will be collected and identified. A participant report will contain the results of tick identification for each equine. Do you consent to participate in this testing?	_____	_____
1. From 1 to 10 equids per operation will be examined for the presence of ticks. If ticks are present the veterinary medical officer or animal health technician will collect a representative sample of ticks. Tick identification will be performed and a Participant report will contain results of tick identification.		
e. All operations are eligible to receive a biosecurity assessment of the operation performed by a veterinary medical officer or animal health technician. Do you consent to participate in this assessment?	_____	_____
1. A biosecurity assessment form will be completed to evaluate operation biosecurity management practices. A Participant report will contain results of the biosecurity assessment.		

(white copy given to NAHMS Coordinator, yellow copy left with Participant)

Questionnaire Responses

It is often a good idea to give the respondent a copy of the questionnaire so they can follow along during the interview.

Read all questions and potential responses to the participant and follow instructions carefully. **DO NOT LEAVE ANY QUESTIONS BLANK** unless instructed to skip. When questions are left blank it is impossible for us to know if the question was missed accidentally, if the participant did not know the answer, or if they declined to answer it. This makes data validation and analysis very difficult. It may lower the quality of the data and lead to inaccuracies in the information reported and published from this study.

If a questionnaire has unanswered questions, we may request that you contact the participant again to identify missing data or to get clarification.

NOTE: If the response is zero (0), enter the number 0; do not leave the response blank or enter a dash. If the participant does not know the answer, work with him or her to estimate the answer or enter DK. If the participant does not have an answer, enter NA or Declined (described below) to indicate why the question was not answered. Please write in the margins to explain unusual circumstances or answers.

Don't Know, Not Applicable, Decline

- If the participant doesn't know the answer, check "DK" or write in "DK" in the margin and explain why the participant could not answer the question.
- If a question is not applicable to the participant, check "NA" or write "NA" in the margin and explain why.
- If the respondent declines to answer for any reason, indicate this in the margin and explain why (if the respondent can provide that information). **NAHMS is a voluntary program**. If the participant doesn't want to answer a question, respect this request, make a note on the questionnaire and move on to the next question.
- If the answer is unusual or the quality of data is questionable, record the answer and write comments next to the question.

At times during the interview, a participant may feel uncomfortable providing the requested data without consulting records. Participants should be given additional time to look up the information. The respondent may report the information to you by telephone later as long as the timelines of data submission are not adversely affected. Also, some participants may be reluctant to provide estimates where records are not available. In this case, the participant should be encouraged to respond with a best guess estimate and the circumstances for the response should be noted in the margin next to the question.

Do not hesitate to write comments directly on the questionnaire. We would rather have a lengthy explanation for a strange answer than no explanation at all. If an answer does not make sense and has no explanation, we may ask your Coordinator to contact you or ask you to contact the participant again for clarification.

Return the completed questionnaire to your NAHMS Coordinator within 3 working days of the visit.

Nonrespondent Documentation

- We must account for all equine operations that agreed to be contacted regarding participation in Phase II of the study.
- **If a participant declines to participate, complete the "Office Use Only" section on the last page of the questionnaire.** Include the State FIPS, operation number, interviewer's initials, date, time spent talking with the participant, travel time (if any), and the participant's reason for declining (Question G4).
- **Send the "Office Use Only" page to the NAHMS Coordinator within 3 days.**

Return to Tab 3

VMO Questionnaire Sections

Initial Information

State FIPS

Enter the 2-digit FIPS code for the State: AL-01, AR-05, AZ-04, CA-06, CO-08, CT-09, DE-10, FL-12, KS-20, KY-21, MA-25, MD-24, MI-26, MO-29, MT-30, NC-37, NJ-34, NY-36, OH-39, OK-40, OR-41, PA-42, RI-44, TN-47, TX-48, VA-51, WI-55, WY-56.

Operation #

Enter the 3-digit ID number assigned by NASS. It is found in the equine operation list sent to you by your Coordinator.

NOTE: The 5-digit combination of the State FIPS and operation numbers is often referred to as the Farm ID or NAHMS ID, for example 05123.

Interviewer's initials

Enter up to three initials

Date

Enter the interview date in mm/dd/yy format.

Section A—Inventory

Read the entire introduction to this section of the questionnaire to the participant before continuing. Resident equine will be referred to throughout the questionnaire, so it is very important the participant clearly understands what a "Resident Equine" is for the purpose of this study.

Question A1. Types of resident equine

Enter the number of resident equine in each category that are on the operation today.

[If question 1g = 0, SKIP to section G—Office Use Only.]

Question A2. Age of resident equine

Enter the number of resident equine in each type category on the operation today.

The total number of equine entered should equal the total in question 1.

[If questions 2c through 2h = 0, SKIP to section B.]

Section B—Vaccination Practices

The goal of this section of the questionnaire is to obtain information about general vaccination practices as well as very specific vaccine use information for equine in the U.S. The American Association of Equine Practitioners (AAEP) provides specific guidelines on core vaccines and the guidelines categorize equine into one of three groups:

1. Equine 1 year of age or less
2. Broodmares
3. Equine over 1 year of age that are not broodmares

Core vaccines are defined by the American Veterinary Medical Association (AVMA) as:

- Vaccines that protect from diseases endemic to a region
- Vaccines against pathogens with potential public health significance
- Vaccines that are required by law
- Vaccines against pathogens that are virulent/highly infectious, and/or those posing a risk of causing severe disease.
- Vaccines that have clearly demonstrated efficacy and safety, and thus exhibit a high enough level of patient benefit and low enough level of risk to justify their use in the majority of patients.

Core Equine Vaccines

The following equine vaccines meet these criteria and are identified as 'core' vaccines by the AAEP:

1. Tetanus
2. Eastern Equine Encephalomyelitis (EEE)
3. Western Equine Encephalomyelitis (WEE)
4. Rabies
5. West Nile Virus (WNV)

In the NAHMS Equine study conducted in 2005, these 'core' vaccines were the most common vaccines administered. West Nile was the disease for which the most equine operations vaccinated their animals.

The AAEP also provides guidelines for what are called 'risk-based' vaccines. These are vaccines that should be included in an equine vaccination program if factors such as geographic region, animal to animal exposure, or use of the equine puts it at risk for the disease. For example, Anthrax vaccination is recommended for horses in geographic areas with alkaline soil conditions where the bacteria can survive in the environment for an extended period of time (i.e. South Dakota, New Mexico, Oklahoma, Texas etc.). The vaccine is usually given when a known outbreak is occurring in the area.

The vaccines addressed in this questionnaire are core vaccines, risk-based vaccines, and other vaccines that are administered to U.S. equine.

Question B1. Vaccination of resident equine

Check "Yes" or "No" to indicate if any resident equine were vaccinated in the previous 12 months. This includes equine that were considered to be residents any time during the previous 12 months, but may have permanently left the premises prior to the day of the survey and thus are not there on the day of the visit. For example they died or were sold to another farm in the previous 12 months, but received vaccines while residing on this operation in the prior 12 months.

[If question 1 = No, SKIP to question 8.]

Question B2. Vaccination of resident equine 1 year of age or less

Check "Yes", "No" or "NA" to indicate if any resident equine 1 year of age or less were vaccinated in the previous 12 months.

[If question 2 = No, SKIP to question 4.]

Important information for answering Questions B3, B5 and B7

To answer Questions B3, B5 and B7, you may need to help the respondent identify which vaccines were administered to the equine on the operation. To do that, please refer to these 4 resources:

1. The list of **core vaccines** on page 17.
2. The **listing of available Equine Herpes Virus (EHV/ Rhino) vaccines** with photographs of the product container, vaccine vial, and vaccine trade names. The list is enclosed with the questionnaire. Show this list to the respondent as a reference if the respondent knows the name of the product, but not what it contains.
3. **Scenarios** provided for question B3, B5 and B7 to help the respondent answer questions about types of vaccines used in different situations.
4. The list of **non-EHV vaccines** on pages 21-24. Use this list as a reference when the respondent knows the product name, but not what the vaccine contains.

Scenarios: These scenarios illustrate how you can help the respondent answer **Questions B3, B5 and B7.**

Scenario 1:

If the respondent does not know which vaccines the equine have received:

Prompt the respondent to show you the following if available; the vaccination bottle or box or product insert, removed bottle label, veterinary invoice, or receipt for purchased vaccines. Also, show them the list of vaccines to determine which products were used.

Scenario 2:

If the respondent tells you: “My horses have received a 3-way (4-way, 5-way, or 6-way) vaccine.”

Prompt the respondent to specify what was included in the 3-way, 4-way, etc. Also, prompt them to show you the following if available; the product bottle, box or product insert, the removed bottle label, the veterinary invoice or receipt for purchased vaccines. Refer to the list of EHV vaccine s and codes and the list of non-EHV vaccines on pages 21-24.

Multivalent vaccines (3-way, 4-way, etc.) vary with respect to the antigens they contain. Refer to the table of vaccine products provided below to identify which antigens are included in the typical multivalent vaccines called 3-way, 4-way, 5-way, or 6-way, however not all vaccines referred to by these terms contain the antigens listed in the table below so again it is very important to try to identify the specific product used and capture the antigen type off of the product information. The **most commonly** referred to 3, 4, 5, 6-way vaccines are listed in the table below.

Typical 3-way vaccine	Eastern Equine Encephalitis (EEE) Western Equine Encephalitis (WEE) Tetanus
Typical 4-way vaccine	EEE WEE Tetanus Influenza
Typical 5-way vaccine	EEE WEE Tetanus Influenza Equine Herpesvirus (EHV/Rhino)
Typical 6-way vaccine	EEE WEE Tetanus Influenza EHV/Rhino Venezuelan Equine Encephalitis (VEE)

Scenario 3:

If the respondent tells you: “My horses are current on their vaccines.” Or “My horse has had all vaccines.”

It is unlikely that an equine has had all of the vaccines listed in question B3, B5 and B7. So it is important that the participant specify which vaccines were administered, prompt the respondent to show you the following if available: the vaccination bottle, box or product insert, a label from the bottle, the veterinary invoice or receipt for purchased vaccines. Also, show the respondent the list of vaccines to determine which product was used.

Non-EHV Vaccine Brand Names

Vaccine Brand Name	True Name	Mfg. Name
PINNACLE® I.N. (Intranasal)	Streptococcus equi (Strangles) Intranasal Vaccine, Live Culture	Zoetis
Equine Rotavirus Vaccine	Equine Rotavirus Killed Virus Vaccine	Zoetis
Equiloid Innovator® This is a typical 3-way vaccine	Eastern & Western Equine Encephalomyelitis, and Tetanus Vaccine	Zoetis
Triple-E T Innovator® This is a 4-way vaccine[3]	Eastern & Western & Venezuelan Equine Encephalomyelitis, and Tetanus Vaccine	Zoetis
Tetanus Toxoid	Tetanus Toxoid	Zoetis

Vaccine Brand Name	True Name	Mfg. Name
FLUVAC INNOVATOR® **TRIPLE-E FT** This is a 5-way vaccine[6]	Influenza, Eastern & Western & Venezuelan Equine Encephalomyelitis, and Tetanus Vaccine	Zoetis
FLUVAC INNOVATOR® This is a typical 4-way vaccine	Influenza, Eastern & Western Equine Encephalomyelitis, and Tetanus Vaccine	Zoetis
ENCEVAC T WITH HAVLOGEN This is a typical 3-way vaccine	Eastern & Western Equine Encephalomyelitis, and Tetanus, Inactivated Vaccine	Merck Animal Health
ENCEVAC T+VEE WITH HAVLOGEN This is a 4-way vaccine[3]	Eastern & Western & Venezuelan Equine Encephalomyelitis, Tetanus, Inactivated Vaccine	Merck Animal Health
ENCEVAC TC-4 WITH HAVLOGEN This is a typical 4-way vaccine	Influenza, Eastern & Western Equine Encephalomyelitis, Tetanus, Inactivated Vaccine	Merck Animal Health
ENCEVAC TC-4+VEE WITH HAVLOGEN This is a typical 4-way vaccine	Influenza, Eastern & Western & Venezuelan Equine Encephalomyelitis, Tetanus, Inactivated Vaccine	Merck Animal Health
ENCEVAC® + WNV WITH HAVLOGEN This is a 3-way vaccine[2]	Eastern & Western Equine Encephalomyelitis, West Nile Virus Vaccine	Merck Animal Health
ENCEVAC® T + WNV WITH HAVLOGEN® This is a 4-way vaccine[4]	Eastern & Western Equine Encephalomyelitis, Tetanus, West Nile Virus Vaccine	Merck Animal Health
EQUI-NILE™ WITH HAVLOGEN®	West Nile Virus, Killed Vaccine	Merck Animal Health
EQUIRAB™ WITH HAVLOGEN®	Rabies, Killed Vaccine	Merck Animal Health
FLU AVERT I.N. VACCINE	Influenza, Intranasal Vaccine	Merck Animal Health

Vaccine Brand Name	True Name	Mfg. Name
Lepto EQ Innovator	Leptospirosis vaccine	Zoetis
SUPER-TET WITH HAVLOGEN	Tetanus Toxoid	Merck Animal Health
CALVENZA -03 EIV	Equine Influenza, Killed Vaccine	Boehringer Ingelheim
STREPVAX II	Streptococcus equi Vaccine for Strangles	Boehringer Ingelheim
Tetguard™	Tetanus Toxoid	Boehringer Ingelheim
Vetera® 4XP + WNV This is a 5-way vaccine[5]	Influenza, Eastern & Western Equine Encephalomyelitis, West Nile Virus, Tetanus Vaccine	Boehringer Ingelheim
Vetera® EIVXP	Influenza Vaccine	Boehringer Ingelheim
Vetera® WNV	West Nile Virus Vaccine	Boehringer Ingelheim
Vetera® EWT + WNV This is a 4-way vaccine[4]	Eastern & Western Equine Encephalomyelitis, West Nile Virus, Tetanus Vaccine	Boehringer Ingelheim
Vetera® VEWT + WNV This is a 5-way vaccine[7]	Eastern & Western & Venezuelan Equine Encephalomyelitis, West Nile Virus, Tetanus Vaccine	Boehringer Ingelheim
Vetera® EWT This is a typical 3-way vaccine	Eastern & Western Equine Encephalomyelitis, Tetanus Vaccine	Boehringer Ingelheim
Vetera® VEWT This is a 4-way vaccine[3]	Eastern & Western & Venezuelan Equine Encephalomyelitis, Tetanus Vaccine	Boehringer Ingelheim
Equine Rhinitis A vaccine	Equine Rhinitis A vaccine, killed	Boehringer Ingelheim

Vaccine Brand Name	True Name	Mfg. Name
Corynebacterium pseudotuberculosis bacterin/toxoid	Corynebacterium pseudotuberculosis Bacterin toxoid (Pigeon fever)	Boehringer Ingelheim

[2] This is not the typical 3-way. It contains WNV instead of tetanus toxoid.

[3] This is not a typical 4–way vaccine. It contains VEE, instead of influenza.

[4] This is a 4-way vaccine that contains WNV, but not influenza.

[5] This is a 5-way vaccine with the typical content of 4-way plus WNV.

[6] This is a 5-way vaccine that contains VEE instead of EHV.

[7] This is a 5 way vaccine that contains WNV and VEE vaccine instead of Influenza and EHV.

Question B3. Vaccination of resident equine 1 year of age or less

Check EITHER "All," "Some," "None," or "Don't know" for each row, do not check more than one box in a row. "Some" indicates that at least one resident equine in this age category was given the indicated vaccine in the previous 12 months, and at least one other resident equine was not.

Please note that Rhinitis A is not the same as Rhino which is the term used for one of the clinical forms of equine herpes virus (EHV) infection.

Question B4. Vaccination of resident broodmares

[If question 4 = No or NA, SKIP to question 6.]

Question B5. Vaccination of resident broodmares for diseases

REFER TO instructions, helpful scenarios and the EHV vaccine list.

Check EITHER "All," "Some," "None," or "Don't know" for each row, do not check more than one box in each row. "Some" indicates that at least one resident equine of this age category was given the indicated vaccine in the previous 12 months, and at least one other resident equine was not.

Please note that Rhinitis A is not the same as Rhino which is the term used for one of the clinical forms of equine herpes virus (EHV) infection.

Question B6. Vaccination of resident equine over 1 year of age

[If question 6 = No or NA, SKIP to question 8.]

Question B7. Vaccination of resident equine over 1 year of age for diseases

REFER TO instructions, helpful scenarios and the vaccine list.

Check EITHER "All," "Some," "None," or "Don't know" for each row, do not check more than one box in each row. "Some" indicates that at least one resident equine of this age category was given the indicated vaccine in the previous 12 months, and at least one other resident equine was not.

Please note that Rhinitis A is not the same as Rhino which is the term used for one of the clinical forms of equine herpes virus (EHV) infection.

Question B8. Reasons for not vaccinating equine

In this question we are trying to find out why equine owners choose not to give certain vaccines.

Check "Yes" or "No" for each disease to indicate whether or not a vaccine was administered. Cross check answers against those for the same vaccines (a through p) in Questions B3, B5, and B7. If the answer is "No," enter the reason code to indicate why the vaccine was not used. If "Other reason" is the primary reason for not administering the vaccine, please specify the reason. If you need more space, please use the margin of the questionnaire.

Question B9 and B10 are asking specifically about equine that were vaccinated against Equine herpesvirus/EHV/rhino.

[If question 8c = No SKIP to Section C.]

Question B9. Frequency of administering EHV/rhino vaccine

Indicate the number of times in the previous 12 months the animals in each category were vaccinated against EHV/rhino. Check "NA" if no equine in the specified category were present on the operation in the previous 12 months.

Question B10. EHV vaccine product used

Enter all the applicable codes from the list for the EHV vaccine products used for each category of equine. Check "NA" if equine in the specified category were not present on the operation in the previous 12 months.

Please note: There are three major categories of EHV-1 vaccines:

- The low antigen inactivated (killed) load vaccines which are labelled for control of the respiratory form of EHV. These EHV vaccines are usually those that are multivalent (3-way, 4-way, etc.) vaccines that also contain influenza vaccine and may also contain tetanus toxoid, EEE, WEE.
- High antigen load inactivated (killed) vaccines which are labelled for control of respiratory disease and abortion.
- Modified live EHV-1 vaccine.

Section C—Internal Parasite Control and Management

After the postponement of Phase II, the operations that agreed to be contacted after the NASS visit were provided a consent form for participation in the 2015 Internal Parasite study and this section (Section C) of the Equine 2015 questionnaire. Those operations that participated in the 2015 Internal Parasite Study will only need to complete question 1 in this section (Section C). You can refer to your master list to determine if the operation participated in the 2015 Internal Parasite Study, and answer question 1 before you visit the operation.

The American Association of Equine Practitioners (AAEP) has guidelines on parasite control available at http://www.aaep.org. The questions included in this section were developed with input from Dr. Martin Nielsen of the University of Kentucky who was part of the team that developed the AAEP parasite control guidelines and Dr. Aimee Phillipi-Taylor of FDA CVM.

Per the AAEP parasite control guidelines, the commonly used strategies for parasite control in adult horses are based largely on knowledge and concepts that are more than 40 years old. However, much has changed in this time, necessitating a re-examination of recommendations for parasite control.

Recommendations provided in the AAEP guidelines are based on the following:

1. Important changes in the parasitic fauna of horses have occurred such that *Strongylus vulgaris* and other large strongyles are now rare, and cyathostomins (small strongyles) are now the major parasite of concern in adult horses, while *Parascaris equorum* remains the most important parasite infecting foals and weanlings.

2. Anthelmintic resistance is highly prevalent in cyathostomins and *Parascaris equorum*, and this must be factored into treatment decisions (Kaplan and Nielsen, 2010).

3. Adult horses vary greatly in their innate susceptibility to infection with cyathostomins and their level of strongyle egg shedding and thus, require individualized attention to their parasite control needs.

4. Horses less than about 3 years of age require special attention as they are more susceptible to parasite infection, and are more at risk for developing disease.

A training module on equine parasites and their control presented by Dr. Martin Nielsen of the University of Kentucky is available to VMO's and AHT's involved in data collection as part of the NAHMS Equine 2015-16 study.

The goal of this questionnaire section is to collect data regarding use of equine parasite control options and observation of equine parasite related problems as reported by equine owners and operators.

Question C1. 2015 Internal Parasite Study Participation

[If question 1 = Yes, SKIP to section D]

Check your master list of contacts prior to visiting the operation to answer this question.

Question C2. Deworming

[If question 2 = No, SKIP to question 7.]

Question C4. Primary reason for deworming

Check one box to indicate the single most important reason for deworming resident equine in the previous 12 months.

Question C5. Deworming program

In the first column, select the code that best describes the deworming program for each type of equine. Select Code 5 if the equine type is currently resident to the operation, but does not get dewormed. Select Code 6 if the equine type is not currently resident to the operation.

If Code 5 or 6 is selected, leave the "# times" column blank. Otherwise, enter the number of times the majority of that type of equine was dewormed. If Code 4 is selected (daily deworming), multiply the number of months that a daily dewormer is/was used by 30 to get an approximate number of times dewormed.

Scenario 1

What if they have 5 horses over 4 years of age, and based on fecal egg counts, one horse is a high shedder and gets dewormed 4 times per year while the other 4 horses get dewormed once per year?

Select fecal egg count (option 2) for program. The majority of horses get dewormed 1 time per year so enter 1 time per year.

Scenario 2

What if they are currently using a daily dewormer for 4 months out of the year?

times = 4 x 30 =120

Question C6. Deworming products used

To help the respondent identify deworming products, refer to the list of internal parasite anthelmintic products and codes.

Check "Yes" or "No" in the first column for each product. Answer "Yes" if the product was administered at least once to any resident equine in the previous 12 months. If the answer was "Yes," circle the maximum number of times the product was administered to any one equine in the previous 12 months.

Scenario

What if the high shedder from Scenairo 1 in Question C5 was given ivermectin once, ivermectin/praziquantel once, and pyrantel pamoate twice? All the other horses were given ivermectin/praziquantel once?

-The maximum number of times any equine received ivermectin or ivermectin/praziquantel was once, and the maximum number of times any equine received pyrantel pamoate was twice.

-Circle 1 for ivermectin and ivermectin/praziquantel and circle 2 for pyrantel pamolate.

Question C7. Fecal testing

In this question, we would like to know what veterinarians are recommending, not what respondents are actually doing. Answer "Yes" if the veterinarian ever recommended the testing, regardless of whether or not the respondent complied. If the respondent did the testing on his/her own initiative (not recommended by veterinarian), then answer "No".

Question C8. Fecal egg count

[If question 8 = No or DK, SKIP to question 10.]

Question C9. Frequency of fecal egg counts

A fecal egg reduction test is done to assess the effectiveness of the dewormer used. A fecal egg count is measured prior to deworming and again approximately 2 weeks post-deworming to measure the reduction in egg count. If a fecal egg reduction test is done pre- and post-deworming, count this as a single test.

Select the code that best describes the deworming program for each type of equine. Select Code 5 if the equine type is currently resident to the operation, but that type of equine does not typically have fecal egg counts performed. Select Code 6 if the equine type is not currently resident to the operation.

Scenario

What if the high shedder is tested annually but the other 4 horses are tested every 2 years?

They are typically tested less often than annually.

Question C10. Parasite control

For the first part of the question, answer "Yes" if the procedure is done, whether or not a veterinarian recommended it. For the second part, answer "Yes" if the veterinarian recommended the procedure, whether or not the respondent does it.

Scenario

Question C10d. What if they give ivermectin/praziquantel? Is this considered using two dewormers at once?

No, the ivermectin is treatment to control strongyles while the praziquantel is treatment to control tapeworms. This question is asking about giving 2 different dewormers against the same parasite, such as ivermectin and fenbendazole at the same time.

Question C11. Drug resistance

Check one box to indicate how concerned the operation is about drug resistance in equine internal parasites.

Scenario

What if the operation had a drug resistance problem, but they no longer use that drug so as far as the respondent is concerned, there is no problem, hence no concern.

We will capture in Questions 13 and 14 if this operation has ever had an antihelmintic drug resistance problem so the operator should answer this question based on how concerned they currently are. They may not be concerned because they switched dewormers and no longer have a problem.

Question C13. Case of drug-resistant parasites

Check "Yes" or "No" to indicate if there has ever been a documented case of drug-resistant equine internal parasites on the operation.

If the answer is "Yes," list the drug(s) from the list of anthelmintic/dewormer products and codes provided.

Question C14. Deworming plan

Check "Yes" or "No" to indicate whether the deworming plan has ever been changed due to concern about drug-resistant parasites. The change may be due to a known problem or concern about a potential problem.

Section D—Tick Control and Management

The goal of this section is to gather data on observation of ticks on equine, tick control practices and owner reported occurrence of tick borne diseases in equine. The questions in this section were developed with input from Dr. Angela Pelzel-McCluskey, equine epidemiologist for USDA:APHIS:VS and Dr. Angela James, the tick specialist at USDA:APHIS:VS CEAH. Regional and national estimates for these data on equine operations is currently lacking.

Question D1. Checking equine for ticks

[If question 1= No, SKIP to question 11.]

Question D4. Ticks observed on equine

[If question 4 = No, SKIP to question 11.]

Question D6. Most common tick location

Enter the letter from the diagram in question D5 to indicate the most common location where ticks have been found on equine on this operation.

Question D8. Tick identification

Check "Yes" or "No" to indicate whether the ticks observed on equine in the previous 12 months were identified by type (species). If the respondent isn't sure, check "Don't Know".

[If question 8 = No or Don't know, SKIP to question 11.]

Question D11. Tick-borne diseases

Check "Yes" or "No" to indicate if any equine have had the listed diseases.

If "Yes," indicate if the diagnosis was by laboratory confirmation or by a veterinarian. It is possible to have yes for both by laboratory confirmation and by a veterinarian.

Question D12. Ticks observed on equine in the previous 5 years?

[If question 12 = No, SKIP to question 14]

Question D13. Time periods of tick observation on equine on operation

Check "Yes" or "No" to indicate in which time(s) of year ticks were observed on resident equine on the operation. If "Yes," indicate, using the codes provided, how frequently ticks were found and the level of infestation.

1. Low level infestation: 1-2 ticks
2. Medium level infestation: 3-10 ticks
3. High level of infestation: greater than 10 ticks

Tick infestation can vary by time of year in various geographic locations in USA.

Question D15. Tick control product used

Enter all the applicable codes from the list of tick control products and codes.

[If question 14 = No, SKIP to question 15.]

Question D17. Frequency of tick treatments of equine on operation

Check one box to indicate how often equine are typically treated to control ticks.

If the respondent is unsure which item to choose. Select item 5 and specify the other frequency. If more space is needed, make notes in the white spaces below the question.

Question D18. Equine habitat

Check "Yes" or "No" to indicate which habitats equine have spent any time in during the previous 12 months. Refer to the list of tick habitats and codes for more detailed descriptions of each of the habitats listed.

Question D20. Landscape modifications

Check "Yes" or "No" to indicate if landscape modifications were done. If "Yes", indicate if the modifications were done to reduce tick populations on the operation, even if tick control was only part of the reason for the modifications.

Question D22. Sources of tick information

Using the numbers 1, 2, and 3, rank the top three sources the respondent uses to obtain information about ticks and tick control. Check the top box if no information was obtained.

Section E—Lameness Occurrence and Management

The Equine 98 study was the last time that NAHMS focused on occurrence of lameness and its management. In the Equine 98 study one half of horse operations (with three or more horses) reported having at least one horse with lameness in the previous year and 13 percent reported having at least one horse with laminitis. Based on the Equine 98 study lameness is a common problem on all types of horse operations and affects all types of horses. For more information on the findings from the Equine 98 study go to the NAHMS website Equine 98 section and there is an interpretive report on Lameness and Laminitis. The occurrence of lameness and its management was one of the top priorities for focus of the NAHMS Equine 2015-16 study based on the needs assessment. This section of the questionnaire was developed with input from Dr. Al Kane a VMO at USDA APHIS VS.

Read the introductory paragraph in the questionnaire to the respondent before continuing to Question E1.

Question E1. Lameness today

Enter the number of equine on the operation that have a lameness problem today. The equine may or may not be actively showing signs of lameness today, but a lameness problem is defined as an abnormality in gait such that the equine cannot be used for its intended purpose or can only be used with intervention (e.g., medication, corrective shoeing, rest).

Scenario 1

For example, a show horse that had to quit participating in jumping events because of a lameness that prevented it from jumping or can only be used for jumping while on a medication (or with special shoeing) would be considered a lame horse even if it can continue to show without jumping or can continue to be used for jumping, showing or pleasure riding if it is on medication.

A horse that remains retired from use because of lameness even if it is not now lame as a pasture buddy would be considered a horse with a lameness problem.

Scenario 2

Equine that receive intervention to prevent lameness (such as an older horse that receives a joint supplement to prevent lameness from arthritis from developing) would not be included as a horse with a lameness problem unless the lameness developed and then was being treated with the supplement so the animal could still be used without showing signs of lameness such as a head bob.

Question E2. Lameness in previous 12 months

Enter the number of resident equine that had a lameness problem as defined above any time in the previous 12 months. Include equine that were living on the premises (not those just visiting temporarily) even if they died or have moved off the premises.

Question E3. Information about lame equine

Of the number recorded for Question E2, enter the number of resident lame equine for which the operator can provide detailed information about the equine and the lameness to complete the remainder of this section. For example the participant may be able to include equine owned or managed by the participant, but may not be able to include boarded equine as the participant is not familiar with details about the lameness or management of the lameness as that is handled by the owner of the equine.

[If question 3 total = 0, SKIP to question 16.]

Question E4. Lameness in previous 12 months

For each age category of equine in the table, enter the number of lame equine resident on the operation in the previous 12 months. Enter the total of all equine age categories in the right-hand column. The total number here should equal the number recorded for Question E3.

Question E5. Resident equine by purpose

Enter the number of resident equine that were lame any time during the previous 12 months whose intended use was one of the listed categories during the previous 12 months. List each animal one time. For animals used for more than one purpose, record the primary use category. Note retired horses not being used for riding may still be categorized as lame if they receive medication or special shoeing to treat an ongoing lameness problem. The total number of equine should equal the total in question 2.

Question E6. Gender of lame equine

Enter the number of resident equine that were lame any time during the previous 12 months that were of the listed gender categories. For animals gelded, spayed or foaling during the previous 12 months list them in the gender category that was applicable for the majority of the time during the previous 12 months. The total number of equine should equal the total in question 3.

Question E7. Breed of lame equine

The total number of equine should equal the total in Question E3.

Question E8. Outcomes of lame equine

Enter the number of lame resident equine that had the listed outcomes. Only list each animal one time. The total should equal the total in Question E3.

Scenario

What if more than one outcome seems to apply (the equine improved, but still had lameness AND was sold or given away due to lameness)?

Use the higher letter from “a” to “g” (for this example code the response as “f”).

Question E9. Length of time of lameness problem

Enter the number of resident equine that had a lameness problem lasting the listed lengths of time. For lameness problems that resolved and then reoccurred, use the longer duration of lameness. Total should equal the total in Question E3.

Question E10. Lost use due to lameness

Enter the number of lame resident equine that accumulated the listed times of lost use. Lost use time should be counted with or without medication. Total number of animals should equal the total in Question E3.

Scenario 1

What if an equine could be used for its intended purpose, but only with medication?

An equine that could be used with medication would not be considered to have accumulated lost use time.

Scenario 2

What if an equine never recovered and is still not being used for their intended purpose?

Code that as “f”, 12 months or more.

Question E11. Change of use due to lameness

Enter the number of lame resident equine that changed to the listed use as a result of lameness. The total should equal the total in Question E3. Regardless of the original intended use, this question is deigned to determine what the new use of the equine became due to lameness.

Scenario

A “pleasure riding” horse and a “racing” horse would both be coded as “companion animal” if they both were retired and became companion animals.

Question E13. Diagnostic procedures

Enter the number of resident equine from Question E3 by diagnostic procedure performed. If the same procedure was repeated on a particular equine only count it one time, but if several different procedures were performed on a particular equine count each procedure.

Scenario

If a horse received flexion tests three times, a diagnostic nerve block once and x-rays twice; then count that as one head receiving flexion tests, one head receiving nerve blocks and one head receiving x-rays so that this horse contributes to one count in each of three categories.

Question E14. Lameness conditions

Enter the number of resident equine from Question E3 with each listed condition by age category. Similar to the question above, if an equine is affected by more than one condition or has one type of condition twice, count that animal under each condition only once.

Scenario

If a 3 year old donkey had two foot abscesses and arthritis in both hocks, count that as one resident equine with a sole abscess and one resident equine with arthritis.

Question E15. Lameness therapies for treatment

Enter the number of resident equine given therapy for the treatment of lameness. Count each equine once for each treatment type. If treatments are repeated for the same equine, count that treatment only once even if it is for two different lameness conditions.

Question E16. Lameness therapies for prevention

Indicate which of the following therapies were used for any resident equine specifically for the prevention of lameness. We found during questionnaire testing that respondents wanted to report all treatments given to treat and prevent lameness so we wanted to provide a way for them to tell us what was given for prevention as well as for treatment.

Section F—Equine Health Care Expenses

The goal of this section is to gather data on equine health care expenses which were a priority as determined by the needs assessment for the NAHMS Equine 2015-16 study. This section of the questionnaire was developed with the input of Kamina Johnson, an agricultural economist at USDA AHPIS VS CEAH.

For the questions in section F it will be helpful for the respondent to have any financial records available to assist with identifying services provided, products purchased and to estimate cost of these products and services. It will be optimal to ask the respondent to have these records available when you administer the questionnaire. If they do not have the records at the time of the interview then give them the option for you to call them back at a later time to gather details for this section.

Please read the introductory paragraph in the questionnaire to the respondent before continuing to Question F1.

Question F1. Number of equine for hoof care cost information

Enter the number of equine the respondent can provide information on regarding cost of hoof care. We need this as a denominator when we calculate cost per equine. At boarding facilities, the facility owner/manager may be able to answer this for their own equine but not for those boarded at the facility.

Question F2. Hoof care cost

Check “Yes” or “No” to indicate if any resident equine received the following hoof care during the previous 12 months.

In the right column, enter the typical cost for each service. If you are not sure what a typical cost is, please estimate by using any records the respondent might have used to record cost of the procedures including checkbooks, receipts for farrier, etc.

Question F3. Number of equine for veterinary service cost information

Enter the number of equine the respondent can provide an estimate of veterinary service costs for. We need this as a denominator when we calculate cost per equine. Particularly at a boarding facility the facility owner/manager may be able to answer this for their own equine but not for those boarded at the facility.

Question F4. Veterinary services cost

Check “Yes” or “No” to indicate if any resident equine received the following veterinary services during the previous 12 months.

If resident equine received any services provided by a veterinarian other than those listed in item a-i, please specify the type of service in item j-l by writing it in the space provided. If you need more space, please write in the margin.

In the right column, for item a-d and item m, enter the typical cost for each service. If you are not sure what a typical cost is, please estimate by using any records the respondent might have available including checkbooks, receipts from a veterinary practice, etc.

Question F5. Number of equine for insect and tick control cost information

Enter the number of equine the respondent can provide an estimate of insect and tick control costs for. We need this as a denominator when we calculate cost per equine. At boarding facilities, the facility owner/manager may be able to answer this for their own equine but not for those boarded at the facility.

Question F6. Insect and tick control cost

Check “Yes” or “No” to indicate if any resident equine received the following insect and tick controls during the previous 12 months.

In item m, enter the total cost for all insect and tick control products in the previous 12 months. If the respondent is not sure, please estimate by using any available records including checkbooks, receipts from farm store or on-line supply company, etc.

Question F7. Number of equine for veterinary product cost information

Enter the number of equine the respondent can provide an estimate of veterinary product costs for. We need this as a denominator when we calculate cost per equine. At boarding facilities, the facility owner/manager may be able to answer this for their own equine but not for those boarded at the facility

Question F8. Veterinary product cost

Check “Yes” or “No” to indicate if any resident equine received the following veterinary products during the previous 12 months.

If veterinary products other than those listed in item a-f were used in the previous 12 months, please specify the product(s) in items g-i by writing it in the space provided. If you need more space, please write in the margin.

In item j, enter the total cost for all veterinary products used in the previous 12 months. If the respondent is not sure, please estimate by using any available records including checkbooks, receipts, etc.

Question F9. Vaccination cost

Enter the typical annual cost per equine for vaccination for the previous 12 months. If the respondent is not sure, please estimate the cost per equine by using any available records, including checkbook, receipts from on-line supply companies or farm store, etc.

Question 10. Vaccine administration

Check "Yes" or "No" to indicate if who administered vaccines in the previous 12 months.

If the owner or operation personnel that administered vaccines is also a veterinarian, check "Yes" for both items a and b.

Section G—Office Use Only

This section is to be completed when the interview is over. Be sure to complete this section while in the presence of the respondent, if possible. You may need to consult the respondent about Question G3 and G4 to find out if they checked with their veterinarian, accountant, or health care product supplier regarding any of the health or economic questions.

Nonrespondents

We must account for all operations that agreed to be contacted regarding participation in Phase II of the study. If the participant declines to participate, complete Item G1 and G2 of this section only and include all the identifying information (State FIPS, Operation #, your initials and date of contact).

Question G1. Response code

Check one box to indicate the status of the response. If the response was item 2 (Refusal) or 4 (Partial Refusal), please complete Question G2, otherwise skip to Question G3.

Question G2. Reason for refusal

If the response to question G1 was 2-Refusal or 4-Partial refusal, check one box to indicate the reason for refusal.

If you need more space to explain the reason for refusal, please write a note in the margin.

