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Needs Assessment Survey Results for the Upcoming NAHMS Equine 2015 Study



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Introduction

Horse owners and other individuals associated with the equine industry, including representatives from several groups that have an equine health role, participated in a needs assessment survey for the USDA's National Animal Health Monitoring System's (NAHMS) upcoming Equine 2015 study. The survey sought opinions about information needs and participation incentives for the study. Findings from the survey will help NAHMS ensure the success and maximum benefit of the study and can also help inform others working to meet the information needs of the equine industry.

NAHMS is a nonregulatory program of the USDA created to help meet the Nation's animal-health information needs. NAHMS studies provide data that help animal industries maintain the health and well-being of their animals and ultimately produce higher quality products with greater efficiency. Studies are designed to deliver baseline data and focus on areas of national importance not already adequately studied.

Prior to each national study, NAHMS conducts a needs assessment to determine an industry's critical information gaps. For the Equine 2015 study, the needs assessment gathered input through multiple means, including reviews of the literature and equine health-related discussions held at various equine industry meetings. In addition, NAHMS conducted a short questionnaire to collect information directly from individual horse owners and others with a role in equine health activities. Responses from 89 equine industry leaders and 2,435 individuals were collected via an online questionnaire from November 2013 through January 2014. Announcements about the survey were distributed through multiple means, including newsletters and email lists from the American Horse Council (AHC), the American Association of Equine Practitioners (AAEP), and State horse councils. Announcements about the option to participate in the needs assessment survey were distributed through multiple equine media outlets in both electronic and hard-copy formats. Announcements were also made during the 2013 AAEP Infectious Diseases Rounds and the 2013 U.S. Animal Health Association (USAHA) Infectious Diseases of Horses Committee meeting.

In addition to information collected during the needs assessment survey, NAHMS considers information accumulated from reviews of the existing scientific literature, discussions at industry and scientific meetings, and input from within the USDA. The feasibility of incorporating an identified need into the study is carefully evaluated. In part, feasibility is determined by prioritizing needs, the availability of effective study design methods, funding, and equine industry demographics. As a result, it is likely that some of the recommendations from the needs assessment may not be included in the Equine 2015 study.

Survey Results

A. Responses from leaders of selected groups

Responses were provided by the AAEP leadership, members of the AHC Health and Regulatory Committee, State veterinarians, leadership among the Coalition of State Horse Councils (CSHC), USDA's Veterinary Services (VS) equine group, national equine industry conference call, and the members of the USAHA Infectious Diseases of Horses Committee; total number of responses was 89 (table 1). Respondents were asked to rank their 3 top priorities from a list of 20 management issues within each of 3 categories: management practices, body-system problems, and infectious diseases. Respondents could also write in specified management issues other than those listed. Prioritization responses from respondents were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. Points were averaged and the top three for each category are described in the following tables.

Infection-control practices, including biosecurity and vaccination, equine identification and traceability, and equine care and welfare were the top three management-issue priorities recommended for study focus. Economics of horse ownership was ranked as a second or third priority by two groups. Interestingly, trail use was ranked as the number one priority by the leadership of the CSHC but not ranked in the top three priorities by the other groups.

Table 1. Management issues recommended for study focus, by respondent priority¹ and by group surveyed:

Management issue ²	Group Surveyed							All
	AAEP leadership	AHC-HRC	USAHA IDOHC	CSHC leadership	VS equine group	National equine industry call	State veterinarians	
Infection control practices, including biosecurity and vaccinations	3	1	1		2	1	1	1
Economics of horse ownership	2			3				
Parasite control strategies						2		
Equine identification and traceability		2	2		3 ³	3 ³	2	2
Trail use and associated challenges				1				
Equine care and welfare	1			2	1	3	3	3
Testing for disease including cost and reason for testing		3	3		3	3		
Number of respondents	20	5	7	8	8	7	34	89

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three management issues for study focus: 1= top priority for that group; 2=second priority; 3= third priority. Responses were weighted as follows: priority 1 responses were given three points; priority 2 responses two points; and priority 3 responses one point. These points were averaged, and the top three for each category are described. Ties were given the same ranking.

² See appendix I for a complete list of survey choices for management issues.

Respiratory, neurologic or spinal, and digestive problems were the top three body-system priorities chosen for study focus. Other problems among the top three priorities, as ranked by various groups, were less consistent across groups.

