5 DISEASE-SPECIFIC GUIDE TO SAMPLE COLLECTION

Not all sampling types and test methods are applicable to all diseases. When in doubt, call the laboratory for guidance.

SPECIES	SPECIMEN	MEDIUM	LAB
African horse sic	kness		
Equine	LIVE ANIMALS		NVSL
(including zebra)	Serum	Red top tube (10 ml)	Ames
	Whole blood	Purple top tube (10ml) (preferred) Green top tube (10 ml)	
	DECEASED ANIMALS		
	Fresh tissue: spleen, lymph node, lung, liver	Separate Whirl-Pak® or Ziploc® bag or screw-cap plastic tubes	
	Set of tissues	Formalin (10:1)	
African swine few	ver		
Swine	LIVE ANIMALS		NVSL
	Tonsil scraping	Sterile tube	FADDL
	Whole blood	Green top tube (10ml) (for virus isolation)	
	Serum	Red top tube	
	DECEASED ANIMALS		
	Fresh tissues: spleen, tonsil, gastrohepatic, renal, and inguinal lymph nodes	Separate Whirl-Pak [®] or Ziploc [®] bag or screw-cap plastic tubes	
	Set of tissues	Formalin (10:1)	
Aino and Akabar	ne ¹		
Bovine	LIVE ANIMALS		NVSL
Ovine	Serum from fetus or neonate	Red top tube (2-5 ml minimum)	Ames
Caprine	Serum from dam	Red top tube (2-5 ml minimum)	
	DECEASED ANIMALS		
	Fresh tissue: placenta, fetal muscle, and nervous tissue	Separate Whirl-Pak® or Ziploc® bag or screw-cap plastic tubes	
	Set of tissues	Formalin (10:1)	

¹Virus isolation, PCR, and serology are done at the National Veterinary Services Laboratory (NVSL) Ames. PCR and serology are done at NVSL FADDL.

SPECIES	SPECIMEN	MEDIUM	LAB	
Bluetongue & Ep	pizootic hemorrhagic disease ^{2,3}			
Bovine Ovine Caprine	LIVE ANIMALS			
	Serum	Red top tube (5 ml minimum)	Ames FADDL	
	Whole blood	Purple top tube (10 ml) (preferred for PCR) (only sample for FADDL testing)		
	DECEASED ANIMALS			
	Fresh tissue: spleen, liver, lung, lymph node	Separate Whirl-Pak [®] or Ziploc [®] bag or screw-cap plastic tubes		
	Set of tissues	Formalin (10:1)		
Blue eye paramy	xovirus			
Swine	LIVE ANIMALS		NVSL	
	Nasal swab	Dacron®/polyester swab in TBTB (max 3 ml)	Ames	
	Serum	Red top tube (10 ml)		
	Whole blood	Green top tube (10 ml) Purple top tube (10 ml)		
	DECEASED ANIMALS			
	Fresh tissue: brain, spinal cord, lung, tonsil, reproductive tissues from sexually mature animals	Separate Whirl-Pak® or Ziploc® bag or screw-cap plastic tubes		
	Set of fixed tissues: brain, spinal cord, lung, tonsil, spleen	Formalin (10:1)		
Bovine babesios	is			
Bovine	LIVE ANIMALS		NVSL	
	Whole blood	Purple top tube (10 ml)	Ames	
	Serum	Red top tube (10 ml)		
Bovine spongifo	rm encephalopathy			
Bovine	DECEASED ANIMALS		NAHLN	
	Minimum for surveillance: fresh obex For clinical suspects: ½ brain collected fresh and the other ½ collected in formalin	50 ml tube, Whirl-Pak®, or Ziploc® bag	or NVSL Ames	
	Fresh tissue: ½ brain	Formalin (10:1)		
	If rabies is on your differential diagnosis, sam for BSE—check with your state public health I		g	

²Virus isolation and serology are done at NVSL Ames. PCR is done at FADDL (EDTA blood). ³Testing for BT/EHD at FADDL is limited to using EDTA blood.