Reference lists

EHV Vaccine List with Codes

EHV Vaccine Product List

Code	Est Name	True Name	Picture	Trade Name	Route of Admin
1	Boehringer Ingelheim	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Vetera 2xp	Intramuscular
2	Boehringer Ingelheim	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Calvenza-03 EIV/EHV	Intramuscular
3	Boehringer Ingelheim	Equine Rhinopneumonitis Vaccine, **Modified Live Virus**		Rhinomune	Intramuscular
4	Boehringer Ingelheim	Equine Rhinopneumonitis Vaccine, Killed Virus		Calvenza EHV	Intramuscular/Intranasal
5	Boehringer Ingelheim	Equine Rhinopneumonitis Vaccine, Killed Virus		Vetera EHVxp-1, EHVxp-4	Intramuscular
6	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera EWT + EIV/EHV	Intramuscular
7	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera 5xp	Intramuscular
8	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera VEWT + EIV/EHV	Intramuscular
9	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera 6xp	Intramuscular
10	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera Gold	Intramuscular
11	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera Goldxp	Intramuscular
12	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera Gold + VEE	Intramuscular
13	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera Goldxp + VEE	Intramuscular

Code	Est Name	True Name	Picture	Trade Name	Route of Admin
14	Merck Animal Health	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Prestige II	Intramuscular
15	Merck Animal Health	Equine Rhinopneumonitis Vaccine, Killed Virus **Prevention of Abortion**		Prodigy with Havlogen	Intramuscular
16	Merck Animal Health	Equine Rhinopneumonitis Vaccine, Killed Virus		Prestige with Havlogen	Intramuscular
17	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Prestige IV	Intramuscular
18	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Prestige V with Havlogen	Intramuscular
19	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Prestige V + VEE	Intramuscular
20	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western, Killed Virus, WNV		Prestige V+WNV with Havlogen	Intramuscular
21	Zoetis Inc.	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Fluvac Innovator EHV-4, EHV-1	Intramuscular
22	Zoetis Inc	Equine Rhinopneumonitis Vaccine, Killed Virus **Prevention of Abortion**		Pneumabort-K+1b	Intramuscular
23	Zoetis Inc	Equine Rhinopneumonitis Vaccine, Killed Virus		EquiVac Innovator EHV-1, EHV-4	Intramuscular
24	Zoetis Inc	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Fluvac Innovator 5	Intramuscular
25	Zoetis Inc	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Fluvac Innovator 6	Intramuscular
26	Zoetis Inc	Encephalomyelitis –West Nile Virus Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		West Nile Innovator + VEWT	Intramuscular
27	Other	-	-	-	-

Anthelmintic Product List with Codes

Dewormer Product List

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
1	Eqvalan Paste Zimecterin Paste	Ivermectin	Paste		Merial
2	Eqvalan Oral Liquid	Ivermectin	Liquid (oral drench or NG intub)		Merial
3	IverCare	Ivermectin	Paste		Farnam
4	Equell	Ivermectin	Paste		Bimeda
5	Promectin-E	Ivermectin	Liquid		Vedco
6	Bimectin	Ivermectin	Paste		Bimeda
7	Sparmectin-E	Ivermectin	Liquid		Sparhawk Labs
8	Ivermectin Paste 1.87%	Ivermectin	Paste		Durvet
9	Zimectrin Gold Paste	Ivermectin/ Praziquantel	Paste		Merial
10	Equimax	Ivermectin/ Praziquantel	Paste		Bimeda
11	Quest 2% Gel	Moxidectin	Gel		Zoetis
12	Quest Plus Gel	Moxidectin	Gel		Zoetis

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
13	Panacur Suspension 10%	Fenbendazole	Liquid		Intervet
14	Safe-Guard Equi-Bits	Fenbendazole	Medicated Pelleted Feed		Merck
15	Safe-Guard Panacur Paste Panacur PowerPac	Fenbendazole	Paste		Intervet: Panacur Merck: Safe-Guard
16	Anthelcide EQ Paste	Oxibendazole	Paste		Zoetis
17	Strongid T	Pyrantel Pamoate	Liquid		Zoetis
18	Strongid Paste	Pyrantel Pamoate	Paste		Zoetis
19	Strongid C 2X	Pyrantel Tartrate	Top dress		Zoetis
20	Anthelban V	Pyrantel Pamoate	Liquid		Phoenix
21	Continuex daily horse wormer Equi Aid CW	Pyrantel Tartrate	Top dress		Farnam
22	Pyrantel Paste	Pyrantel Pamoate	Paste		Durvet
23	Exodus Paste	Pyrantel pamoate	Paste		Bimeda
24	Primex Equine	Pyrantel Pamoate	Liquid		Priority Care
25	Other	-	-	-	-

Tick Control Product List with Codes

NAHMS Equine 2015-16 Tick Control Products				
Code	**Established name**	**Manufacturer**	**Picture**	**Type**
1	Barn and Stable Fly Spray	Bonide		Spray
2	Zonk it! Spray	Cut Heal Animal Products		Spray
3	Pyranha Aerosol	Equine Direct		Spray
4	Repel-X Concentrate	Farnam		Spray
5	Flysect Super 7	Farnam		Spray
6	Pyranha Spray and Wipe	Equine Direct		Spray or Wipe
7	Bite Free	Farnam		Spray or wipe
8	EquiSect	Spray or Wipe		Spray or wipe

NAHMS Equine 2015-16 Tick Control Products				
Code	Established name	Manufacturer	Picture	Type
9	Flysect Super-C Concentrate	Farnam		Spray or wipe
10	Tri-Tec 14	Farnam		Spray or wipe
11	DuraGuard Insecticide and Repellant	Absorbine		Spray or wipe
12	UltraShield Insecticide and Repellant	Absorbine		Spray or wipe
13	Equi-Spot	Farnam		Spot-On Topical
14	Endure Roll-On	Farnam		Roll-On
15	Zonk It! Roll-On	Cut Heal Animal Products		Roll-On
16	Bug Check	Cut Heal Animal Products		Edible Powder

Tick Habitat List with Codes

Description of Habitat Types for NAHMS Equine Study 2015

Prepared by U.S. Department of Agriculture

Animal and Plant Health Inspection Service, Veterinary Services (USDA:APHIS:VS) 2015

Habitat Type	NAHMS #	Description	Examples
Developed – Residential  	Questionnaire D18a Tick Exam Code: No. 1	Areas with 30% or higher of constructed materials such as asphalt, concrete, wooden fences, or metal beams May or may not have vegetation interspersed among construction material	• Barns • Paddocks • Fenced in areas Lawns, small shrubs, mixed vegetation near housing areas for equines
Developed – Commercial**  	Questionnaire D18a Tick Exam Code No. 1	Areas associated with infrastructure—like railroads, highways, road structures, and training tracks	• Roadways along fenced area for equines with shrubs and/or small trees • Vegetation may be interspersed in the middle of roadway
Shrubland*  	Questionnaire D18b Tick Exam Code No. 2	Areas dominated by natural woody vegetation less than 6 meters or 20 feet tall Grasses and young trees (both evergreen and deciduous) can be interspersed among shrubs	• Shrubs are woody like trees, but much shorter • Horses that come in contact on a regular basis with shrubs along fence rows, interspersed among pasture or rangeland areas, or found along the sides of buildings such as barns and paddocks • Examples of shrub species: Black Hawthorn, Bitter Pea, Saltbush, , Crape Myrtle, Hagbrier, and Texas Sage
Forested  	Questionnaire 18c Tick Exam Code No. 3	Areas associated with tree cover taller than 6 meters or 20 feet tall covering more than 75% of the area • Deciduous trees (shed leaves seasonally) • Evergreen trees (maintain leaves year round), mixed areas (both deciduous and evergreen trees)	• Horses that come in contact with a large numbers of trees on a regular basis • Examples of tree species: Hickory, Beech, Poplar, Ash, Hemlock, and Red Cedar
Cultivated/Planted – Non Woody****  	Questionnaire D18d Tick Exam Code No. 6	Areas of planted herbaceous vegetation (do not have woody stems) that are **intensively managed** or irrigated	• Horses that come in contact with a pasture type habitat on a regular basis • Grass and/or hay planted for food for equines

USDA

USDA:APHIS:Veterinary Services

For more information contact: Dr. Angela James @ angela.m.james@aphis.usda.gov

Description of Habitat Types for NAHMS Equine Study 2015

Habitat Type	NAHMS #	Description	Examples
Cultivated/Planted Woody  	Questionnaire D18d Tick Exam Code No. 6	Areas with woody vegetation (such as orchards and vineyards) that are planted for production of berries, nuts, etc.	• Horses that forage near orchards on a regular basis.
Grasslands*  	Questionnaire D18e Tick Exam Code No. 4	Majority of coverage related to upland grasses and forbs; • might be used for grazing, • not intensively managed	• Horses that come in contact on a regular basis with rangeland type grasses that may be planted for horses or be natural grasses • Grass can be annual or perennial; (western wheatgrass, cane bluestem, bunch grass, mountain brome, meadow fescue etc.)
Wetlands  	Questionnaire D18f Tick Exam Code No. 5	Areas that are periodically saturated or covered with water	• Horses that forage near these areas such as swamps, bogs, or marshes on a regular basis
Urban/Recreational Grasses***  	Questionnaire D18g Tick Exam Code No. 7	Grasses developed and maintained for recreation, erosion control, parks, lawns, trails etc.	• Horses that participate in activities on a regular basis where the habitat is maintained by the city or county. • Grasses such as bluegrass maybe planted and maintained for equine activities
Water Bodies  	Questionnaire D18h Tick Exam Code No. 9	Open water present year round	• Horses come in contact with ponds, lakes, reservoirs, streams, rivers, canals, or waterways on a regular basis.

Reference: Based on Anderson's Landcover Classification System: USGS National Landcover Dataset - http://landcover.usgs.gov/classes.php
Photographs: PublicDomainPictures.net: Bureau of Land Management. 2007 or National Park Service*;http:\\syndey.com**; http:\\m.visitvictoria.com***; pinterest.com****- All photographs are in the public domain.

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USDA:APHIS:Veterinary Services

For more information contact: Dr. Angela James @ angela.m.james@aphis.usda.gov

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Animal and
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NAHMS Equine 2015-16 Participant Agreement

National Animal Health
Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS), the State of _____, and the Participant hereby enter into this National Animal Health Monitoring System (NAHMS) Equine 2015-16 study PARTICIPANT AGREEMENT, the terms of which are set forth below.

1. APHIS and/or the State of _____ will provide personnel who will be referred to as the Data Collector. The Data Collector and the Participant will participate together in implementing a statistically valid NAHMS study for determining national estimates of equine health practices and for compiling health information to enhance equine health and management. The Data Collector will complete one person-to-person interview with the Participant.

2. The Participant will assist APHIS by providing accurate information regarding equine health and management practices related to the study objectives. The Participant retains the right to refuse any questions deemed inappropriate.

3. The Data Collector will protect the origin of the data by recording the data with the Participant's unique code number only. The Data Collector will not keep any key to the code after the completion of the study. The Data Collector and all other project personnel acknowledge that the Participant is providing information that he/she does not customarily share and is providing it with the expectation that it will not be made public. The one exception to this data protection is the suspicion or diagnosis of a dangerously contagious, infectious, or exotic disease foreign to the United States on the Participant's premises (e.g.,vesicular disease), in which case further investigation and possible action may occur.

4. Data collected by the Data Collector *will not be used for regulatory purposes*. However, information on a Participant's animals revealed from sources unrelated to the Equine 2015-16 study, such as testing and inspection for movement or sale of animals, may cause regulatory action to be initiated by the State or APHIS.

5. APHIS may publish, or authorize others to publish, the aggregate (summary) findings acquired from NAHMS for the benefit of the equine industry, private industry, and other interested groups, but will ensure that the identity of the Participant is withheld. APHIS may not publish, or authorize others to publish, individual responses.

6. After completion of data reporting by the Participant, APHIS will provide the Participant with several reports containing summary results from all Participants. The Participant can obtain any further information available from this study by accessing the NAHMS Web site or subscribing to the NAHMS equine mailing list.

7. The Participant will complete a brief evaluation of the Equine 2015-16 study, the results of which will be used to assist APHIS in the design and implementation of future NAHMS surveys.

8. Any changes to or waivers of the terms of this PARTICIPANT AGREEMENT shall be binding on APHIS and the State of _____ and the Participant only if they are put in writing by each party.

9. The effective data collection period of this PARTICIPANT AGREEMENT shall begin with today's date of _____/____/____ and end no later than September 30, 2016.

Continued on next page with biological testing.

_____/date_____
VS Employee, U. S. Department of Agriculture, APHIS
OR _____ Department of Agriculture

_____/date_____
Participant or authorized representative

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average .25 hour per response, including the time to review instructions, search existing data resources, gather the data needed, and complete and review the information collected.

	I AGREE TO PARTICIPATE	I DO NOT AGREE TO PARTICIPATE

10. *(Participant's initials are needed in the appropriate column)*
The Participant consents and authorizes the Data Collector (a Federal or State veterinary medical officer or animal health technician) to collect biologic samples, perform tick examination and/or biosecurity assessment as follows:

a. Collection of blood samples: All operations are eligible to participate. Do you consent to participate in this testing? _____ _____

    1. The blood samples will be collected from 1 to 20 equines per operation. The blood samples will be banked for future research.

b. Collection of fecal samples for pathogen testing: A subset of operations will be eligible to participate in fecal pathogen testing. Do you consent to participate in this testing if selected? _____ _____

    1. The fecal samples will be collected from 1 to 20 equines on the operation. Samples will be tested for *Salmonella* and *E. coli.* A Participant report will contain results for *Salmonella* status of individual equines. In addition, *Salmonella* isolates and a subset of *E. coli* isolates will be tested for antibiotic resistance.

c. Operations who did not participate in the 2015 internal parasite study are eligible to have fecal samples collected to test for dewormer resistance of internal parasites. Do you consent to participate in this testing? _____ _____

    1. Samples will be collected from up to six equines per operation. Samples will be collected by the participant (you) pre- and post-administration of dewormer. The fecal samples will be evaluated for fecal egg counts and dewormer resistance. A Participant report will contain results of parasite testing and dewormer resistance evaluation for each equine tested.

d. All operations are eligible to have tick exams performed on up to 10 equines. Ticks will be collected and identified. A participant report will contain the results of tick identification for each equine. Do you consent to participate in this testing? _____ _____

    1. From 1 to 10 equids per operation will be examined for the presence of ticks. If ticks are present the veterinary medical officer or animal health technician will collect a representative sample of ticks. Tick identification will be performed and a Participant report will contain results of tick identification.

e. All operations are eligible to receive a biosecurity assessment of the operation performed by a veterinary medical officer or animal health technician. Do you consent to participate in this assessment? _____ _____

    1. A biosecurity assessment form will be completed to evaluate operation biosecurity management practices. A Participant report will contain results of the biosecurity assessment.

(white copy given to NAHMS Coordinator, yellow copy left with Participant)

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Animal and
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Equine 2015–16
VMO Questionnaire

National Animal Health
Monitoring System

2150 Centre Ave Bldg B
Fort Collins, CO 80526

Form Approved
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State FIPS:	Operation #:	Interviewer:	Date:
2 digits	4 digits	Initials	mm/dd/yy

INTRODUCTION

Beginning time [military]: _____

Section A—Inventory

The next several questions relate to equines considered "residents" of this operation. A resident equine is one that has spent, or is expected to spend, more time at this operation than at any other operation throughout the year. In other words, this operation may be considered the animal's home base. Resident equines will be referred to throughout this questionnaire.

1. How many of the following **equines**, including foals, are considered residents of this operation as of today (whether or not they are present on the operation today)? *[Enter 0 if none.]*

   a. Donkeys or burros ..... v101 _____ head

   b. Mules ..... v102 _____ head

   c. Ponies ..... v103 _____ head

   d. Miniature horses ..... v104 _____ head

   e. Horses (excluding miniature horses) ..... v105 _____ head

   f. Other resident equines (specify: _____) v106oth ..... v106 _____ head

   g. Total *[Add questions 1a–1f.]* ..... v107 _____ head

   [If question 1g = 0, SKIP to Office Use Only section.]

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2. As of today, how many resident equines are: *[Enter 0 if none.]*

   a. Less than 6 months old? ..... v108 _____ head
   b. 6 months through 1 year (23 months)? ..... v109 _____ head
   c. 2 to 3 years? ..... v110 _____ head
   d. 4 to 5 years? ..... v111 _____ head
   e. 6 to 10 years? ..... v112 _____ head
   f. 11 to 15 years? ..... v113 _____ head
   g. 16 to 20 years? ..... v114 _____ head
   h. 21 years or older? ..... v115 _____ head
   i. Total *[should equal question 1g]* ..... v116 = _____ head

   [If questions 2c through 2h = 0, SKIP to question 4.]

3. As of **today**, how many resident equines 2 years of age or older are: *[Enter 0 if none.]*

   a. Broodmares? ..... v117 _____ head
   b. Stallions? ..... v118 _____ head

4. How many **nonresident** equines were on this operation for more than 30 days in the previous 12 months? *[Enter 0 if none.]* ..... v119 _____ head

Section B—Vaccination Practices

1. Were any resident equines vaccinated in the previous 12 months? ..... v201 ☐1 Yes ☐3 No

[If question 1 = No, SKIP to question 8.]

2. Were any resident equines **1 year of age or less** vaccinated **in the previous 12 months**? *Include resident equines that may no longer be on the operation today.* ..... v202 ☐1 Yes ☐3 No ☐4 NA (no resident equines ≤1 yr)

[If question 2 = No or NA, SKIP to question 4.]

3. How many of the resident equines **1 year old or less** were vaccinated for the following diseases in the previous 12 months? *[Select one response for each vaccine.]*

		All	Some	None	Don't know
a.	Anthrax v203	☐1	☐2	☐3	☐4
b.	Botulism v204	☐1	☐2	☐3	☐4
c.	*Clostridium perfringens* (C&D) v205	☐1	☐2	☐3	☐4
d.	Eastern and Western encephalitis (sleeping sickness) [EEE and WEE] v206	☐1	☐2	☐3	☐4
e.	Equine viral arteritis (EVA) v207	☐1	☐2	☐3	☐4
f.	Flu (influenza) v208	☐1	☐2	☐3	☐4
g.	Herpesvirus (also called EHV or rhino) v209	☐1	☐2	☐3	☐4
h.	Leptospirosis v210	☐1	☐2	☐3	☐4
i.	Lyme disease v211	☐1	☐2	☐3	☐4
j.	Pigeon fever (infection caused by *Corynebacterium psuedotuberculosis*) v212	☐1	☐2	☐3	☐4
k.	Potomac horse fever (PHF) v213	☐1	☐2	☐3	☐4
l.	Rabies v214	☐1	☐2	☐3	☐4
m.	Rhinitis A v215	☐1	☐2	☐3	☐4
n.	Rotavirus v216	☐1	☐2	☐3	☐4
o.	Snake venom v217	☐1	☐2	☐3	☐4
p.	Strangles (*Strep.. equi*) v218	☐1	☐2	☐3	☐4
q.	Tetanus v219	☐1	☐2	☐3	☐4
r.	Venezuelan equine encephalitis (VEE) v220	☐1	☐2	☐3	☐4
s.	West Nile virus v221	☐1	☐2	☐3	☐4
t.	Other (specify: _____) v222oth v222	☐1	☐2	☐3	☐4

4. Were any resident **broodmares** vaccinated **in the previous 12 months**? *Include resident equine broodmares that may no longer be on the operation today.* ..... v223 ☐1 Yes ☐3 No ☐4 NA (no resident broodmares)

[If question 4 = No or NA, SKIP to question 6.]

5. How many resident **broodmares** were vaccinated for the following diseases in the previous 12 months? *[Select one response for each vaccine.]*

		All	Some	None	Don't know
a.	Anthrax v224	☐1	☐2	☐3	☐4
b.	Botulism v225	☐1	☐2	☐3	☐4
c.	*Clostridium perfringens* (C&D) v226	☐1	☐2	☐3	☐4
d.	Eastern and Western encephalitis (sleeping sickness) [EEE and WEE] v227	☐1	☐2	☐3	☐4
e.	Equine viral arteritis (EVA) v228	☐1	☐2	☐3	☐4
f.	Flu (influenza) v229	☐1	☐2	☐3	☐4
g.	Herpesvirus (also called EHV or rhino) v230	☐1	☐2	☐3	☐4
h.	Leptospirosis v231	☐1	☐2	☐3	☐4
i.	Lyme disease v232	☐1	☐2	☐3	☐4
j.	Pigeon fever (infection caused by *Corynebacterium psuedotuberculosis*). v233	☐1	☐2	☐3	☐4
k.	Potomac horse fever (PHF) v234	☐1	☐2	☐3	☐4
l.	Rabies v235	☐1	☐2	☐3	☐4
m.	Rhinitis A v236	☐1	☐2	☐3	☐4
n.	Rotavirus v237	☐1	☐2	☐3	☐4
o.	Snake venom v238	☐1	☐2	☐3	☐4
p.	Strangles (*Strep. equi*) v239	☐1	☐2	☐3	☐4
q.	Tetanus v240	☐1	☐2	☐3	☐4
r.	Venezuelan equine encephalitis (VEE) v241	☐1	☐2	☐3	☐4
s.	West Nile virus v242	☐1	☐2	☐3	☐4
t.	Other (specify: _____) v243oth v243	☐1	☐2	☐3	☐4

6. Were any resident equines **over 1 year old** (excluding resident broodmares) vaccinated **in the previous 12 months**? *Include resident equines that may no longer be on the operation today.*

v244 ☐1 Yes ☐3 No ☐4 NA (no resident equines, excluding broodmares, >1 year)

[If question 6 = No or NA, SKIP to question 8.]

7. How many of the resident equines **over 1 year old** (excluding resident broodmares) were vaccinated for the following diseases in the previous 12 months? *[Select one response for each vaccine.]*

			All	Some	None	Don't know
a.	Anthrax	v245	☐1	☐2	☐3	☐4
b.	Botulism	v246	☐1	☐2	☐3	☐4
c.	*Clostridium perfringens* (C&D)	v247	☐1	☐2	☐3	☐4
d.	Eastern and Western encephalitis (sleeping sickness) [EEE and WEE]	v248	☐1	☐2	☐3	☐4
e.	Equine viral arteritis (EVA)	v249	☐1	☐2	☐3	☐4
f.	Flu (influenza)	v250	☐1	☐2	☐3	☐4
g.	Herpesvirus (also called EHV or rhino)	v251	☐1	☐2	☐3	☐4
h.	Leptospirosis	v252	☐1	☐2	☐3	☐4
i.	Lyme disease	v253	☐1	☐2	☐3	☐4
j.	Pigeon fever (infection caused by *Corynebacterium psuedotuberculosis*).	v254	☐1	☐2	☐3	☐4
k.	Potomac horse fever (PHF)	v255	☐1	☐2	☐3	☐4
l.	Rabies	v256	☐1	☐2	☐3	☐4
m.	Rhinitis A	v257	☐1	☐2	☐3	☐4
n.	Rotavirus	v258	☐1	☐2	☐3	☐4
o.	Snake venom	v259	☐1	☐2	☐3	☐4
p.	Strangles (*Strep. equi*)	v260	☐1	☐2	☐3	☐4
q.	Tetanus	v261	☐1	☐2	☐3	☐4
r.	Venezuelan equine encephalitis (VEE)	v262	☐1	☐2	☐3	☐4
s.	West Nile virus	v263	☐1	☐2	☐3	☐4
t.	Other (specify: _____) v264oth	v264	☐1	☐2	☐3	☐4

Note to data collector: Cross check answers to question 8 (vaccines administered) against those for the same vaccines (a through p) in questions 3, 5, and 7.

8. We would like to understand why people **do not** use specific equine vaccines. For the vaccines listed below, indicate whether the vaccine was administered to any resident equine on the operation in the previous 12 months. If **not** administered, give the primary reason for not administering the vaccine.

Reason codes for question 8	
1 = Concern of adverse reaction to vaccine	5 = Financial constraints on equine expenditures
2 = Vaccine considered ineffective	6 = Did not get around to it
3 = Little risk of disease exposure	7 = Unaware this vaccine was available
4 = Not recommended by veterinarian	8 = Other reason (specify:) v265oth

		Administered?		If No, enter code
a.	Flu (influenza) v265/v273	☐1 Yes	☐3 No	_____
b.	Strangles (*Strep. equi*) v266/v274	☐1 Yes	☐3 No	_____
c.	Herpesvirus (also called EHV or rhino)..... v267/v275	☐1 Yes	☐3 No	_____
d.	Rabies v268/v276	☐1 Yes	☐3 No	_____
e.	West Nile virus v269/v277	☐1 Yes	☐3 No	_____
f.	Eastern and Western encephalitis (sleeping sickness) [EEE & WEE]..... v270/v278	☐1 Yes	☐3 No	_____
g.	Tetanus v271/v279	☐1 Yes	☐3 No	_____
h.	Equine viral arteritis (EVA)..... v272/v280	☐1 Yes	☐3 No	_____

[If question 8c = No, SKIP to section C.]

9. If question 8c = Yes (herpesvirus), for those animals vaccinated against EHV/rhino, how often in the previous 12 months did you vaccinate the following resident equines? *[Check NA if this type of equine is not present on the operation.]*

a.	Aged 1 year or less v281/v284	_____ # times/yr	☐1 NA
b.	Broodmares..... v282/v285	_____ # times/yr	☐1 NA
c.	Equines over 1 year (excluding resident broodmares) v283/v286	_____ # times/yr	☐1 NA

10. Which EHV vaccine product(s) was used? (Use laminated reference sheet for code(s).) *[Enter all product codes that apply for each category. Check NA if this type of equine is not present on the operation.]*

a.	Aged 1 year or less v287/v290	_____ code(s)	☐1 NA
b.	Broodmares..... v288/v291	_____ code(s)	☐1 NA
c.	Equines over 1 year old (excluding resident broodmares) v289/v292	_____ code(s)	☐1 NA

Section C—Internal Parasite Control and Management

1. Did this operation participate in the NAHMS 2015 Internal Parasite study? v301 ☐1 Yes ☐3 No

[If question 1 = Yes, SKIP to section D.]

2. In the previous 12 months, were **any** resident equines dewormed at least once? ..... v302 ☐1 Yes ☐3 No

[If question 2 = No, SKIP to question 7.]

3. In the previous 12 months, were any **resident** equines dewormed for the following reasons?

   a. General prevention measure ..... v303 ☐1 Yes ☐3 No

   b. Equines had previous colic problem ..... v304 ☐1 Yes ☐3 No

   c. Worms were seen ..... v305 ☐1 Yes ☐3 No

   d. Equines were thin or doing poorly..... v306 ☐1 Yes ☐3 No

   e. Rubbing tail ..... v307 ☐1 Yes ☐3 No

   f. Fecal test results indicated a need ..... v308 ☐1 Yes ☐3 No

   g. Other (specify: _____) v309oth ..... v309 ☐1 Yes ☐3 No

4. Of the reasons for deworming in the previous question, what was the **primary** reason for deworming **resident** equines in the previous 12 months? *[Check one only.]* v310

   ☐1 General prevention measure

   ☐2 Equines had previous colic problem

   ☐3 Worms were seen

   ☐4 Equines were thin or doing poorly

   ☐5 Rubbing tail

   ☐6 Fecal test results indicated a need

   ☐7 Other

5. What deworming program is currently in use for the following equines? *[Enter all codes that apply.]*

Codes for question 5
1 = Dewormer product rotation (e.g., ivermectin then pyrantel)
2 = Fecal egg count, treat according to results
3 = Regular use of same dewormer
4 = Daily deworming *(Multiply # months used x 30 for column 2.)*
5 = Equines are not dewormed *(Skip "# times" column.)*
6 = NA (do not have the category of equine)

			Code	# times majority of equines dewormed in previous 12 months
a.	Less than 6 months old	v311/v317	_____	_____ # times
b.	6 months through 1 year old (23 months)	v312/v318	_____	_____ # times
c.	Broodmares	v313/v319	_____	_____ # times
d.	Stallions	v314/v320	_____	_____ # times
e.	All other equines 2 to 3 years old	v315/v321	_____	_____ # times
f.	All other equines 4 years or older	v316/v322	_____	_____ # times

6. What types of deworming products were used in the previous 12 months and what was the maximum number of times product was administered to any one equine? *[For products used, circle the maximum number of times administered to any equine.]*

				Maximum number of times administered to ANY equine in the previous 12 months						
a.	Ivermectin	☐1 Yes	☐3 No	1	2	3	4	5	6+	v323/v335
b.	Ivermectin/praziquantel (e.g., Equimax, Zimecterin Gold)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v324/v336
c.	Moxidectin (e.g., Quest)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v325/v337
d.	Moxidectin/praziquantel (e.g., Quest +)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v326/v338
e.	Fenbendazole (e.g., Panacur, Safe-Guard)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v327/v339
f.	Power Pack or Safeguard Powerdose (e.g., Panacur, Fenbendazole double dose given 5 days in a row; count a 5-day course of treatment as one time.)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v328/v340
g.	Oxibendazole (e.g., Anthelcide EQ)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v329/v341
h.	Piperazine	☐1 Yes	☐3 No	1	2	3	4	5	6+	v330/v342
i.	Pyrantel pamoate (e.g., Strongid paste or liquid, Exodus)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v331/v343
j.	Pyrantel tartrate (e.g., Strongid C 2X daily dewormer)	☐1 Yes	☐3 No	1	2	3	4	5	6+	v332/v344
k.	Levamisol	☐1 Yes	☐3 No	1	2	3	4	5	6+	v333/v345
l.	Other (specify: _____) v334oth	☐1 Yes	☐3 No	1	2	3	4	5	6+	v334/v346

7. Has your veterinarian **ever** recommended:

   a. Predeworming fecal testing? ..... v347 ☐1 Yes ☐3 No

   b. Postdeworming fecal testing? ..... v348 ☐1 Yes ☐3 No

8. In the previous 5 years, have you ever had a fecal egg count performed on feces from resident equines? .....v349 ☐1 Yes ☐3 No ☐4 Don't know

[If question 8 = No or Don't know, SKIP to question 10.]

9. What is your current policy for the following categories of equines regarding how often you typically have fecal egg counts done? *[Count pre- and post-fecal egg count for fecal egg reduction test as one time.]*

Codes for question 9
1 = More often than annually
2 = Annually
3 = Less often than annually
4 = No specific schedule; based on equine's health condition
5 = Not done
6 = NA (do not have this category of equine)

		Code
a.	Less than 6 months old v350	_____
b.	6 months through 1 year old (23 months) v351	_____
c.	Broodmares v352	_____
d.	Stallions v353	_____
e.	All other equines 2 to 3 years old v354	_____
f.	All other equines 4 years or older v355	_____

10. In the previous 12 months, have you done the following for parasite control:

				Did your veterinarian recommend:	
a.	Flat rake and mow? v356/v361	☐1 Yes	☐3 No	☐1 Yes	☐3 No
b.	Frequent removal of manure from pasture/grazing area? v357/v362	☐1 Yes	☐3 No	☐1 Yes	☐3 No
c.	Rotating pastures? v358/v363	☐1 Yes	☐3 No	☐1 Yes	☐3 No
d.	Combination deworming (using two or more dewormers at once)? Do not include praziquantel. v359/v364	☐1 Yes	☐3 No	☐1 Yes	☐3 No
e.	Other? (specify: _____) v360oth v360/v365	☐1 Yes	☐3 No	☐1 Yes	☐3 No

11. How concerned are you about internal parasite drug resistance in the equines on this operation? *[Check one only.]* v366

   ☐1 Never heard of it

   ☐2 Not concerned

   ☐3 Slightly concerned

   ☐4 Moderately concerned

   ☐5 Very concerned

12. Have you **ever** had your equines examined for drug-resistant parasites using a fecal egg count reduction test (also called FECRT), egg reappearance test, or other test? ..... v367 ☐1 Yes ☐3 No

13. Have you **ever** had a documented case of drug-resistant equine internal parasites on your farm? ..... v368 ☐1 Yes ☐3 No

    If Yes, for which drugs was resistance found?
    [See list of anthelmintic/dewormer codes.] ..... v369 _____

14. Have you **ever** changed your deworming plan due to concern about drug-resistant parasites (either known resistance problem or potential problem)? ..... v370 ☐1 Yes ☐3 No

Section D—Tick Control and Management

1. Do you check your equines for ticks? ..... v401 ☐1 Yes ☐3 No

[If question 1 = No, SKIP to question 11.]

2. How often do you or others check your equines for ticks? *[Check one only.]* v402

   ☐1 Daily

   ☐2 After a specific activity (e.g., trail riding)

   ☐3 Several times a week

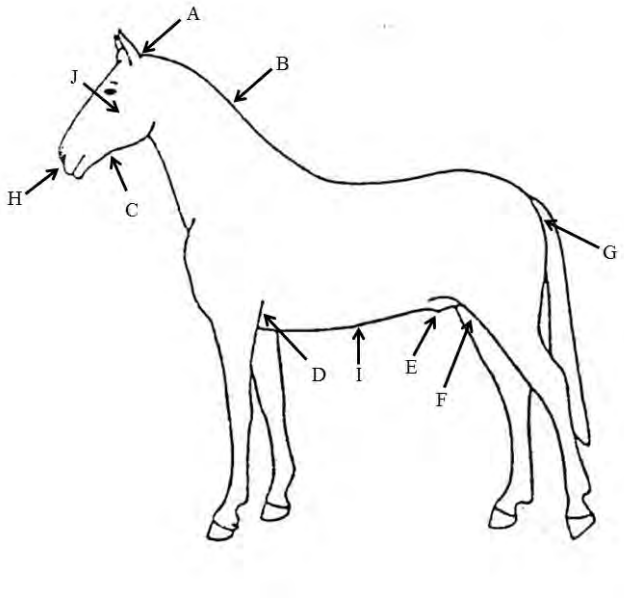
   ☐4 No specific routine

3. What method do you use to check for ticks? *[Check all that apply.]*

- ☐ Routine grooming v403
- ☐ Visual inspection v404
- ☐ Palpate specifically to detect ticks: *[Refer to diagram below.]* v405
  - ☐ Ears (A) v406
  - ☐ Crest/mane (B) v407
  - ☐ Jaw line (C) v408
  - ☐ Elbow/girth area/axilla (D) v409
  - ☐ Sheath or udder (E) v410
  - ☐ Between hindquarters/thighs (F) v411
  - ☐ Tail head and under tail (G) v412
  - ☐ Nose/nostril/faux nostril (H) v413
  - ☐ Ventrum or belly (I) v414
  - ☐ Face (J) v415
- ☐ Other (specify: _____) v416oth (K) v416

4. In the previous 12 months, have you observed ticks on any of your equines? v417 ☐$_1$ Yes ☐$_3$ No

[If question 4 = No, SKIP to question 11.]



5. In what location(s) on your equines did you identify ticks? Refer to diagram.
[Check all that apply.]

- ☐ Ears (A) v418
- ☐ Crest/mane (B) v419
- ☐ Jaw line (C) v420
- ☐ Elbow/girth area/axilla (D) v421
- ☐ Sheath or udder (E) v422
- ☐ Between hindquarters/thighs (F) v423
- ☐ Tail head or under tail (G) v424
- ☐ Nose/nostril/faux nostril (H) v425
- ☐ Ventrum or belly (I) v426
- ☐ Face (J) v427
- ☐ Other (specify: _____) v428oth (K) v428

6. What is the most common location where you find ticks on your equines?
[Enter letter from question 5 horse diagram.]..... v429 _____ letter

7. After which activities do you most often observe equines with ticks?
[Check one only.] v430

- ☐$_1$ On pasture
- ☐$_2$ Trail riding
- ☐$_3$ Cross-country competitions
- ☐$_4$ Other (specify: _____)v430oth

8. Were the ticks you observed on your equines in the previous 12 months identified by type (species of tick)?.....v431 ☐$_1$ Yes ☐$_3$ No ☐$_4$ Don't know

[If question 8 = No or Don't know, SKIP to question 11.]

9. Who definitively identified the type or species of tick in question 8?
[Check one only.] v432

☐1 Owner

☐2 Stable manager

☐3 Extension agent

☐4 Veterinarian

☐5 Diagnostic laboratory

☐6 Other (specify: _____)v432oth

10. What type of ticks were found on equines?
[Enter code(s) for all types identified.] ..... v433 _____ code(s)

Codes for question 10
1 = American dog tick (*Dermacentor variabilis*)
2 = Winter tick (*Dermacentor albipictus*)
3 = Lone Star tick (*Amblyomma americanum*)
4 = Brown dog tick (*Rhipicephalus sanguineus*)
5 = Deer tick (also called black-legged tick) [*Ixodes scapularis*]
6 = Spinose ear tick (*Otobius megnini*)
7 = Rocky Mountain wood tick (*Dermacentor andersoni*)
8 = Western black-legged tick *(Ixodes pacificus)*
9 = Gulf Coast tick *(Amblyomma maculatum)*
10 = Other (specify:) v433oth

11. In the previous 12 months, have any equines on this operation had the following tick-borne disease(s) and, if Yes, how was the disease diagnosed?

		Disease	Diagnosis by: Laboratory confirmation	Diagnosis by: Veterinarian	
a.	Lyme disease v434	☐1 Yes ☐3 No	☐1 Yes ☐3 No	☐1 Yes ☐3 No	v439/v444
b.	Anaplasmosis v435	☐1 Yes ☐3 No	☐1 Yes ☐3 No	☐1 Yes ☐3 No	v440/v445
c.	Equine piroplasmosis (EP)..... v436	☐1 Yes ☐3 No	☐1 Yes ☐3 No	☐1 Yes ☐3 No	v441/v446
d.	Tick paralysis v437	☐1 Yes ☐3 No	☐1 Yes ☐3 No	☐1 Yes ☐3 No	v442/v447
e.	Other (specify: _____) v438oth ... v438	☐1 Yes ☐3 No	☐1 Yes ☐3 No	☐1 Yes ☐3 No	v443/v448

12. In the previous **5 years**, were ticks ever observed on your equines? ..... v449 ☐1 Yes ☐3 No

[If question 12 = No, SKIP to question 14.]

13. In the previous **12 months**, were ticks ever observed on your equines during the following time periods and, if observed, what was the typical level of infestation?

Codes for question 12	
Frequency	**Level**
1 = Less than monthly/occasionally	1 = Low
2 = Monthly	2 = Medium
3 = Weekly	3 = High
4 = Daily	

		Observed		If Yes, how frequently were ticks found? *[See code box.]*	If any found, what was the typical level of infestation? *[See code box.]*	
a.	December–February v450	☐1 Yes	☐3 No	_____	_____	v454/v458
b.	March–May v451	☐1 Yes	☐3 No	_____	_____	v455/v459
c.	June–August v452	☐1 Yes	☐3 No	_____	_____	v456/v460
d.	September–November v453	☐1 Yes	☐3 No	_____	_____	v457/v461

14. Do you treat your equines with a product that controls ticks? ... v462 ☐1 Yes ☐3 No ☐4 Don't know

[If question 14 = No or Don't know, SKIP to question 18.]