Table 2. Body-system problems recommended for in-depth study, by respondent priority¹ and by group surveyed:

Body-system problem ²	Group Surveyed							All
	AAEP leadership	AHC-HRC	USAHA IDOHC	CSHC leadership	VS equine group	National equine industry call	State veterinarians	
Body condition problem, e.g., over or underweight				3			3	
Behavior problems				2				
Digestive problems, e.g., colic or diarrhea	2	3		1		2		3
Endocrine or metabolic problem, e.g., Cushings or metabolic syndrome		3				1		
Leg and/or hoof problem, e.g., conditions leading to lameness	3			3	2			
Neurologic or spinal problem, e.g., as wobblers, EPM or EHM		1	1		1		1	2
Reproductive problem, e.g., abortion or fertility			3					
Respiratory problem, e.g., strangles, pneumonia, or reactive airway disease	1	2	2		3	2	2	1
Number of respondents	19	4	6	8	7	7	33	84

¹ Needs assessment questionnaire asked respondents to choose, in order of priority, three body-system problems for study focus: 1= top priority for that group, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top three for each category are described. Ties were given the same ranking.

² See appendix II for a complete list of survey choices for body-system problems.

Equine herpesvirus (EHV) was the number-one infectious disease recommended for study focus by all groups, with the exception of the CSHC, which listed Lyme disease as their top priority. Equine piroplasmiasis and contagious equine metritis were also top-ranked priorities. Ranking of other infectious diseases was not consistent across the groups.

Table 3. Infectious diseases recommended for study focus, by respondent priority¹ and by group surveyed:

Infectious disease ²	Group Surveyed							All
	AAEP leadership	AHC-HRC	USAHA IDOHC	CSHC	VS equine group ³	National equine industry call	State veterinarians	
Contagious equine metritis (CEM)		2	3			2	3	3
Eastern equine encephalitis (EEE)				3				
Equine herpesvirus (EHV)	1	1	1	2	1	1	1	1
Influenza	3							
Lyme disease				1				
Methicillin resistant <i>Staphylococcus aureus</i> (MRSA)					2			
Parasites (internal)						3		
Pigeon fever (<i>Corynebacterium pseudotuberculosis</i>)	3							
Equine piroplasmiasis (EP)	2		2				2	2
<i>Rhodococcus equi</i>	3	2						
Strangles (<i>Strep. equi</i>)							3	
Number of respondents	20	4	7	8	8	7	34	88

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three infectious diseases for study focus: 1= top priority for that group, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top three for each category are described. Ties were given the same ranking.

² See appendix III for a complete list of survey choices for infectious diseases.

³ Six listed infectious diseases tied for third ranking and were not listed.

The needs assessment questionnaire asked respondents to list, in order of priority, the top three incentives they thought would be most effective for encouraging study participation. Across groups, a courtesy microchip for horses on-site and fecal testing horses for internal parasites were the highest rated incentives. On-site biosecurity assessment was the second- or third-ranked incentive by three groups and a top incentive for one group. Hay analysis was considered a second or third priority for several groups.

Table 4. Incentives recommended for encouraging study participation, by respondent priority¹ and by group surveyed:

Incentive ²	Group Surveyed							All
	AAEP leadership	AHC-HRC	USAHA IDOHC	CSHC	VS equine group	National equine industry call	State veterinarians	
On-site biosecurity assessment	1	3	2		2			
Courtesy microchip	1	1	1	3	1	2	2	1
Fecal testing for parasites	3	2	3	1		1	1	2
Hay analysis	3			2	2	3	3	3
Number of respondents	20	3	6	8	8	7	33	85

¹ Needs assessment questionnaire asked respondents to choose, in order of priority, three incentives to encourage study participation: 1= top priority for that group, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top three for each category are described. Ties were given the same ranking.