SPECIES	SPECIMEN	MEDIUM	LAB		
Classical swine fever					
Swine	LIVE ANIMALS		NVSL		
	Dacron [®] /polyester swab: oral/tonsil	TBTB (3 ml)	FADDL		
	Tonsil scraping	Sterile tube			
	Whole blood	Green top tube (10ml) (for virus isolation)			
	Serum	Red top tube (10 ml)			
	DECEASED ANIMALS				
	Fresh tissue: tonsil, spleen, retropha- ryngeal, submandibular, and mesenteric lymph nodes	Separate Whirl-Pak [®] or Ziploc [®] bags			
	Set of tissues	Formalin (10:1)			
Contagious agalact	ia				
Caprine	DECEASED ANIMALS		NVSL		
Ovine	Tissue: lung	Whirl-Pak [®] or Ziploc [®] bags	FADDL		
	Joint fluid	Sterile tube or red top tube			
	Set of tissues	Formalin (10:1)	1		
Contagious bovine	pleuropneumonia				
Bovine	DECEASED ANIMALS				
	Fresh tissue: lung	Whirl-Pak [®] or Ziploc [®] bags	FADDL		
	Joint fluid	Sterile tube or red top tube	1		
	Set of tissues	Formalin (10:1)			
Contagious caprine	pleuropneumonia	·			
Caprine	DECEASED ANIMALS		NVSL		
	Fresh tissue: lung	Whirl-Pak [®] or Ziploc [®] bags	FADDL		
	Pleural fluid	Sterile tube or red top tube			
	Set of tissues	Formalin (10:1)			

SPECIES	SPECIMEN	MEDIUM	LAB	
Contagious equi	ne metritis			
Equine	LIVE ANIMALS			
	Swabs for culture	Call NVSL Ames for instructions	Ames	
	Serum	Red top tube (10 ml)		
Dourine				
Equine	LIVE ANIMALS		NVSL	
	Whole blood	Purple top tube (10 ml)	Ames	
	Serum	Red top tube (10 ml)		
Equine piroplas	mosis			
Equine	LIVE ANIMALS		NVSL	
	Whole blood	Purple top tube (10 ml)	Ames	
	Serum	Red top tube (10 ml)		
Foot-and-mouth	disease		1	
Bovine	LIVE ANIMALS		NVSL	
Swine Ovine Caprine	Dacron [®] /polyster swabs: oral or vesicular lesions	TBTB (3 ml) (small tissue tags from the edges of a ruptured vesicle may be added to the swab)	-	
Camelid Cervid (including cloven-hoofed	Vesicular tissue (vesicular epithelium— as large as practical) Animal shoud be restrained	Whirl-Pak [®] or Ziploc [®] bag or screw- cap plastic tubes		
zoo animals and wildlife)	Vesicular fluid	Sterile tube or red top tube (undiluted) or TBTB (50:50)		
	Crusts/scabs Animal "shoud" be restrained	Whirl-Pak [®] or Ziploc [®] bag or screw- cap plastic tubes		
	Serum	Red top tube (10 ml)		
	Esophageal-pharyngeal fluid (collected by probang for identification of FMD- seropositive carriers)	TBTB (50:50)	-	
	Whole blood	Green top tube (10 ml) Purple top tube (10 ml)		
	DECEASED ANIMALS			
	Fresh tissue (esp. lymph node)	Separate Whirl-Pak $^{\ensuremath{\mathbb{R}}}$ or Ziploc $^{\ensuremath{\mathbb{R}}}$ bags		
	Set of tissues	Formalin (10:1)	1	

SPECIES	SPECIMEN	MEDIUM	LAB	
Glanders				
Equine	LIVE ANIMALS			
	Serum	Red top tube (10 ml)	Ames	
	Whole blood	Purple or green top tube (10 ml)		
	Swabs for culture	Call NVSL Ames for instructions		
Heartwater ⁴				
Bovine	LIVE ANIMALS		NVSL	
Ovine	Serum	Red top tube (10 ml)	Ames	
Caprine Cervid	Whole blood	Purple top tube (10 ml)		
	DECEASED ANIMALS			
	Brain smear	Air dry before packaging. If receipt at lab to be > 24 hrs, fix with methanol before shipping. Note on paperwork if slide is fixed.		
	Fresh tissue: lymphoid tissues, brain, kidney	Separate Whirl-Pak [®] or Ziploc [®] bags		
	Set of tissues	Formalin (10:1)		
Highly pathoger	nic avian influenza⁵			
Avian	LIVE ANIMALS		NVSL	
	Tracheal/Oropharyngeal swab	Dacron [®] /polyester swab in BHI (3.0 ml) (can pool up to 5 swabs)	Ames	
	Cloacal swab	Dacron [®] /polyester swab in BHI (3.0 ml) (can pool up to 5 swabs)		
	For commercial poultry do NOT pool TR /0	OP with cloacal swabs.		
	Serum	Red top tube (2 ml)		
	DECEASED ANIMALS			
	Swab collection as above; tissues as below if needed.			
	Fresh tissue: trachea, lung, liver, spleen, kidney, terminal intestine	For each bird: Whirl-Pak® or Ziploc® pooled by system (respiratory, enteric, reproductive)		