15. Enter codes for products used. *[Refer to tick control product list for codes.]* v463 _____ (code(s)

16. What is the **primary** reason for using the product? *[Check one only.]* v464

☐1 Tick control

☐2 Other reason (e.g., fly control)

17. How often do you treat equines to control ticks? *[Check one only.]* v465

☐1 Daily (regardless of location or activity)

☐2 When on pasture

☐3 When trail ridden

☐4 When you see ticks

☐5 Other (specify: _____) v465oth

18. Which of these habitats has your equine(s) spent **any** time in during the previous 12 months? *[See handout for more detailed habitat descriptions.]*

a.	Developed residential or commercial (areas with 30% or more constructed materials such as asphalt, concrete, wooden fences, metal beams or areas associated with infrastructure such as railroads, highways, race tracks) v466	☐1 Yes	☐3 No
b.	Shrublands (areas dominated by natural wood vegetation less than 20 feet tall; can be interspersed with grasses and young trees) v467	☐1 Yes	☐3 No
c.	Forested (areas associated with tree cover above 20 feet and covering more than 75% of the area) v468	☐1 Yes	☐3 No
d.	Cultivated/planted woody (areas of planted herbaceous/woody vegetation) v469	☐1 Yes	☐3 No
e.	Grasslands (majority of coverage related to upland grasses and might be used for grazing, but is not intensively managed) v470	☐1 Yes	☐3 No
f.	Wetlands (areas periodically saturated or covered with water) v471	☐1 Yes	☐3 No
g.	Urban/recreational grasses (grasses developed and maintained for recreation, erosion, parks, trails, hiking, etc.) v472	☐1 Yes	☐3 No
h.	Water bodies (open water present year round) v473	☐1 Yes	☐3 No

19. What is the predominant type of habitat your equine(s) spent time in during the following time periods? *[See the laminated handout for habitat descriptions and codes.]*

		Code
a.	December–February (winter) v474	_____
b.	March–May (spring) v475	_____
c.	June–August (summer) v476	_____
d.	September–November (fall) v477	_____

20. In the previous 12 months, did you do any landscape modifications (e.g., weed control, pasture mowing, vegetation-free zones)? ..... v478 ☐1 Yes ☐3 No

If Yes, did you do this to reduce the tick populations on your operation? .... v479 ☐1 Yes ☐3 No

21. Do you prevent equines from grazing in forested/ wooded areas by fencing these areas? .... v480 ☐1 Yes ☐3 No ☐4 NA (no forested/wooded areas)

22. Rank the top three sources you use to obtain information on ticks and tick control for equines. *[Rank your **top three** with the numbers 1, 2, and 3.]*

☐1 Check here if you don't obtain tick information. v481

a.	Veterinarian v482	_____
b.	Diagnostic laboratory v483	_____
c.	Books v484	_____
d.	Internet v485	_____
e.	Equine magazines v486	_____
f.	Feed store v487	_____
g.	Veterinary product store v488	_____
h.	Extension agent v489	_____
i.	Scientific peer-reviewed literature v490	_____
j.	Other owners/trainer, etc. v491	_____
k.	Other (specify: _____) v491oth v491	_____

Section E—Lameness Occurrence and Management

Lameness is defined as an abnormality in gait such that the equine cannot be used for its intended purpose or can only be used with intervention (e.g., medication, corrective shoeing, rest). Equines that receive intervention to prevent lameness would not be included. Refer to the worksheet for lameness at the end of the questionnaire for help in answering questions on lameness, especially if you had multiple lame equines.

1. How many resident equines have a lameness problem **today**? .....v501 _____ head

2. How many resident equines have had a lameness problem in the **previous 12 months**, even if they died or are no longer on the premises? ..... v502 _____ head

3. For how many of the lame resident equines in question 2 will you be providing detailed information about age, type of lameness, management of lameness (veterinarian and farrier care), and outcome throughout the rest of this section? . v503 _____ head

[If question 3 = 0, SKIP to question 16.]

4. In the table below, enter the number of **resident** equines from question 3 that had any lameness problem in the **previous 12 months** even if they died or are no longer on the premises. For this table, use the age of the animal today.

   - *Count each equine only once, even if it had more than one episode of lameness in the previous 12 months and even if it was affected by more than one cause of lameness.*
   - *Be sure to include equines that are lame today and were reported in question 1.*
   - *Count equines that either became lame or were previously lame and remained lame in the previous 12 months.*
   - *The total should match the total in question 3 above.*

	Age (years)						**Total** (sum of lame equines from question 3)
	A **<2**	**B** **2–5**	**C** **6–10**	**D** **11–15**	**E** **16–20**	**F** **21+**	
Number of resident equines with lameness in the previous 12 months	v504	v505	v506	v507	v508	v509	v510

5. In the previous 12 months, how many of the lame **resident** equines were intended for the following purposes?

   a. Pleasure ..... v511 _____ head
   b. Lesson or school horse ..... v512 _____ head
   c. Show or competition (not betting) ..... v513 _____ head
   d. Breeding ..... v514 _____ head
   e. Racing ..... v515 _____ head
   f. Farm or ranch work ..... v516 _____ head
   g. Retired, not in use ..... v517 _____ head
   h. Other (specify: _____) v518oth ..... v518 _____ head
   i. **Total** *[should equal question 3]* ..... v519 = _____ head

6. In the previous 12 months, how many of the lame **resident** equines were:

   a. Intact males (stallion or colt)? ..... v520 _____ head
   b. Castrated males? ..... v521 _____ head
   c. Intact females (nonpregnant)? ..... v522 _____ head
   d. Pregnant females? ..... v523 _____ head
   e. Spayed females? ..... v524 _____ head
   f. Unknown status? ..... v525 _____ head
   g. **Total** *[should equal total in question 3]* ..... v526 = _____ head

7. In the previous 12 months, how many of the lame **resident** equines were of the following horse breeds or equine type (mule, donkey, pony)?

a.	Appaloosa	v527	_____ head
b.	Arabian	v528	_____ head
c.	Draft breed	v529	_____ head
d.	Miniature horse	v530	_____ head
e.	Morgan	v531	_____ head
f.	Mustang	v532	_____ head
g.	Paint	v533	_____ head
h.	Quarter horse	v534	_____ head
i.	Saddlebred	v535	_____ head
j.	Standardbred	v536	_____ head
k.	Tennessee Walker	v537	_____ head
l.	Thoroughbred	v538	_____ head
m.	Warmblood breed	v539	_____ head
n.	Grade	v540	_____ head
o.	Other horse breed (including mixed breed)	v541	_____ head
p.	Mule	v542	_____ head
q..	Donkey or burro	v543	_____ head
s.	**Total** *[should equal question 3]*	v544	= _____ head

8. In the previous 12 months, how many of the **lame resident** equines had the following outcomes?

a.	Recovered or sound and remained sound	v545	_____ head
b.	Recovered but were affected by a different lameness problem	v546	_____ head
c.	Recovered but same lameness problem later recurred	v547	_____ head
d.	Improved but still had lameness	v548	_____ head
e.	No improvement or worse	v549	_____ head
f.	Sold or given away due to lameness	v550	_____ head
g.	Died or euthanized due to lameness	v551	_____ head
h.	Other (specify: _____) v552oth	v552	_____ head
i.	**Total** *[should equal total in question 3]*	v553	= _____ head

9. In the previous 12 months, how many of the **lame resident** equines had a lameness problem that lasted:

   a. Less than 1 week? ..... v554 _____ head
   b. 1 week up to 1 month? ..... v555 _____ head
   c. 1 month up to 6 months? ..... v556 _____ head
   d. 6 months up to 12 months? ..... v557 _____ head
   e. 12 months or more? ..... v558 _____ head
   f. **Total** *[should equal total in question 3]* ..... v559 = _____ head

10. In the previous 12 months, how many of the **lame resident** equines accumulated the following times of lost use when the equines **could not be used for their intended purpose** because of lameness?

   a. No lost use ..... v560 _____ head
   b. 1 to 6 days ..... v561 _____ head
   c. 1 week up to 1 month ..... v562 _____ head
   d. 1 month up to 6 months ..... v563 _____ head
   e. 6 months up to 12 months ..... v564 _____ head
   f. 12 months or more ..... v565 _____ head
   g. **Total** *[should equal total in question 3]* ..... v566 = _____ head

11. In the previous 12 months, for how many of the **lame resident** equines did the use of the equines permanently change to each of the following as a result of lameness?

   a. No change of use ..... v567 _____ head
   b. Pleasure riding ..... v568 _____ head
   c. Lesson or school horse ..... v569 _____ head
   d. Different type of show or competition (not betting) ..... v570 _____ head
   e. Breeding ..... v571 _____ head
   f. Racing ..... v572 _____ head
   g. Farm or ranch work ..... v573 _____ head
   h. Companion animal ..... v574 _____ head
   i. Retired from all use and turned out or kept as a pet ..... v575 _____ head
   j. Died or euthanized due to lameness ..... v576 _____ head
   k. Left operation, uncertain of current use ..... v577 _____ head
   l. Other use (specify: _____) v578oth ..... v578 _____ head
   m. **Total** *[should equal total in question 3]* ..... v579 = _____ head

12. In the previous 12 months, for how many of the **lame resident** equines from question 3 was a veterinarian consulted for the following:

   a. Diagnosis of lameness? ..... v580 _____ head
   b. Treatment of lameness? ..... v581 _____ head

13. In the previous 12 months, on how many of the lame resident equines from question 3 were the following diagnostic procedures performed? If a procedure was performed more than once on the same equine, count it only once.

a.	Lameness exam (may include limb or back palpation; hoof testers; or examination at walk, trot, or canter)	v582	_____ head
b.	Examination under saddle	v583	_____ head
c.	Flexion tests	v584	_____ head
d.	Treadmill or forceplate examination	v585	_____ head
e.	Diagnostic nerve blocks	v586	_____ head
f.	Diagnostic joint blocks	587	_____ head
g.	Radiographs (x-rays)	v588	_____ head
h.	Diagnostic ultrasound examination	v589	_____ head
i.	Advanced imaging (e.g., thermography, CT, MRI)	v590	_____ head
j.	Other diagnostic procedure (specify: _____) v591oth	v591	_____ head

Now I am going to ask about the number of lameness conditions in resident equines.

14. In the table below, enter the number of **resident** equines from question 3 in each age group affected by the conditions listed at any time in the previous 12 months. For equines with more than one type of problem, count each problem separately, but do not count a recurrence of the same problem in the same animal more than once per equine. The same condition affecting more than one leg/foot should be counted only once per animal. For this section, use the age of the animal **today**.

		Age today (years)					
		<2	**2–5**	**6–10**	**11–15**	**16–20**	**21+**
Foot conditions							
A	Sole or hoof bruise	v592	v612	v632	v652	v672	v692
B	Sole or hoof abscess/puncture	v593	v613	v633	v653	v673	v693
C	Laminitis	v594	v614	v634	v654	v674	v694
D	Coffin joint problem	v595	v615	v635	v655	v675	v695
E	Navicular problem or disease	v596	v616	v636	v656	v676	v696
F	Other foot problem (specify:) v597oth	v597	v617	v637	v657	v677	v697
Limb conditions							
G	Wound or laceration causing lameness	v598	v618	v638	v658	v678	v698
H	Tendon, ligament, muscle (injury, strain, or contracture)	v599	v619	v639	v659	v679	v699
I	Bone fracture	v600	v620	v640	v660	v680	v700
J	Bone injury other (splint, bucked shins)	v601	v621	v641	v661	v681	v701
K	Angular limb deformity (crooked legs)	v602	v622	v642	v662	v682	v702
L	Other limb problem (specify:) v603oth	v603	v623	v643	v663	v683	v703
Joint problems							
M	Developmental joint problem (OC, OCD)	v604	v624	v644	v664	v684	v704
N	Sudden joint injury (strain, sprain)	v605	v625	v645	v665	v685	v705
O	Joint infection	v606	v626	v646	v666	v686	v706
P	Chronic joint problem such as arthritis	v607	v627	v647	v667	v687	v707
Q	Other joint problem (specify:) v608oth	v608	v628	v648	v668	v688	v708
Other conditions							
R	Back pain or soreness	v609	v629	v649	v669	v689	v709
S	Unknown problem	v610	v630	v650	v670	v690	v710
T	Other known problem (specify:) v611oth	v611	v631	v651	v671	v691	v711

15. In the previous 12 months, how many lame **resident** equines from question 3 received the following therapies to treat lameness? *[Equines may be counted more than once, but if treatments are repeated count that treatment only once.]*

a.	Complete rest	v712	_____ head
b.	Controlled or restricted exercise	v713	_____ head
c.	Routine hoof trimming without shoes	v714	_____ head
d.	Routine hoof trimming with routine shoeing	v715	_____ head
e.	Corrective hoof trimming without shoes	v716	_____ head
f.	Corrective shoeing	v717	_____ head
g.	Ice, cold hosing, cold or heat therapy	v718	_____ head
h.	Nonsteroidal, anti-inflammatory medications [NSAID] (phenylbutazone [bute], flunixin meglumine/Banamine®, diclofenac/Surpass®, firocoxib/Equioxx®, etc.)	v719	_____ head
i.	Site-specific injections (joints, tendon sheaths, bursae, etc.) with corticosteroid anti-inflammatory medications	v720	_____ head
j.	Site-specific injections (joints, tendon sheaths, bursae, etc.) with other medications (Legend®/hyaluronate sodium [HA], Adequan®/ polysulfated glycosaminoglycan [PSGAG])	v721	_____ head
k.	Systemic injectable medication other than NSAID (specify: _____) v722oth	v722	_____ head
l.	Stem cell therapy	v723	_____ head
m.	Nutritional supplements or nutriceuticals or joint supplements	v724	_____ head
n.	Surgery	v725	_____ head
o.	Chiropractic	v726	_____ head
p.	Acupuncture	v727	_____ head
q.	Laser treatments	v728	_____ head
r.	Therapeutic ultrasound for treatment	v729	_____ head
s.	Shockwave therapy	v730	_____ head
t.	Massage	v731	_____ head
u.	Other alternative medicine (specify: _____) v732oth	v732	_____ head
v.	Other treatments (specify: _____) v733oth	v733	_____ head

16. In the previous 12 months, which of the following were used for the **prevention** of lameness for all resident equines, whether or not they are or have ever been lame?

a.	Complete rest v734	☐1 Yes	☐3 No
b.	Controlled or restricted exercise v735	☐1 Yes	☐3 No
c.	Routine hoof trimming without shoes v736	☐1 Yes	☐3 No
d.	Routine hoof trimming with routine shoeing v737	☐1 Yes	☐3 No
e.	Corrective hoof trimming without shoes v738	☐1 Yes	☐3 No
f.	Corrective shoeing v739	☐1 Yes	☐3 No
g.	Ice, cold hosing, cold or heat therapy v740	☐1 Yes	☐3 No
h.	Nonsteroidal, anti-inflammatory medications [NSAID] (phenylbutazone [bute], flunixin meglumine/Banamine®, diclofenac/Surpass®, firocoxib/Equioxx®, etc.) v741	☐1 Yes	☐3 No
i.	Site-specific injections (joints, tendon sheaths, bursae, etc.) with corticosteroid anti-inflammatory medications v742	☐1 Yes	☐3 No
j.	Site-specific injections (joints, tendon sheaths, bursae, etc.) with other medications (Legend®/hyaluronate sodium [HA], Adequan®/ polysulfated glycosaminoglycan [PSGAG]) v743	☐1 Yes	☐3 No
k.	Systemic injectable medication other than NSAID (specify: _____) v744oth v744	☐1 Yes	☐3 No
l.	Stem cell therapy v745	☐1 Yes	☐3 No
m.	Nutritional supplements or nutriceuticals or joint supplements v746	☐1 Yes	☐3 No
n.	Surgery v747	☐1 Yes	☐3 No
o.	Chiropractic v748	☐1 Yes	☐3 No
p.	Acupuncture v749	☐1 Yes	☐3 No
q.	Laser treatments v750	☐1 Yes	☐3 No
r.	Therapeutic ultrasound for treatment v751	☐1 Yes	☐3 No
s.	Shockwave therapy v752	☐1 Yes	☐3 No
t.	Massage v753	☐1 Yes	☐3 No
u.	Other alternative medicine (specify: _____) v754oth v754	☐1 Yes	☐3 No
v.	Other treatments (specify: _____) v755oth v755	☐1 Yes	☐3 No

Section F—Equine Health Care Expenses

The purpose of this section is to capture the cost of selected aspects of equine care (e.g., veterinary care, hoof care, and insect control) in the previous 12 months. If you cannot provide breakouts of costs in the last column, leave blank and fill in total at bottom for each table.

1. For how many resident equines can you provide information on the costs of hoof care, including trimming and shoeing? Include animals that died or were removed from the operation. ..... v801 _____ head

2. In the previous 12 months, did any resident equines receive the following hoof care? If Yes, enter the typical cost per equine (in dollars).

				Typical cost/equine/ 12 months
a.	Routine trimmings v802/v812	☐1 Yes	☐3 No	$ _____
b.	Basic shoes on 2 hooves v803/v813	☐1 Yes	☐3 No	$ _____
c.	Basic shoes on 4 hooves v804/v814	☐1 Yes	☐3 No	$ _____
d.	Corrective shoes on 2 hooves v805/v815	☐1 Yes	☐3 No	$ _____
e.	Corrective shoes on 4 hooves v806/v816	☐1 Yes	☐3 No	$ _____
f.	Hoof protectors/boots v807/v817	☐1 Yes	☐3 No	$ _____
g.	Other (specify: _____) v808oth v808/v818	☐1 Yes	☐3 No	$ _____
h.	Other (specify: _____) v809oth v809/v819	☐1 Yes	☐3 No	$ _____
i.	Other (specify: _____) v810oth v810/v820	☐1 Yes	☐3 No	$ _____
j.	Total cost for all hoof care v811			$ _____

3. For how many resident equines can you provide information on the costs of a veterinarian's services? Include animals that died or were removed from the operation. ..... v821 _____ head

4. In the previous 12 months, did any resident equines receive the following veterinary services? If Yes, enter the typical cost per service (in dollars).

				Typical cost/service
a.	Farm call v822/v835	☐1 Yes	☐3 No	$ _____
b.	Emergency call..... v823/v836	☐1 Yes	☐3 No	$ _____
c.	Routine floating/dental v824/v837	☐1 Yes	☐3 No	$ _____
d.	Advanced dental treatment v825/v838	☐1 Yes	☐3 No	$ _____
e.	Physical exam v826	☐1 Yes	☐3 No	
f.	Vaccine purchased from or administered by veterinarian v827	☐1 Yes	☐3 No	
g.	Laboratory testing v828	☐1 Yes	☐3 No	
h.	Sick/injured animal treatment..... v829	☐1 Yes	☐3 No	
i.	Mare reproductive services v830	☐1 Yes	☐3 No	
j.	Other (specify: _____) v831oth v831	☐1 Yes	☐3 No	
k.	Other (specify: _____) v832oth v832	☐1 Yes	☐3 No	
l.	Other (specify: _____) v833oth v833	☐1 Yes	☐3 No	
m.	Total cost paid to a veterinarian for all services..... v834 (Does not necessarily equal v835–v838; should include costs for 4a–4m.)			$ _____

5. For how many resident equines can you provide information on the costs of insect and tick control? *Include animals that died or were removed from the operation*. ..... v839 _____ head

6. In the previous 12 months, were the following insect- and tick-control products used for any resident equines? Enter the total cost (in dollars) spent on insect and tick control.

a.	Fly masks v840	☐1 Yes	☐3 No
b.	Fly sheets v841	☐1 Yes	☐3 No
c.	Sprays v842	☐1 Yes	☐3 No
d.	Mosquito dunks v843	☐1 Yes	☐3 No
e.	Roll-on v844	☐1 Yes	☐3 No
f.	Spot-on treatments v845	☐1 Yes	☐3 No
g.	Feeding/feed-through fly control product v846	☐1 Yes	☐3 No
h.	Parasitic fly predators v847	☐1 Yes	☐3 No
i.	Barn insect spray system v848	☐1 Yes	☐3 No
j.	Bug zapper v849	☐1 Yes	☐3 No
k.	Hanging insect/fly trap attractant (e.g., fly bag, sticky tape) v850	☐1 Yes	☐3 No
l.	Other v851	☐1 Yes	☐3 No
m.	Total cost paid for insect and tick control v852	$ _____	

7. For how many resident equines can you provide information on the costs of veterinary products? *Include animals that died or were removed from the operation*. ..... v853 _____ head

8. In the previous 12 months, were the following veterinary products used for any resident equines?

a.	Vaccines (purchased, not obtained from veterinarian) v854	☐1 Yes	☐3 No
b.	Dewormers v855	☐1 Yes	☐3 No
c.	Other drugs v856	☐1 Yes	☐3 No
d.	Vitamin/mineral nutritional supplements v857	☐1 Yes	☐3 No
e.	Joint supplements v858	☐1 Yes	☐3 No
f.	Medical supplies (e.g., bandages, poultices) v859	☐1 Yes	☐3 No
g.	Other (specify: _____) v860oth v860	☐1 Yes	☐3 No
h.	Other (specify: _____) v861oth v861	☐1 Yes	☐3 No
i.	Other (specify: _____) v862oth v862	☐1 Yes	☐3 No
j.	Total cost paid for all veterinary products v863	$ _____	

9. In the previous 12 months, what was the typical annual cost per equine for vaccination? ..... v864 $ _____/head

10. In the previous 12 months, who administered these vaccines:

a.	Veterinarian? v865	☐1 Yes	☐3 No
b.	Operation personnel, including owner? v866	☐1 Yes	☐3 No

Section G—Office Use Only

State FIPS:_____	Operation #:_____	Interviewer:_____	Date: __/__/__
2 digits	4 digits	Initials	(mm/dd/yy)

End time [military]: _____ vtime

1. Enter interview response code: v901
   - ☐1 Out of business
   - ☐2 Refusal
   - ☐3 Complete
   - ☐4 Partial refusal
   - ☐5 Inaccessible
   - ☐6 Ineligible
   - ☐7 No resident equines on July 1

2. VMO note: If item 1 = 2 or 4, check the box below that best explains the reason for refusal. v902
   - ☐1 Does not want to commit time
   - ☐2 Does not have necessary records available
   - ☐3 Has participated in too many surveys
   - ☐4 A bad time of year (time-consuming horse activities, second job, etc.)
   - ☐5 Believes that this survey hurts the operator more than it helps
   - ☐6 No reason given, or other miscellaneous reasons

3. Did respondent use any of the following to answer **health** questions?
   - a. Records ..... v903 ☐1 Yes ☐3 No
   - b. Checked with veterinarian ..... v904 ☐1 Yes ☐3 No

4. Did respondent use/do any of the following to answer **economic** questions:
   - a. Records ..... v905 ☐1 Yes ☐3 No
   - b. Checked with accountant ..... v906 ☐1 Yes ☐3 No
   - c. Checked with veterinarian ..... v907 ☐1 Yes ☐3 No
   - d. Checked with hay/feed supplier ..... v908 ☐1 Yes ☐3 No

Return to TOC

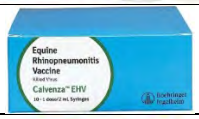
Section E Worksheet

Lameness in Resident Equines in the Previous 12 Months

Enter the letter of the response from each question in Section E.

Equine name	**Age category** Q4	**Intended purpose** Q5	**Gender** Q6	**Breed** Q7	**Outcome** Q8	**Duration of lameness** Q9	**Duration of lost use** Q10	**Change of use** Q11	**Vet consulted** Q12	**Diagnostic procedure(s)** Q13	**Conditions** Q14	**Treatments** Q15

EHV Vaccine Product List

Code	Est Name	True Name	Picture	Trade Name	Route of Admin
1	Boehringer Ingelheim	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Vetera 2xp	Intramuscular
2	Boehringer Ingelheim	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Calvenza-03 EIV/EHV	Intramuscular
3	Boehringer Ingelheim	Equine Rhinopneumonitis Vaccine, **Modified Live Virus**		Rhinomune	Intramuscular
4	Boehringer Ingelheim	Equine Rhinopneumonitis Vaccine, Killed Virus		Calvenza EHV	Intramuscular/Intranasal
5	Boehringer Ingelheim	Equine Rhinopneumonitis Vaccine, Killed Virus		Vetera EHVxp-1, EHVxp-4	Intramuscular
6	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera EWT + EIV/EHV	Intramuscular
7	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera 5xp	Intramuscular
8	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera VEWT + EIV/EHV	Intramuscular
9	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera 6xp	Intramuscular
10	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera Gold	Intramuscular
11	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Vetera Goldxp	Intramuscular
12	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera Gold + VEE	Intramuscular
13	Boehringer Ingelheim	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Vetera Goldxp + VEE	Intramuscular

Code	Est Name	True Name	Picture	Trade Name	Route of Admin
14	Merck Animal Health	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Prestige II	Intramuscular
15	Merck Animal Health	Equine Rhinopneumonitis Vaccine, Killed Virus **Prevention of Abortion**		Prodigy with Havlogen	Intramuscular
16	Merck Animal Health	Equine Rhinopneumonitis Vaccine, Killed Virus		Prestige with Havlogen	Intramuscular
17	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Prestige IV	Intramuscular
18	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Prestige V with Havlogen	Intramuscular
19	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Prestige V + VEE	Intramuscular
20	Merck Animal Health	Encephalomyelitis-Rhinopneumonitis-Influenza-West Nile Virus Vaccine, Eastern & Western, Killed Virus, WNV		Prestige V+WNV with Havlogen	Intramuscular
21	Zoetis Inc.	Equine Rhinopneumonitis-Influenza Vaccine, Killed Virus		Fluvac Innovator EHV-4, EHV-1	Intramuscular
22	Zoetis Inc	Equine Rhinopneumonitis Vaccine, Killed Virus **Prevention of Abortion**		Pneumabort-K+1b	Intramuscular
23	Zoetis Inc	Equine Rhinopneumonitis Vaccine, Killed Virus		EquiVac Innovator EHV-1, EHV-4	Intramuscular
24	Zoetis Inc	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western, Killed Virus, Tetanus Toxoid		Fluvac Innovator 5	Intramuscular
25	Zoetis Inc	Encephalomyelitis-Rhinopneumonitis-Influenza Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		Fluvac Innovator 6	Intramuscular
26	Zoetis Inc	Encephalomyelitis –West Nile Virus Vaccine, Eastern & Western & Venezuelan, Killed Virus, Tetanus Toxoid		West Nile Innovator + VEWT	Intramuscular
27	Other	-	-	-	-

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Dewormer Product List

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
1	Eqvalan Paste Zimecterin Paste	Ivermectin	Paste		Merial
2	Eqvalan Oral Liquid	Ivermectin	Liquid (oral drench or NG intub)		Merial
3	IverCare	Ivermectin	Paste		Farnam
4	Equell	Ivermectin	Paste		Bimeda
5	Promectin-E	Ivermectin	Liquid		Vedco
6	Bimectin	Ivermectin	Paste		Bimeda
7	Sparmectin-E	Ivermectin	Liquid		Sparhawk Labs
8	Ivermectin Paste 1.87%	Ivermectin	Paste		Durvet
9	Zimectrin Gold Paste	Ivermectin/ Praziquantel	Paste		Merial
10	Equimax	Ivermectin/ Praziquantel	Paste		Bimeda
11	Quest 2% Gel	Moxidectin	Gel		Zoetis
12	Quest Plus Gel	Moxidectin	Gel		Zoetis

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
13	Panacur Suspension 10%	Fenbendazole	Liquid		Intervet
14	Safe-Guard Equi-Bits	Fenbendazole	Medicated Pelleted Feed		Merck
15	Safe-Guard Panacur Paste Panacur PowerPac	Fenbendazole	Paste		Intervet: Panacur Merck: Safe-Guard
16	Anthelcide EQ Paste	Oxibendazole	Paste		Zoetis
17	Strongid T	Pyrantel Pamoate	Liquid		Zoetis
18	Strongid Paste	Pyrantel Pamoate	Paste		Zoetis
19	Strongid C 2X	Pyrantel Tartrate	Top dress		Zoetis
20	Anthelban V	Pyrantel Pamoate	Liquid		Phoenix
21	Continuex daily horse wormer Equi Aid CW	Pyrantel Tartrate	Top dress		Farnam
22	Pyrantel Paste	Pyrantel Pamoate	Paste		Durvet
23	Exodus Paste	Pyrantel pamoate	Paste		Bimeda
24	Primex Equine	Pyrantel Pamoate	Liquid		Priority Care
25	Other	-	-	-	-

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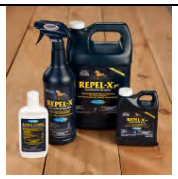
NAHMS Equine 2015-16 Tick Control Products

Code	Established name	Manufacturer	Picture	Type
1	Barn and Stable Fly Spray	Bonide		Spray
2	Zonk it! Spray	Cut Heal Animal Products		Spray
3	Pyranha Aerosol	Equine Direct		Spray
4	Repel-X Concentrate	Farnam		Spray
5	Flysect Super 7	Farnam		Spray
6	Pyranha Spray and Wipe	Equine Direct		Spray or Wipe
7	Bite Free	Farnam		Spray or wipe
8	EquiSect	Spray or Wipe		Spray or wipe

NAHMS Equine 2015-16 Tick Control Products

Code	Established name	Manufacturer	Picture	Type
9	Flysect Super-C Concentrate	Farnam		Spray or wipe
10	Tri-Tec 14	Farnam		Spray or wipe
11	DuraGuard Insecticide and Repellant	Absorbine		Spray or wipe
12	UltraShield Insecticide and Repellant	Absorbine		Spray or wipe
13	Equi-Spot	Farnam		Spot-On Topical
14	Endure Roll-On	Farnam		Roll-On
15	Zonk It! Roll-On	Cut Heal Animal Products		Roll-On
16	Bug Check	Cut Heal Animal Products		Edible Powder

Description of Habitat Types for NAHMS Equine Study 2015

Prepared by U.S. Department of Agriculture

Animal and Plant Health Inspection Service, Veterinary Services (USDA:APHIS:VS) 2015

Habitat Type	NAHMS #	Description	Examples
Developed – Residential  	Questionnaire D18a Tick Exam Code: No. 1	Areas with 30% or higher of constructed materials such as asphalt, concrete, wooden fences, or metal beams May or may not have vegetation interspersed among construction material	• Barns • Paddocks • Fenced in areas Lawns, small shrubs, mixed vegetation near housing areas for equines
Developed – Commercial**  	Questionnaire D18a Tick Exam Code No. 1	Areas associated with infrastructure—like railroads, highways, road structures, and training tracks	• Roadways along fenced area for equines with shrubs and/or small trees • Vegetation may be interspersed in the middle of roadway
Shrubland*  	Questionnaire D18b Tick Exam Code No. 2	Areas dominated by natural woody vegetation less than 6 meters or 20 feet tall Grasses and young trees (both evergreen and deciduous) can be interspersed among shrubs	• Shrubs are woody like trees, but much shorter • Horses that come in contact on a regular basis with shrubs along fence rows, interspersed among pasture or rangeland areas, or found along the sides of buildings such as barns and paddocks • Examples of shrub species: Black Hawthorn, Bitter Pea, Saltbush, , Crape Myrtle, Hagbrier, and Texas Sage
Forested  	Questionnaire 18c Tick Exam Code No. 3	Areas associated with tree cover taller than 6 meters or 20 feet tall covering more than 75% of the area • Deciduous trees (shed leaves seasonally) • Evergreen trees (maintain leaves year round), mixed areas (both deciduous and evergreen trees)	• Horses that come in contact with a large numbers of trees on a regular basis • Examples of tree species: Hickory, Beech, Poplar, Ash, Hemlock, and Red Cedar
Cultivated/Planted – Non Woody****  	Questionnaire D18d Tick Exam Code No. 6	Areas of planted herbaceous vegetation (do not have woody stems) that are **intensively managed** or irrigated	• Horses that come in contact with a pasture type habitat on a regular basis • Grass and/or hay planted for food for equines

For more information contact: Dr. Angela James @ angela.m.james@aphis.usda.gov

Description of Habitat Types for NAHMS Equine Study 2015

Habitat Type	NAHMS #	Description	Examples
Cultivated/Planted Woody  	Questionnaire D18d Tick Exam Code No. 6	Areas with woody vegetation (such as orchards and vineyards) that are planted for production of berries, nuts, etc.	• Horses that forage near orchards on a regular basis.
Grasslands*  	Questionnaire D18e Tick Exam Code No. 4	Majority of coverage related to upland grasses and forbs; • might be used for grazing, • **not intensively managed**	• Horses that come in contact on a regular basis with rangeland type grasses that may be planted for horses or be natural grasses • Grass can be annual or perennial; (western wheatgrass, cane bluestem, bunch grass, mountain brome, meadow fescue etc.)
Wetlands  	Questionnaire D18f Tick Exam Code No. 5	Areas that are **periodically** saturated or covered with water	• Horses that forage near these areas such as swamps, bogs, or marshes on a regular basis
Urban/Recreational Grasses***  	Questionnaire D18g Tick Exam Code No. 7	Grasses developed and **maintained for** recreation, erosion control, parks, lawns, trails etc.	• Horses that participate in activities on a regular basis where the habitat is maintained by the city or county. • Grasses such as bluegrass maybe planted and maintained for equine activities
Water Bodies  	Questionnaire D18h Tick Exam Code No. 9	Open water present year round	• Horses come in contact with ponds, lakes, reservoirs, streams, rivers, canals, or waterways on a regular basis.

Reference: Based on Anderson's Landcover Classification System: USGS National Landcover Dataset - http://landcover.usgs.gov/classes.php
Photographs: PublicDomainPictures.net: Bureau of Land Management. 2007 or National Park Service*;http:\\syndey.com**; http:\\m.visitvictoria.com***; pinterest.com****- All photographs are in the public domain.

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Equine 2015-16 Biologics Manual

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NAHMS Equine 2015-16 Participant Benefits

As part of its Equine 2015-16 study, NAHMS is offering study participants free biological testing, a free tick exam and a facility biosecurity assessment. For more information about the benefits of participating, see the Benefits of Participation Infosheet under Tab 2 of this manual.

The only way to receive free testing and results is to participate!

The 5 Components of the Biologics Portion

1. Internal parasite/anthelmintic resistance testing

Please check your contact list to determine whether or not the operation participated in the 2015 Internal Parasite Study. If the operation did participate, then skip the internal parasite/anthelmintic resistance testing portion of the biologics. Those participants who have not already completed this portion of the study will receive kits and instructions for sample collection along with prepaid shipping labels. Fecal samples for this testing will be collected and submitted by the owner/participant. Participants that complete this portion of the study will receive pre- and post-deworming fecal egg counts and anthelmintic resistance testing on up to 6 equine.

Results will be provided to the participants in a report along with general equine internal parasite information sheets within 120 days of post-deworming sample submission.

2. Fecal culture/antimicrobial resistance (AMR) testing

A subset of participants will have samples cultured for *Salmonella* (up to 20 equine/operation) and non-type specific *E. coli* (up 4 equine/operation). *Salmonella* isolates will be serogrouped, serotyped, and tested for antimicrobial susceptibility.

Salmonella culture results, including serogroup, will be provided to the participants with general information on *Salmonella* in equine within 120 days of sample submission.

3. Tick exam and tick identification

A full body tick exam and tick collection will be performed on up to 10 equine. The location and species of the ticks collected will be reported for individual equine.

Results will be provided to the participants in a report with general information on ticks associated with equine within 120 days of sample submission.

4. Blood collection for serum banking

Blood samples will be collected from up to 20 equine; the number of equine sampled is based on a sliding scale of total number of resident equine on the operation. Four sets of sera will be banked at NVSL for future research. Participation in this sampling will benefit the equine industry through studies that will improve understanding of equine health and welfare.

No results will be provided to the participants.

5. Biosecurity Assessment

Participants will receive a scripted report that provides general information about risks posed by each item/practice evaluated on their operation to decrease risk of disease introduction or spread.

Results will be provided to the participants in a report along with general information on operation biosecurity within 120 days of the VMO visit.

Reports

At the end of the study, participants will receive reports customized for their operation. These reports will include enteric parasite status and tick identification. Participants will also receive information sheets describing animal health issues relevant to the test results.

In addition to providing participants with valuable information about their operation, data collected during the Equine 2015-16 study will help the equine industry as a whole by providing current and scientifically valid estimates about the challenges facing equine owners and operations.

An example of a test reports and the information sheets that will be provided to the participants can be found under the Tab 8: **Participant Reports & Infosheets**.

In addition, data collected during the Equine 2015-16 study will be summarized and published in descriptive reports and infosheets.

Participants can access all products published from data collected during NAHMS equine studies at: http://www.aphis.usda.gov/nahms

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Biologics Component Overview

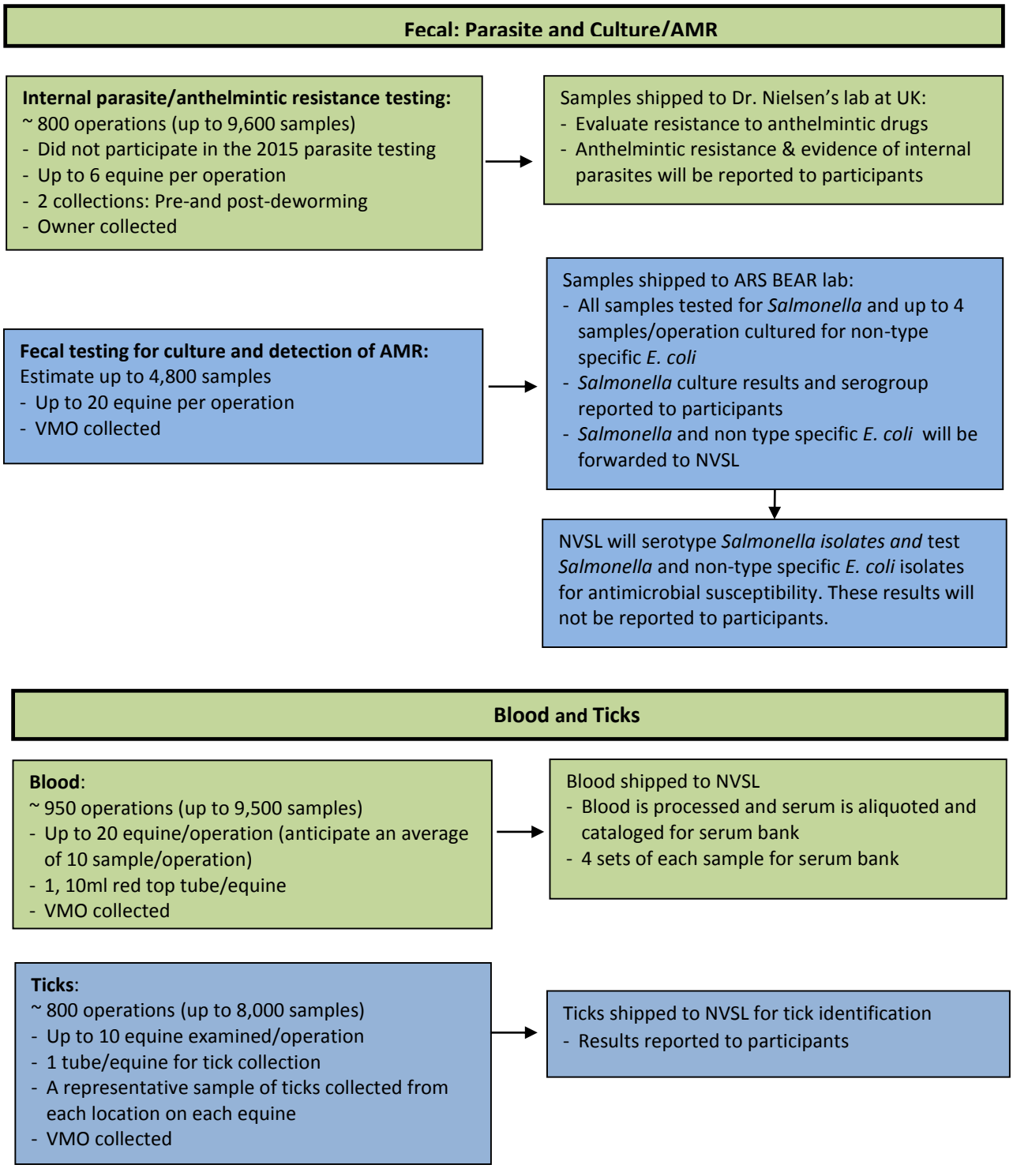
Please be sure the participant knows that biologics testing offered as part of the NAHMS Equine 2015-16 study is not meant to be used for diagnostic purposes as it may take up to several months for the operations to receive test results or biosecurity assessment results. If the operation is experiencing health problems in their equine, a private practitioner needs to be consulted.