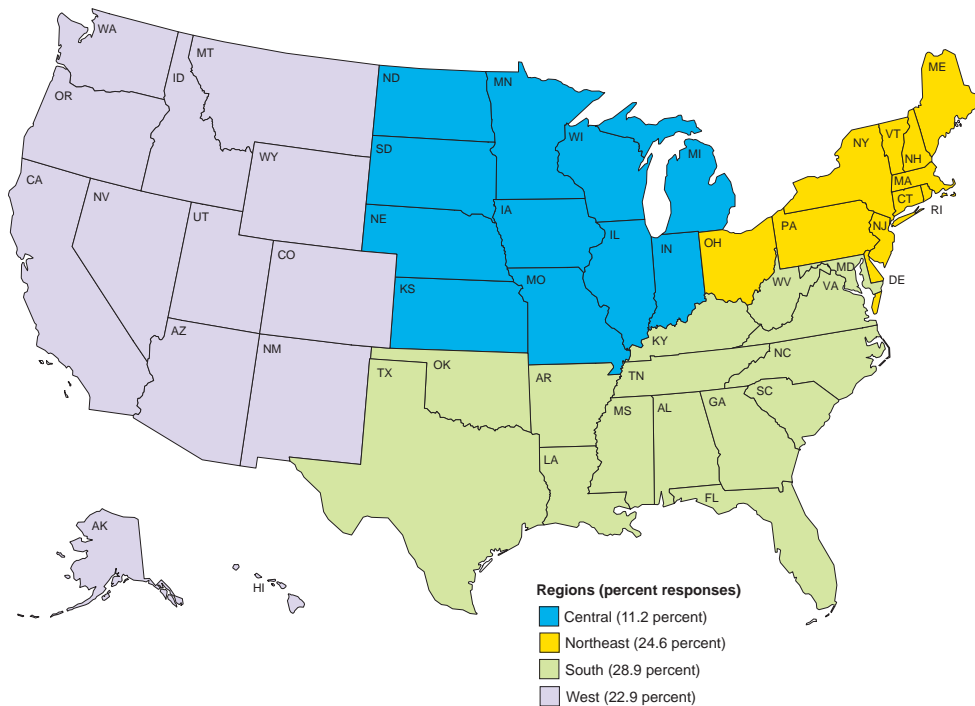
² See appendix IV for a complete list of survey choices for participation incentives.

B. Individual responses

Individual respondents were asked to provide information on their primary role in the equine industry, the number of equids they own, and the primary use and breed of equid owned. They were also asked to rank their top three priorities for each of three categories: management issues, body-system problems, and infectious diseases. Respondents were also asked to evaluate the importance of each of a list of possible incentives for study participation.

In all, 2,435 individuals responded to needs assessment questionnaire. At least one response was received from all 50 States. Approximately one-fourth were from the South (28.9 percent), Northeast (24.6 percent), and West (22.9 percent) regions, while 11.2 percent were from the Central region; 12.4 percent did not specify their location (see map).

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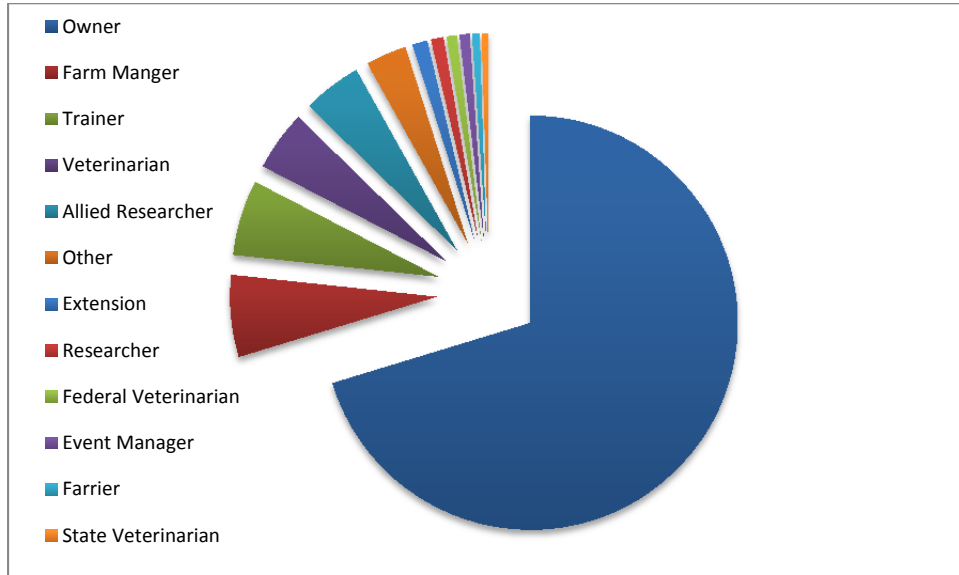


A low percentage of respondents (11.3 percent) indicated that they owned no horses, and just 9.4 percent indicated that they owned no horses or other equids. Nearly one-fourth of respondents (22.8 percent) owned an equid other than a horse (pony, donkey, mule, or other). Of respondents that owned equids other than horses, 91.7 percent also owned horses. Of those that owned equids other than horses, 69.3 percent owned ponies, 26.1 percent owned donkeys, 15.7 percent owned mules, and 5.4 percent owned another type of equid.