⁴NVSL FADDL tests import cases from FMD-endemic countries.

⁵Refer to <u>https://www.aphis.usda.gov/animal_health/lab_info_services/downloads/WIAV0020.pdf</u>



SPECIES	SPECIMEN	MEDIUM	LAB	
Lumpy skin disea	se			
Bovine	LIVE ANIMALS		NVSL	
	Skin biopsy	TBTB (3 ml)	FADDL	
	Whole blood	Green top tube (10 ml) Purple top tube (10 ml)		
	Lymph node aspirate	TBTB (3 ml)		
	DECEASED ANIMALS			
	Lymph node aspirate	TBTB (3 ml)		
	Fresh tissues: skin, lymph node, lung	Separate Whirl-Pak® or Ziploc® bags		
	Set of tissues	Formalin (10:1)		
Malignant catarr	hal fever		1	
Bovine (including	LIVE ANIMALS		NVSL	
wild ruminants)	Whole blood	Purple top tube (10 ml) (preferred for PCR)	Ames or NVSL	
	Serum	Red top tube (10 ml)	FADDL (if vesicula	
	DECEASED ANIMALS			
	Fresh tissue: spleen, eye	Separate Whirl-Pak® or Ziploc® bags or screw-cap plastic tubes		
	Set of tissues	Formalin (10:1)	1	
Peste des petits r	ruminants			
Ovine	LIVE ANIMALS		NVSL	
Caprine (including wild	Dacron [®] /polyester swab: nasal, ocular, oral	TBTB (3 ml)	FADDL	
small ruminants)	Whole blood	Green top tube (10 ml) Purple top tube (10 ml)		
	DECEASED ANIMALS			
	Fresh tissue: bronchial lymph node, mesenteric lynph node, lung, spleen, intestinal mucosa	Separate Whirl-Pak [®] or Ziploc [®] bags		
	Set of tissues	Formalin (10:1)		
Rabbit viral hemo	orrhagic disease			
Rabbit	LIVE ANIMALS		NVSL	
	Serum (import/export only)	Red top tube (5 ml)	FADDL	
	DECEASED ANIMALS			
	Fresh tissue: liver	Whirl-Pak [®] or Ziploc [®] bags		
	Set of tissues	Formalin (10:1)		