Timeline

- Phase II: VMO visits start May 1, 2016 and will end by September 30, 2016.
- Equine operations must submit their second internal parasite/anthelmintic resistance box (Box B) by November 16, 2016.
- All equine operations that participate in the VMO phase of the study (Phase II) are eligible to participate in the following biologics components: internal parasite/anthelmintic resistance testing (unless already completed), collection of blood, tick exam and identification, and biosecurity assessment.
- A subset of operations will also be offered fecal *Salmonella* testing.

Biologic Sampling Diagram

Equine 2015-16 Biologics Sampling Flow Chart



Descriptions of the 5 Components of Biologics

Copies of data collection forms and examples of completed forms are located under Tab 6 in this manual.

1. Fecal samples for internal parasite/anthelmintic resistance testing

a. Only offered to operations that did not participate in the 2015 Internal Parasite Study.

b. VMO/AHT duties:
   i. Bring a set of internal parasite/anthelmintic resistance testing kits (parasite kits) (Box A and Box B) to the operation and leave the boxes with the owner/participant.
   ii. **VMO/AHT Must write the NAHMS ID (2 digit State code and 3 digit operation number) on the label located on the inside of the Styrofoam box.**
   iii. **VMO/AHT Must also write the NAHMS ID and Kit number in the spaces provided on the data collection forms (3-part paper) in each of the two boxes.**
   iv. Go over the procedure and instructions for sample collection and submission (see story book for photos of sample collection and shipping) with owner/participant during the visit.
   v. Provide the owner/participant with a phone number and email where they can contact you in case they have questions or need additional supplies.

c. Owner/participant duties:
   i. Collect and submit fecal samples pre- and post-deworming from up to 6 equine on the operation.
      a. Pre-deworming fecal samples:
         1. Collect on the day of deworming equine that have not been dewormed in the past 2 months (60 days).
         2. Collect and label samples according to instructions in Box A
         3. Complete pre-deworming data collection form (Form 1). A list of deworming products has been provided in the kit to assist in dewormer identification.
         4. Include empty deworming product tube or label in Box A.
      b. Post-deworming fecal samples:
         1. Collect and label samples 10-14 days after deworming from the same equine that samples were collected from prior to deworming.
         2. Complete the post-deworming data collection form (Form 2). A list of deworming products has been provided in the kit to assist in dewormer identification.
   ii. Samples should be refrigerated or kept cold until shipped with cooler packs ideally no more than 3 days (72 hours) after collection to Dr. Martin Nielsen's lab at the University of Kentucky (UK).
   iii. Pre-printed sample labels and shipping labels are included in Box A and Box B.
   iv. No shipping Fridays and Saturdays and June 30-July 4, Sept 1-Sept 5.

d. Results:
    i. Strongyle and ascarid egg counts will be determined before and after deworming to test for parasite resistance to the dewormer used. Presence of tapeworms, pinworms, *Stongyloides westeri*, and *Eimeria leuckarti* will be determined for each sample.
    ii. Strongyle and ascarid egg counts, and fecal egg count resistance test (FECRT) interpretations will be provided to the participants. The presence of tapeworms, pinworms, *Stongyloides westeri*, and *Eimeria* will also be provided to the participants.

2. Fecal samples for culture/AMR testing

Only operations visited on Monday, Tuesday or Wednesday will be eligible for participation. In addition, study states have been divided into 3 groups with different sampling dates and numbers of samples per week. This plan will keep the sample numbers to within the capacity limits of the ARS laboratory in Athens, GA.

Number of Equine to Sample:

# Resident equine	**# Equine of any age to sample** (Select equine representative of population on operation.)
Fewer than 10	All
10–19	10
20–49	15
50 or more	20

Schedule:

- **Group 1: TX**
    - Collection dates are May 1 – September 30, 2016
    - Submit up to 30 samples per week

- **Group 2: KY, New England (CT, MA, RI), AR, KS, MT, CA, FL, MI, PA, OH, and NC**
    - Collection dates are May 1 – July 15, 2016
    - Submit 20/week per state (and New England)

- **Group 3: OK, TN, OR, DE, AZ, VA, NY, MD, WI, WY, AL, MO, CO , and NJ**
    - Collection dates are July 16 – September 30, 2016
    - Submit up to 20 samples/week per state

No shipping: Thursdays, Fridays and Saturdays as well as July 4-8

General sample collection instructions for Fecal Culture/ AMR samples:

a. Collect fresh feces from center of a pile of manure that the feces can be linked to the equine having passed the feces. Follow instructions on the data collection form provided in the kit.

b. Samples must be collected Monday through Wednesday and shipped to the ARS laboratory within 24 hours. **Do not ship samples on Thursday-Saturday or July 4-8, 2016.**

c. Do not freeze samples.

d. Ship samples overnight with a cooler pack to ARS BEAR laboratory in Athens, GA.

e. Samples will be cultured for *Salmonella* and non-type specific *E. coli*.

f. *Salmonella* and *E. coli* isolates will be shipped to NVSL for further characterization and susceptibility testing.

g. *Salmonella* culture results (positive or negative for each equine sampled) and serogroup for those samples that are positive will be provided to participants as we receive them, along with general information sheets on *Salmonella* in horses.

3. Tick scratch exam and sample collection

a. VMO/AHT examines up to 10 equine per operation for ticks. Prior to visiting the operation, the VMO and AHT should view the tick scratching exam and collection video for instructions on how to perform the tick exam.

b. Select the equine that have the greatest chance of tick exposure.

c. Use one screw top tick tube filled with 5 ml of 70% ethyl alcohol **per equine.**
   i. Do not use blood tubes for tick collection.
   ii. Save extra tick tubes for future tick collection.

d. Perform a full-body scratch inspection using your bare fingers to locate ticks. Use your thumb and index finger to remove ticks and place them in the screw top tube.

   Please refer to the Tick Scratch Exam video for detailed instructions. The video is posted on the APHIS YouTube Channel at: https://youtu.be/wyKcXOniNsM

e. Collect a representative sample of ticks from each location on each equine.
   i. Sanitize your hands before examining each equine.
   ii. Write equine name/ID on the tube and make sure the sample number on the label matches the data collection form.

f. Complete the information requested on the "Tick Evaluation and Data Collection Record" form. Record the location and number of ticks according to the diagram provided.

g. Ship tick tubes with the blood tubes to NVSL with the pre-frozen cooler pack. Use the enclosed pre-paid and pre-printed FedEx shipping label. Include yellow copies of the completed tick and blood data collection forms in the box.

h. Send the original white copy of the data collection forms to your NAHMS Coordinator within 3 business days of the visit.

i. An NVSL standardized report with the types of ticks, and a remarks section specifying what ticks were found on each equine, will be provided to participants along with the summary of tick scratch exam findings and a general tick infosheet.

4. Blood collection

a. Collect samples from resident equine only and based on the following criteria:

# Resident equine	# Equine to sample
<10	All
10–19	10
20–49	15
>50	20

b. Randomly select equine that represent the resident equine inventory on the premises in terms of age, sex, breed, and use.

c. Wear clean gloves for the collection of blood from each equine. Gloves that become contaminated with blood or body fluids should be changed between equine. Gloves are not supplied in the kits so you will need to supply your own gloves.

d. Write the equine name/ID on the tube label.

e. Complete the data collection form and make sure the sample number on the tube matches the data collection form.

f. If possible, spin samples in the red top tubes, refrigerate and ship overnight with a cooler pack within 72 hours of collection. If you don't have access to a centrifuge, keep samples cool and ship overnight with a cooler pack within 24 hours of collection.

g. Place the yellow copy of the data collection form on the top of the Styrofoam lid before closing the box. Send the original white copy to your NAHMS Coordinator within 3 business days.

5. Biosecurity assessment

- An on-site biosecurity assessment of the operation will be performed by the VMO/AHT.
- Go to the Biosecurity Assessment tab to look through the assessment questions and the guidelines for answering each question.

Collection and Shipping Schedule

Sample type	Sunday–Wednesday collection	Thursday collection	Friday or Saturday collection
Fecal samples for internal parasite/ anthelmintic resistance testing of up to 6 equine *Black out dates **Owner Collected and Shipped**	Refrigerate after collection and ship within 72 hours with a cooler pack. **Do not freeze.**	Refrigerate after collection and ship within 72 hours with a cooler pack. **Do not freeze.**	Do not ship samples Friday or Saturday. Refrigerate after collection and ship within 72 hours with a cooler pack. **Do not freeze.**
Fecal samples for culture/AMR testing **Black out dates **VMO/AHT Collected**	Refrigerate after collection and ship within 24 hours with a cooler pack. **Do not freeze.**	Do not collect	Do not collect
Tick Sample Collection-from up to 10 equine **VMO/AHT Collected**	Refrigerate after collection and ship within 24 hours with a cooler pack with blood sample. **Do not freeze.**	Do not collect	Do not collect
Blood Collection-up to 20 equine **VMO/AHT Collected**	Spin red tops if possible and refrigerate after collection. Ship within 24 hours with a cooler pack with tick sample. **Do not freeze.**	Do not collect	Do not collect

*Parasite testing: Let the owner know not to ship samplesFridays and Saturdays, June 30-July 4 and September 1-5.

**Fecal Culture samples: Do not ship samples Thursday, Friday or Saturday and July 4-8

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Kit Information

The materials needed to conduct the equine operation visits are provided in the kits. Kits are available through your NAHMS Coordinator. Coordinators can order kits from Abby by calling 970-494-7252 or emailing abigail.c.zehr@aphis.usda.gov.

Kit Details

For each operation, VMO/AHT will need:

- 1 set of fecal parasite collection kits (Box A and Box B)
- 1 blood and tick collection kit (BT kit) or 1 blood kit (BL Kit) - if you have tick tubes leftover from previous visits.

For operations selected for fecal culture/AMR testing, VMO/AHT will need:

- 1 Fecal Culture kit

Each kit includes supplies and instructions for sample collection, sample labels, data collection forms and preprinted FedEx shipping labels for shipping samples to the labs.

Kit Components

Internal Parasite/Anthelmintic Resistance Boxes (Box A and Box B)

Box A Supplies and paperwork:

Supplies:

1. 1 Styrofoam™ shipping box, cooler pack (these will keep the samples cool during shipping)
2. 1 absorbent sheet (highly absorbent to soak up any leaks during shipping)
3. 8 Whirl-Pak® bags (1 per sample plus extra, if needed)
4. 1 large re-sealable bag (it is a FedEx requirement to double-bag samples to prevent leaks or spills)
5. 1 ballpoint pen

Paperwork:

1. General Instructions
2. Step-by-Step Instructions
3. Form 1: Pre-deworming form (3-part carbonless paper)-VMO/AHT will need to write in NAHMS ID and Kit Number on the form
4. Product list of dewormers
5. Labels for samples-VMO/AHT will need to tell the participants to write the equine name/ID on each label.
6. 1 postage-paid business-reply envelope addressed to NAHMS (attached to Form 1)
7. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Box B Supplies and paperwork:

Supplies:

1. 1 Styrofoam™ shipping box, cooler pack (these will keep the samples cool during shipping)
2. 1 absorbent sheet (highly absorbent to soak up any leaks during shipping)
3. 8 Whirl-Pak® bags (1 per sample plus extra, if needed)
4. 1 large re-sealable bag (it is a FedEx requirement to double-bag samples to prevent leaks or spills)
5. 1 ballpoint pen

Paperwork:

1. General Instructions
2. Step-by-Step Instructions
3. Form 2: Pre-deworming form (3-part carbonless paper)-VMO/AHT will need to write in NAHMS ID and Kit Number on the form
4. Product list of dewormers
5. Labels for samples-VMO/AHT will need to tell the participants to write the equine name/ID on each label.
6. 1 postage-paid business-reply envelope addressed to NAHMS (attached to Form 2)
7. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Fecal Culture Kit (FC Kit)

Supplies:

1. 1 Styrofoam™ shipping box, cooler pack (these will keep the samples cool during shipping)
2. 1 absorbent sheet (highly absorbent to soak up any leaks during shipping)
3. 8 Whirl-Pak® bags (1 per sample plus extra, if needed)
4. 1 large re-sealable bag (it is a FedEx requirement to double-bag samples to prevent leaks)
5. 1 ballpoint pen

Paperwork provided in Fecal Culture Kit:

1. General Instructions
2. Fecal culture/AMR Form (2 part carbonless paper)
3. Preprinted labels for samples
4. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Blood and Tick Kit (BT Kit)

Supplies:

1. 1 Styrofoam™ shipping box, cooler pack (these will keep the samples cool during shipping)
2. 1 absorbent sheet (highly absorbent to soak up any leaks during shipping)
3. 10 tubes for tick collection
4. 20x10ml red top tubes for blood collection
5. 1 blood box to hold blood and tick tubes
6. 1 large re-sealable bag for the box of tubes
7. 1 ballpoint pen, 1 Sarstedt ultrafine point permanent marker

8. Alcohol hand sanitizer for use between equines and for other hand hygiene needs while on the operation. Can be left at operation when all sampling is completed

Paperwork provided in Blood and Tick Kit (BT Kit):

1. General Instructions
2. Data Collection Forms: Blood and Tick Forms (2-part carbonless paper)
3. Preprinted labels for samples
4. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Blood Kit (BL Kit)

If you have tick tubes left from previous visits where you did not use all the tick tubes, you can order "Blood Only" kits (BL Kits) and use the left over tick tubes from other visits for tick collection.

Supplies:

1. 1 Styrofoam™ shipping box, cooler pack (these will keep the samples cool during shipping)
2. 1 absorbent sheet (highly absorbent to soak up any leaks during shipping)
3. 20x10ml red top tubes for blood collection
4. 1 blood box to hold blood and tick tubes
5. 1 large re-sealable bag for the box of tubes
6. 1 ballpoint pen for data collection form, 1 Sarstedt permanent marker for sample labels

Paperwork provided in Blood Kit:

1. General Instructions
2. Data Collection Forms: Blood and Tick Forms (2-part carbonless paper)
3. Preprinted labels for samples
4. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Shipping Information

Priority Overnight FedEx labels are preprinted as follows:

- Parasite Fecal Samples shipped to Dr. Martin Nielsen's lab at the University of Kentucky by participant.
- Fecal Culture/AMR Fecal Samples are shipped to ARS BEAR laboratory in Athens, GA by VMO/AHT.
- Blood and Tick Samples shipped to NVSL in Ames, IA by VMO/AHT.

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Sample Collection Instructions and Data Collection Forms

Table of Contents

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Introduction

On the next few pages you will find the instructions and data collection forms and for internal parasite/anthelmintic resistance fecal sampling, culture/AMR fecal sampling, tick sampling, and blood sampling. These instructions forms and are included in the kits. Examples of filled data collection forms are also provided.

The data collection forms are printed on two or three-part carbonless paper. Include the yellow copy with the samples and return the white copy to your coordinator within 3 business days.

Internal Parasite/Anthelmintic Resistance Testing Box A (Pre-deworming) Paperwork

Step-by-Step Checklist

1. Read General Instructions

2. Prior to the next time you deworm:
   - ☐ Read Form 1 instructions in Box A
   - ☐ Freeze cold packs

3. At the time you deworm:
   - ☐ Collect fecal samples following Form 1 instructions
   - ☐ Complete the table in Form 1
   - ☐ **Place used dewormer tube, label, or insert in Box A**
   - ☐ Ship samples and yellow copy of the table in Form 1 to the lab in Box A
   - ☐ Mail white copy of the table in Form 1 to NAHMS in the business-reply envelope
   - ☐ Keep pink copy of the table in Form 1 for your records
     We suggest putting this copy with Box B for reference when collecting the post-deworming sample.

4. Write the date for post-deworming sample collection in your calendar. This date should be marked 10 to 14 days after deworming your equine.

5. 10 to 14 days after deworming:
   - ☐ Open Box B
   - ☐ Freeze cold packs
   - ☐ Read Form 2 instructions in Box B
   - ☐ Complete the table in Form 2 (Refer to your pink copy of Form 1 for equine sampled.)
   - ☐ Ship samples and yellow copy of the table in Form 2 to the lab in Box B
   - ☐ Mail white copy of the table in Form 2 to NAHMS in business-reply envelope
   - ☐ Keep pink copy of the table in Form 2 for your records

Test results will be provided to you within 1 to 2 months of when all testing has been completed.

If you have questions, please contact NAHMS at:

Phone: (866) 907–8190 **OR** **Email:** Abigail.C.Zehr@aphis.usda.gov

Address: 2150 Centre Ave., Bldg. B, MS 2E7, Fort Collins, CO 80526-8117

Animal and Plant
Health Inspection
Service

Veterinary
Services

General Instructions

Fecal Sampling for Parasite Testing

National Animal Health
Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

Thank you for taking the time to collect samples for parasite testing.

In order for the test results to be accurate and of value to you, please be sure to review all the materials provided and follow collection and shipping instructions carefully. Your test results will be mailed to you when all testing has been completed.

Test results: The parasite burden for both pre- and post-deworming samples will be reported as egg counts (or eggs per gram of feces). The post-deworming test results, when compared with the pre-deworming test results, will indicate the effectiveness of the deworming program.

Sample collection: Sample up to 6 resident equines that have not been dewormed in the last 60 days (2 months). Each equine should be sampled on the day of deworming and 10 to 14 days after deworming. **To be included in the study, equine must be dewormed and sampled prior to September 30, 2016. Do not ship samples on Fridays/Saturdays or on the following dates due to holiday closures: June 30- July 4 and September 1- September 5.** You can keep your samples refrigerated for up to 72 hours prior to shipping.

Kits: You have received two kits. Each kit contains the supplies you need to collect fecal samples, including sample labels, paperwork, shipping instructions, and prepaid labels.

Box A should be used to collect and ship samples at the time of administering dewormer; **Box B** should be used to collect and ship samples 10 to 14 days after dewormer has been administered.

If you are missing any supplies, need additional supplies, or have questions, please contact NAHMS at:

Phone: (866) 907–8190 **OR** **Email:** Abigail.C.Zehr@aphis.usda.gov

Address: 2150 Centre Ave., Bldg. B, MS 2E7, Fort Collins, CO 80526-8117

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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Each kit contains:

1 Styrofoam™ shipping box, cold pack (these will keep the samples cool during shipping)
1 absorbent sheet (highly absorbent to soak up any leaks during shipping)
8 Whirl-Pak® bags (1 per sample plus extra, if needed)
1 large resealable bag (it is a FedEx requirement to double-bag samples to prevent leaks or spills)
1 ballpoint pen

Paperwork provided in Box A:

1. General Instructions
2. Step-by-Step Checklist
3. Form 1: Pre-deworming form (3-part carbonless paper)
4. Product list of dewormers
5. Preprinted labels for samples
6. 1 postage-paid business-reply envelope addressed to NAHMS (attached to Form 1)
7. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Paperwork provided in Box B:

1. General Instructions
2. Step-by-Step Checklist
3. Form 2: Post-deworming form (3-part carbonless paper)
4. Product list of dewormers
5. Preprinted labels for samples
6. 1 postage-paid business-reply envelope addressed to NAHMS (attached to Form 2)
7. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Collection Overview

1. Freeze cold packs ahead of time.
2. Select up to 6 equines (horses, ponies, donkeys, mules, or miniature horses) that have **not been dewormed** in the previous 60 days (2 months).
3. First sample collection—on the day of deworming
    a. Read detailed instructions on Form 1 in Box A.
4. Administer dewormer to ALL sampled equines.
    a. Put dewormer label, insert, or container in pre-deworming box before shipping.
5. Write the date of post-deworming sample collection, 10 to 14 days after deworming, on your calendar to remind you of when to collect the second set of samples.
    a. Testing results require both sets of samples to be sent to the lab.
6. Second sample collection—10 to 14 days after deworming **from the same horses that were sampled prior to deworming**.
    a. Read detailed instructions on Form 2 in Box B.

USDA

Animal and Plant Health Inspection Service

Veterinary Services

Form 1: Pre-deworming

Fecal Samples for Parasite Testing

National Animal Health Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

Collect the pre-deworming samples on the day of administration of dewormer to equines that have not been given any dewormer in the past 60 days (2 months).

Step-by-Step Guide to Sample Collection

Please follow the instructions provided below for collection and submission of samples.

1. Freeze cold packs ahead of time.
2. Review the Storybook on the back of this page for sample collection and sampling.
3. Turn a Whirl-Pak® bag inside out over your hand.
4. Pick up a small handful of **fresh** fecal material (not petrified) from the top of the pile to prevent contamination from the ground. One fecal ball is adequate. Include diarrhea samples.
5. **Sample must be associated with a specific animal.**
6. Turn the bag right side out with your other hand **and** squeeze extra air out of the bag. Roll the bag **twice** and twist closed to prevent leakage.
7. Place a preprinted label on the sample bag. Write the **Equine name/Unique ID** and the **Date** on each label. Write the Equine name/Unique ID in the corresponding row for Equine sample # on the table in Form 1. **Do not use the label to seal the bag.**
8. Cool samples down as soon as possible. Refrigerate them or keep them cool in the Styrofoam™ shipping box with cold packs until they are shipped. Replace cold packs as needed to keep the samples continuously cooled. **Do not freeze the sample.**
9. The table in Form 1 is printed on 3-part carbonless paper. **Please write firmly with a ballpoint pen and make sure the information appears clearly on all 3 copies**. The different colored copies of the table in Form 1 will go to the following destinations:
    a. White copy—Send to NAHMS in business-reply envelope.
    b. Yellow copy—Place in box with samples.
    c. Pink copy—Keep for your records→ You will need this to complete the table in Form 2 (the post-deworming form).

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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Storybook: Fecal Collection and Shipping

1. For each sample you must be able to match the equine with the feces collected.

2. Open a Whirl-Pak® bag and turn it inside out over your hand.

3. Pick up a small handful of fresh fecal material from **the middle and top of the fecal pile** to prevent contamination from the ground. One fecal ball is adequate.

4. Turn the bag right side out with your other hand.

5. Squeeze extra air out of the bag and close firmly by rolling the upper edge over two times and twisting the yellow tabs to prevent leakage.

6. IMMEDIATELY place label on Whirl-Pak bag. Fill in Equine name/Unique ID and Date on the label. This number should correspond to the information provided on the table in Form 1 for this equine.

7. Place all labeled sample bags inside the large resealable bag, squeeze out extra air, and close firmly to prevent leakage.

8. Place the large resealable bag of samples on the cold pack in the provided Styrofoam cooler in cardboard Box A. **Place used dewormer tube, label, or insert in Box A.** Complete the table in Form 1 for each equine sampled.

Dewormer

9. Place the **yellow** copy of the table in Form 1 on top of the Styrofoam lid and ship with the samples to the lab. Seal Box A with wide durable tape and ship to the lab using the preprinted FedEx label provided.

10. Mail the **white** copy of the data collection form to NAHMS in the enclosed envelope.

11. **Keep the pink copy for your records** (you will need it to complete the table in Form 2, the post-deworming form).

Completing the table in Form 1 (attached)

1. **NAHMS ID:** The visiting veterinarian should write this in the upper-left hand corner of the table in Form 1. This number is assigned to your farm/operation by NASS. All forms and test results will refer to this unique ID number.

2. **Kit ID:** This number is printed on Box A and on the labels for the sample bags.

3. **Sample collector phone #:** Please provide a contact phone # in case we need to follow up with you.

4. Collect the pre-deworming fecal samples when you **administer dewormer**.

5. Complete each column in the table in Form 1 for each equine sampled. If you don't know the answer, write **DK**. If you **decline to answer**, please draw a line through the cell so that we know you didn't just forget to answer that question.

6. Record the name of the dewormer and the date the dewormer was administered on the table in Form 1.

    a. **Please include the used dewormer tube, label, or insert in Box A when shipping the samples to the lab.**

    b. A list of deworming products along with pictures of bottles/containers has been provided in Box A to help you identify the product(s) used.

7. Mail the **white copy** of the table in Form 1 **to NAHMS** in the enclosed postage-paid envelope.

8. **Keep the pink copy** for your records. You will need it to complete the table in Form 2 (the post-deworming form). We recommend that you store it with Box B.

9. Place the **yellow copy** on top of the Styrofoam lid and seal the box with wide durable tape.

10. **Ship samples with the cold pack** at your earliest convenience, and **no more than 3 days** (72 hours) after collecting the samples. **Ship Monday through Thursday.**

    *** Please **DO NOT SHIP** samples to the lab June 30-July 4 or September 1- September 5 due to holiday closures.***

11. **Use the enclosed preprinted, prepaid FedEx label.**
    Do not ship samples on a Friday or Saturday.

Contact FedEx to locate a convenient drop-off location that accepts priority overnight packages.
1–800–gofedex (1–800–463–3339) or www.fedex.com

FORM 1 Table

NAHMS ID (6 digits): _____ Kit ID: _____ Collection date: _____

Sample collector phone #: _____ (Please provide phone number in case we need clarification on any of the information provided.)

Sample #	Equine name or unique ID	Age (months OR years)	Gender (see codes below)	Primary use 1=pleasure, 2=lessons/school, 3=show or competition (not betting), 4=breeding, 5=racing, 6=farm or ranch work, 7=retired (not in use), 8=other	Equine type (see codes below)	Breed- for horses only (see codes below)	Condition of fecal sample: 1=normal 2=soft/cowpie-like 3=watery, 4=bloody 5=other (describe)	Date of last deworming (prior to this study)	Dewormer used at last deworming prior to this study (enter code from Product List)	Dewormer used at time of this fecal collection (enter code from Product List)	Estimated body weight (lb)	Method of estimating body weight (see codes below)	Dewormer dosage (e.g., weight on dial of tube)	Percentage of administered dewormer consumed (e.g., 100%=all swallowed; 0%=spit it all out)
1		___ mo ___ yr												
2		___ mo ___ yr												
3		___ mo ___ yr												
4		___ mo ___ yr												
5		___ mo ___ yr												
6		___ mo ___ yr												

Codes:

Gender codes:
1 = Intact male 2 = Castrated male 3 = Intact (nonpregnant) mare or filly 4 = Pregnant female 5 = Spayed female 6 = Unknown status

Equine types:
1 = Horse 2 = Mule 3 = Donkey or burro 4 = Pony 5. Miniature horse 6 = Other

Breed codes:
1 = Appaloosa 4 = Miniature horse 7 = Paint horse 10 = Standardbred 13 = Warmblood breed
2 = Arabian 5 = Morgan 8 = Quarter horse 11 = Tennessee Walker 14 = Grade
3 = Draft breed 6 = Mustang 9 = Saddlebred 12 = Thoroughbred 15 = Other horse breed, including mixed breed (specify)

Estimating body weight codes:
1 = Visual assessment 2 = Weight Tape 3 = Large Animal Scale 4 = None 5 = Other (specify) _____

Anthelmintic Product List with Codes

NAHMS Equine 2015-16

Product List

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
1	Eqvalan Paste Zimecterin Paste	Ivermectin	Paste		Merial
2	Eqvalan Oral Liquid	Ivermectin	Liquid (oral drench or NG intub)		Merial
3	IverCare	Ivermectin	Paste		Farnam
4	Equell	Ivermectin	Paste		Bimeda
5	Promectin-E	Ivermectin	Liquid		Vedco
6	Bimectin	Ivermectin	Paste		Bimeda
7	Sparmectin-E	Ivermectin	Liquid		Sparhawk Labs
8	Ivermectin Paste 1.87%	Ivermectin	Paste		Durvet
9	Zimectrin Gold Paste	Ivermectin/ Praziquantel	Paste		Merial
10	Equimax	Ivermectin/ Praziquantel	Paste		Bimeda
11	Quest 2% Gel	Moxidectin	Gel		Zoetis
12	Quest Plus Gel	Moxidectin	Gel		Zoetis

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
13	Panacur Suspension 10%	Fenbendazole	Liquid		Intervet
14	Safe-Guard Equi-Bits	Fenbendazole	Medicated Pelleted Feed		Merck
15	Safe-Guard Panacur Paste Panacur PowerPac	Fenbendazole	Paste		Intervet: Panacur Merck: Safe-Guard
16	Anthelcide EQ Paste	Oxibendazole	Paste		Zoetis
17	Strongid T	Pyrantel Pamoate	Liquid		Zoetis
18	Strongid Paste	Pyrantel Pamoate	Paste		Zoetis
19	Strongid C 2X	Pyrantel Tartrate	Top dress		Zoetis
20	Anthelban V	Pyrantel Pamoate	Liquid		Phoenix
21	Continuex daily horse wormer Equi Aid CW	Pyrantel Tartrate	Top dress		Farnam
22	Pyrantel Paste	Pyrantel Pamoate	Paste		Durvet
23	Exodus Paste	Pyrantel pamoate	Paste		Bimeda
24	Primex Equine	Pyrantel Pamoate	Liquid		Priority Care
25	Other	-	-	-	-

FORM 1 Table

NAHMS ID (6 digits): _____ Kit ID: _____ Collection date: _____

Sample collector phone #: _____ (Please provide phone number in case we need clarification on any of the information provided.)

Sample #	Equine name or unique ID	Age (months OR years)	Gender (see codes below)	Primary use 1=pleasure, 2=lessons/school, 3=show or competition (not betting), 4=breeding, 5=racing, 6=farm or ranch work, 7=retired (not in use), 8=other	Equine type (see codes below)	Breed- for horses only (see codes below)	Condition of fecal sample: 1=normal 2=soft/cowpie-like 3=watery, 4=bloody 5=other (describe)	Date of last deworming (prior to this study)	Dewormer used at last deworming prior to this study (enter code from Product List)	Dewormer used at time of this fecal collection (enter code from Product List)	Estimated body weight (lb)	Method of estimating body weight (see codes below)	Dewormer dosage (e.g., weight on dial of tube)	Percentage of administered dewormer consumed (e.g., 100%=all swallowed; 0%=spit it all out)
1		___ mo ___ yr												
2		___ mo ___ yr												
3		___ mo ___ yr												
4		___ mo ___ yr												
5		___ mo ___ yr												
6		___ mo ___ yr												

Codes:

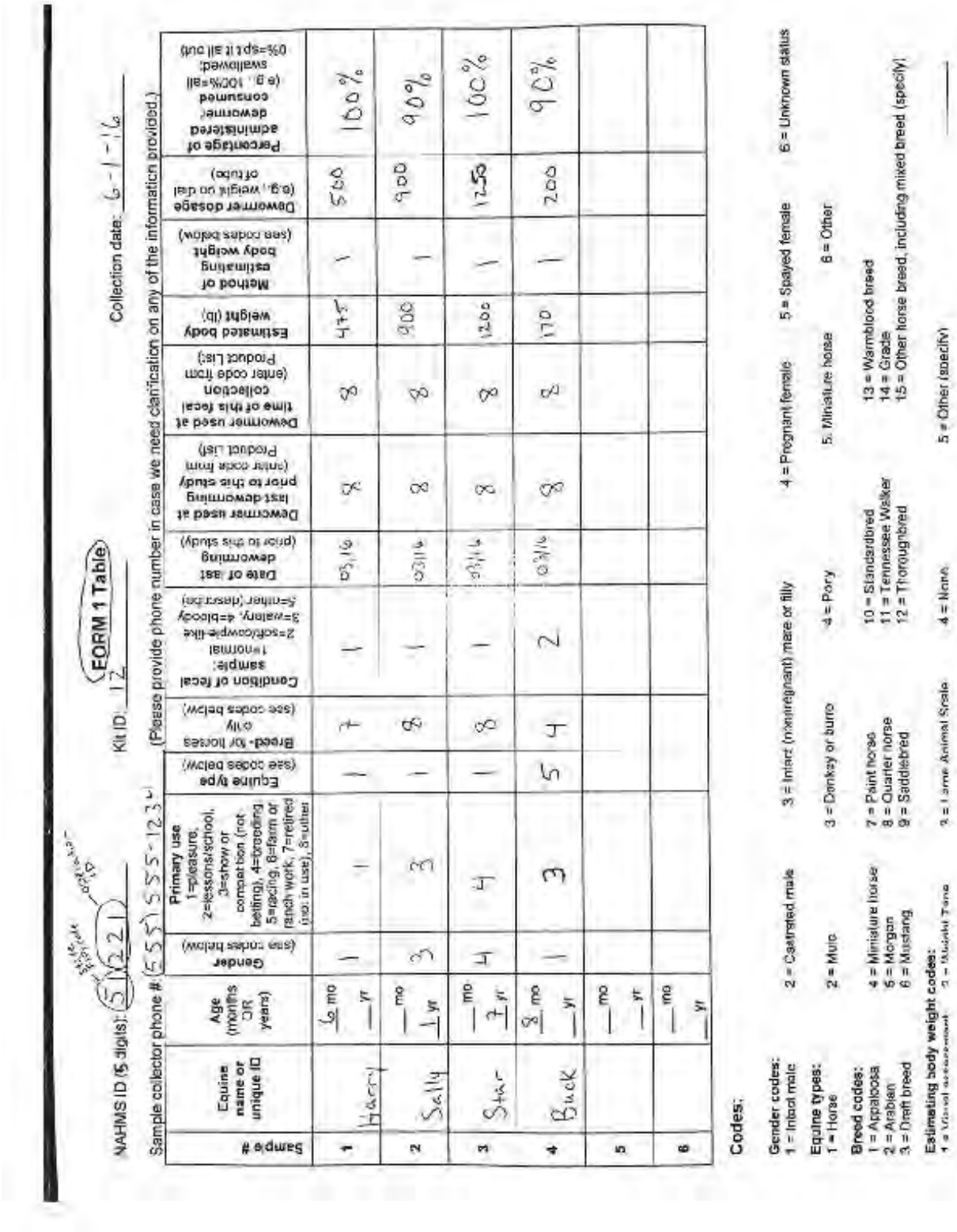
Gender codes:
1 = Intact male 2 = Castrated male 3 = Intact (nonpregnant) mare or filly 4 = Pregnant female 5 = Spayed female 6 = Unknown status

Equine types:
1 = Horse 2 = Mule 3 = Donkey or burro 4 = Pony 5. Miniature horse 6 = Other

Breed codes:
1 = Appaloosa 4 = Miniature horse 7 = Paint horse 10 = Standardbred 13 = Warmblood breed
2 = Arabian 5 = Morgan 8 = Quarter horse 11 = Tennessee Walker 14 = Grade
3 = Draft breed 6 = Mustang 9 = Saddlebred 12 = Thoroughbred 15 = Other horse breed, including mixed breed (specify)

Estimating body weight codes:
1 = Visual assessment 2 = Weight Tape 3 = Large Animal Scale 4 = None 5 = Other (specify) _____

Form 1 (Pre-Deworming) Example



FORM 1 Table

NAHMS ID (5 digits): 51221 Kit ID: 12 Collection date: 6-1-16

Sample collector phone #: (555) 555-1234 (Please provide phone number in case we need clarification on any of the information provided.)

Sample #	Equine name or unique ID	Age (months OR years)	Gender (see codes below)	Primary use 1=pleasure; 2=lessons/school, 3=show or competition (not betting), 4=breeding, 5=racing, 6=farm or ranch work, 7=retired (not in use), 8=other	Equine type (see codes below)	Breed- for horses only (see codes below)	Condition of fecal sample: 1=normal 2=softcowpie-like 3=watery, 4=bloody 5=other (describe)	Date of last deworming (prior to this study)	Dewormer used at last deworming prior to this study (enter code from Product List)	Dewormer used at time of this fecal collection (enter code from Product List)	Estimated body weight (lb)	Method of estimating body weight (see codes below)	Dewormer dosage (e.g., weight on vial of tube)	Percentage of administered dewormer consumed (e.g., 100%=all swallowed; 0%=spit it all out)
1	Harry	6 mo / yr	1	1	1	7	1	03/16	8	8	475	1	500	100%
2	Sally	mo / 1 yr	3	3	1	8	1	03/16	8	8	900	1	900	90%
3	Star	mo / 7 yr	4	4	1	8	1	03/16	8	8	1200	1	1250	100%
4	Buck	8 mo / yr	1	3	5	4	2	03/16	8	8	170	1	200	90%
5		mo / yr												
6		mo / yr												

Codes:

Gender codes:
1 = Intact male | 2 = Castrated male | 3 = Intact (nonpregnant) mare or filly | 4 = Pregnant female | 5 = Spayed female | 6 = Unknown status

Equine types:
1 = Horse | 2 = Mule | 3 = Donkey or burro | 4 = Pony | 5. Miniature horse | 6 = Other

Breed codes:
1 = Appaloosa | 4 = Miniature horse | 7 = Paint horse | 10 = Standardbred | 13 = Warmblood breed
2 = Arabian | 5 = Morgan | 8 = Quarter horse | 11 = Tennessee Walker | 14 = Grade
3 = Draft breed | 6 = Mustang | 9 = Saddlebred | 12 = Thoroughbred | 15 = Other horse breed, including mixed breed (specify)

Estimating body weight codes:
1 = Visual estimation | 2 = Weight Tape | 3 = Large Animal Scale | 4 = None | 5 = Other (specify) _____

Return to Tab 6

Internal Parasite/Anthelmintic Resistance Testing Box B (Post-deworming) Paperwork

Step-by-Step Checklist

1. Read General Instructions

2. Prior to the next time you deworm:
   - ☐ Read Form 1 instructions in Box A
   - ☐ Freeze cold packs

3. At the time you deworm:
   - ☐ Collect fecal samples following Form 1 instructions
   - ☐ Complete the table in Form 1
   - ☐ **Place used dewormer tube, label, or insert in Box A**
   - ☐ Ship samples and yellow copy of the table in Form 1 to the lab in Box A
   - ☐ Mail white copy of the table in Form 1 to NAHMS in the business-reply envelope
   - ☐ Keep pink copy of the table in Form 1 for your records
     We suggest putting this copy with Box B for reference when collecting the post-deworming sample.