Most respondents (67.6 percent) had 1 to 5 equids, 16.1 percent had from 6 to 19 equids, and 4.9 percent had 20 or more. Over half of respondents (54.4 percent) reported that the primary use for equids they were involved with was recreational or as a companion. Just under one-third of respondents (32.0 percent) indicated that the primary use of equids they were involved with was showing or competition other than racing. A lower percentage indicated that the primary use was breeding (6.0 percent), racing for which there was parimutuel betting (4.2 percent), or farm or ranch use (3.4 percent).

The majority of individual survey respondents (70.3 percent) indicated that their primary industry involvement was as a horse owner. The next most common primary roles were farm managers (6.4 percent) equine trainers (5.9 percent), and veterinarians (4.6 percent) [figure 1].

Figure 1. Percentage of individual respondents by primary role in equine industry (n=2,406).



Survey respondents owned or were involved with a wide variety of horse breeds. Just over one-fourth of participants (26.2 percent) indicated that Quarter horse was their primary breed. The next most common breed was Thoroughbred (17.3 percent), followed by Warmblood breeds (9.5 percent), Arabian (7.6 percent), American Paints (6.1 percent), Tennessee Walking Horse (5.6 percent), Saddlebred (3.4 percent), Appaloosa (2.7 percent), draft-horse breeds (2.0 percent), and Standardbred (1.6 percent). Many of the horse breeds written in the “other” category were combinations of the listed breeds, Mustangs, or Morgans.

A portion of respondents (n=302) ranked more than three options within each category; these responses were not included in the final ranking estimates. Prioritization responses from all other survey participants were weighted as follows: priority 1 responses were given three points; priority 2 responses two points; and priority 3 responses one point. These points were averaged, and the top six for each category are described in the following tables. The large number of individual responses made it possible to provide six breakouts instead of just three.

For participants that ranked only their top three priorities, the most highly ranked areas recommended for emphasis in the study were equine care/welfare, trail use and associated challenges, economics of equine ownership, parasite control strategies, infection control practices (i.e., biosecurity and vaccination), and feed management (table 5).

Management-issue priorities were similar across equine-use categories, except for trail use, which was more important for recreational and farm/ranch equine users. For respondents that kept breeding and racing equine, reproductive management was one of their top six management issues.

Table 5. Management issues recommended for study focus, by respondent priority¹ and by equine use:

Management issue²	Equine Use					
	Recrea- tional	Showing	Breeding	Racing	Farm/ ranch	All
Equine care/welfare	1	1	2	1	1	1
Trail use and associated challenges	2				2	2
Economics of equine ownership	4	3	3	2	3	3
Parasite control strategies	3	6	6	4		4
Infection control practices including biosecurity and vaccination	5	2	5	3	4	5
Feed management and nutrition	6	4	6		6	6
Equine identification/traceability		5		5	5	
Reproductive management			1	6		
Foal health issues			4			
Number of responses	1,197	705	132	93	75	2,202

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three management issues for study focus: 1= top priority, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top six for each category are described.

² See appendix I for a complete list of survey choices for management issues.

Equine care/welfare was the most highly ranked management issue for respondents in all roles of the equine industry, with the exceptions of veterinarians, farriers, and Federal animal health officials. Trail use was the second most important priority for owners and farriers, while the economics of equine ownership was cited as the second most important for trainers, farm and event managers, extension, and allied industry representatives.

Table 6. Management issues recommended for study focus, by respondent priority¹ and by primary role in equine industry:

Management issue ²	Primary Role in Equine Industry											
	Owner	Trainer	Farm mgr.	Event mgr.	Exten- sion/ 4H	Farrier	Allied indus- try	Veteri- narian	Re- search	State	Fed.	All
Equine care/welfare	1	1	1	1	1	2	1	2	1	1	3	1
Trail use and associated challenges	2		5	3	4	2			6			2
Economics of equine ownership	3	2	2	2	2		2	1	3			3
Parasite control strategies	4	6	3	4	3		3	4	5	4		4
Infection control practices		4	4	5	5	5	6	5	4	2	2	5
Feed management and nutrition	5	3	6		6	4	5		2			6
Equine identification/ traceability	6	5		6			4	6		3	1	
Veterinary and farrier use						1		3				
Antibiotic drug use/resistance						6				5		
Insect, tick, bird control										6	6	
Reproductive management											4	
Transportation and associated challenges											5	
Number of responses	1,691	142	155	18	29	14	111	112	25	12	19	2,406

¹ Needs assessment questionnaire asked respondents to choose, in order of priority, three management issues for study focus: 1= top priority, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top six for each category are described.