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Rift Valley feverNVSL Graphine Caprine CamelidNVSL Graphine CamelidNVSL Graphine CamelidNVSL Graphine Fash tissue: liver, spleen, brain, placenta Separate Whirl-Pak® or Ziploc® bag Formalin (10:1)NVSLOvine CamelidNVSL Forsh tissue: liver, spleen, brain, placentaSeparate Whirl-Pak® or Ziploc® bag Formalin (10:1)NVSLOvine Caprine BovineNVSL Valoe bloodPurple top tube (10 ml) AmesOvine Caprine BovineNVSL Persh fetal tissue: placenta, amniotic fluid, be accompaned by dam's serum) or serw-cap plastic tubes or screw-cap plastic tubes or screw-cap plastic tubesNVSL Parastology (Use VS Core NS 380Ovine CCCASED ANIMALS Ever MontalsNVSL Parastology (Use VS Core NS 380 OvineOvine CCCASED ANIMALSNVSL Parastology (Use VS Core NS 380 OvineOvine CCCASED ANIMALSNVSL Parastology (Use VS Core NS 380 OvineOvine CCCASED ANIMALSNVSL Parastology (Use VS Core NS 380 Over NS	SPECIES	SPECIMEN	MEDIUM	LAB		
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Maggots from all parts of wounds. Include different sizes and appearances. 70% ethanol or isopropyl alcohol - not formalin (Use VS" Form 5-38) Ovine Caprine LIVE ANIMALS NVSL FADDL Skin/Pox lesion biopsy TBTB (3 ml) NVSL FADDL DECEASED ANIMALS Green top tube (10 ml) Purple top tube (10 ml) FADDL DECEASED ANIMALS Separate Whirl-Pak® or Ziploc® bag or screw-cap plastic tubes NVSL Form 5-38) Swine vesicular tesses Formalin (10:1) NVSL Formalin (10:1) Swine vesicular tesses Dacron®/polyester swab: lesion, nasal, fecal TBTB (3 ml) as large as practical) NVSL FADDL Vesicular tissue (vesicular epithelium- as large as practical) Tube or TBTB (3 ml) or TBTB (50:50) NVSL FADDL Vesicular fluid Sterile tube or red top tube (undiluted) or TBTB (50:50) FADDL Vesicular fluid Green top tube (10 ml) Purple top tube (10 ml) FADDL DECEASED ANIMALS Fresh tissue: skin, tongue, and mucosa with lesions Separate Whirl-Pak® or Ziploc® bags with lesions	All species	LIVE ANIMALS				
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Skin Y Fox Reserved (0) First (0 ml) Whole blood Green top tube (10 ml) Purple top tube (10 ml) Purple top tube (10 ml) DECEASED ANIMALS Fresh tissues: skin, lymph node, lung Separate Whirl-Pak® or Ziploc® bag or screw-cap plastic tubes Set of tissues Set of tissues Formalin (10:1) NVSL Swine vesicular disease Dacron®/polyester swab: lesion, nasal, fecal TBTB (3 ml) NVSL Swine vesicular tissue (vesicular epithelium— as large as practical) Tube or TBTB (3 ml) NVSL Vesicular fluid Sterile tube or red top tube (undiluted) or TBTB (50:50) FADDL Vende blood Green top tube (10 ml) Purple top tube (10 ml) Whole blood Green top tube (10 ml) Purple top tube (10 ml) Whole blood Green top tube (10 ml) Purple top tube (10 ml) Whole blood Green top tube (10 ml) Purple top tube (10 ml) DECEASED ANIMALS Fresh tissue: skin, tongue, and mucosa Separate Whirl-Pak® or Ziploc® bags	Ovine	LIVE ANIMALS	LIVE ANIMALS			
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Swine vesicular discusses IVE ANIMALS NVSL Swine Dacron®/polyester swab: lesion, nasal, fecal TBTB (3 ml) FADDL Vesicular tissue (vesicular epithelium—as large as practical) Tube or TBTB (3 ml) FADDL Vesicular fluid Sterile tube or red top tube (undiluted) or TBTB (50:50) FADDL Serum Red top tube (10 ml) Purple top tube (10 ml) Whole blood Green top tube (10 ml) Purple top tube (10 ml) DECEASED ANIMALS Fresh tissue: skin, tongue, and mucosa with lesions Separate Whirl-Pak® or Ziploc® bags		Fresh tissues: skin, lymph node, lung				
Swine LIVE ANIMALS NVSL FADDL Dacron®/polyester swab: lesion, nasal, fecal TBTB (3 ml) FADDL Vesicular tissue (vesicular epithelium—as large as practical) Tube or TBTB (3 ml) FADDL Vesicular fluid Sterile tube or red top tube (undiluted) or TBTB (50:50) FADDL Serum Red top tube (10 ml) Fesh tissue: skin, tongue, and mucosa with lesions Green top tube (10 ml) DECEASED ANIMALS Separate Whirl-Pak® or Ziploc® bags Separate Whirl-Pak® or Ziploc® bags		Set of tissues	Formalin (10:1)			
Dacron®/polyester swab: lesion, nasal, fecal TBTB (3 ml) FADDL Vesicular tissue (vesicular epithelium—as large as practical) Tube or TBTB (3 ml) FADDL Vesicular fluid Sterile tube or red top tube (undiluted) or TBTB (50:50) Factor Serum Red top tube (10 ml) Whole blood Green top tube (10 ml) DECEASED ANIMALS Fresh tissue: skin, tongue, and mucosa with lesions Separate Whirl-Pak® or Ziploc® bags	Swine vesicular o	lisease				
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as large as practical)Sterile tube or red top tube (undiluted) or TBTB (50:50)SerumRed top tube (10 ml)Whole bloodGreen top tube (10 ml) Purple top tube (10 ml)DECEASED ANIMALSFresh tissue: skin, tongue, and mucosa with lesions		Dacron [®] /polyester swab: lesion, nasal, fecal	TBTB (3 ml)	FADDL		
Image: series of the series			Tube or TBTB (3 ml)			
Whole bloodGreen top tube (10 ml) Purple top tube (10 ml)DECEASED ANIMALSFresh tissue: skin, tongue, and mucosa with lesionsSeparate Whirl-Pak® or Ziploc® bags		Vesicular fluid				
DECEASED ANIMALS Purple top tube (10 ml) Fresh tissue: skin, tongue, and mucosa with lesions Separate Whirl-Pak® or Ziploc® bags		Serum	Red top tube (10 ml)			
Fresh tissue: skin, tongue, and mucosa with lesions Separate Whirl-Pak® or Ziploc® bags		Whole blood				
with lesions		DECEASED ANIMALS				
Set of tissues Formalin (10:1)		-	Separate Whirl-Pak [®] or Ziploc [®] bags			
		Set of tissues	Formalin (10:1)			