4. Write the date for post-deworming sample collection in your calendar. This date should be marked 10 to 14 days after deworming your equine.

5. 10 to 14 days after deworming:
   - ☐ Open Box B
   - ☐ Freeze cold packs
   - ☐ Read Form 2 instructions in Box B
   - ☐ Complete the table in Form 2 (Refer to your pink copy of Form 1 for equine sampled.)
   - ☐ Ship samples and yellow copy of the table in Form 2 to the lab in Box B
   - ☐ Mail white copy of the table in Form 2 to NAHMS in business-reply envelope
   - ☐ Keep pink copy of the table in Form 2 for your records

Test results will be provided to you within 1 to 2 months of when all testing has been completed.

If you have questions, please contact NAHMS at:

Phone: (866) 907–8190 **OR** **Email:** Abigail.C.Zehr@aphis.usda.gov

Address: 2150 Centre Ave., Bldg. B, MS 2E7, Fort Collins, CO 80526-8117

USDA

Animal and Plant Health Inspection Service

Veterinary Services

General Instructions

Fecal Sampling for Parasite Testing

National Animal Health Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

Thank you for taking the time to collect samples for parasite testing.

In order for the test results to be accurate and of value to you, please be sure to review all the materials provided and follow collection and shipping instructions carefully. Your test results will be mailed to you when all testing has been completed.

Test results: The parasite burden for both pre- and post-deworming samples will be reported as egg counts (or eggs per gram of feces). The post-deworming test results, when compared with the pre-deworming test results, will indicate the effectiveness of the deworming program.

Sample collection: Sample up to 6 resident equines that have not been dewormed in the last 60 days (2 months). Each equine should be sampled on the day of deworming and 10 to 14 days after deworming. **To be included in the study, equine must be dewormed and sampled prior to September 30, 2016. Do not ship samples on Fridays/Saturdays or on the following dates due to holiday closures: June 30- July 4 and September 1- September 5.** You can keep your samples refrigerated for up to 72 hours prior to shipping.

Kits: You have received two kits. Each kit contains the supplies you need to collect fecal samples, including sample labels, paperwork, shipping instructions, and prepaid labels.

Box A should be used to collect and ship samples at the time of administering dewormer; **Box B** should be used to collect and ship samples 10 to 14 days after dewormer has been administered.

If you are missing any supplies, need additional supplies, or have questions, please contact NAHMS at:

Phone: (866) 907–8190 **OR** **Email:** Abigail.C.Zehr@aphis.usda.gov

Address: 2150 Centre Ave., Bldg. B, MS 2E7, Fort Collins, CO 80526-8117

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NAHMS-334
May 2016

Each kit contains:

1 Styrofoam™ shipping box, cold pack (these will keep the samples cool during shipping)
1 absorbent sheet (highly absorbent to soak up any leaks during shipping)
8 Whirl-Pak® bags (1 per sample plus extra, if needed)
1 large resealable bag (it is a FedEx requirement to double-bag samples to prevent leaks or spills)
1 ballpoint pen

Paperwork provided in Box A:

1. General Instructions
2. Step-by-Step Checklist
3. Form 1: Pre-deworming form (3-part carbonless paper)
4. Product list of dewormers
5. Preprinted labels for samples
6. 1 postage-paid business-reply envelope addressed to NAHMS (attached to Form 1)
7. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Paperwork provided in Box B:

1. General Instructions
2. Step-by-Step Checklist
3. Form 2: Post-deworming form (3-part carbonless paper)
4. Product list of dewormers
5. Preprinted labels for samples
6. 1 postage-paid business-reply envelope addressed to NAHMS (attached to Form 2)
7. 1 prepaid and preprinted FedEx priority overnight label for shipping samples to the lab

Collection Overview

1. Freeze cold packs ahead of time.
2. Select up to 6 equines (horses, ponies, donkeys, mules, or miniature horses) that have **not been dewormed** in the previous 60 days (2 months).
3. First sample collection—on the day of deworming
    a. Read detailed instructions on Form 1 in Box A.
4. Administer dewormer to ALL sampled equines.
    a. Put dewormer label, insert, or container in pre-deworming box before shipping.
5. Write the date of post-deworming sample collection, 10 to 14 days after deworming, on your calendar to remind you of when to collect the second set of samples.
    a. Testing results require both sets of samples to be sent to the lab.
6. Second sample collection—10 to 14 days after deworming **from the same horses that were sampled prior to deworming**.
    a. Read detailed instructions on Form 2 in Box B.

Form 2: Post-deworming

Fecal Samples for Parasite Testing

Animal and Plant Health Inspection Service

Veterinary Services

National Animal Health Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

10 to 14 days after deworming, collect the 2nd sample from the same animals that were sampled at the time dewormer was administered.

This is very important:
Please make sure you **use the same equine sample number for each equine from the table in Form 1.** Refer to your **pink** copy of the table in Form 1 to make sure the equine sample numbers match what you enter on the table in Form 2. If the sample numbers don't match, the test results cannot be compared and dewormer resistance cannot be determined.

Step-by-Step Guide to Sample Collection
Please follow the detailed instructions provided below for collection and submission of samples for this study.

1. Freeze cold packs ahead of time.
2. Review the Storybook on the back of this page for sample collection and sampling.
3. **Each sample must be associated with the same animal that was sampled pre-deworming.**
4. Turn a Whirl-Pak® bag inside out over your hand.
5. Pick up a small handful of **fresh** fecal material (not petrified) from the top of the pile to prevent contamination from the ground. One fecal ball is adequate. Include diarrhea samples.
6. Turn the bag right side out with your other hand **and** squeeze extra air out of the bag. Roll the bag **twice** and twist closed to prevent leakage (see attached pictures).
7. Place a preprinted label on the bag. Write the **Equine name/Unique ID** and **Date** on each label. Write the Equine name/Unique ID in the corresponding row for Equine sample # on the table in Form 2. **Do not use the label to seal the bag.**
8. Cool samples down as soon as possible. Refrigerate them or keep them cool in the Styrofoam™ shipping box with cold packs until they are shipped. Replace ice packs as needed to keep the samples continuously cooled. **Do not freeze the sample.**
9. Do not ship samples to the lab on Fridays/Saturdays as the samples may not stay cold when the lab receives the samples on Monday.
10. The table in Form 2 is printed on 3-part carbonless paper. **Please write firmly with a ballpoint pen and make sure the information appears clearly on all 3 copies.** The different colored copies of the table in Form 2 will go to the following destinations: (White, Yellow, and Pink).
    a. White copy—Send to NAHMS in business-reply envelope.
    b. Yellow copy—Place in box with samples.
    c. Pink copy—Keep for your records.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

NAHMS-335
May 2016

Storybook: Fecal Collection and Shipping

1. For each sample you must be able to match the equine with the feces collected.

2. Open a Whirl-Pak bag and turn it inside out over your hand.

3. Pick up a small handful of fresh fecal material from **the middle and top of the fecal pile** to prevent contamination from the ground. One fecal ball is adequate.

4. Turn the bag right side out with your other hand.

5. Squeeze extra air out of the bag and close firmly by rolling the upper edge over two times and twisting the yellow tabs to prevent leakage.

6. IMMEDIATELY place label on Whirl-Pak bag. Write Equine name/Unique ID and date on the label. This number should correspond to the information provided on the table of Form 2 for this equine.

7. Place all labeled sample bags inside the large resealable bag, squeeze out extra air, and close firmly to prevent leakage.

8. Place the large resealable bag of samples on the cold pack in the provided Styrofoam cooler in cardboard Box B. **Complete the table in Form 2 for each equine sampled**.

9. Place the **yellow** copy of the paperwork on top of the Styrofoam lid and ship with the samples to the lab. Seal Box B with wide durable tape and ship to the lab using the preprinted FedEx label provided.

10. Mail the **white** copy of the data collection form to NAHMS in the enclosed envelope.

11. **Keep the pink copy for your records.**

Completing the table in Form 2

1. **NAHMS ID:** The visiting veterinarian should write this in the upper-left hand corner of the table in Form 1. This number is assigned to your farm/operation by NASS. All forms and test results will refer to this unique ID number.

2. **Kit ID:** This number is printed on Box B and on the labels for the sample bags.

3. **Sample collector phone #:** Please provide a contact phone # in case we need to follow up with you.

4. Collect the post-deworming fecal samples.

5. Complete each column of the table in Form 2 for each equine sampled. If you don't know the answer, write **DK**. If you **decline to answer**, please draw a line through the cell so that we know you didn't just forget to answer that question.

6. Mail the **white copy** of the table in Form 2 **to NAHMS** in the enclosed postage-paid envelope.

7. **Keep the pink copy** for your records.

8. Place the **yellow copy** on top of the Styrofoam lid and seal the box with wide durable tape.

9. **Ship samples with the cold pack** at your earliest convenience, and **no more than 3 days** (72 hours) after collecting the samples. **Ship Monday through Thursday.**

*** Please **DO NOT SHIP** samples to the lab June 30-July 4 or September 1- September 5 due to holiday closures.***

10. **Use the enclosed preprinted, prepaid FedEx label.**
Do not ship samples on a Friday or Saturday.

Contact FedEx to locate a convenient drop-off location that accepts priority overnight packages. 1–800–gofedex (1–800–463–3339) or www.fedex.com.

FORM 2 TABLE

NAHMS ID (6 digits): _____ Kit ID: _____ Collection date: _____

Sample collector phone #: _____ (Please provide phone number in case we need clarification on any of the information provided.)

Sample #	Equine name or unique ID	Age (months OR years)	Gender (see codes below)	Equine type (See codes below)	# of times dewormed in last 12 months (include most recent deworming)	Dewormer(s) used in last 12 months (enter code(s) from Product List)	Condition of fecal sample: 1=Normal 2=Soft/cowpie-like 3=Watery 4=Bloody 5=Other (describe)	Did the equine experience the listed conditions in the previous 12 months? (enter codes for all that apply) If none enter 0.	Pasture history (see codes below)	Hand grazing history (see codes below)	Did the equine have an adverse reaction to the dewormer (e.g., colic, diarrhea, off feed, or other)? (Yes/No) If yes, please describe:
1		___ mo ___ yr									
2		___ mo ___ yr									
3		___ mo ___ yr									
4		___ mo ___ yr									
5		___ mo ___ yr									
6		___ mo ___ yr									

Codes:

Gender codes:
1 = Intact male
2 = Castrated male
3 = Intact (nonpregnant) mare or filly
4 = Pregnant female
5 = Spayed female
6 = Unknown status

Equine types:
1 = Horse
2 = Mule
3 = Donkey or burro
4 = Pony
5 = Miniature horse
6 = Other

Condition codes:
1 = Colic*
2 = Rough hair coat
3 = Weight loss
4 = Diarrhea**
5 = Passed worms in feces
6 = Rubbing base of tail

*Signs of abdominal pain, rolling, kicking at belly, pawing.
**Manure that is loose or watery, not fecal balls

Pasture history codes:
1 = In previous 30 days, pasture at all times
2 = In previous 30 days, pasture periodically
3 = No pasture in previous 30 days, but had access to pasture in prior 12 months
4 = No pasture in previous 12 months
5 = Other (specify: _____)

Hand grazing history codes:
1 = In previous 30 days, hand grazing daily
2 = In previous 30 days, hand grazing periodically
3 = No hand grazing in previous 30 days, but had hand grazing in prior 12 months
4 = No hand grazing in previous 12 months
5 = Other (specify: _____)

Anthelmintic Product List with Codes

NAHMS Equine 2015-16

Product List

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
1	Eqvalan Paste Zimecterin Paste	Ivermectin	Paste		Merial
2	Eqvalan Oral Liquid	Ivermectin	Liquid (oral drench or NG intub)		Merial
3	IverCare	Ivermectin	Paste		Farnam
4	Equell	Ivermectin	Paste		Bimeda
5	Promectin-E	Ivermectin	Liquid		Vedco
6	Bimectin	Ivermectin	Paste		Bimeda
7	Sparmectin-E	Ivermectin	Liquid		Sparhawk Labs
8	Ivermectin Paste 1.87%	Ivermectin	Paste		Durvet
9	Zimectrin Gold Paste	Ivermectin/ Praziquantel	Paste		Merial
10	Equimax	Ivermectin/ Praziquantel	Paste		Bimeda
11	Quest 2% Gel	Moxidectin	Gel		Zoetis
12	Quest Plus Gel	Moxidectin	Gel		Zoetis

Page 1 of 2

Code	Proprietary name	Established name	Formulation	Picture	Manufacturer
13	Panacur Suspension 10%	Fenbendazole	Liquid		Intervet
14	Safe-Guard Equi-Bits	Fenbendazole	Medicated Pelleted Feed		Merck
15	Safe-Guard Panacur Paste Panacur PowerPac	Fenbendazole	Paste		Intervet: Panacur Merck: Safe-Guard
16	Anthelcide EQ Paste	Oxibendazole	Paste		Zoetis
17	Strongid T	Pyrantel Pamoate	Liquid		Zoetis
18	Strongid Paste	Pyrantel Pamoate	Paste		Zoetis
19	Strongid C 2X	Pyrantel Tartrate	Top dress		Zoetis
20	Anthelban V	Pyrantel Pamoate	Liquid		Phoenix
21	Continuex daily horse wormer Equi Aid CW	Pyrantel Tartrate	Top dress		Farnam
22	Pyrantel Paste	Pyrantel Pamoate	Paste		Durvet
23	Exodus Paste	Pyrantel pamoate	Paste		Bimeda
24	Primex Equine	Pyrantel Pamoate	Liquid		Priority Care
25	Other	-	-	-	-

FORM 2 TABLE

NAHMS ID (6 digits): _____ Kit ID: _____ Collection date: _____

Sample collector phone #: _____ (Please provide phone number in case we need clarification on any of the information provided.)

Sample #	Equine name or unique ID	Age (months OR years)	Gender (see codes below)	Equine type (See codes below)	# of times dewormed in last 12 months (include most recent deworming)	Dewormer(s) used in last 12 months (enter code(s) from Product List)	Condition of fecal sample: 1=Normal 2=Soft/cowpie-like 3=Watery 4=Bloody 5=Other (describe)	Did the equine experience the listed conditions in the previous 12 months? (enter codes for all that apply) If none enter 0.	Pasture history (see codes below)	Hand grazing history (see codes below)	Did the equine have an adverse reaction to the dewormer (e.g., colic, diarrhea, off feed, or other)? (Yes/No) If yes, please describe:
1		___ mo ___ yr									
2		___ mo ___ yr									
3		___ mo ___ yr									
4		___ mo ___ yr									
5		___ mo ___ yr									
6		___ mo ___ yr									

Codes:

Gender codes:
1 = Intact male
2 = Castrated male
3 = Intact (non)pregnant) mare or filly
4 = Pregnant female
5 = Spayed female
6 = Unknown status

Equine types:
1 = Horse
2 = Mule
3 = Donkey or burro
4 = Pony
5 = Miniature horse
6 = Other

Condition codes:
1 = Colic*
2 = Rough hair coat
3 = Weight loss
4 = Diarrhea**
5 = Passed worms in feces
6 = Rubbing base of tail

*Signs of abdominal pain, rolling, kicking at belly, pawing.
**Manure that is loose or watery, not fecal balls

Pasture history codes:
1 = In previous 30 days, pasture at all times
2 = In previous 30 days, pasture periodically
3 = No pasture in previous 30 days, but had access to pasture in prior 12 months
4 = No pasture in previous 12 months
5 = Other (specify: _____)

Hand grazing history codes:
1 = In previous 30 days, hand grazing daily
2 = In previous 30 days, hand grazing periodically
3 = No hand grazing in previous 30 days, but had hand grazing in prior 12 months
4 = No hand grazing in previous 12 months
5 = Other (specify: _____)

Form 2 (Post-Deworming) Example

NAHMS ID (5 digits): 51221 **FORM 2 TABLE** Kit ID: 12 Collection date: 6-12-16

Sample collector phone #: (555) 555-1234 (Please provide phone number in case we need clarification on any of the information provided.)

Sample #	Equine name or unique ID	Age (months OR years)	Gender (see codes below)	Equine type (See codes below)	# of times dewormed in last 12 months (include most recent deworming)	Dewormer(s) used in last 12 months (enter code(s) from Product List)	Condition of fecal sample: 1=Normal 2=Soft/cowpie-like 3=Watery 4=Bloody 5=Other (describe)	Did the equine experience the listed conditions in the previous 12 months? (enter codes for all that apply; if none enter 0.	Pasture history (see codes below)	Hand grazing history (see codes below)	Did the equine have an adverse reaction to the dewormer (e.g., colic, diarrhea, off feed, or other)? (Yes/No) If yes, please describe:
1	Harry	16 mo / yr	1	1	2	8, 8	1	0	4	4	No
2	Sally	mo / 1 yr	3	1	2	8, 8	1	0	2	2	No
3	Star	mo / 2 yr	4	1	2	8, 8	1	2, 4	3	2	No
4	Buck	8 mo / yr	1	5	2	8, 8	1	4, 6	2	4	No
5		mo / yr									
6		mo / yr									

Codes:

Gender codes:
1 = Intact male
2 = Castrated male
3 = Intact (non-pregnant) mare or filly
4 = Pregnant female
5 = Spayed female
6 = Unknown status

Equine types:
1 = Horse
2 = Mule
3 = Donkey or burro
4 = Pony
5 = Miniature horse
6 = Other

Condition codes:
1 = Colic*
2 = Rough hair coat
3 = Weight loss
4 = Diarrhea**
5 = Passed worms in feces
6 = Rubbing base of tail

*Signs of abdominal pain, rolling, kicking at belly, pawing.
**Manure that is loose or watery, not fecal balls

Pasture history codes:
1 = In previous 30 days, pasture at all times
2 = In previous 30 days, pasture periodically
3 = No pasture in previous 30 days, but had access to pasture in prior 12 months
4 = No pasture in previous 12 months
5 = Other (specify: _____)

Hand grazing history codes:
1 = In previous 30 days, hand grazing daily
2 = In previous 30 days, hand grazing periodically
3 = No hand grazing in previous 30 days, but had hand grazing in prior 12 months
4 = No hand grazing in previous 12 months
5 = Other (specify: _____)

NAHMS Equine 2015-16

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Return to Tab 6

Fecal Culture/AMR Data Collection Form

USDA

Animal and Plant Health Inspection Service

Veterinary Services

NAHMS Equine 2015-16

Fecal Culture/AMR Data Collection Record (VMO)

National Animal Health Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

Overview:
The samples collected will be cultured for *Salmonella* and non-type specific *E. coli*. *Salmonella* and *E. coli* isolates will be tested for antimicrobial susceptibility. *Salmonella* culture results will be sent to all participants.

Number of equines to sample:

# resident equine	# equine of any age to sample (Select equines representative of population on operation.)
Fewer than 10	All
10–19	10
20–49	15
50 or more	20

Schedule:

- **Group 1: TX**
  - Collection dates are May 1–September 30, 2016
  - Submit up to 30 samples per week
- **Group 2: KY, New England (CT, MA, RI), AR, KS, MT, CA, FL, MI, PA, OH, and NC**
  - Collection dates are May 1–July 15, 2016
  - Submit 20/week per State (and New England)
- **Group 3: OK, TN, OR, DE, AZ, VA, NY, MD, WI, WY, AL, MO, CO , and NJ**
  - Collection dates are July 16–September 30, 2016
  - Submit up to 20 samples/week per State

Sample collection: *(see story book on the next page)*

1. **Collect fresh feces from individual horses that you can identify.**
2. Place preprinted labels on Whirl-Pak bags and write Equine name/ID on each bag. **Do not use the label to seal the bag.**
3. Turn the bag inside out over your hand without touching the inside surface.
4. Pick up a small handful (golf ball sized) of fecal material from the top and center of fecal pile. It is acceptable to collect feces passed within the past 12 hours as long as the source animal can be identified. Do not collect feces rectally.
5. Turn the bag right side out.
6. Squeeze extra air out of the bag, **roll the top of the bag,** and close it tightly with the twist ties.
7. Place all the labeled Whirl-Pak® sample bags inside the large Ziploc® bag, squeeze air out of the bag, and seal it.
8. Include the yellow copy of the data collection form with the samples.
9. Keep samples cool (do not freeze) and ship with cooler pack within 24 hours.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average 1.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

NAHMS-339
July 2015

1. For each sample you must be able to match the horse with the feces collected.

2. Place label on Whirl-Pak bag. Write the Equine name/ ID on the label. The sample number should correspond to the number on the data collection form.

3. Open a Whirl Pak bag and turn it inside out over your hand.

4. Pick up a small handful of fresh fecal material from **the middle and top of the fecal pile** to prevent contamination from the ground.

5. Turn the bag right side out with your other hand.

6. Squeeze extra air out of the bag and close firmly by rolling the upper edge several times and twisting the yellow tabs to prevent leakage.

7. Place all labeled sample bags inside the large Ziploc bag, squeeze out extra air, and close firmly to prevent leakage.

8. Place the large Ziploc bag of samples on cooler pack in the provided Styrofoam box.

9. Put the yellow copy of the data collection form on top of the Styrofoam lid and close the box.

DO NOT COLLECT FECAL SAMPLES IN A GLOVE!

Paperwork and shipping:

a. Use a ballpoint pen to write on the 2-part carbonless form and make sure the information is clear and readable on both the white and yellow copies of the form.

b. Place the yellow copies on top of the Styrofoam™ lid before closing the box.

c. **Ship overnight on Monday through Wednesday only** for arrival at the lab Tuesday through Thursday. The lab will not accept samples that arrive Friday through Sunday.

d. **Do not ship any samples the week of July 4th (July 4–July 8).**

e. **Send the original white copy to your NAHMS coordinator within 3 business days.**

Reference Codes for Fecal Collection

Gender codes	
1 – Intact male (stallion or colt)	4 – Pregnant female
2 – Castrated male (gelding)	5 – Spayed female
3 – Intact female (nonpregnant mare or filly)	6 – Unknown status
Primary use codes	
1 – Pleasure	5 – Racing
2 – Lessons/school	6 – Farm or ranch work
3 – Show or competition (not betting)	7 – Retired (not in use)
4 – Breeding	8 – Other (specify:)
Equine types	
1 = Horse	4= Pony
2 = Mule	5 = Miniature horse
3 = Donkey or burro	6 = Other
Horse Breed codes	
1 – Appaloosa	9 – Saddlebred
2 – Arabian	10 – Standardbred
3 – Draft breed	11 – Tennessee Walker
4 – Miniature horse	12 – Thoroughbred
5 – Morgan	13 – Warmblood breeds
6 – Mustang	14 – Other registered breed (specify on collection form)
7 – Paint	15 – Other nonregistered breed (specify on collection form)
8 – Quarter horse	
Antibiotics (see laminated list)	
Route of administration of antibiotic	
1 = Oral (e.g., bolus, tablet, in feed, or in water)	2 = Injected (into muscle or joint, or IV)

NAHMS ID (5 digits): _____ Fecal Culture kit #: _____ Collection date: _____

Collector name: _____ Phone #: _____

1. How many resident equines are on this premises?..... _____ head fc101

2. How many samples are being submitted to the lab?..... _____ # fc102

3. **[Interviewer's assessment. Do not ask this question of the owner.]**
What is the overall cleanliness of the equine housing/pasture area compared to other equine operations in your area?
☐1 Poor ☐2 Average ☐3 Excellent fc103

fc104 Equine #	fc105 Equine name or unique ID	fc106 A. Age (months or years)	fc107 B. Gender (See code sheet.)	fc108 C. Primary use (See code sheet.)	fc109 D. Equine type (See code sheet.)	fc110 E. Breed (See code sheet.)	fc111 F. Fecal score on collected sample 1=normal 2=soft/ cowpie-like 3=watery 4=bloody 5-other (describe)	fc112 G. Condition code in past 30 days 1=colic 2=diarrhea 3=fever 4=poor body condition 5=respiratory infection 6=other (specify)	fc113 H. Body condition score 1=thin 2=normal 3=fat	fc114 I. Did this animal receive an antibiotic in the last 12 months? (Yes/No) [If No, SKIP cols J, K, L.]	fc115 J. Did this animal receive an antibiotic in the last 30 days? (Yes/No) [If No, SKIP cols K, L.]	fc116 K. Which antibiotic(s) were given in the last 30 days (enter code)	fc117 L. Route of administration of antibiotic(s) if given in the last 30 days (enter code)
1		___ mo ___ yr											
2		___ mo ___ yr											
3		___ mo ___ yr											
4		___ mo ___ yr											
5		___ mo ___ yr											
6		___ mo ___ yr											
7		___ mo ___ yr											
8		___ mo ___ yr											
9		___ mo ___ yr											
10		___ mo ___ yr											

NAHMS ID: _____ Fecal Culture kit #: _____ Collection date: _____

Collector name: _____ Phone #: _____

fc104 Equine #	fc105 Equine name or unique ID	fc106 A. Age (months or years)	fc107 B. Gender (See code sheet.)	fc108 C. Primary use (See code sheet.)	fc109 D. Equine type (See code sheet.)	fc110 E. Breed (See code sheet.)	fc111 F. Fecal score on collected sample 1=normal 2=soft/ cowpie-like 3=watery 4=bloody 5-other (describe)	fc112 G. Condition code in past 30 days 1=colic 2=diarrhea 3=fever 4=poor body condition 5=respiratory infection 6=other (specify)	fc113 H. Body condition score 1=thin 2=normal 3=fat	fc114 I. Did this animal receive an antibiotic in the last 12 months? (Yes/No) [If No, SKIP cols J, K, L.]	fc115 J. Did this animal receive an antibiotic in the last 30 days? (Yes/No) [If No, SKIP cols K, L.]	fc116 K. Which antibiotic(s) were given in the last 30 days (enter code)	fc117 L. Route of administration of antibiotic(s) if given in the last 30 days (enter code)
11		___ mo ___ yr											
12		___ mo ___ yr											
13		___ mo ___ yr											
14		___ mo ___ yr											
15		___ mo ___ yr											
16		___ mo ___ yr											
17		___ mo ___ yr											
18		___ mo ___ yr											
19		___ mo ___ yr											
20		___ mo ___ yr											

Antimicrobial Product Codes

NAHMS Equine 2015-16 Antimicrobial Drug Codes					
Code	Name	Picture	Code	Name	Picture
1	Proprietary: Amiglyde-V Established: Amikacin Manufacturer: Zoetis		11	Proprietary: Ceftriaxone Established: Ceftriaxone Manufacturer: Various	
2	Proprietary: Amoxicillin Established: Amoxicillin Manufacturer: Ranbaxy		12	Proprietary: ToDay Established: Cephapirin Manufacturer: Boehringer Ingelheim	
3	Proprietary: Ampicillin Established: Ampicillin Manufacturer: Various		13	Proprietary: Chloromycetin (Human) Established: Chloramphenicol Manufacturer: Pfizer	
4	Proprietary: Zithromax Established: Azithromycin Manufacturer: Pfizer		14	Proprietary: Biaxin Established: Clarithromycin Manufacturer: Abbott Labs.	
5	Proprietary: Mefoxin Established: Cefoxitin Manufacturer: Merck		15	Proprietary: Doxycycline Hyclate (Powder, Tablet & Suspension), Vibramycin Established: Doxycycline Manufacturer: Various	
6	Proprietary: Ceftazidime Established: Ceftazidime Manufacturer: Various		16	Proprietary: Baytril 100 Established: Enrofloxacin Manufacturer: Bayer	
7	Proprietary: Simplicef Established: Cefpodoxime Manufacturer: Zoetis		17	Proprietary: Erygel Established: Erythromycin Manufacturer: Merz Pharm.	
8	Proprietary: Excede (Ceftiofur Crystalline Free Acid) Established: Ceftiofur Manufacturer: Zoetis		18	Proprietary: E-Mycin Established: Erythromycin Manufacturer: Pacific Pharm.	
9	Proprietary: Naxcel (Ceftiofur Sodium) Established: Ceftiofur Manufacturer: Zoetis		19	Proprietary: Nuflor Established: Florfenicol Manufacturer: Merck	
10	Proprietary: Cefazolin (Injectable & Powder) Established: Cefazolin Manufacturer: Various		20	Proprietary: Legacy Established: Gentamicin Manufacturer: AgriLabs	

1 of 2

NAHMS Equine 2015-16 Antimicrobial Drug Codes					
Code	Name	Picture	Code	Name	Picture
21	Proprietary: GentaMax Established: Gentamicin Manufacturer: Phoenix		31	Proprietary: PenOne Pro Established: Penicillin G Procaine Manufacturer: Vet One	
22	Proprietary: Gentamicin Sulfate Established: Gentamicin Manufacturer: Vet One		32	Proprietary: Rifadin Established: Rifampin Manufacturer: Aventis Pharm.	
23	Proprietary: Primaxin IV Established: Imipenem Manufacturer: Merck		33	Proprietary: Rimactane Established: Rifampin Manufacturer: Novartis	
24	Proprietary: Flagyl (Human form) Established:Metronidazole Manufacturer: Pfizer		34	Proprietary:Timentin Established: Ticarcillin Manufacturer: GlaxoSmith-Kline	
25	Proprietary: Bio-Mycin Established: Oxy-tetracycline Manufacturer: Boehringer Ingelheim		35	Proprietary: Uniprim Established: Trimethoprim Sulfadiazine Manufacturer: Neogen	
26	Proprietary: Liquamycin-LA-100/200 Established: Oxy-tetracycline Manufacturer: Zoetis		36	Proprietary: Tucoprim Established: Trimethoprim Sulfadiazine Manufacturer: Zoetis	
27	Proprietary: Terra-Vet Established: Oxy-tetracycline Manufacturer: Aspen		37	Proprietary: SMZ Tablets Established: Trimethoprim Sulfadiazine Manufacturer: Various	
28	Proprietary: Penicillin G Potassium USP Established: Penicillin G Potassium Manufacturer: Agri Labs, Agripharm		38	Proprietary: SMZ/TMP Established: Sulfa-methoxazole Trimethoprim Manufacturer: Various	
29	Proprietary: Pen-G Established: Penicillin G Procaine Manufacturer: Phoenix		39	Proprietary: Vanococin Established: Vancomycin Manufacturer: Baxter Healthcare, ViroPharma, Sandoz	
30	Proprietary: Pro-Pen-G Established: Penicillin G Procaine Manufacturer: Bimeda		40	Other	

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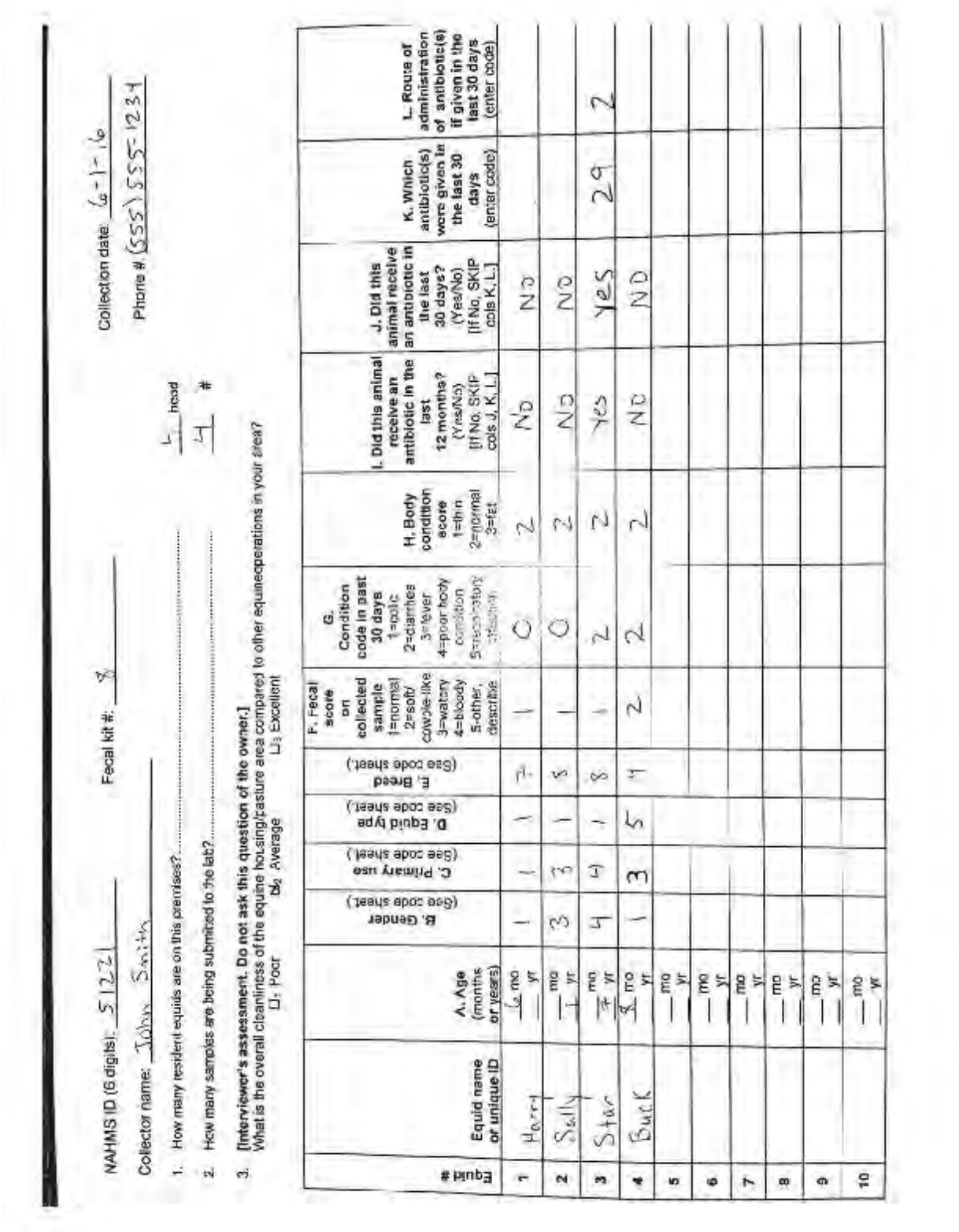
Fecal Culture/AMR Data Collection Form Example



NAHMS ID (6 digits): 51221 Fecal kit #: 1 Collection date: 6-1-16

Collector name: John Smith Phone # (555) 555-1234

1. How many resident equids are on this premises? ..... 5 head
2. How many samples are being submitted to the lab? ..... 4 #
3. **[Interviewer's assessment. Do not ask this question of the owner.]**
   What is the overall cleanliness of the equine housing/pasture area compared to other equinecperations in your area?
   ☐1 Poor ☒2 Average ☐3 Excellent

Equid #	Equid name or unique ID	A. Age (months or years)	B. Gender (See code sheet.)	C. Primary use (See code sheet.)	D. Equid type (See code sheet.)	E. Breed (See code sheet.)	F. Fecal score on collected sample 1=normal 2=soft/ cowpie-like 3=watery 4=bloody 5=other, describe	G. Condition code in past 30 days 1=colic 2=diarrhea 3=fever 4=poor body condition 5=respiratory disease	H. Body condition score 1=thin 2=normal 3=fat	I. Did this animal receive an antibiotic in the last 12 months? (Yes/No) [If No, SKIP cols J, K, L.]	J. Did this animal receive an antibiotic in the last 30 days? (Yes/No) [If No, SKIP cols K, L.]	K. Which antibiotic(s) were given in the last 30 days (enter code)	L. Route of administration of antibiotic(s) if given in the last 30 days (enter code)
1	Harry	6 ☐mo ☐yr	1	1	1	7	1	C	2	No	No		
2	Sally	☐mo 1 ☐yr	3	3	1	8	1	C	2	No	No		
3	Star	7 ☐mo ☐yr	4	4	1	8	1	2	2	Yes	Yes	29	2
4	Buck	8 ☐mo ☐yr	1	3	5	4	2	2	2	No	No		
5		☐mo ☐yr											
6		☐mo ☐yr											
7		☐mo ☐yr											
8		☐mo ☐yr											
9		☐mo ☐yr											
10		☐mo ☐yr											

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Animal and Plant
Health Inspection
Service

Veterinary Services

NAHMS Equine 2015-16

Tick Evaluation and Data Collection Record

National Animal Health
Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

Tick Exam and Collection Instructions

Equines to examine: Examine up to 10 equines on the operation. Select equines that have the greatest chance of tick exposure—i.e., equines that have access to grass or foliage even if the grass/foliage is located only at the edge(s) of a dirt pen or paddock.

Kits: Each Blood and Tick kit includes 10 screw-top tick tubes prefilled with 70% ethanol for preservation and one bottle of gel hand sanitizer. **Use one screw-top tube per equine.** If you don't use all the tick tubes on this operation, save them for use on operations you visit later and order Blood only kits (BL kit) until you need more tick tubes. **Do not use blood tubes for tick collection**! Ship blood and tick samples together in the same box. Feel free to ship samples from several operations in the same box if the timing of visits allows.

Tick Scratch Exam (view the tick scratch video ahead of time**:** https://youtu.be/wyKcXOniNsM) and sanitize your hands before each exam using gel hand sanitizer.