² See appendix III for a complete list of survey choices for management issues.

The top body-system problems recommended for in-depth focus were leg/hoof, digestive, and respiratory problems, followed by endocrine/metabolic, behavior problems, and body condition problem. Leg/hoof problem was the top priority for all respondents other than farm managers and State/Federal veterinarians.

Table 7. Body-system problems recommended for in-depth study focus, by respondent priority¹ and by primary role in equine industry:

Body-system problem ²	Primary Role in Equine Industry											
	Owner	Train-er	Farm mgr.	Event mgr.	Exten-sion/ 4H	Farrier	Allied indus-try	Veteri-narian	Re-search	State	Fed.	All
Leg/hoof problem, e.g., conditions leading to lameness	1	1	2	1	1	1	1	1	1	4	5	1
Digestive problem, e.g., colic or diarrhea	2	2	1	4	4	3	2	2	2	6	3	2
Respiratory problem, e.g., strangles, pneumonia, reactive airway disease	3	5	3	2	2	5	5	5	6	2	1	3
Endocrine or metabolic problem, e.g., Cushing's or metabolic syndrome	4	4	5	5	5	2		3	4			4
Behavior problem	5	6	6	6	6	4	3		3	4		5
Body condition problem, e.g., under or overweight		6				5	6	4	5	2		6
Neurologic or spinal problem, e.g., wobblers, EPM or EHM	6	3	4	3	3	5	4	6		1	2	
Reproductive problems, e.g., abortion, fertility											4	
Eye problems, e.g., uveitis or trauma											6	
Number of responses	1,691	142	155	18	29	14	111	112	25	12	19	2,406

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three body-system problems for in-depth study focus: 1= top priority, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top six for each category are described.

²See appendix II for a complete list of survey choices for body-system problems.

Table 8. Body-system problems recommended for in-depth study focus, by respondent priority¹ and by equine use:

Body-system problem ²	Equine Use					
	Recreational	Showing	Breeding	Racing	Farm/ranch	All
Leg/hoof problem, e.g., conditions leading to lameness	1	1	3	1	1	1
Digestive problem, e.g., colic or diarrhea	2	2	2	3	2	2
Respiratory problem, e.g., strangles, pneumonia, reactive airway disease	4	4	4	2	3	3
Endocrine or metabolic problem, e.g., Cushing's or metabolic syndrome	3	5	6	6	6	4
Behavior problem	5	6		6	4	5
Body condition problem, e.g., under or overweight	6				5	6
Neurologic or spinal problem, e.g., wobblers, EPM or EHM		3	5	4		
Reproductive problems, e.g., abortion, fertility			1	5		
Number of responses	1,197	705	132	93	75	2,202

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three body-system problems for in-depth study focus: 1= top priority, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top six for each category are described.

²See appendix II for a complete list of survey choices for body-system problems.

Top priority infectious diseases recommended for study focus were EHV, Lyme disease, WNV, EPM, parasites, and strangles. EHV was the number-one priority for all individual respondents, with the exception of farriers, who ranked WNV the highest priority. Owners, trainers, farm managers, and allied industry respondents all agreed on the top six infectious disease priorities. Private veterinarians agreed with all but WNV. For them, pigeon fever (caused by *Corynebacterium pseudotuberculosis*) and strangles (caused by *Streptococcus equi*) tied for the fifth highest priority.

Table 9. Infectious diseases recommended for study focus, by respondent priority¹ and by primary role in equine industry:

Infectious disease ²	Primary Role in Equine Industry											All
	Owner	Train-er	Farm mgr.	Event mgr.	Exten-sion/ 4H	Farrier	Allied indus-try	Veteri-narian	Re-search	State	Fed.	
Equine herpesvirus (EHV)	1	1	1	1	1	2	1	1	1	1	1	1
Lyme disease	2	3	2		5	2	3	4	3			2
West Nile virus (WNV)	4	3	5			1	5				3	3
Equine protozoal myeloencephalopathy (EPM)	4	2	3	2			2	3	2	3		4
Parasites (internal)	5	5	3	4	4		4	2	4	2		5
Strangles (<i>Streptococcus equi</i>)	6	6	6	6			6	5	6	3		6
Equine infectious anemia (EIA)				3	2	6			5		2	
Eastern equine encephalitis (EEE) sleeping sickness					2						4	
Vesicular stomatitis (VSV)				5		5						
Influenza					5					5		
Pigeon fever (<i>Corynebacterium pseudotuberculosis</i>)						4		5		5	4	
Contagious equine metritis (CEM)											4	
Number of responses	1,691	142	155	18	29	14	111	112	25	12	19	2,406

¹ Needs assessment questionnaire asked respondents to choose, in order of priority, three infectious diseases for study focus: 1= top priority; 2=second priority; 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top six for each category are described.