1. Perform a full-body scratch inspection with your **bare fingers** to locate ticks. Gloves will impair tactile sensation in your finger tips and will prevent you from finding small ticks such as nymphs and un-engorged ticks. Use your thumb and index finger to remove the ticks and place them in a screw-top tube.
2. Collect a representative sample of ticks from each location on each **equine** where ticks are observed. **Do not submit ticks in blood tubes!**
3. Write the Equine name/ID on the preprinted label. Kit Number and Sample/Equine # is preprinted on the label. Make sure the sample # for blood and tick samples match for the same animal.
4. Complete the information requested on the Data Collection Form for each equine examined. Record the location and number of ticks according to the diagram provided. For example, 20 ticks located by the left ear are entered as **A-left (20)** on the data collection form. Approximately 50 ticks on the right side of the tail are entered as **G-right (50)**. **Sanitize your hands before each tick exam using the Purell gel hand sanitizer provided.**
5. **Ship tick tubes with the blood tubes** to NVSL with the prefrozen cooler pack using the enclosed FedEx shipping label. Include **yellow copies** of the completed tick and blood data collection forms in the box.
6. **Send the original white copy of the data collection forms to your NAHMS Coordinator within 3 business days.**

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average 1.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

NAHMS-337
JUN 2014

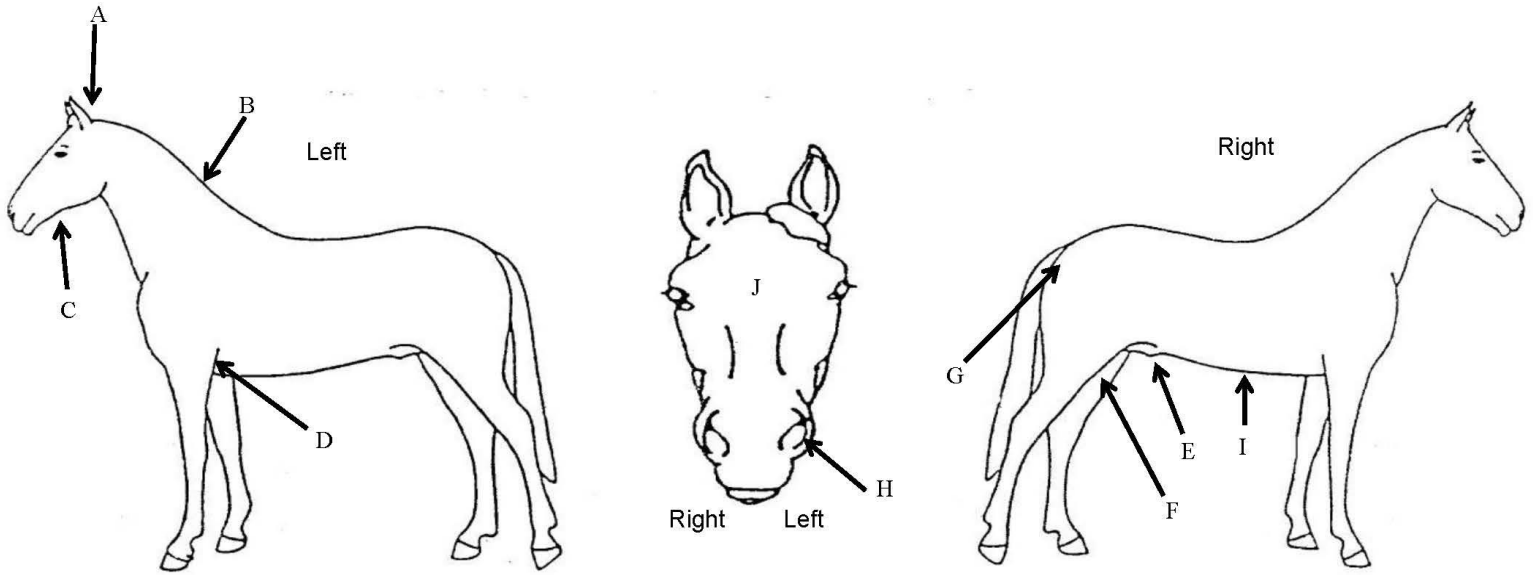
Reference Codes for Tick Collection

Gender codes		
1 = Intact male (stallion or colt)	3 = Intact female (nonpregnant mare or filly)	5 = Spayed female
2 = Castrated male (gelding)	4 = Pregnant female	6 = Unknown status
Primary use codes		
1 = Pleasure	4 = Breeding	7 = Retired (not in use)
2 = Lessons/school	5 = Racing	8 = Other (specify:)
3 = Show or competition (not betting)	6 = Farm or ranch work	
Equine types		
1 = Horse	3 = Donkey or burro	5 = Miniature
2 = Mule	4 = Pony	6 = Other
Horse breed codes		
1 = Appaloosa	6 = Mustang	11 = Tennessee Walker
2 = Arabian	7 = Paint horse	12 = Thoroughbred
3 = Draft breed	8 = Quarter horse	13 = Warmblood breeds
4 = Miniature horse	9 = Saddlebred	14 = Other registered breed (specify on collection form)
5 = Morgan	10 = Standardbred	15 = Other nonregistered breed (specify on collection form)
Color (color of majority of body)		
1 = Red	4 = White	7 = Red roan
2 = Brown	5 = Black	8 = Blue roan
3 = Gray	6 = Tan/Buckskin /Palomino	9 = Other (specify)
Habitat types		
1. Developed residential or commerical (30% or more constructed materials such as asphalt, concrete, wooden fences, metal beams or associated with infrastructure such as railroads, highways, race tracks).	2. Shrublands (areas dominated by natural wood vegetation less than 20 feet tall; can be interspersed with grasses and young trees).	3. Forested (areas associated with tree cover above 20 feet and covering more than 75% of the area).
4. Cultivated/planted, woody (areas of planted herbaceous or woody vegetation)	5. Grasslands (majority of coverage related to upland grasses. Might be used for grazing, but is not intensively managed).	6. Wetlands (areas periodically saturated or covered with water).
7. Urban/recreational grasses (grasses developed and maintained for recreation, erosion, parks, trails, hiking, etc.)	8. Water bodies (open water present year round).	

Tick Location Diagram

These are common locations of ticks on a horse or other equine. Please use the codes below to indicate on the data collection form where ticks are observed on each animal. Specify which side of the animal the ticks are located. If ticks are observed in a location not specified by the codes, mark K and specify the location and side of the animal.

A. Ears
B. Crest/mane
C. Jaw line
D. Elbow/girth area/axilla
E. Sheath or udder
F. Between hindquarters/thighs
G. Tail head or under tail
H. Nose/nostril/faux nostril
I. Ventrum or belly
J. Face
K. Other (specify on Data Collection Record)

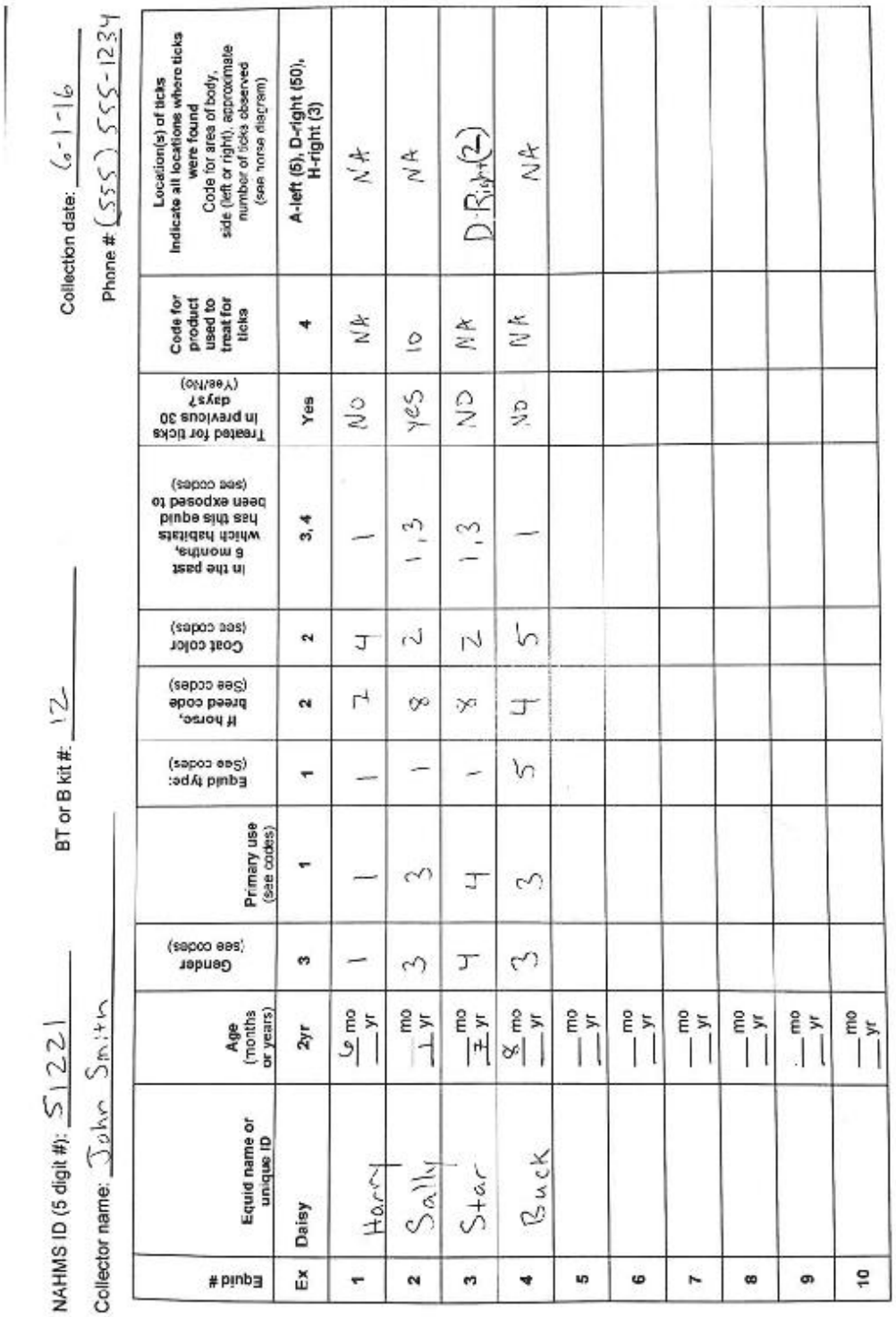


NAHMS ID (5 digit #): _____ BT or BL kit #: _____ Collection date: _____

Collector name: _____ Phone #: _____

t101 Equine #	t102 Equine name or unique ID	t103 Age (months or years)	t104 Gender (see codes)	t105 Primary use (see codes)	t106 Equine type: (See codes)	t107 If horse, breed code (See codes)	t108 Coat color (see codes)	t109 In the past 6 months, which habitats has this equine been exposed to (see codes)	t110 Treated for ticks in previous 30 days? (Yes/No)	t111 Code for product used to treat for ticks	t112 Location(s) of ticks Indicate all locations where ticks were found Code for area of body, side (left or right), approximate number of ticks observed (see horse diagram)
Ex	Daisy	2yr	3	1	1	2	2	3, 4	Yes	4	A-left (5), D-right (50), H-right (3)
1		___ mo ___ yr									
2		___ mo ___ yr									
3		___ mo ___ yr									
4		___ mo ___ yr									
5		___ mo ___ yr									
6		___ mo ___ yr									
7		___ mo ___ yr									
8		___ mo ___ yr									
9		___ mo ___ yr									
10		___ mo ___ yr									

Tick Exam Data Collection Form Example



NAHMS ID (5 digit #): 51221 BT or B kit #: 12 Collection date: 6-1-16

Collector name: John Smith Phone #: (555) 555-1234

Equid #	Equid name or unique ID	Age (months or years)	Gender (see codes)	Primary use (see codes)	Equid type: (See codes)	If horse, breed code (See codes)	Coat color (see codes)	In the past 6 months, which habitats has this equid been exposed to (see codes)	Treated for ticks in previous 30 days? (Yes/No)	Code for product used to treat for ticks	Location(s) of ticks Indicate all locations where ticks were found Code for area of body, side (left or right), approximate number of ticks observed (see horse diagram)
Ex	Daisy	2yr	3	1	1	2	2	3, 4	Yes	4	A-left (5), D-right (50), H-right (3)
1	Harry	6 mo / yr	1	1	1	7	4	1	No	NA	NA
2	Sally	mo / 1 yr	3	3	1	8	2	1, 3	yes	10	NA
3	Star	mo / 7 yr	4	4	1	8	2	1, 3	NO	NA	D-Right (2)
4	Buck	8 mo / yr	3	3	5	4	5	1	No	NA	NA
5		mo / yr									
6		mo / yr									
7		mo / yr									
8		mo / yr									
9		mo / yr									
10		mo / yr									

Return to Tab 6

Blood Data Collection Form

USDA

Animal and Plant Health Inspection Service

Veterinary Services

NAHMS Equine 2015-16

BLOOD Instructions and Data Collection Record

National Animal Health Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

Kit notes

Blood/Tick kits (BT kits) contain blood and tick tubes. If you have tick tubes left from previous visits where you did not use all the tick tubes, you can order Blood only kits (BL kits) and use the left over tick tubes from other visits for tick collection. **Please do not submit ticks in blood tubes.**

Sample Collection and Shipping

1. Randomly select **resident equines** that represent the resident equine inventory on the premises in terms of age, sex, breed, and use. Include foals and stallions.

2. Collect samples based on the following criteria:

**Blood Collection Sampling:

# Resident equines	# Equines to sample
<10	All
10–19	10
20–49	15
>50	20

   Wear clean gloves for each equine. Gloves that become contaminated with blood or bodily fluids should be changed between equines.

3. Label blood tubes with pre-printed labels. Write the Equine name/ID on the label. Kit Number and Sample/Equine # is preprinted on the label. **Make sure the sample # for blood and tick samples match for the same animal.**

4. **Place the label on the tube lengthwise so that all the information on the label is visible.** The label should not be wrapped around the tube.

5. Place labeled blood tubes in the blood box and refrigerate or keep cool in the shipping box with the ice pack until shipping.

Continued on next page.....

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269. The time required to complete this information collection is estimated to average 1.5 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

NAHMS-336
JULY 2015

6. **Complete the attached data collection form**:

    a. Use a ballpoint pen to write on the 2-part carbonless form and make sure the information is clear and readable on both the white and yellow copies of the form.

    b. Fill in the NAHMS ID and Kit Number (found on box and labels). Make sure the Kit number on the forms match the number on the sample labels.

    c. If the respondent **doesn't know** the answer to a question, enter **DK**.

    d. If the respondent **declines to answer** the question, **draw a line** through the cell so we know the question wasn't unintentionally skipped.

    e. Place the yellow copies on top of the Styrofoam™ lid before closing the box.

7. Keep samples cool and ship with freezer pack within 24 hours of collection using the enclosed FedEx priority overnight shipping label.

8. **Send the white copy to your NAHMS Coordinator within 3 business days.**

9. Blood and Tick samples are shipped to NVSL in the same box. Samples from more than one operation can be shipped together if they are collected on the same day.

Reference codes for blood data collection form

G. Direct contact with other equines within last 30 days
Direct physical contact with equines not resident to this premises. This includes the addition of new equines to the herd and through commingling with other equines on or off the premises, such as a horse show on or off the premises.
H. Health Conditions
1 – Colic or other digestive 2 – Respiratory problems 3 – Behavioral problems (unusual demeanor affected use, health, or safety) 4 – Neurologic problems (incoordination, spinal problem, wobbler, seizures, West Nile virus, EHM, EPM) 5 – Lameness 6 – Infectious disease unrelated to specific body condition 7 – Fever (T>101.5°F in adult, T>102.5°F in foal) 8 – Abortion or fetal reabsorption 9 – Other (specify)
I, J & K. EHV-1 vaccination history
I. Enter the number of vaccines administered to the equine in the last 12 months. J. Enter the date of the last vaccine K. Enter the code for the vaccine product(s) used against EHV-1 (herpesvirus, also called rhino) in the previous 12 months. Use the Laminated Product Code List provided. Enter **NA** if never vaccinated and **DK** if Don't know.

NAHMS ID #: _____ **BT/BL Kit number:** _____ **Collection date:** _____

Collector name: _____ **Phone number:** _____

Number of resident horses on the operation today: ***(Check one.)***

_____ Fewer than 10 resident horses; collect samples from all
_____ 10–19 horses; collect 10 samples
_____ 20–49 horses; collect 15 samples
_____ 50+ horses; collect 20 samples

Total samples submitted: _____ b101/b102

b103 Equine #	b104 A. Equine name or unique ID	b105 B. Age (months or years)	b106 C. Gender code 1–5	b107 D. Primary use code 1–8	b108 E. Equine type code 1-6	b109 F. If horse, breed code 1–15	b110 G. Direct contact w/nonresident equines w/in last 30 days	H.(b111) Has this equine had any health issues in last 30 days? (List all codes that apply. If none, enter 0.)	b112 I. # EHV vacc in last 12 mo	b113 J. What was the last date of EHV vacc	b114 K. EHV vacc product (enter code)
1		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
2		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
3		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
4		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
5		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
6		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
7		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
8		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
9		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	
10		___ mo ___ yr					Yes1 No3			___ / ___ mm / yy	

Gender:
1 – Intact male (stallion or colt)
2 – Castrated male (gelding)
3 – Intact (nonpregnant) female (mare or filly)
4 – Pregnant female
5 – Spayed female
6 – Unknown

Primary use of horse: (if young, intended use)
1 – Pleasure
2 – Lessons/school
3 – Sow/competition (not betting)
4 – Breeding
5 – Racing
6 – Farm or ranch work
7 – Retired (not in use)
8 – Other (specify:)

Equine type:
1 – Horse
2 – Mule
3 – Donkey or burro
4 – Pony
5 – Miniature horse
6 – Other

Horse breed: (if "other," specify within column)
1 – Appaloosa
2 – Arabian
3 – Draft breeds
4 – Miniature horse
5 – Morgan
6 – Mustang
7 – Paint horse
8 – Quarter horse
9 – Saddlebred
10 – Standardbred
11 – Tennessee Walker
12 – Thoroughbred
13 – Warmblood breeds
14 – Other registered breed (specify)
15 – Other nonregistered breed (specify)

Collect 15 samples if there are 20 to 49 resident horses. Collect 20 samples if there are 50+ resident horses.

NAHMS ID #: _____ **BT/BL kit number:** _____ **Collection date:** _____

Collector name: _____ **Phone number:** _____

b103 Equine #	b104 A. Equine name or unique ID	b105 B. Age (months or years)	b106 C. Gender code 1–5	b107 D. Primary use code 1–8	b108 E. Equine type code 1-6	b109 F. If horse, breed code 1–15	b110 G. Direct contact w/nonresident equines w/in last 30 days	H. (b111) Has this equine had any health issues in last 30 days? (List all codes that apply. If none, enter 0.)	b112 I. # EHV vacc in last 12 mo	b113 J. What was the last date of EHV vacc	b114 K. EHV vacc product (enter code)
11		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
12		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
13		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
14		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
15		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
16		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
17		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
18		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
19		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	
20		___ mo ___ yr					Yes 1 No 3			___ / ___ mm / yy	

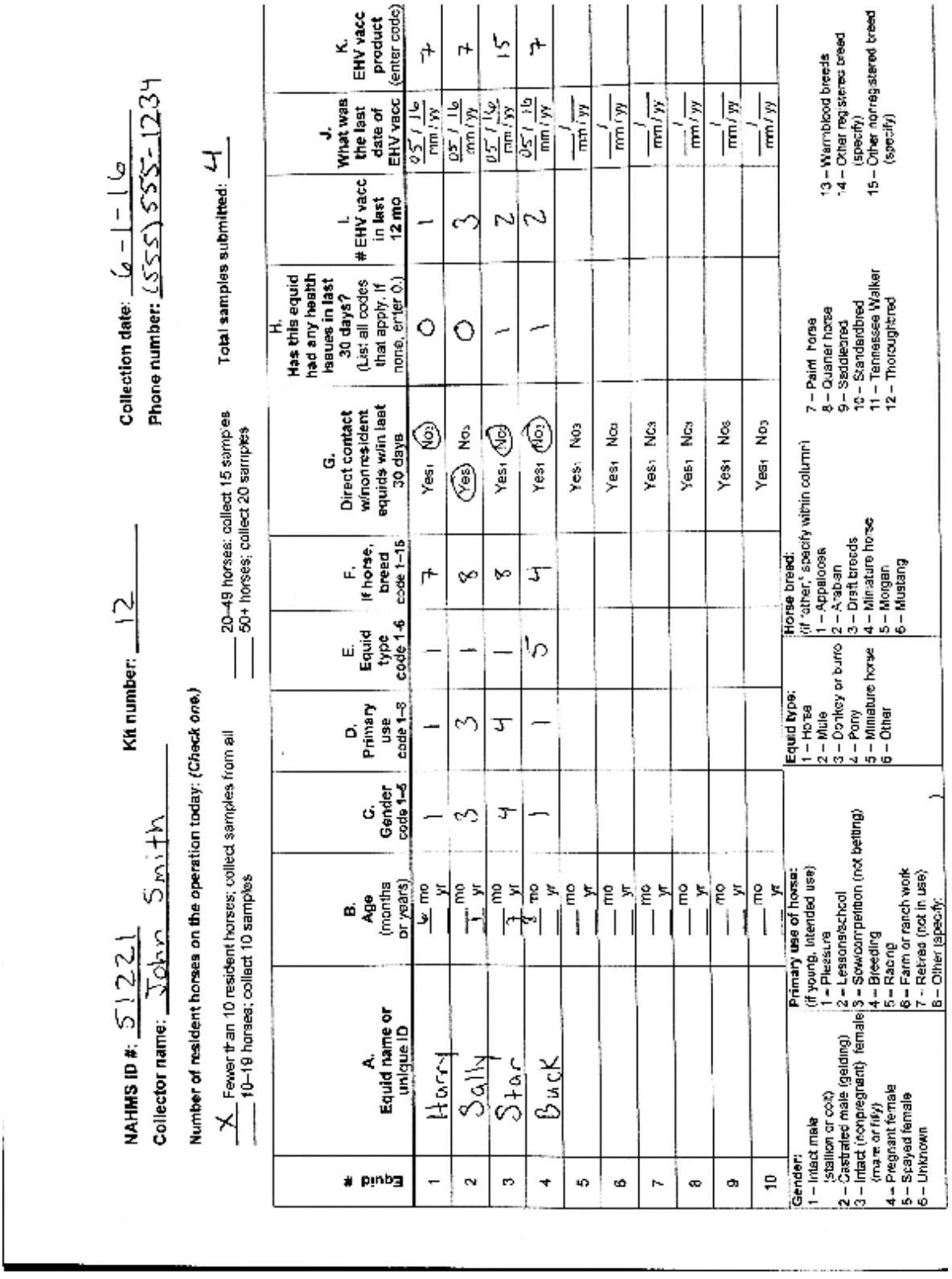
Gender:
1 – Intact male (stallion or colt)
2 – Castrated male (gelding)
3 – Intact (nonpregnant) female (mare or filly)
4 – Pregnant female
5 – Spayed female
6 – Unknown

Primary use of horse: (if young, intended use)
1 – Pleasure
2 – Lessons/school
3 – Sow/competition (not betting)
4 – Breeding
5 – Racing
6 – Farm or ranch work
7 – Retired (not in use)
8 – Other (specify:)

Equine type:
1 – Horse
2 – Mule
3 – Donkey or burro
4 – Pony
5 – Miniature horse
6 – Other

Horse breed: (if "other," specify within column)
1 – Appaloosa
2 – Arabian
3 – Draft breeds
4 – Miniature horse
5 – Morgan
6 – Mustang
7 – Paint horse
8 – Quarter horse
9 – Saddlebred
10 – Standardbred
11 – Tennessee Walker
12 – Thoroughbred
13 – Warmblood breeds
14 – Other registered breed (specify)
15 – Other nonregistered breed (specify)

Blood Data Collection Form Example



NAHMS ID #: 51221 Kit number: 12 Collection date: 6-1-16

Collector name: John Smith Phone number: (555) 555-1234

Number of resident horses on the operation today: *(Check one.)*

X Fewer than 10 resident horses; collect samples from all
___ 10–19 horses; collect 10 samples
___ 20–49 horses; collect 15 samples
___ 50+ horses; collect 20 samples

Total samples submitted: 4

# Equid	A. Equid name or unique ID	B. Age (months or years)	C. Gender code 1–3	D. Primary use code 1–8	E. Equid type code 1–6	F. If horse, breed code 1–15	G. Direct contact w/nonresident equids w/in last 30 days	H. Has this equid had any health issues in last 30 days? (List all codes that apply. If none, enter 0.)	I. # EHV vacc in last 12 mo	J. What was the last date of EHV vacc	K. EHV vacc product (enter code)
1	Harry	6 mo / __ yr	1	1	1	7	Yes1 (No0)	0	1	05 / 16 mm / yy	7
2	Sally	__ mo / 1 yr	3	3	1	8	(Yes1) No0	0	3	05 / 16 mm / yy	7
3	Star	__ mo / 7 yr	4	4	1	8	Yes1 (No0)	1	2	05 / 16 mm / yy	15
4	Buck	7 mo / __ yr	1	1	5	4	Yes1 (No0)	1	2	05 / 16 mm / yy	7
5		__ mo / __ yr					Yes1 No0			__ / __ mm / yy	
6		__ mo / __ yr					Yes1 No0			__ / __ mm / yy	
7		__ mo / __ yr					Yes1 No0			__ / __ mm / yy	
8		__ mo / __ yr					Yes1 No0			__ / __ mm / yy	
9		__ mo / __ yr					Yes1 No0			__ / __ mm / yy	
10		__ mo / __ yr					Yes1 No0			__ / __ mm / yy	

Gender: 1 – Intact male (stallion or colt); 2 – Castrated male (gelding); 3 – Intact (nonpregnant) female (mare or filly); 4 – Pregnant female; 5 – Spayed female; 6 – Unknown

Primary use of horse: (If young, intended use) 1 – Pleasure; 2 – Lessons/school; 3 – Show/competition (not betting); 4 – Breeding; 5 – Racing; 6 – Farm or ranch work; 7 – Retired (not in use); 8 – Other (specify: _____)

Equid type: 1 – Horse; 2 – Mule; 3 – Donkey or burro; 4 – Pony; 5 – Miniature horse; 6 – Other

Horse breed: (If 'other,' specify within column) 1 – Appaloosa; 2 – Arabian; 3 – Draft breeds; 4 – Miniature horse; 5 – Morgan; 6 – Mustang; 7 – Paint horse; 8 – Quarter horse; 9 – Saddlebred; 10 – Standardbred; 11 – Tennessee Walker; 12 – Thoroughbred; 13 – Warmblood breeds; 14 – Other registered breed (specify); 15 – Other nonregistered breed (specify)

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Biosecurity Assessment Manual

- VMOs please review the following descriptions to more accurately complete the assessment:

Question 1. Rodent-proof feed storage

To be considered rodent proof, equine concentrate feed must be stored in containers that rodents cannot eat through. Examples of rodent-proof feed containers are metal trashcans or large wooden containers lined with metal. On operations without rats, thick plastic containers can be considered rodent proof.

a.

a. An example of nonrodent-proof feed.

b

b. An example of nonrodent-proof feed. Even though some of the feed is stored in metal cans with lids, rodents have open access to bagged feed on this operation.

Question 2. Surface water

Check Always, Sometimes, or Never depending on the amount of time the equine have access to surface water. Examples of surface water are ponds, irrigation ditches, swampy areas, or streams/creeks.

Visual example of surface water in a horse pasture. If horses are in this pasture full time, check Always, if on this pasture seasonally, check Sometimes.

Question 3. Equine housing

Check Yes if equine are housed individually or in consistent groups such as in individual stalls or pens in order to maintain them separately from other groups/individual equine. Check No if they are housed in groups that are not consistent. Note: If Yes was selected, answer whether the equine share a common watering source with equine outside the group.

a.

a. Horses in consistent groups that are housed together and fed in dry lot area.

b.

b. Horses housed in individual stalls with individual feeding containers and tack.

Question 4. Cleanliness

Check only one box of those listed based on your assessment of the overall cleanliness of the operation based on your experience on other equine operations in your geographic area. The choices are Very clean, Moderately clean, Not clean, or NA.

a.

a. A Very clean pasture.

b.

b. A Moderately clean stall.

c.

c. A Not clean pasture.

Question 5. Pasture maintenance

Check the box that best describes the operation's pasture maintenance. Make sure to look at the level of weed control, if they have harrowed the pasture, or if they have removed all manure from the pasture.

a.

a. A Well maintained, pasture with minimal weeds or manure present.

b.

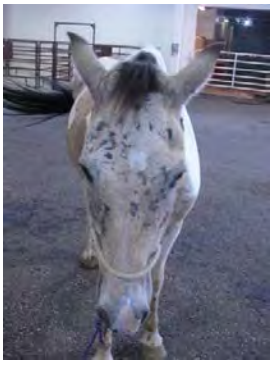
b. A Moderately maintained pasture because it has weeds present.

c.

c. A Not well maintained pasture that has manure, little forage present and hay scattered around the pasture.

Question 6. Insect activity

Check the level of insect activity in the equine area (part A) and in the equine pasture (part B). Please mark whether the insect activity is High, Moderate, Low, None, or NA. Remember to take into consideration the insect control methods used, such as insect masks, insect spray, and insect traps.



Insect bite lesions on a horse's face.

Question 7. Manure storage

Check all responses that apply to this facility's manure storage.

a.

a. Manure stored in a concrete bunker, which would prevent run off.

b.

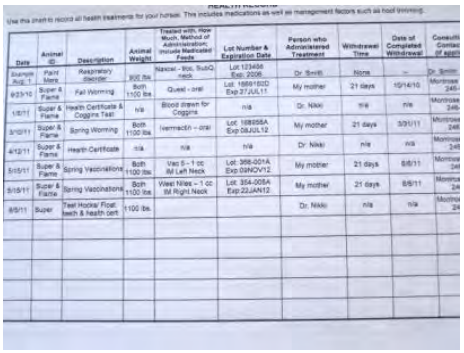
b. Manure pile away from equine housing but near arenas.

c.

c. Manure pile in the pasture near a feed bunk.

Question 8. Health records

Check Yes, No, or NA (no records) to describe the facility's health records for each equine on-site. These records can be handwritten or computerized.

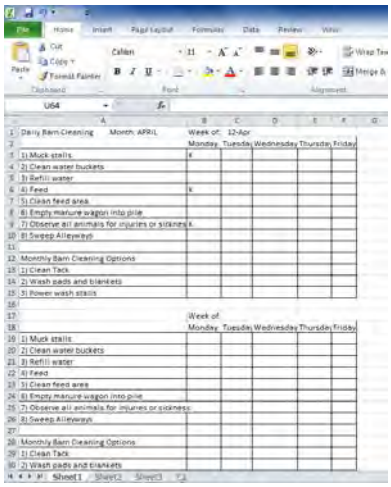


Date	Animal ID	Description	Animal Weight	Treated with, How Much, Method of Administration, Include Medicated Feeds	Lot Number & Expiration Date	Person who Administered Treatment	Withdrawal Time	Date of Completed Withdrawal	Consult/ Contact (if appl)
Example Rule 1	Paint Mare	Respiratory Disorder	800 lbs	Nasicar - 90z. SubQ. - neck	Lot 123456 Exp. 2009	Dr. Smith	None	--	Dr. Smith
6/23/10	Super & Fame	Fall Worming	Both 1100 lbs	Quest - oral	Lot 1880180D Exp 27JUL11	My mother	21 days	10/14/10	Montrose 246
1/8/11	Super & Fame	Health Certificate & Coggins Test	n/a	Blood drawn for Coggins	n/a	Dr. Nikki	n/a	n/a	Montrose 246
3/10/11	Super & Fame	Spring Worming	Both 1100 lbs	Ivermectin - oral	Lot: 188856A Exp 08JUL12	My mother	21 days	3/31/11	Montrose 246
4/12/11	Super & Fame	Health Certificate	n/a	n/a	n/a	Dr. Nikki	n/a	n/a	Montrose 246
5/15/11	Super & Fame	Spring Vaccinations	Both 1100 lbs	Vac 5 - 1 cc IM Left Neck	Lot: 368-001A Exp 09NOV12	My mother	21 days	6/6/11	Montrose 246
5/15/11	Super & Fame	Spring Vaccinations	Both 1100 lbs	West Nile - 1 cc IM Right Neck	Lot: 354-005A Exp 22JAN12	My mother	21 days	6/6/11	Montrose 246
8/8/11	Super	Teat Hooks/ Float teeth & health cert	1100 lbs.			Dr. Nikki	n/a	n/a	Montrose 246

A computerized record for two horses. It shows what was done, who did it, which vet was present and the dosage of medication that was given to the horses.

Question 9. Cleaning protocol

Check Yes or No to state whether or not the facility has written daily cleaning protocols.



Daily Barn Cleaning	Month: APRIL	Week of: 12-Apr				
		Monday	Tuesday	Wednesday	Thursday	Friday
1) Muck stalls		x				
2) Clean water buckets						
3) Refill water						
4) Feed		x				
5) Clean feed area						
6) Empty manure wagon into pile						
7) Observe all animals for injuries or sickness		x				
8) Sweep Alleyways						
Monthly Barn Cleaning Options						
1) Clean Tack						
2) Wash pads and blankets						
3) Power wash stalls						
		Week of:				
		Monday	Tuesday	Wednesday	Thursday	Friday
1) Muck stalls						
2) Clean water buckets						
3) Refill water						
4) Feed						
5) Clean feed area						
6) Empty manure wagon into pile						
7) Observe all animals for injuries or sickness						
8) Sweep Alleyways						
Monthly Barn Cleaning Options						
1) Clean Tack						
2) Wash pads and blankets						

An example of a computerized cleaning protocol. It shows what needs to be done daily with a place to check it off for the day. VMO/AHT should ask to see a written protocol.

Question 10. Contacting a veterinarian

Check Yes or No if the facility has a written protocol for when to contact a veterinarian.

Call the Vet Immediately

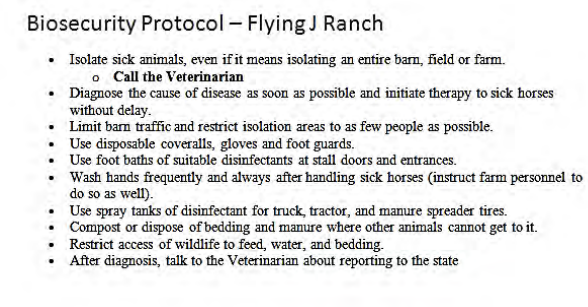
The following situations, listed in no particular order, are considered serious and some are potentially life threatening. You should not hesitate to call the vet immediately if your horse has any of the following:

- Any injury with profuse bleeding that won't stop.
- Obvious or suspected fractures.
- Any cut or injury that requires stitches
- Sudden lameness, often accompanied by heat and swelling.
- Respiratory distress. Obvious difficulty in breathing, noisy labored breathing.
- Choking. Obvious distress and choking, neck stretched out. Saliva and food particles may exit through nostrils.
- Horse having seizures.
- Watery diarrhea. If left untreated, the horse could become severely dehydrated.
- Any apparent eye injury. Lack of treatment or incorrect treatment could mean loss of vision.
- Learn to recognize the signs of colic. Can range from mild belly ache that will pass on its own to excruciating pain caused by a twisted gut that will require surgery.
- Abnormal vital signs, such as elevated pulse that does not return to normal at rest.
  - Temperature over 102 usually indicates an infection or disease process.
  - Pulse over 80 beats per minute is considered a sign of trouble in a non-exercising horse.
  - Elevated respiration rate in a resting horse can be caused by excitement, pain or infection.

A written protocol for contacting a veterinarian. VMO/AHT should ask to view the protocol.

Question 11. Biosecurity protocol

Check Yes or No if the facility has a written biosecurity protocol or disease control plan. This should include who to call, where the isolation area is, and other pertinent information. VMO/AHT should ask to see the written protocol.



Biosecurity Protocol – Flying J Ranch

- Isolate sick animals, even if it means isolating an entire barn, field or farm.
  - **Call the Veterinarian**
- Diagnose the cause of disease as soon as possible and initiate therapy to sick horses without delay.
- Limit barn traffic and restrict isolation areas to as few people as possible.
- Use disposable coveralls, gloves and foot guards.
- Use foot baths of suitable disinfectants at stall doors and entrances.
- Wash hands frequently and always after handling sick horses (instruct farm personnel to do so as well).
- Use spray tanks of disinfectant for truck, tractor, and manure spreader tires.
- Compost or dispose of bedding and manure where other animals cannot get to it.
- Restrict access of wildlife to feed, water, and bedding.
- After diagnosis, talk to the Veterinarian about reporting to the state

An example biosecurity protocol that includes who to call and steps to take if a disease outbreak occurs.

Question 12. Visitor policy

Check Yes, No, or NA if the facility has a visible visitor policy. If Yes, VMO/AHT should ask to see the sign-in sheet or a written policy for visitors to the facility.

Question 13. Equine isolation
Select Yes if there is a separate isolation area for new equine or isolation for contagious diseases. This area should not allow nose-to-nose contact between equine or near a fan for the whole barn.
Select No if there is no specific isolation area.
Select NA- no new animals if the barn does not accept new animals.

Equine isolation area is located at the bottom left of the picture. There would be no nose-to-nose contact between an isolated horse and other horses on the operation, and there is no shared water or feeders.

Question 14. Equine isolation areas
Check all that apply. Evaluate the isolation area used for new arrivals and those equine with contagious diseases to determine which answer(s) best describes the situation on the operation. VMO/AHT should ask to see if the isolation area is within the main barn or pen area, or if the isolation area is separate from the main barn or pen area. As you saw in image Q13 above, the isolation area should be completely secluded from the main barn/pens and there should be no nose-to-nose contact with equine turned out in the pasture.

Question 15. Equine isolation area
Please estimate in feet how far the equine isolation area is from the closest resident equine.

Question 16. Isolation for disease control
Check Yes or No for each questions 16a-16e.

16a. Check Yes or No. Can the horses have nose-to-nose contact through fences, stall walls, or share waterers, etc.?

An example of how horses can have nose-to-nose contact through the fence and at the water trough.

16b. Check Yes or No. Is the same tack and equipment used for isolated and remaining resident equine (i.e., pitchforks, muck wagons, brushes, buckets)?

A box filled with brushes used for multiple horses on the operation.

16c. Check Yes or No. Do the isolated animals have their own water buckets/water source or do they share the same turn-out pen or pasture where they have access to ponds or streams as the main water source?

a.

a. Individualized water source within a stall.

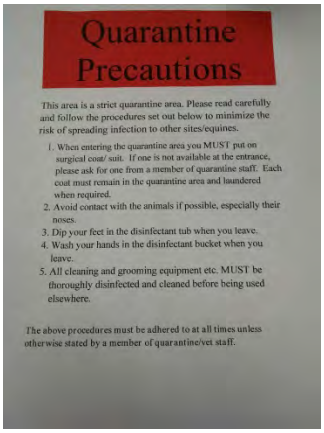
b.

b. Shared water source across pens.

c.

c. Shared water source (a stream) in a pasture.