² See appendix III for a complete list of survey choices for infectious diseases.

Top priorities for infectious-disease focus were similar for respondents that used horses for recreational or showing purposes. *Rhodococcus equi* was the fifth priority for respondents that used horses for breeding or racing, and pigeon fever was one of the top priorities for farm/ranch respondents.

Table. 10. Infectious diseases recommended for study focus, by respondent priority¹ and by equine use:

Infectious disease ²	Equine Use					All
	Recrea- tional	Showing	Breeding	Racing	Farm/ ranch	
Equine herpesvirus (EHV)	3	1	1	1	1	1
Lyme disease	1	3	3	6		2
West Nile virus (WNV)	2	4	4	4	2	3
Equine protozoal myeloencephalopathy (EPM)	4	2	2	2	6	4
Parasites (internal)	5	5	5	3	4	5
Strangles (<i>Streptococcus equi</i>)	6	6			3	6
Pigeon fever (<i>Corynebacterium pseudotuberculosis</i>)					4	
<i>Rhodococcus equi</i>			5	5		
Number of responses	1,197	705	132	93	75	2,202

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three infectious diseases for study focus: 1= top priority, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points; priority 2 responses two points; and priority 3 responses one point. These points were averaged, and the top six for each category are described.

² See appendix III for a complete list of survey choices for infectious diseases.

The needs assessment questionnaire prompted respondents to list, in order of priority, the top three incentives they thought would be most effective for encouraging study participation. Overall, fecal testing for parasites, hay analysis, and courtesy microchip placement were the top three recommended incentives. The highest ranked incentive was fecal testing for parasites for all primary role categories, except event managers, trainers, extension agents, and Federal veterinarians.

Table 11. Incentives recommended for encouraging study participation, by respondent priority¹ and by primary role in equine industry:

Incentive ²	Primary Role in Equine Industry											All
	Owner	Trainer	Farm mgr.	Event mgr.	Extension/4H	Farrier	Allied industry	Veterinarian	Research	State	Fed.	
Fecal testing for parasites	1	3	1	2	4	1	1	1	1	1	2	1
Hay analysis	2	1	2	4	2	2	2	2	2	1	4	2
Courtesy microchip placement	3	2		1		1	1	3	3	2	1	3
Pasture weed identification	4		3		1	3		4				4
Pasture soil test		4	4	3			3		4			
On-site biosecurity assessment										1	3	
Equine drinking water analysis					3							
Number of responses	1,691	142	155	18	29	14	111	112	25	12	19	2,406

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three incentives to encourage study participation: 1= top priority, 2=second priority, 3= third priority. Responses were weighted as follows: priority 1 responses were given three points, priority 2 responses two points, and priority 3 responses one point. These points were averaged, and the top four for each category are described.

²See appendix IV for a complete list of survey choices for participation incentives.

Top incentives to encourage study participation were similar across all equine-use categories, with the exception of breeding and racing where pasture soil testing was also ranked as a top incentive.

Table. 12. Incentives recommended for encouraging study participation, by respondent priority¹ and by primary role in equine industry:

Incentive ²	Equine Use					
	Recreational	Showing	Breeding	Racing	Farm/ranch	All
Fecal testing for parasites	1	2	1	1	2	1
Hay analysis	2	3	3	1	1	2
Courtesy microchip placement	3	1	2	3	3	3
Pasture weed identification	4	4			4	4
Pasture soil test			4	4		
Number of responses	1,197	705	132	93	75	2,202

¹Needs assessment questionnaire asked respondents to choose, in order of priority, three incentives to encourage study participation: 1= top priority for that group; 2=second priority; 3= third priority. Responses were weighted as follows: priority 1 responses were given three points; priority 2 responses two points; and priority 3 responses one point. These points were averaged, and the top four for each category are described.

²See appendix IV for a complete list of survey choices for participation incentives.

Individual write-in responses from the survey

Some questions in the needs assessment provided the opportunity for respondents to choose “other” and write a response not included in the choices offered. Common write-ins in reference to management issues were: access to or availability of land for equine use, management of wild horses, environmental impacts such as manure management and carcass disposal, unwanted-horse issues, and opinions on equine slaughter. Regarding unwanted-horse issues, overpopulation/indiscriminate breeding and the disposition of unwanted horses were both mentioned as priorities under this topic.

Write-ins for problems recommended for in-depth focus were: geriatric horse care, overbreeding/overpopulation, ticks, and tick-borne diseases. Under the question about which incentives would encourage equine owners to participate in the study, write-ins included: educational DVDs featuring either the training methods of popular equine trainers or biosecurity practices, on-farm assessment of manure management, and on-farm nutritional assessment. Additionally, in the review of write-in responses offered under any of the survey questions, the most repeated controversial topics included unwanted horses, decision-making on breeding horses, equine welfare issues, equine slaughter, and management of wild horses.

Comparison of group and individual responses

Group and individual survey respondents, for the most part, felt similar management issues were of top priority; however, there were a few exceptions. For the equine groups AHC-HRC, USAHA-IDOHC, National Equine Industry, and the VS equine team, testing for disease was a top management-issue priority for focus in the NAHMS Equine 2015 study. In comparison, individual respondents did not rank testing for disease in their top six priorities. Reproductive management had the highest ranking for individual respondents that primarily used their horses for breeding; reproductive management was not a top priority for any of the equine groups. Not surprisingly, use of a veterinarian or farrier was ranked highly by individual respondents that listed farrier or

veterinarian as their primary role in the equine industry; use of a veterinarian or farrier was not a top priority of the equine groups.

While a neurologic/spinal problem was a top study-focus priority for multiple equine group leaders, this problem did not rank in the top six for individual respondents. When examined by primary role in the equine industry, trainers, event managers, extension agents, and State and Federal animal health officials ranked neurologic/spinal problems as one of their top three priorities for study focus. Leg and/or hoof problems was ranked in the top three priorities by three equine groups and was the top priority for the majority of individual respondents, regardless of primary role or involvement in the equine industry. Respiratory problem was a high priority for both group and individual respondents.

Infectious disease rankings varied greatly between group leaders and individual respondents. The only infectious disease consistently ranked first or second across all group and individual respondents was EHV. EP was the second choice of three equine groups, but did not rank in the top six priorities of individual respondents in any of the primary role or primary use of equine categories. CEM was one of the top three priorities for the majority of equine groups, but only ranked as a priority for Federal animal health officials in the individual response survey. Lyme disease was a top priority for the majority of individual respondents, but only ranked highly among the CSHC in the group survey. Parasites and strangles were ranked highly for a number of individual response categories and for one or more of the equine groups.

For equine groups and individual respondents, fecal testing for internal parasites, courtesy microchip for horses, and hay analysis ranked high as incentives for encouraging study participation.

Comparison of needs assessment priorities in 1997 and 2013

Needs assessment responses from leaders of equine industry groups

Before its Equine '98 study, NAHMS was a new concept to the equine industry and, therefore, there was a need to familiarize group representatives with the role of NAHMS in collecting health and management information. Thus, multiple face-to-face focus meetings were held to discuss priorities for Equine '98, and these meetings were held in conjunction with the USAHA, AAEP, AHC, and State horse council meetings. After these discussions, industry representatives voted for their top priorities for Equine '98 focus.

Since then, NAHMS has become familiar to leaders of the equine industry, and more efficient means of gathering study priorities were implemented for the NAHMS Equine 2015 study. For the Equine 2015 needs assessment, an on-line questionnaire was sent to a point-of-contact from each industry group with the request that the survey questionnaire be sent to the groups' leadership designees. The priorities from focus groups held before the 1998 study were arrived at in a more open response format than the survey conducted with industry groups in 2013, making it difficult to directly compare responses. There were no common highest priorities across groups for the 1998 needs assessment. The topics of high importance to one or more of the group leaders before the 1998 study included EPM, infectious respiratory disease, lameness, nutrition, colic, internal parasites, health management practices, owners' source of health information, and impact of human population dynamics on equine populations. No formal on-farm needs assessment was conducted prior to the Equine 2005 study.