16d. Check Yes or No. Do personnel walk through the isolation area to get supplies needed in the other area of the equine operation? Are specific personnel designated to work with equine only in the isolation area and not with other resident equine?



Instructions about quarantine area, specifically who can enter the area.

16e. Check Yes or No. Is the isolation area near a fan that circulates air into other equine housing areas?

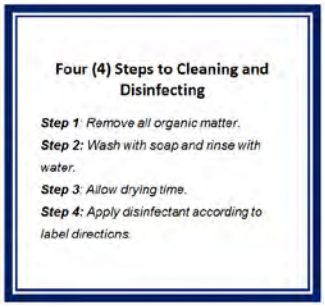
A photograph of a large fan that circulates air throughout the whole barn.

Question 17. Written policy
Check Yes or No. Were you able to view a written policy for management of equine suspected of having a contagious disease? This can be handwritten or a computerized file. The policy should be posted somewhere in the barn. See image in 16d.

Question 18: Written policy
Check Yes or No for each questions 18a-18e.

18a. Check Yes or No. Disinfectants must be used at specified dilutions in order to be the most effective. Does the written policy give specific directions on how to use disinfectants or is it more generalized?

a.



a. Specific instructions on how to use disinfectants.

b.

b. Examples of disinfects that can be used in equine facilities.

18b: Check Yes or No. When an infectious disease outbreak occurs, who is the first person to be contacted? This should be included in the written policy so all staff know who to contact.

18c. Check Yes or No. When dealing with contagious disease, each person needs to be able to protect themselves and protect the equine on the premises from exposure to contagious disease agents. By wearing disposable gloves, boot covers, and in some situations also disposable gowns, we can reduce the risk of disease transmission.

A photograph of a person putting on disposable footwear.

18d: Check Yes or No. Does the protocol have information for what tools or equipment is used in the isolation/contagious area versus the remainder of equine housing? Color coded/marked equipment indicates which tool belongs in the resident area or the isolation area.

In the photograph, note the red tape on the handles; this is one way to designate area of use for equipment.

Question 19. Hand hygiene

Check Yes or No if you saw adequate hand washing or sanitizing stations in the equine housing area(s). Adequate hand washing includes soap, water, and disposable towels or hand sanitizer.

a.

a. A photograph of a sink with soap and disposable hand towels in an equine housing area.

b.

b. A photograph of a person using alcohol hand gel to sanitize their hands.

Question 20. Biosecurity response items
Please check Yes or No for each questions 20a- 20g.

20a. Check Yes or No. Does the operation have disposable gloves available for use if a contagious disease were to occur today?

20b. Check Yes or No. Does the operation have footwear covers or rubber boots that could be dedicated for use with contagious disease cases?

20c. Check Yes or No. Does the operation have coveralls available for personnel to wear when working with contagious disease cases if they occurred today?

A photograph of two workers disinfecting a facility while wearing disposable coveralls/barrier precautions.

20d: Check Yes or No. Does the operation have a way to disinfectant footwear? This includes, at a minimum, a clean bucket, boot brush, and disinfectant available on the day you visited.

a.

a. A photograph illustrating disinfecting waterproof boots in a footbath.

b.

b. A photograph of a person standing on a floor mat charged with disinfectant.

20e. Check Yes or No. Does the operation have disinfectant on hand the day of this assessment?

A photograph illustrating disinfects that can be used in equine facilities.

20f. Check Yes or No. Does the operation have equipment to set up a physical barrier to restrict people traffic?

Image of a sign that could be used to restrict people movement.

20g. Check Yes or No. Does the operation have any other biosecurity response items that were not previously listed? If Yes, please list specific items.

Photograph credits: Sarah Wynkoop, Josie Traub-Dargatz, and Katie Flynn

Animal and Plant Health Inspection Service

Veterinary Services

NAHMS Equine 2015-16

On-site Biosecurity Assessment

National Animal Health Monitoring System

2150 Centre Ave, Bldg B
Fort Collins, CO 80526

Form Approved
OMB Number 0579-0269
Approval expires: 12/31/2017

Farm ID: (5 digits)	**Kit #:**	**Collector name and phone number**	**Date:** (mm/dd/yy)

Assess storage of feed and water source

1. Is the equine concentrate feed stored in a rodent-proof container? ba101 ☐1 Yes ☐3 No ☐4 Don't know ☐5 NA (no concentrate feed)

2. Do equine have access to surface water (e.g., ponds, irrigation ditches, stream/creek)? .....ba102 ☐1 Always ☐2 Sometimes ☐3 Never

3. Are equine housed in consistent groups or in individual housing, to maintain them separate from other groups/individual equids?..... ba103 ☐1 Yes ☐3 No

   If Yes, do any of the groups or individuals share a common water source? ..... ba104 ☐1 Yes ☐3 No

4. How clean are the following equine areas?

	(a) Stall	(b) Feed storage area	(c) Pasture	(d) Paddock/ pen/turnout
Very clean..... ba105	☐1	☐1	☐1	☐1
Moderately clean ba106	☐2	☐2	☐2	☐2
Not clean..... ba107	☐3	☐3	☐3	☐3
NA ba108	☐4	☐4	☐4	☐4

[If question 4c Pasture = 4, SKIP to question 6.]

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0579-0269 The time required to complete this information collection is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

5. What is the level of pasture maintenance, including weed control, harrowing, or manure removal and trimming tall grass? ba109

   ☐1 Well maintained

   ☐2 Moderately maintained

   ☐3 Not well maintained

6. What is the level of fly activity on the operation in the:

   a. Equine housing area (barn, paddock, pen, turnout) today? ..... ba110 ☐1 High ☐2 Moderate ☐3 Low ☐4 None ☐5 NA

   b. Equine pasture today? ..... ba111 ☐1 High ☐2 Moderate ☐3 Low ☐4 None ☐5 NA

7. Manure storage area *[Check all that apply.]*

   ☐ Manure storage area is near equine housing area and in a loose pile. ba112

   ☐ Manure storage area is near equine housing area and is contained in dumpster or plastic bin or concrete pit/bunker, etc. ba113

   ☐ Manure storage area is near equine exercise area and in a loose pile. ba114

   ☐ Manure storage area is distant from equine housing area. ba115

   ☐ Manure storage area is near equine exercise area and is contained in dumpster or plastic bin, concrete pit/bunker, etc. ba116

   ☐ Manure pile could have run-off into equine housing area. ba117

   ☐ No manure storage on operation ba118

8. Are health records (handwritten or computerized) adequate to assess equine health? ..... ba119 ☐1 Yes ☐3 No ☐4 NA (no records)

9. Is there a written protocol for daily cleaning of facility that you were able to view? ..... ba120 ☐1 Yes ☐3 No

10. Is there a written protocol for when to contact a veterinarian that you were able to view? ..... ba121 ☐1 Yes ☐3 No

11. Were you able to view a written protocol for biosecurity or other aspects of infection control? ..... ba122 ☐1 Yes ☐3 No

12. Were you able to view a sign-in sheet or written policy for visitors? .... ba123 ☐1 Yes ☐3 No ☐4 NA

Assess infection control related to new arrivals to the operation

13. Is there an area separate from resident equids where new arrivals or contagious disease cases can be kept? [If Yes, ask to view.] ..... ba124 ☐1 Yes ☐3 No ☐4 NA—no new animals

[If question 13 = No or NA, SKIP to question 17.]

14. Is the separate area for new arrivals or contagious diseases a: *[Check all that apply.]*

- ☐ Stall in main barn? ba125
- ☐ Stall apart from main barn? ba126
- ☐ Pen or run next to resident equine (could have nose-to-nose contact)? ba127
- ☐ Pen or run next to resident equine (could share water source)? ba128
- ☐ Secluded barn, pen, or run with no possible direct contact with resident equine? ba129
- ☐ Other? (specify: _____) ba130oth ba130

15. Approximately how far away from resident equine is the separate isolation area (in feet)? ..... ba131 _____ ft

16. In your assessment, is the isolation area adequate to prevent disease transmission from:

a.	Nose-to-nose contact? ba132	☐1 Yes	☐3 No
b.	Sharing of tack? ba133	☐1 Yes	☐3 No
c.	Sharing of water buckets/source? ba134	☐1 Yes	☐3 No
d.	Movement of personnel? ba135	☐1 Yes	☐3 No
e.	Aerosol spread through the air? ba136	☐1 Yes	☐3 No

17. Were you able to view a written policy for managing equine that develop suspected contagious disease? ..... ba137 ☐1 Yes ☐3 No

[If question 17 = No, SKIP to question 19.]

18. Does the policy contain:

a.	Directions on how to use disinfectants? ba138	☐1 Yes	☐3 No
b.	Who to alert when contagious disease occurs? ba139	☐1 Yes	☐3 No
c.	Protocol for use of barrier precautions (including the use of disposable gloves)? ba140	☐1 Yes	☐3 No
d.	Protocol for use of separate equipment? ba141	☐1 Yes	☐3 No

19. Are there adequate hand hygiene options (hand washing with soap and hand drying materials/hand sanitizer) available in the equine housing area? *[Be sure to view it.]* ..... ba142 ☐1 Yes ☐3 No

20. Does this operation have the following biosecurity response items available in the event of contagious disease occurrence:

a.	Disposable gloves? ba143	☐1 Yes	☐3 No
b.	Footwear covers? ba144	☐1 Yes	☐3 No
c.	Coveralls? ba145	☐1 Yes	☐3 No
d.	Footbath materials? ba146	☐1 Yes	☐3 No
e.	Disinfectant? ba147	☐1 Yes	☐3 No
f.	Equipment to set up a physical barrier to restrict human traffic? ba148	☐1 Yes	☐3 No
g.	Other? (specify: _____) ba149oth ba149	☐1 Yes	☐3 No

National Animal Health Monitoring System (NAHMS) Equine Parasite Report

Date of report:
Internal parasite test results for NAHMS ID:

Dear participant,

Thank you for participating in the parasite portion of the NAHMS Equine study. This report contains the results of the testing performed on the equines at your operation. After reviewing your results, please see the enclosed informational sheets that can assist you with further understanding of the test results, and consider sharing these results with your veterinarian so that they can assist you in determining if there is a need to modify your deworming protocols.

If you have questions about the accuracy of your results, please contact NAHMS by phone at: (866) 907–8190 or email Abigail Zehr at Abigail.C.Zehr@aphis.usda.gov.

Overview of Parasite Testing:

Control of internal parasite infection in equines is considered an essential aspect of their routine management. Internal parasite control is based on good husbandry, which can limit the exposure of equines to parasite infection, and the use of various products called anthelmintics, which control the parasites to which the equines are exposed. The first step in an effective deworming program is to determine the level of infection and the type of internal parasites on the equine operation.

Fecal Egg Counts (FEC) and Interpretation:

These results describe a baseline (pre-deworming) and post treatment (post-deworming) strongyle fecal egg count (FEC), reported as eggs per gram (EPG), and the level of shedding that this egg count represents for each equine tested from your operation. The anthelmintic that was used for this deworming is also included as a reminder to you of what you indicated was used. If evidence of parasites other than strongyles were detected, then we report the presence of those parasites following the strongyle results. The presence of ascarid eggs is reported at the individual equine level, but the presence of other parasites are reported at the operation level.

Fecal Egg Count Reduction Test (FECRT) and Interpretation:

Currently, the only available method for determining the efficacy of anthelmintics on equine internal parasites is the fecal egg count reduction test (FECRT). FECRT is calculated at the operation-level in order to reflect the effectiveness of the deworming procedure used at your operation.

STRONGYLE RESULTS:

Individual Equine Results:

Sample #	Equine name/ID	Baseline FEC (EPG)	Baseline level of shedding*	Post treatment FEC (EPG)	Dewormer used
1	a	360	Moderate	0	Zimectrin Gold Paste
2	b	3365	High	0	Zimectrin Gold Paste
3	c	57	Low	0	Zimectrin Gold Paste
4	d	345	Moderate	0	Zimectrin Gold Paste
5	e	2510	High	0	Zimectrin Gold Paste
6	f	80	Low	0	Zimectrin Gold Paste

*Reference the "Controlling Internal Parasites in Equines" fact sheet for more information on strongyle levels of shedding.

Operation Results:

Pre- and post-deworming fecal egg count results were used in calculating your FECRT at the operation level.

Strongyle FECRT = 100%

FECRT Interpretation: Deworming using the product listed was effective in reducing strongyle egg counts based on fecal egg count reduction test results across all the tested equines from which samples were submitted. You may be interested in reviewing the enclosed information sheets which have general information about internal parasites and their control.

ASCARID RESULTS:

Individual Equine Results:

Sample #	Equine name/ID	Baseline Ascarid Eggs Present	Post Treatment Ascarid Eggs Present	Dewormer used
1	a	No	No	Zimectrin Gold Paste
2	b	No	No	Zimectrin Gold Paste
3	c	No	No	Zimectrin Gold Paste
4	d	No	No	Zimectrin Gold Paste
5	e	No	No	Zimectrin Gold Paste
6	f	No	No	Zimectrin Gold Paste

Operation Results:

Pre- and post-deworming fecal egg count results were used in calculating your FECRT at the operation level.

Ascarid FECRT: Not Applicable

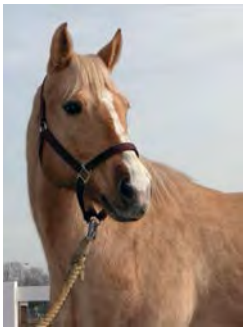
FECRT Interpretation: Not Applicable. No ascarid eggs were detected on the pre-deworming samples, therefore a FECRT could not be calculated.

OTHER PARASITE RESULTS FOR THE OPERATION:

Evidence of *Strongyloides westeri* was detected in one or more of the samples of the equine tested from your operation. Strongyloides has been associated with diarrhea in young foals. You may want to consider contacting your veterinarian regarding appropriate response to these findings.

Return to TOC

Controlling Internal Parasites in Equines



Internal parasites can cause several health problems in equines, including colic and weight loss. There are multiple parasite-control methods available, and a combination of methods is often optimal.

Anthelmintic (dewormer) options

Controlling internal parasites[1] in equines[2] is most commonly achieved by administering oral dewormers (anthelmintics). Several different anthelmintic products are available, many of which contain the same active ingredients. Not all anthelmintics, however, are effective against all the most common parasites.

There are four major anthelmintic drug classes used to treat internal parasite infection in equines:

1. Macrocyclic lactones
2. Tetrahydro-pyrimidines
3. Benzimidazoles
4. Prazino-isoquinolines

Macrocyclic lactones

Ivermectin: Targets all parasites with the exception of tapeworms. Ivermectin is effective against some stages of strongyles (larva) that migrate out of the intestines into other parts of the body.

Moxidectin: Targets all parasites with the exception of tapeworms. Moxidectin is partially effective against encysted small strongyles.

Tetrahydro-pyrimidines

Pyrantel pamoate: Targets large and small strongyles, pinworms, roundworms and, when used at a double dose, kills tapeworms.

Benzimidazoles

Fenbendazole: Targets large and small strongyles, pinworms, and roundworms and, when used at double the normal dose for five consecutive days, is effective against stages of strongyles (larva) that migrate out of the intestines into other parts of the body and encysted small strongyles.

Oxibendazole: Targets large and small strongyles, pinworms, roundworms, and threadworms (*Strongyloides westeri*).

Prazino-isoquinolines

Praziquantel: Targets tapeworms.

Deworming strategies

The first step in an effective deworming program is to determine the level of infection and the type of internal parasites on the farm. The fecal egg count reduction test (FECRT) is a very useful tool for doing so. The FECRT is used to determine if strongyles and/or ascarids are resistant to a given anthelmintic. Before calculating the FECRT, however, you must wait approximately 8 weeks after your equine's last deworming treatment. Once 8 weeks has passed, fecal samples should be collected from up to six individual animals, and egg counts should be completed on the samples by a laboratory.

A second sample should be collected approximately 10 to 14 days after the first test, and egg counts should be repeated on the postdeworming sample. Once the second test is completed, comparisons can be made to determine the efficacy of the anthelmintic used and if changes need to be made to target specific parasites. If there is no resistance on your farm, the egg count will be reduced by 90 to 100 percent. If there is not a 90 to 100 percent reduction in egg counts, the equine parasites on your farm could be resistant to the anthelmintic used, and if other causes of the lowered effect are ruled out, that drug should not be administered on the farm in the future.

[1]Common internal parasites of equines:
- Small strongyles (cyathostomes)
- Large strongyles: Strongylus spp
- Roundworms (ascarids): Parascaris spp
- Pinworms
- Tapeworms: Anoplocephala spp
- Bots

[2]Domestic horses, ponies, donkeys, mules, and/or other equine species.

By scheduling routine fecal tests for your equines, you can tailor your deworming program to meet the needs of each individual equine. Using anthelmintics targeted specifically for the parasites on the farm can help reduce parasite burden and delay development of anthelmintic resistance on the farm.

Strongyle levels of shedding

Strongyles are the most common parasite eggs detected from individual equines and strongyle egg counts are used to determine whether your equine is a high or low shedder of parasite eggs. Fecal egg counts for each level of shedding are presented in the table below.

Level of shedding	**Fecal egg count range** (eggs per gram)	**Percent adult equine population**
Low	0–200	50–70
Moderate	200–500	10–20
High	>500	20–30

It is generally advised to classify adult equines to one of the three levels of strongyle shedding based on more than just one egg count performed at one point in time. Egg shedding categories for most equines remain consistent, but some equines may switch categories, particularly those with FEC near the cutoff values. High shedders on an operation should be the target of a deworming program to have the greatest impact on operation parasite egg contamination.

When to treat for parasites

Anthelmintic treatments for strongyle parasites should be done during optimal times of parasite larval development on pasture. Eggs hatch and develop into infective larvae under conditions of moderate temperature and moisture. Treat adult equines at the beginning of summer, and then wait until fall when the weather cools before treating again. Anthelmintic treatments should be minimized during:

- Hot summers
- Droughts
- Freezing temperatures and when snow is present.

Target animals

Equines less than 3 years old, which are more susceptible to parasite infection and at greater risk of disease, should be treated more frequently than older equines. Yearly FECRTs should be done to evaluate the efficacy of the treatment against strongyles and ascarids. Foals should receive a minimum of four anthelmintic treatments—at approximately 3, 6, 9, and 12 months of age. The first two treatments should primarily target ascarids; the last two should primarily target strongyles. High-shedding mature equines can be treated three to four times per year, as 20 to 30 percent of infected adult equines shed approximately 80 percent of the eggs. Therefore, treating high-shedding equines will greatly reduce egg shedding on the farm.

Mature equines that are not high shedders of strongyles should only be treated one to two times per year, targeting large strongyles, tapeworms, bots, and the nematodes, which can cause summer sores.

Other considerations

Regular and diligent manure removal from areas where equines graze can help reduce parasite populations on a farm. Farms that harrow and/or apply manure to pastures should do so when the weather is hot and dry. Manure should be composted before it is spread to reduce parasite loads. Farms with a high turnover of equines usually have a greater parasite management problem than farms without a high turnover rate. Ideally, new equines should be quarantined and a FECRT should be performed. When egg counts are low, quarantined equines can be released to the general herd. If FECs are moderate to high in the pre-deworming sample, dosing with ivermectin or another macrocyclic lactone is recommended. If the second fecal test shows a significant reduction in eggs, the equine can be released into the herd.

For more information, contact:
USDA–APHIS–VS–CEAH–NAHMS
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526-8117
970.494.7000
http://nahms.aphis.usda.gov
#720.0815

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The Most Common Equine Parasites

Martin K. Nielsen, DVM, PhD, DEVPC, DACVM

Small strongyles (cyathostomins)

The small strongyle parasites infect every equine with access to pasture. The majority of equines harbor thousands of these parasites without showing any signs of discomfort, but disease can occur in extreme cases. As part of their life cycle, the small strongyles burrow into the mucosal walls of the large intestine (Figure 1). From here, they eventually make their way back out into the intestinal lumen. Large numbers of larvae emerging from the mucosal walls synchronously can lead to a generalized inflammatory condition in the large intestine. This causes severe diarrhea and can be life threatening to the equine.

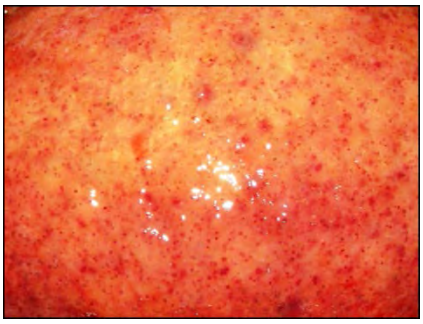


Figure 1. *Small strongyle larvae embedded in the large intestinal wall. Each red dot represents one larva.*

Resistance: The small strongyles are widely resistant to benzimidazole type drugs (fenbendazole and oxibendazole) and commonly resistant to pyrantel salts. The third drug class, the macrocyclic lactones (ivermectin and moxidectin), generally work well, although they don't suppress egg counts for as long following treatment as they did 20 years ago.

Large roundworms (ascarids, Parascaris spp.)

Ascarid parasites infect all foals up to about 10 months of age. Most equines acquire complete immunity to this parasite, although it occasionally infects older animals as well. Larvae of this parasite migrate through the liver and lungs before they reach the small intestine and become adults. Heavy infections can cause ill thrift, poor growth, and airway inflammation, but the most severe consequence of ascarid infection is small intestinal impaction (blockage), which is associated with a guarded to poor prognosis of survival. The worms grow large and become pencil thick (Figure 2) and can block passage of the narrow small intestinal lumen.

Figure 2. *Ascarid worms in the small intestine.*

Resistance: Ascarid parasites are widely resistant to macrocyclic lactones (ivermectin and moxidectin), while only few (mostly anecdotal) reports suggest resistance to pyrantel salts and benzimidazoles.

Tapeworms

The equine tapeworm, *Anoplocephala perfoliata*, is less common than the two previous parasite categories. It is present on most equine operations, but the individual prevalence varies between 20 and 80%. Most equines tolerate tapeworm burdens very well, but these parasites can cause various types of colic associated with disease caused at the junction between the small intestine and the cecum, where the worms reside (Figure 3).

Figure 3. *Tapeworms attached to the cecal wall.*

Resistance: Two drugs are available for treating tapeworm infections—praziquantel and pyrantel pamoate (double label dose). There currently are no reports of drug resistance to any of these drugs.

Current recommendations

Equine parasites have developed resistance to all of the dewormers currently available on the market, and there is no single drug that will effectively treat all important parasites. Some drugs work well against ascarids but not strongyles, and vice versa. Therefore, egg count testing is necessary to be able to choose the right drug and identify equines in need of treatment. It is recommended that egg counts be performed before and after deworming to determine if treatments are working as intended.

Furthermore, good pasture management is the key to good parasite control which can be achieved a number of different ways, including fertilizing and rotating pastures, regularly cleaning of manure from paddocks and pastures, and mixed or alternate grazing with ruminants.

We recommend working with your veterinarian to construct a parasite control strategy appropriate for your operation.

National Animal Health Monitoring System (NAHMS) Equine *Salmonella* Report

Date of report: 08/01/2016

Salmonella test results for NAHMS ID: XXXXX
Date of sample collection: 06/01/2016

Dear participant,

Thank you for participating in the *Salmonella* testing portion of the NAHMS Equine study. This report contains results of *Salmonella* testing performed on equine on your operation. After reviewing your results, please see the enclosed informational sheets for aid in further understanding these test results. Please consider sharing these results with your veterinarian.

If you have questions about the accuracy of your results, please contact NAHMS at: (866) 907–8190 or email Abigail Zehr at Abigail.C.Zehr@aphis.usda.gov.

Background on *Salmonella*:

Salmonella is a bacteria that inhabits the intestinal tract of most animal species and is shed in their feces. Equine that are shedding *Salmonella* can have clinical signs such as diarrhea, fever, and/or colic, or can appear totally healthy. *Salmonella* that is shed in equine feces can cause infections in other animals and humans, and can contaminate the environment. Although contaminated food is the most common way that people are exposed to *Salmonella*, people working with equine shedding the bacteria in their feces can also become infected. Thus, it is important to take precautions when working with equine that are known to be shedding *Salmonella*. See the enclosed information sheets for additional information on *Salmonella* in equine.

Overview of *Salmonella* Testing Performed and Results Reported:

Fecal samples collected from equine on your operation were tested for the presence of *Salmonella* spp. The presence (positive) or absence (negative) of *Salmonella* in the sample is reported for each equine sampled. If *Salmonella* was isolated from a sample, then the serogroup (a more specific way to categorize *Salmonella*) is also reported for that sample.

Salmonella RESULTS:

Individual Equine Results:

Sample #	Equine name/ID	Fecal *Salmonella* status	*Salmonella* serogroup
1	Harry	Negative	Not Applicable
2	Sally	Negative	Not Applicable
3	Star	Negative	Not Applicable
4	Buck	Negative	Not Applicable

***Salmonella* Interpretation:**

None of the horses tested on your operation were found to have *Salmonella* in their feces on the day sampled. However, *Salmonella* can be shed intermittently, therefore a negative test result does not mean your equine will never shed this bacteria. To determine the *Salmonella* shedding status of an equine, it is recommended that at least 5 daily fecal samples be collected and cultured to account for intermittent shedding. If any of your equine experience clinical signs consistent with *Salmonella* infection, you may wish to consult your veterinarian about submitting additional samples for testing.

National Animal Health Monitoring System (NAHMS) Equine *Salmonella* Report

Date of report: 08/01/2016

Salmonella test results for NAHMS ID: XXXXX
Date of sample collection: 06/01/2016

Dear participant,

Thank you for participating in the *Salmonella* testing portion of the NAHMS Equine study. This report contains results of *Salmonella* testing performed on equine on your operation. After reviewing your results, please see the enclosed informational sheets for aid in further understanding these test results. Please consider sharing these results with your veterinarian.

If you have questions about the accuracy of your results, please contact NAHMS at: (866) 907–8190 or email Abigail Zehr at Abigail.C.Zehr@aphis.usda.gov.

Background on *Salmonella*:

Salmonella is a bacteria that inhabits the intestinal tract of most animal species and is shed in their feces. Equine that are shedding *Salmonella* can have clinical signs such as diarrhea, fever, and/or colic, or can appear totally healthy. *Salmonella* that is shed in equine feces can cause infections in other animals and humans, and can contaminate the environment. Although contaminated food is the most common way that people are exposed to *Salmonella*, people working with equine shedding the bacteria in their feces can also become infected. Thus, it is important to take precautions when working with equine that are known to be shedding *Salmonella*. See the enclosed information sheets for additional information on *Salmonella* in equine.

Overview of *Salmonella* Testing Performed and Results Reported:

Fecal samples collected from equine on your operation were tested for the presence of *Salmonella* spp. The presence (positive) or absence (negative) of *Salmonella* in the sample is reported for each equine sampled. If *Salmonella* was isolated from a sample, then the serogroup (a more specific way to categorize *Salmonella*) is also reported for that sample.

Salmonella RESULTS:

Individual Equine Results:

Sample #	Equine name/ID	Fecal *Salmonella* status	*Salmonella* serogroup
1	Harry	Positive	Serogroup E
2	Sally	Negative	Not Applicable
3	Star	Negative	Not Applicable
4	Buck	Negative	Not Applicable

***Salmonella* Interpretation:**

One or more of the equine tested from your operation were positive for *Salmonella* on the day they were sampled. *Salmonella* infection can occur in many different types of animals including equine, cattle, pigs, rodents, wild birds, and poultry. *Salmonella* infection can also occur in humans and pets. In a previous NAHMS study conducted in 1998, 0.8% of equine were found to be shedding *Salmonella* and 1.4% of equine operations had one or more equine shedding *Salmonella* on the day of sampling. The serogroup reported for the *Salmonella* isolated from your equine further categorizes the type of *Salmonella* present. You may want to share these results with your veterinarian and consult the enclosed information sheets regarding how to take precautions to stop *Salmonella* from spreading.

Return to TOC

Preventing Salmonella

Certain precautions should always be taken to keep diseases from spreading between horses and their human caretakers. These precautions can help prevent *Salmonella.*

- **WASH YOUR HANDS THOROUGHLY AND FREQUENTLY.** Humans can carry bacteria on their hands and transfer it to other people and animals.
- Isolate new horses, horses returning from the hospital, and horses that have recently been at shows or races for 1 – 2 weeks after they return home.
- Do not share buckets, tack, cleaning tools, or stalls between healthy and sick horses.
- Scrub the walls and floors of stalls and trailers regularly with detergent, after removing all dirt and feces. Follow directions on the label and rinse a half hour later.

Talk to your veterinarian about any questions you might have.

Questions For My Vet:

_____

_____

_____

_____

_____

_____

_____

Colorado State University
Veterinary Teaching Hospital

300 West Drake Road
Fort Collins, Colorado, 80523
Phone: (970) 297-5000

http://csuvth.colostate.edu/

Colorado State University
Veterinary Teaching Hospital

Salmonella

Important Information for Horse Owners and Caretakers

Protecting People & Animals
Understanding the diseases we share




Salmonella

Salmonella spreads through contact with feces.

Humans and all animals can be infected with *Salmonella*.

Horses with Salmonella don't all have symptoms.

Good precautions can stop Salmonella from spreading.

What is Salmonella?

Salmonella is a bacteria that lives in the gut and causes gastrointestinal symptoms. While most people think of it as a food bacteria, it also spreads through the feces of infected individuals. It is a particularly common problem among horses.

Who Gets Salmonella?

Salmonella infections frequently occur in certain populations of livestock, including horses, dairy cattle, pigs and chickens. *Salmonella* infections can also happen in humans and pets, and may be particularly severe for children, immune compromised people, and older adults.

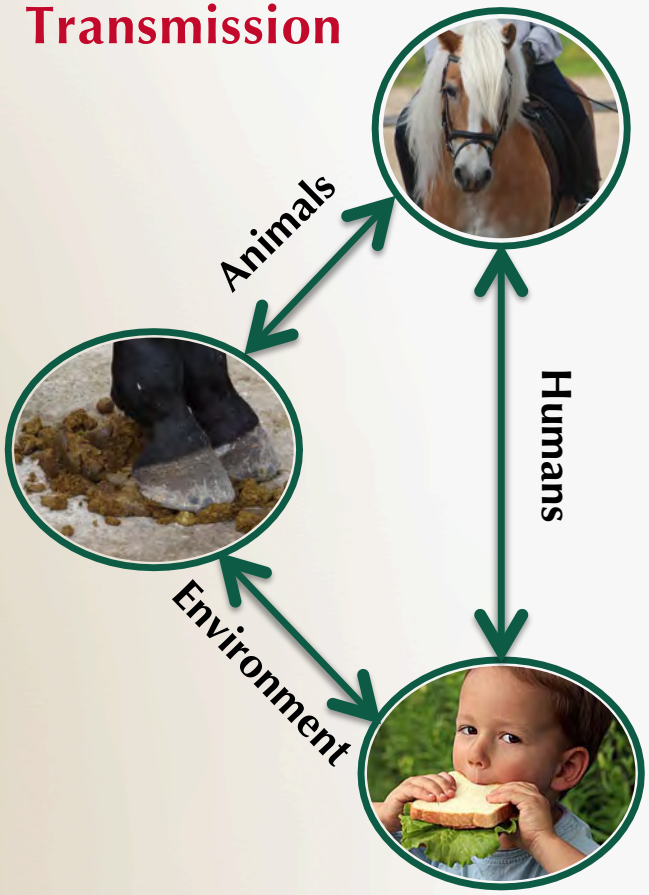
Salmonella Infections

Diarrhea is the most common symptom of *Salmonella*, but many horses with *Salmonella* do not have any symptoms. Even though they are healthy, they can still be contagious. Horses shed the bacteria intermittently in their feces. Factors like stress increase the likelihood that they will shed and be contagious.

Preventing Salmonella

With proper precautions, it's less likely that stablemates of infected horses will get sick. However, it's very important to keep sick horses isolated and keep the environment around them clean. Caretakers should wear gloves and coveralls while they care for the sick horse and leave them at the stall when they're done. Good hand washing should always be used to prevent spreading disease.

Cycle of Salmonella Transmission



At the CSU Veterinary Teaching Hospital, we take extra precautions to monitor and prevent *Salmonella* infections.

Colorado State University
Veterinary Teaching Hospital

Managing Salmonella

What you should know about *Salmonella*:

Salmonella spreads through contaminated feces. As horses do not have the same qualms humans do about laying in dirt and manure, any part of their body and anything in their environment is potentially contaminated. Flies and other insects may also spread the bacteria from surface to surface. Fortunately, if appropriate precautions are taken, horses with *Salmonella* are not likely to infect other horses or humans.

Created by:

Kimberly J. Pattison BA, MPH

Brandy A. Burgess DVM, MSc, PhD, DACVIM, DACVPM

Paul S. Morley DVM, PhD, DACVIM

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Salmonella -- The Basics

Salmonella is a common problem among horses that can result in diarrhea and other gastrointestinal symptoms. While most people think of *Salmonella* as a bacteria found in food, it also spreads through contact with the feces of infected individuals and anything contaminated with their feces (water, food, hands, surfaces, etc). Stablemates of infected horses and their human caretakers have a heightened risk for *Salmonella* infection.

Sometimes, horses with *Salmonella* do not have any symptoms. They can be healthy, but still contagious. A horse is contagious when it is "shedding" *Salmonella* bacteria in its feces. Infected, but healthy, horses have *Salmonella* contained in their intestines and only shed occasionally. Stress increases the likelihood that a horse will shed *Salmonella*. Sources of stress might include transportation, changing diets, competition, moving to a new property, disease such as colic, and hospitalization or anesthesia. Horses exhibiting symptoms of a *Salmonella* infection should always be assumed to be shedding until their veterinarian has determined they are cleared of the bacteria.

Along with gastrointestinal symptoms, horses with Salmonella tend to develop laminitis (founder). If your horse has *Salmonella*, monitor it closely for signs of hoof pain so it can be treated promptly. Cushioning its stall with deep bedding may help alleviate the problem. Dehydration is also a concern. Make sure ill horses have continuous access to water and a clean environment.

Humans who work with horses have a higher risk for contracting *Salmonella*. They may also carry the bacteria home on their clothes and unwashed hands to others in their household. *Salmonella* infections in young children and immune compromised people tend to be especially severe. If you are caring for a horse with *Salmonella*, it's important to take precautions to protect yourself and those around you.

How Do I Know if My Horse is Contagious?

If your horse has *Salmonella*, your veterinarian may want to run tests to determine when it is no longer shedding the bacteria. Generally, veterinarians believe 3 to 5 negative tests in a row are enough to say a horse is probably finished shedding *Salmonella*. This is not a guarantee that *Salmonella* is entirely out of your horses system and it may begin shedding again later. Research from the CSU Veterinary Teaching Hospital shows that horses can be well protected from infections like *Salmonella* if you take appropriate precautions, such as those outlined on the opposite side of this handout.

Even if your horse is not actively shedding *Salmonella* bacteria, it is always wise to continue using basic infection prevention practices to keep your horses healthy. Your veterinarian can give you more information about the risk *Salmonella* poses to humans and other animals.

** Immune compromised people should always take greater precautions, as they are susceptible to infections that the general population is not.*

Colorado State University

In Collaboration - With -

Colorado School of PUBLIC HEALTH

Salmonella

Reducing the Risk of *Salmonella* in Horses

Research conducted at Colorado State University indicates that stablemates of infected horses are less likely to become infected with *Salmonella* when proper precautions are taken. Work with your veterinarian to develop an appropriate management plan. Steps should be taken to keep your horses' environment clean, reducing the amount of bacteria in the area and the chances that other horses will become ill.

- Wear gloves and coveralls while caring for your horse, and leave them at the stall when care is completed.
- **WASH YOUR HANDS**. Even if you wear gloves while working around your horse, washing or using hand sanitizer is the most important defense against infections and will reduce the chance of spreading *Salmonella* or other germs.
- If possible, house horses shedding *Salmonella* in a stall with cleanable surfaces with plenty of bedding (for example, one with concrete and steel surfaces rather than untreated wood and dirt).
- Bedding should be replaced promptly whenever it is soiled. Contaminated bedding, along with manure and uneaten feed, should be disposed of where other animals and people cannot access it. Do not use it as fertilizer.
- Do not use common feeders and water troughs while your horse is shedding *Salmonella*. Provide separate feed containers and water bucket and disinfect after use.
- Avoid feeding your horses on the ground, to minimize the potential for fecal contamination of their food.
- Don't share buckets, tack, cleaning tools, or stalls between health and ill horses.
- Clean your horse's coat and skin frequently to remove bacterial contamination with *Salmonella* bacteria, especially if horses have diarrhea.

Infected horses do not necessarily pose risks to other animals or people if appropriate precautions are used.

- Scrub the walls and floors of your horse's stall regularly with detergent. After removing all dirt and feces, spray diluted disinfetants on the stall surfaces and then rinse 30 min later. Do the same for trailers before you transporting horses. Always follow instructions on the disinfectant label.
- Wear waterproof shoes with rubber soles and use a footbath when entering and exiting your horse's stall when they are sick or shedding *Salmonella*. Footbaths are plastic containers large enough to step into that are filled with diluted disinfectant. Disinfectant solutions should be changed daily, or more frequently if it becomes visibly dirty.
- As a general practice, new horses, horses that have been hospitalized, and horses returning from other farms or shows should be isolated after arrival in case they are carrying a contagious disease.

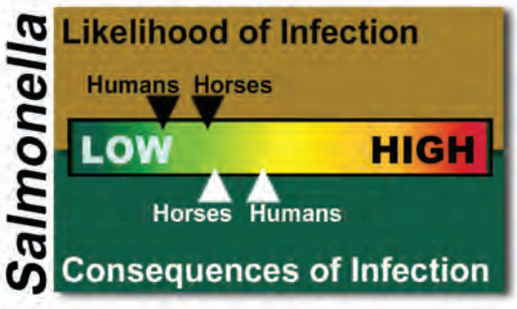
Questions For My Veterinarian

Questions or Concerns?

Animal health experts from the Colorado State University Veterinary Teaching Hospital can serve as a reference for any questions you have related to *Salmonella* in your horses or other animals.