Needs assessment responses from individuals

A similar number of individual respondents completed the needs assessment in 1997 (n=2,584) and 2014 (n=2,435), with a primary role of horse ownership representing the majority of respondents in both needs assessments. For general issues, determining the occurrence of health problems was a top priority in 1998, while equine welfare and care was the top-ranked general issue in 2014. The top priorities for emphasis by body system were similar in both needs assessments, with digestive problems, respiratory problems, and leg/hoof problems also being

highly ranked in both assessments. Specific infectious diseases for study focus varied somewhat between the two assessments, with EIA and EPM being the most highly ranked among respondents in 1997, irrespective of respondent region, horse use, or number of horses owned; in 2014, EHV was clearly the top-ranked disease across the various types of respondents.

How objectives for NAHMS Equine 2015 will be determined and when they will be released

To determine the information needs that the NAHMS Equine 2015 study might be able to fill, review of the existing scientific literature, discussions at industry and scientific meetings, and input from within USDA will be combined with the outcome of the needs assessment surveys. NAHMS will then assess the feasibility of meeting these needs. Study feasibility is determined by the availability of effective study design methods, funding, and equine industry demographics.

The objectives for the NAHMS Equine 2015 study will be determined by summer 2014. NAHMS will then develop a study design to collect necessary data to meet the defined objectives by incorporating both questionnaire and biological sample collection (if indicated to meet study objectives). Data collection for the study will begin in summer 2015, with an on-site visit to selected equine operations by enumerators from the National Association of State Departments of Agriculture and—if necessary to meet the study objectives—a followup on-site visit by a Federal or State veterinary medical officers or animal health technicians.

Appendix I: Survey Choices for Group Leadership and Individual Responses (Management Issues)

- Equine identification/traceability
- Equine care/welfare
- Infection-control practices including biosecurity and vaccination
- Antibiotic drug use and recognition of antimicrobial resistance
- Economics of equine ownership
- Housing/pasture access and management
- Feed management and nutrition
- Fencing methods and associated challenges
- Foal health
- Insect, tick, bird, and rodent control methods used
- Methods for cleaning and disinfecting housing area
- Methods of equine health record keeping
- Methods of manure disposal
- Parasite-control strategies
- Reproductive management
- Testing for disease (e.g., EIA, parasites, including cost and reason for testing)
- Trade barriers
- Trail use and associated challenges
- Transport methods and associated challenges
- Use of a veterinarian and farrier

Appendix II: Survey Choices for Group Leadership and Individual Responses (Body-System Problems)

- Respiratory problems such as strangles, pneumonia, or reactive airway disease
- Digestive problems such as colic or diarrhea
- Leg and/or hoof problems such as conditions leading to lameness
- Reproductive problems such as abortion or fertility issues
- Neurologic or spinal problems such as wobbler, EPM, EHM
- Eye problems such as uveitis or trauma
- Skin problems such as conditions leading to hair loss or skin masses
- Endocrine or metabolic problems such as Cushing's or metabolic syndrome
- Body-condition problems such as underweight or overweight
- Behavior problems
- Cancer of various types

Appendix III: Survey Choices for Group Leadership and Individual Responses (Infectious Diseases)

- Anthrax
- Botulism
- Clostridial enterocolitis
- Contagious equine metritis (CEM)
- Cryptosporidia/giardia
- Equine coronavirus
- Equine herpesvirus (EHV)/rhinopneumonitis/equine herpesvirus myeloencephalopathy (EHM)
- Equine infectious anemia (EIA)
- Equine protozoal myeloencephalopathy (EPM)
- Eastern equine encephalitis (EEE, sleeping sickness)
- Equine piroplasmiasis (EP)
- Equine viral arteritis (EVA)
- Influenza
- Lawsonia intracellularis
- Leptospirosis
- Lyme disease
- Methicillin resistant *Staphylococcus aureus* (MRSA)
- Parasites (internal)
- Pigeon fever (*Corynebacterium pseudotuberculosis*)
- Potomac horse fever
- Rabies
- Rhinitis virus
- *Rhodococcus equi*
- Salmonellosis
- Strangles (*Streptococcus equi*)
- Tetanus
- Vesicular stomatitis (VSV)
- West Nile virus (WNV)

Appendix IV: Survey Choices for Group Leadership and Individual Responses (Participation Incentives)

- Courtesy microchip placement
- Pasture weed identification
- Equine drinking water analysis
- Fecal testing for parasites
- Hay analysis
- On-site biosecurity assessment
- Pasture soil test