CSU Veterinary Teaching Hospital

Appointments and Questions: (970) 297-5000.
http://csuvth.colostate.edu/



National Veterinary Services Laboratories
1920 Dayton Avenue
Ames, Iowa 50010
Phone: 515-337-7514 **Fax**: 515-337-7938
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FINAL REPORT

Laboratory Test Report

Sensitive But Unclassified/Sensitive Security Information - Disseminate on a Need-To-Know Basis Only

Owner
28765

Accession Number: **16-345678**

Submitter - 55555
Center for Epidemiology and Animal Health
2150 Centre Avenue, Bldg B
Ft. Collins, CO 80526

Date Collected: 06/07/2016
Date Received: 06/14/2016
Date Completed: 06/21/2016
Collected by: VMO/AHT name
Purpose: NAHMS
Referral Number: Kit 021
Country Origin/Destination:
This is not a billable case

NVSL Sample ID: 14158356
Animal ID: Tony the Pony
Sample ID: 28765-021-01
Case No: N16-125
Host: *Equus caballus - breed: Shetland*

Collection Location:
Port of Entry:
Location on Host: neck
No. Animals in Lot:
No. Animals Infested:

Parasite Identification by: Jack Schlater
Dermacentor albipictus (Packard), the winter tick (Ixodida: Ixodidae)
2 females

Amblyomma mixtum Koch, northern Cayenne tick (Ixodida: Ixodidae)
1 male

NVSL Sample ID: 14158358
Animal ID: Penny Pony
Sample ID: 28765-021-02
Case No: N16-126
Host: *Equus caballus - breed: Shetland*

Collection Location:
Port of Entry:
Location on Host: tail
No. Animals in Lot:
No. Animals Infested:

Parasite Identification by: Jack Schlater
Amblyomma maculatum Koch, the Gulf Coast tick (Ixodida: Ixodidae)
1 male

Dermacentor albipictus (Packard), the winter tick (Ixodida: Ixodidae)
10 females, 17 males

Date Generated: 2/12/2016

NVSL Sample ID: 14158360
Animal ID: Cindy Lou
Sample ID: 28765-021-03
Case No: N16-127
Host: *Equus caballus*

Collection Location:
Port of Entry:
Location on Host: neck, ear
No. Animals in Lot: 3
No. Animals Infested:

Parasite Identification by: Jack Schlater
Dermacentor albipictus (Packard), the winter tick (Ixodida: Ixodidae)
9 females, 12 males

Remarks: breed given for sample 3 (Cindy Lou) is Haflinger X Rocky Mountain Horse.

Results authorized by: Dr. Jack Schlater, Pathology, Parasitology, and Entomology Section (515)337-7065

Help Us Help You
(This new section will be updated periodically with tips for submitters.)

Quality samples yield the most accurate results. Please call if you have questions.

NOTE: No identifiable information was shared with the lab in order to perform tick identification. If you contact the laboratory, you may voluntarily disclose your identity and participation in the Equine 2015-16 study.

Return to TOC

Date Generated: 2/12/2016

Tick Species Identification List

The tick identification list is under development. Below is an example of the information that will be included. The list will be printed in color and will include a photo of each of the most common ticks associated with equines.

Tick Species Reported to Attach to Humans and Horses and Their Associated Diseases

U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Veterinary Services (USDA:APHIS:VS)

Tick	Scientific Name	Common Name	Attach to Humans?	Human Associated Diseases	Attach to Horses?	Equine Associated Diseases

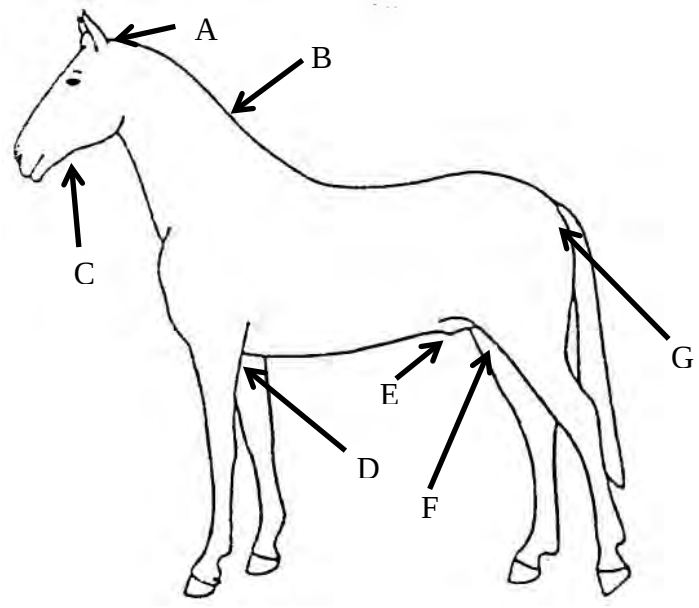
Return to TOC

Protecting Your Horse From Ticks

Ticks can live along forest trails, grassland edges, and mixed scrub- brush areas, attaching to animals or people as they pass by. They are found in habitats where their hosts live. Many species of ticks can infest horses, and horses with heavy tick infestations often display poor body condition and even anemia. Ticks can also transmit disease agents to your horse. In addition, the site of the "bite" often irritates the horse, causing it to scratch or rub the site, which often leaves an open wound that can become inflamed and infected. Rarely, an attached tick can cause progressive paralysis.

Protect Your Horse

Prompt and safe removal of ticks from your horse can be accomplished using a tick-removal tool designed specifically for the job. Before riding and while grooming, give special attention to the area under the tail; along the mane; warm/dark, thin-skinned areas such as between the upper thighs; on the udder or sheath; behind the elbows; and around the throatlatch and ears.



A. Ears
B. Mane or crest
C. Jawline
D. Elbows and girth area
E. Sheath or udder
F. Between upper and inner thighs
G. Tailhead and under tail

After riding check your horse for ticks again. Apply tick control pesticides (as permitted by label directions) to your horse, especially if it is being returned to tick-friendly pastures with shade or tall grass/brush/weeds.

Protect Your Property

- Remove leaf litter, brush, and weeds at the edge of lawns and pastures.
- Create a 9-foot cleared boundary on equine trails and pastures.
- Discourage contact with tick-carrying animals by storing grains in tightly sealed containers.
- Keep your pasture at a length that allows for adequate equine forage but still reduces tick populations.
- Prevent horses from grazing in wooded areas by installing fencing.

For more information, contact:
USDA–APHIS–VS–CEAH–NAHMS
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526-8117
970.494.7000
http://nahms.aphis.usda.gov

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National Animal Health Monitoring System (NAHMS) Equine Biosecurity Assessment

Date of report:

Biosecurity Assessment results for NAHMS ID:
Date Biosecurity Assessment was performed:

Dear participant,

Thank you for participating in the operation biosecurity assessment portion of the NAHMS Equine study. This report contains an assessment of the actions that were being implemented at the time of the VMO visit to your operation. After reviewing your assessment results, please see the enclosed informational sheets that describe how to implement biosecurity to help decrease the risk of introduction or spread of disease on equine operations.

If you have questions about the accuracy of your results, please contact NAHMS at: (866) 907–8190 or email Abigail Zehr at Abigail.C.Zehr@aphis.usda.gov.

Overview of the Biosecurity Assessment:

There are multiple ways an equine disease agent can be introduced or, once introduced, spread on an operation:

(1) Direct horse-to-horse contact of an infected equine with another equine. For example, an equine can be infected with a virus that is shed in various bodily fluids, while appearing to be healthy. If another equine comes into direct contact with the infectious material, the disease agents could be transmitted between the equine.
(2) Contamination of feed or water with a disease agent.
(3) Other types of animals other than equine shedding a disease agent, such as rodents or birds.
(4) Airborne. The air around an equine that is shedding a virus can be contaminated with disease agent via airborne droplets.
(5) Fomites are physical objects contaminated with a disease agent. Examples of fomites include contaminated tack, grooming equipment, wipe cloths, feed/water buckets, and people's hands/clothing.
(6) Vectors can transmit disease from one animal to another. Examples of vectors include flies, mosquitoes, midges/nats, and ticks.

The objective of the assessment was to evaluate the risks posed by each item/practice evaluated by the Veterinary Medical Officer and/or Animal Health Technician on your operation in order to give you feedback should you decide to take actions to decrease risk of disease introduction or spread on your operation. The assessment consisted of 2 sections and 20 questions (some multi-part questions). This report will list the assessment answers to each question topic. Please refer to the Biosecurity Assessment Handout to better understand the biosecurity risk that is associated with each question topic.

Section 1: Storage of Feed and Water Source

1. The use of rodent proof containers to store concentrate feed:

   Yes No DK NA

2. Equine access to surface water: Always Sometimes Never

3. A. Equine housed in consistent groups/individual housing Yes No

   B. Equine shared water source Yes No NA

4. Cleanliness of the:

   a. Stall Very Clean Moderately Clean Needs Improvement NA

   b. Feed storage area Very Clean Moderately Clean Needs Improvement NA

   c. Pasture Very Clean Moderately Clean Needs Improvement NA

   d. Paddock/pen/turnout Very Clean Moderately Clean Needs Improvement NA

5. Pasture maintenance: Well Maintained Moderately Maintained Needs Improvement

6. Level of fly activity:

   a. Equine housing area: High Moderate Low NA

   b. Equine pasture: High Moderate Low NA

7. Manure storage:

   a. Near equine housing and in a loose pile Yes No

   b. Near equine housing and contained in a dumpster/ bin/concrete bunker Yes No

   c. Near equine exercise area and in a loose pile Yes No

   d. Distant from equine house area Yes No

   e. Near equine exercise area and is contained in a dumpster/bin/concrete bunker Yes No

   f. Could have run-off into equine house area Yes No

   g. No manure storage option Yes No

8. Adequate health records: Yes No

9. Written protocol for daily cleaning of the facility: Yes No

10. Written protocol for contacting a veterinarian: Yes No

11. Written protocol for biosecurity/infection control: Yes No

12. Policy for visitors: Yes No

Section 2: Infection Control Related to New Arrivals to the Operation

13. Separate isolation area: Yes No NA
14. Location of the isolation area:
    a. Stall in main barn Yes No NA
    b. Stall apart from main barn Yes No NA
    c. Pen/run next to resident equine (could have nose-to-nose contact) Yes No NA
    d. Pen/run next to resident equine (could share water) Yes No NA
    e. Secluded barn, pen, or run with no direct contract with resident equine Yes No NA
    f. Other Yes No NA Specify:
15. Isolation area distance from resident equine: Feet
16. Adequate isolation area to prevent disease transmission from:
    a. Nose-to-nose contact Yes No NA
    b. Sharing of tack Yes No NA
    c. Sharing of water buckets/source Yes No NA
    d. Movement of personal Yes No NA
    e. Aerosol spread Yes No NA
17. Written policy for a suspected contagious disease Yes No
18. Contagious disease polity specifics:
    a. Disinfectant directions Yes No NA
    b. Who to alert Yes No NA
    c. Protocol for barrier precautions such as disposable gloves Yes No NA
    d. Protocol for use of separate equipment Yes No NA
19. Adequate hand hygiene options: Yes No
20. Biosecurity response items available
    a. Disposable glove Yes No
    b. Footwear covers Yes No
    c. Coveralls Yes No
    d. Footbath material Yes No
    e. Disinfectant Yes No
    f. Equipment to set up a physical barrier to restrict human traffic Yes No
    g. Other Yes No Specify:

Biosecurity Assessment Handout

Section 1: Storage of Feed and Water Source

1. The use of rodent proof containers to store concentrate feed

Risk: Rodents and other animals that are attracted to equine feed can transmit disease agents by contaminating feed that is then fed to equine.

2. Equine access to surface water

Risk: Surface water, such as ponds, rivers, streams, or cisterns present a risk of disease exposure to equine because it is difficult to control water quality compared to well or municipal water sources. Some surface water contaminates could be disease agents.

3. A. Consistent equine groups

Risk: Turning equine out into pens or pastures with different equine versus turning them out alone or keeping consistent grouping increases the number of different animals with which any one equine has contact. This increases the risk of disease transmission between equine if one of the equine is carrying an infectious agent when compared to having a consistent herd group.

B. Sharing water from a common water source

Risk: Sharing of water buckets and water troughs between different groups of equine can be a means of indirect transmission of disease agents. The more equine that drink from the same source, the greater the risk of disease transmission, especially if the equine are of different origins or disease status.

4. Cleanliness of the stall, feed storage area, pasture, and paddock/pen turnout

Risk: Presence of manure and urine in stalls, pasture, and paddock/pen turnouts can result in an increase in the number of insect vectors and disease agents in the environment. Untidy feed storage areas can attract rodents and other wildlife that carry disease agents and contaminate feed and equine housing areas.

5. Pasture maintenance

Risk: Because disease agents can exist in manure, the accumulation of manure in pastures can increase the risk of fecal-oral transmission of disease agents between equine as it is difficult for animals to avoid the manure while grazing. Additionally, a pasture that is overgrown with weeds will provide little nutritional forage for the equine and could harbor unwanted pests like mosquitoes.

6. Level of fly activity

Risk: Flies can spread disease among equine through physical contact with the equine's eye or mouth area or when biting/feeding.

7. Manure storage:

Risk: Manure that is not properly stored away from animal housing areas and not frequently removed can create a risk of transmission of pathogenic agents and act as a breeding area for insect vectors.

8. Health records

Risk: Quickly and accurately determining the vaccination, deworming, and medical history of the equine during a medical examination could be difficult for the operation personnel without written health records. Additionally, if a consistent vaccination and deworming schedule is not maintained because medical records are lacking, the equine could be more susceptible to disease.

9. Written protocol for daily facility cleaning:

Risk: Without written cleaning protocols, personnel may forget or be unaware of the required cleaning procedures for disease prevention. Protocols allow you to know what is being done for disease prevention so modifications can be made based on possible disease occurrence, and the effectiveness of your protocols can be measured.

10. Written protocol for contacting a veterinarian:

Risk: If personnel do not know when to contact a veterinarian for equine health problems, treatment may be delayed, and the severity of the disease and the likely spread of disease agents could increase.

11. Written protocol for biosecurity/infection control:

Risk: In the event of an infectious disease outbreak, if personnel do not know the biosecurity/infection control plan, the disease agents could inadvertently be spread throughout the operation. Written protocols for biosecurity/infection control can help everyone comply with the protocol to better contain the infectious agent.

12. Policy for Visitors:

Risk: Visitors to your operation can bring disease agents to your operation on their vehicle tires, boots, clothing, or hands. Requiring that visitors check in when they arrive at your equine operation ensures that you will have no unwanted traffic coming onto your operation, improve compliance with your disease control plan, and gives you the ability to check back in the visitor logs in case an outbreak of disease should occur.

Section 2: Infection Control Related to New Arrivals to the Operation

13. Separate isolation area:

Risk: Having an isolation area is critical part of disease control. If an equine with a contagious disease is not isolated when it first develops signs of disease, the risk for spread of disease agent increases exponentially, and could lead to an outbreak of disease that could impact many equine or spread to equine at other facilities. New equine arrivals to an operation could pose a risk for spread of disease if they are not isolated upon arrival since they are coming from an outside source and could have been exposed to infectious agents prior to their arrival.

14. Location of the isolation area:

Risk: If an equine with a contagious disease is in an isolation area, but the isolation area is not in a separate barn or shelter, there may still be a risk of aerosol disease transmission to other equine. To effectively control disease, the isolation area must prevent the sick equine from having direct nose-to-nose contact or share a water source with other equine. Infectious agents can also spread via airborne droplets or indirect contact between equine via sharing of tack, movement of personnel between equine in isolation and others on the operation, or through insect transmission. Having an area that is separate also allows personnel to more easily comply with protocols for disease control than if the isolation is in the same barn as the resident equine.

15. Isolation area distance from resident equines:

Risk: Even if separate isolation area is available, the distance from other equine may not be adequate enough to control the spread of certain disease agents since infectious agents can spread through indirect contact or airborne droplets. The further away the isolation is from the resident equine population, the more effective its use will be in disease control.

16. Isolation area adequate to prevent disease transmission:

Risk: If the isolation area does not prevent nose-to-nose contact, sharing of tack, sharing of water source, movement of personnel, or aerosol spread, then the operation could still be at risk for an outbreak of disease that could spread to other equine.

17. Written policy for managing equine with suspected contagious disease:

Risk: Without a written protocol for handling cases of suspected contagious disease, effective isolation of the equine may not be implemented in a timely manner and the risk of disease transmission between equine could increase. Written protocols provide a means for everyone to be aware of the steps that need to be taken in the event of a suspected contagious disease incident.

18. Contagious disease polity specifics:

Risk: If the contagious disease policy does not include specific instructions about who to alert in the event of a contagious disease incident, how to properly use disinfectants, how and when to use disposable gloves, and how to dedicate specific equipment for use on the suspect case only (ie. wheel barrow and tack used in isolation area only), then the operation personnel may not know how to adequately contain the contagious disease. Just having an area that is physically isolated from resident equine doesn't negate the risk of infectious disease spread.

19. Adequate hand hygiene:

Risk: If hand washing facilities with soap, water, along with disposable drying towels, or hand sanitizing stations are not readily available, personnel would not be able to implement optimal hand hygiene and, thus, could be a source of disease transmission through indirect contact between animals of different disease status. Properly disinfecting your hands after touching a sick equine or those being kept in an isolation area is an important step for controlling disease transmission at an operation, and also important in keeping people who work with equine healthy.

20. Biosecurity response items:

Risk: If an operation is not prepared for a contagious equine disease incident, then the operation is more at risk for the disease transmission to occur to other equine on the operation. Being prepared means having a way to implement barrier precautions such as having disposable gloves, footwear covers, coveralls, foot bath materials, disinfectants, and equipment to set up a physical barrier to restrict human traffic available.

Return to TOC

Biosecurity Practices for Horses

Implementing biosecurity practices will help keep your horse healthy by lowering its contact with disease agents carried by other horses, people, insects, ticks, trailers, and other equipment. Of particular concern is a horse that leaves the farm to compete, breed, train, or go to a veterinary hospital, as it can be exposed to all kinds of disease agents.

Recommended biosecurity practices for a horse that leaves the farm

- Preferably, use your own trailer. Do not ship your horses with horses from other farms.
- When using someone else's trailer, make sure that it is cleaned and disinfected before loading your horse. If you can "smell horse" in an empty trailer, it has not been cleaned and disinfected well enough.
- Do not let your horse touch other horses, especially nose to nose.
- Never put the end of a shared hose in a water bucket. Clean the hose end with a disinfectant wipe, and hold the hose above the water bucket while filling. If you don't have a disinfectant wipe, at least keep the hose end out of the bucket.
- Do not share equipment with horses from other farms (buckets, brushes, sponges, etc.)
- Never reuse needles or syringes used for injections.
- Do not let your horse graze where other horses have grazed.
- After helping with other people's horses wash your hands and dry them well. If there is no soap and water available, use disinfectant wipes or hand sanitizer.
- Do not let strangers pet your horse, especially if they have been in other countries in the last 2 weeks.

Let your veterinarian know about the uses of all horses on your farm, so he or she can help you determine which vaccinations the horses need and how often to give them.

Recommended biosecurity practices for you and your horse when returning home

- Before bringing your horse home, clean and disinfect tack, boots, equipment, and grooming supplies. Brush off dirt and manure, then disinfect with antibacterial spray or wipes. A disinfectant wipe or a disinfectant-dampened cloth works well for tack. Shoes can be sprayed with disinfectant.
- When you get home, shower, blow your nose, and put on clean clothes and shoes. Germs in your nose can be passed to your horse.
- Place a returning horse in isolation for at least 2 weeks. Make sure it has no nose-to-nose contact with other horses at fence lines or through holes or gaps in stall walls. If you have to work with an isolated horse, put it last on your work-day schedule or, at the very least, wear boots and coveralls. Remember to remove the boots and coveralls and wash your hands before working with other horses.

Personal biosecurity practices

Keep a pair of shoes or boots that you use only when visiting other places with horses. If your shoes cannot be washed and disinfected, wear plastic shoe covers. Plastic sleeves from newspapers work well. If you are working with horses on another farm, wear coveralls or plan to change your clothes before working on your farm. If you visit other farms consistently and you cannot change clothes or clean your shoes, be sure that the other farms' vaccination and biosecurity practices are as good as your own.

Biosecurity practices for visitors

Even horses that never travel can be protected by practicing good biosecurity at home. Some basic biosecurity practices to use at your farm follow:

- Have only one entrance to your farm and mark it as the main entrance.
- To keep germs from being tracked from car tires and floors, have visitors park away from the horse area.
- If a farrier or veterinarian needs to park close to the horse area, be sure that their tires and shoes have been cleaned and disinfected.
- Ask all visitors to wear clean shoes and clothes. Give visitors plastic shoe covers or have them brush dirt off their shoes, then spray the shoes with a disinfectant.
- If you have many visitors, such as during a farm tour, have everyone use a footbath when they first arrive and when they leave. This last footbath will keep them from bringing any germs home.

Biosecurity practices for a new horse

Adding a horse to your farm can introduce new disease to your established horses. To reduce the likelihood of disease introduction, keep new horses away from the farm's established horses for 30 days. Make sure that any tools used to care for the new horse (pitchforks, grooming tools, feed and water buckets) are not used on your established horses. Marking these tools red tape will remind everyone that these tools are for use with the isolated horse only.

If you have to work with an isolated horse, put it last on your work-day schedule or, at the very least, wear boots and coveralls. Remember to remove the boots and coveralls and wash your hands before working with other horses.

Biosecurity practices for a sick horse

Isolate a sick horse, and use warning signs to keep everyone away from the horse. Make sure the sick horse cannot have nose-to-nose contact with other horses, and put a footbath by the isolation area. Keep coveralls and boots or plastic foot covers near the sick horse isolation area. In general, the same biosecurity practices used for returning or new horses apply to sick horses.

Control insects, ticks, birds, and rodents

Insects, ticks, birds, and rodents can all spread disease to horses. Use good insect and rodent control methods on your farm and when traveling with your horse:

- Keep weeds and grass cut.
- Get rid of puddles and empty anything that catches and holds water.
- Use fly predators or traps.
- Store feed in closed, rodent and insect-proof bins.
- Clean and empty water troughs weekly.
- Apply insect and tick control products per label directions.

How to make a footbath

Making a footbath is relatively easy. To do so, you will need the following:

1. One plastic pan or bin wide enough for an adult's foot and low enough to step into easily
2. One plastic doormat (fake-grass mats work best)
3. A disinfectant that works when manure or dirt is present, such as Tek-trol or 1-Stroke Environ
4. Water

Before adding the disinfectant to your footbath, make sure to read the label; carefully follow the label directions for mixing and using the disinfectant. Place a doormat in the plastic pan and add the disinfectant mix until the bottom of the "grass" is wet.

Visitors should walk through the footbath, wiping their feet on the mat. The "grass" scrubs their shoes as they wipe and leaves disinfectant on their shoes. When your disinfectant mix begins to look dirty, empty the pan and rinse the mat before adding new disinfectant. Be sure to follow the product label on how to safely throw away used disinfectant. During winter, keep your footbath from freezing.

Footbath supplies

Tips for using disinfectants

Wash contaminated surfaces with water and detergent (laundry or dish soap works well) using a brush no larger than your hand. Rinse the surfaces and then apply the disinfectant and let it dry. As mentioned before, be sure to read the label instructions before using any disinfectant. Make sure you always follow the label when mixing, using, and disposing of disinfectants. Using more than the recommended amount of disinfectant is not more effective and can injure you, your horse, or damage your equipment. Be sure to keep disinfectants away from animals; horses or dogs may drink the disinfectant or spill it on themselves or you.

Dirt and manure lower the germ-killing power of most disinfectants. Not all disinfectants work well on surfaces with dirt or manure. When using these types of disinfectants, be sure to brush off all manure and dirt on the surface, wash the surface with detergent and water, rinse, and let dry before applying disinfectant. When done, apply the disinfectant and let dry.

When using household bleach as a disinfectant, mix three-quarters of a cup of bleach per gallon of water (177 ml disinfectant to 3.8 liter water). If you don't have a measuring cup handy, mix 1 part bleach to 10 parts water.

When using spray disinfectants, be sure the label says it kills bacteria and viruses. Sprays work well on clean shoes, tack, and grooming equipment.

Waterless hand sanitizer, gels, or wipes are easy to use at a show or after visiting other horses. Be sure to clean between your fingers and under your nails.

For more information, contact:
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Products from Previous Equine Studies

The following reports and information sheets are products developed from data collected during the 2005 Equine study. To access these reports directly, visit the NAHMS website at:

http://www.aphis.usda.gov/nahms

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Equine 2005 Part I: Baseline Reference of Equine Health and Management

United States Department of Agriculture

Animal and Plant Health Inspection United States Department of Agriculture

Animal and Plant Health Inspection Service

Veterinary Services

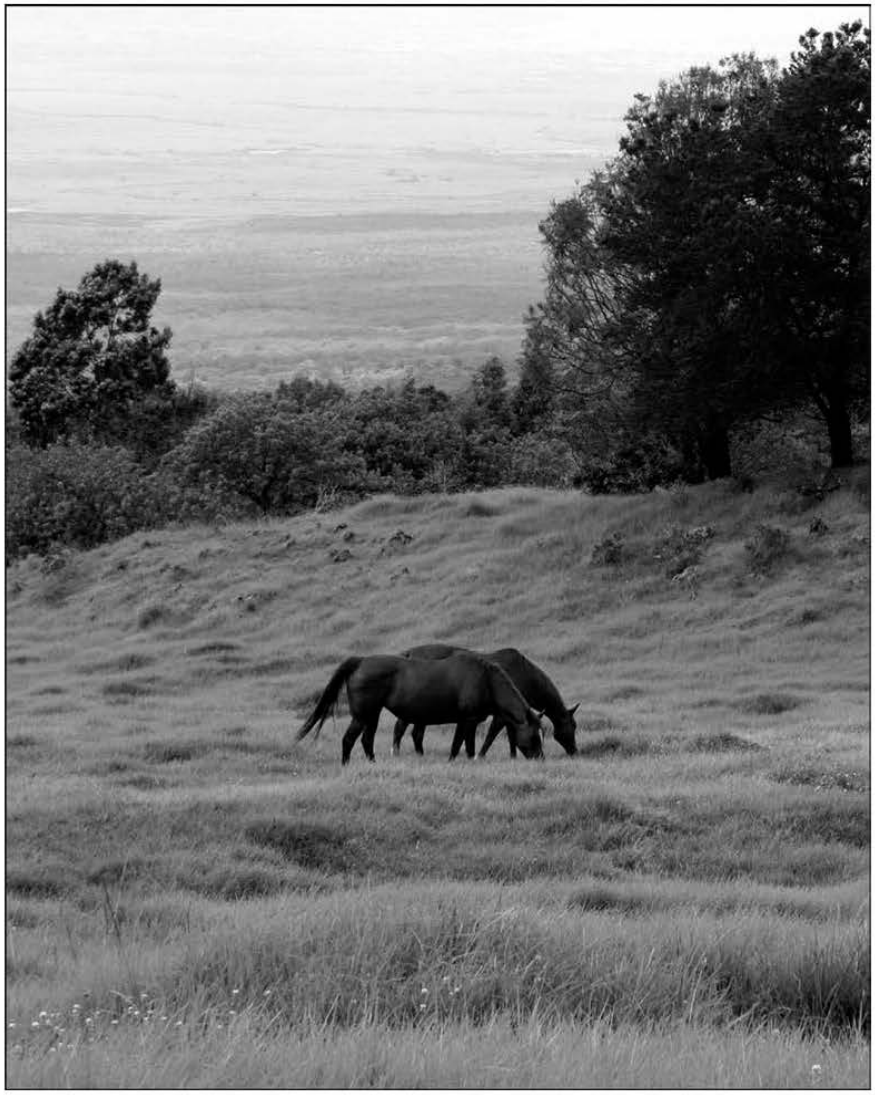
National Animal Health Monitoring System

October 2006

VS

Equine 2005

Part I: Baseline Reference of Equine Health and Management, 2005



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Equine 2005 Part II: Changes in the U.S. Equine Industry, 1998-2005

USDA

United States Department of Agriculture

Animal and Plant Health Inspection Service

Veterinary Services

National Animal Health Monitoring System

February 2007

VS

Equine 2005

Part II: Changes in the U.S. Equine Industry, 1998–2005

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Equine 2005 Infosheet: Vaccination Practices on U.S. Equine Operations

APHIS Info Sheet

Veterinary Services
Centers for Epidemiology and Animal Health

VS

December 2006

Vaccination Practices on U.S. Equine Operations

Equine owners have several options for preventing and controlling infections in their equids. These options include reducing the likelihood of exposure to infectious agents and optimizing resistance to disease. Resistance to infectious diseases can be enhanced through vaccination and by improving overall health through multiple means, including meeting nutritional requirements and parasite control. Vaccination can reduce the likelihood of disease occurring in exposed animals. If exposure to infectious disease agents occurs, the degree of immunity, amount of exposure, and virulence of the disease agent all play a role in the outcome. The American Association of Equine Practitioners recommends that all equids receive vaccines to protect them against tetanus, eastern and western equine encephalitis (EEE/WEE), West Nile virus (WNV), and in most regions, rabies. These vaccines are considered "core" because they are thought to be safe and effective and because there is a real potential that equids can be exposed to the disease agents, which could lead to fatal illness.

One of the goals of the U.S. Department of Agriculture's (USDA) National Animal Health Monitoring System (NAHMS) Equine 2005 study was to estimate equid vaccination practices.

For the Equine 2005 study, NAHMS collected data on equine health and management practices from a representative sample of operations with 5 or more equids in 28 States divided into 4 regions.* The 28-State target population represented 78.0 percent of equids and 78.6 percent of operations with 5 or more equids in the United States. Interviews were conducted from July 18 through August 12, 2005, and 2,893 equine operations provided data on equine health and management.

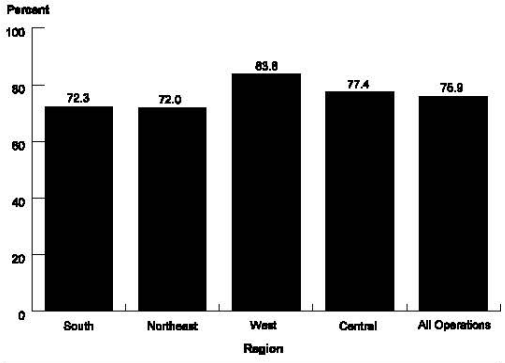
*Regions:
West: California, Colorado, Montana, New Mexico, Oregon, Washington, and Wyoming
Northeast: New Jersey, New York, Ohio, and Pennsylvania
South: Alabama, Florida, Georgia, Kentucky, Louisiana, Maryland, Oklahoma, Tennessee, Texas, and Virginia
Central: Illinois, Indiana, Kansas, Michigan, Minnesota, Missouri, and Wisconsin

Of operations participating in the study, 40.3 percent identified their primary function as "farm/ranch," and 37.0 percent identified their primary function as "residence with equids for personal use." Over 95 percent of operations had horses and 34.8 percent had equids other than horses, e.g., donkeys, burros, mules, ponies, and miniature horses. For this study, a resident equid was defined as an equid that spent or was expected to spend more time at the operation than at any other operation, whether or not it was present at the time of the interview. The operation was its home base.

Vaccination

Overall, 75.9 percent of operations gave some type of vaccine to resident equids during the previous 12 months. A higher percentage of operations in the West region gave at least some vaccines to resident equids compared to operations in the South and Northeast regions (figure 1).

Figure 1. Percentage of Operations that Administered Any Vaccine to Resident Equids During the Previous 12 Months, by Region



Operations with a primary function of farm/ranch or residence with equids for personal use were less likely to administer vaccines to equids than operations with a primary function of boarding/training, breeding farm, and "other" (table 1).

Table 1. Percentage of operations that administered any vaccines to resident equids during the previous 12 months, by primary function of operation:

Percent Operation Primary Function				
Boarding/ Training	Breeding Farm	Farm/ Ranch	Residence with Equids for Personal Use	Other
Percent				
96.8	89.7	67.8	74.9	91.2

Overall, veterinarians were the primary source of vaccines for operations that administered any vaccine to resident equids during the previous 12 months (76.0 percent of operations). On half the operations (50.3 percent) a veterinarian administered the majority of vaccines. As operation size increased so did the percentage of operations that used operation personnel to administer the majority of vaccines (table 2).

Table 2. For operations that administered any vaccines to resident equids during the previous 12 months, percentage of operations by person who administered the majority of vaccines and by size of operation:

	Percent Operation Size of Operation (Number of Equids)			
	Small (5-9)	Medium (10-19)	Large (20 or More)	All Ops.
Person	Pct.	Pct.	Pct.	Pct.
Veterinarian	54.1	44.4	39.2	50.3
Operation personnel (including operator)	29.6	39.1	43.4	33.3
Equid owner (not operator)	15.8	16.4	17.4	16.1
Other	0.5	0.1	0.0	0.3
Total	100.0	100.0	100.0	100.0

Operations vaccinating one or more equids

Overall, 94.4 percent of operations that administered one or more vaccines to resident horses during the previous 12 months knew which vaccines were given. Of these operations, 44.5 percent vaccinated against rabies, 72.5 percent against influenza, 75.6 percent against EEE/WEE, 81.3 percent against tetanus, and 85.3 percent against WNV. Before 1999, WNV was not recognized in the United States. Subsequent to the recognition of WNV, several vaccines became available for use in equids, the first under a conditional license in summer 2001. This killed vaccine with an adjuvant (Fort Dodge) was fully licensed in 2003. Since then, several other WNV vaccines have been licensed for use in equids, including one in 2004 (Merial canary pox WNV vaccine) and one in 2006 (Intervet chimera vaccine combining WNV and yellow fever vaccine virus).

There were regional differences in vaccination for several diseases. For example, 48.6 percent of operations in the Northeast region, 38.0 percent in the South region, 28.8 percent in the Central region, and 18.4 percent in the West region vaccinated one or more resident equids against rabies. A higher percentage of operations in the Northeast and Central regions (17.1 and 17.0 percent, respectively) vaccinated against Potomac horse fever compared to operations in the South and West regions (7.2 and 6.1 percent, respectively). The difference in vaccine use across regions may be due to a perceived difference in the likelihood of exposure to causative agents or a difference in vaccination recommendations from veterinarians in the various regions.

APHIS photo by Charles Kerlee

Reasons for Not Vaccinating

All operations were queried about the use of eight specific vaccines: influenza, strangles, rhinopneumonitis (herpesvirus), rabies, WNV, EEE/WEE, tetanus, and equine viral arteritis (EVA). Operations reported which of these eight vaccines were administered to equids less than 1 year of age, equids more than 1 year of age, and broodmares. When the operation reported that a specific vaccine was not administered, a follow-up question offered eight alternatives as to why the vaccine was not used: concern of adverse reaction to vaccine, vaccine considered ineffective, little risk of disease exposure, not recommended by veterinarian, financial constraints on horse expenditures, thought important but did not get around to it, effort and cost of vaccination outweighed financial and other benefits of vaccination, or reasons other than those listed above.

Operations that gave vaccines but not the specified vaccines

Reasons given by operations that gave some vaccines but not the specified vaccines followed similar patterns across the eight types of vaccines. The highest percentages (ranging from 39.9 to 58.5 percent) reported that little risk of disease exposure was the reason for not giving each of the eight vaccines. For all but the WNV vaccine, the second highest percentage of operations (18.2 to 31.8 percent) reported not recommended by the veterinarian as the reason for not giving the specified vaccines, followed by effort and cost of vaccination outweighed financial and other benefits of vaccination (7.0 to 11.2 percent of operations). For the WNV vaccine, the second highest percentage of operations (13.3 percent) cited the reason for not giving the vaccine was effort and cost outweighed financial and other benefits of vaccination, followed by concern of adverse reaction (10.9 percent of operations).

In June 2003, the Centers for Veterinary Biologics (CVB)—under the auspices of the USDA-Animal and Plant Health Inspection Service-Veterinary Services—conducted an investigation into reported concerns that the only WNV vaccine available for equids at the time (the killed vaccine with an adjuvant) was associated with pregnancy loss. On June 25, 2003, CVB released their findings from the investigation, which concluded that there was no clear evidence the vaccine posed a risk to pregnancy in equids. Subsequently, a study conducted at Texas A&M and published in the "Journal of the American Veterinary Medical Association" in December 2004 concluded that pregnancy rates and fetal outcome among vaccinated mares were similar to unvaccinated mares. It is possible that some equine owners still have concerns about the WNV vaccine and its effect on pregnant mares despite the fact that subsequent investigations appeared to find no correlation between the vaccine and pregnancy rates.

Except for WNV, strangles, and EVA vaccines, the remaining rankings of reasons for not giving specific vaccines were financial constraints on horse expenditures, thought important but did not get around to it, concern of adverse reaction, vaccine considered ineffective, and "other." These reasons accounted for 15 percent or less of responses. For strangles vaccine, there was a somewhat higher concern about an adverse reaction than for the other vaccines, while for EVA vaccine the concern about an adverse reaction was lower.

Operations that gave no vaccines

For operations that did not vaccinate, almost two-thirds (58.9 to 65.0 percent) reported that little risk of disease was the reason for not vaccinating. The next most common reasons for not giving vaccinations were consistent across vaccines: effort and cost of vaccination outweighed financial and other benefits of vaccination (12.3 to 13.3 percent of operations), thought important but did not get around to it (7.8 to 12.3 percent of operations), and financial constraints on horse expenditures (5.2 to 5.8 percent of operations). None of the other reasons for not vaccinating exceeded 3.2 percent of operations.

Movement patterns of equids on nonvaccinating and vaccinating operations

For operations that did not vaccinate any equids, 14.9 percent had nonresident equids come onto the operation and stay for fewer than 30 consecutive days. For operations that vaccinated one or more equids for at least one disease, 20.3 percent had nonresident equids come onto operation and stay for fewer than 30 consecutive days.

Approximately 4 of 10 operations (40.5 percent) that did not vaccinate any equids had resident equids leave the operation and return. Twenty-nine percent of operations that did not vaccinate any equids transported equids off the operation by vehicle. For these operations, travel by vehicle was

within the respective State on 94.5 percent of operations, to adjacent States on 13.3 percent of operations, and beyond adjacent States on 5.7 percent of operations. In comparison, on operations that did vaccinate, 94.8 percent of operations transported equids within State, 37.1 percent to adjacent States, and 12.7 beyond adjacent States (table 3).

Table 3. For operations that transported resident equids by vehicle off the home operation and returned during the previous 12 months, percentage of operations by destination and by vaccination-use status of operations:

	Percent Operations	
	Vaccination Status	
	Vaccinated One or More Equids	Did Not Vaccinate Any Equids
Destination	**Percent**	**Percent**
Within State	94.8	94.5
Adjacent States	37.1	13.3
Beyond adjacent States	12.7	5.7

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