SPECIES	SPECIMEN	MEDIUM	LAB
Teschovirus ence	phalomyelitis (Teschen/Talfan disease)	
Swine	DECEASED ANIMALS		
	Fresh tissue: brain, spinal cord	Separate Whirl-Pak® or Ziploc® bags	Amesand, or NVSL FADDL
	Set of fixed tissues: brain, spinal cord	Formalin (10:1)	(if CSF in differential diagnosis)
Venezuelan equir	e encephalomyelitis		
Equine	LIVE ANIMALS		NVSL
	Serum	Red top tube (5 ml)	Ames
	DECEASED ANIMALS		
	Brain, cerebrospinal fluid	Whirl-Pak [®] or Ziploc [®] bag or screw-cap plastic tubes and red top tube (CSF)	
Vesicular stomati	tis		
Bovine	LIVE ANIMALS		NVSL
Swine	Dacron [®] /polyester swab: oral lesions	TBTB (3 ml)	FADDL
Ovine Caprine Equine Camelid Cervids (including	Vesicular tissue (vesicular epithelium— as large as practical) Animal should be restrained	Separate Whirl-Pak® or Ziploc® bags or tubes with 3ml TBTB Tissue tags from the edges of a ruptured vesicle may be added to the swab tube.	(Ruminant and Swine and NVSL Ames (Equine)
cloven-hoofed zoo animals and wildlife)	Vesicular fluid	Sterile tube or red top tube with TBTB (50:50)	
wildine)	Crusts/scabs Animal should be restrained	Whirl-Pak [®] , Ziploc [®] bags, or tubes (no media)	
	Serum	Red top tube (10 ml)	
	Esophageal-pharyngeal fluid (collected by probang for identification of FMD-seropositive carriers)	TBTB (50:50)	
	Whole blood (not needed for equine)	Green top tube (10 ml) Purple top tube (10 ml)	
	DECEASED ANIMALS		
	Fresh tissue (esp. lymph node)	Separate Whirl-Pak® or Ziploc® bags	
	Set of tissues	Formalin (10:1)	

SPECIES	SPECIMEN	MEDIUM	LAB
Virulent Newcastle	Disease (vND) ⁶		
Avian	LIVE ANIMALS		NVSL Ames
	Tracheal/Oropharyngeal swab	Dacron [®] /polyester swab in BHI (3.0 ml) (can pool up to 5 swabs)	
	Cloacal swab	Dacron [®] /polyester swab in BHI (3.0 ml) (can pool up to 5 swabs)	
	For commercial poultry do NOT pool TR /O	P with cloacal swabs.	
	DECEASED ANIMALS		
	Swab collection as above; tissues as below i	f needed.	
	Fresh tissue: trachea, lung, liver, spleen, kidney, terminal intestine, brain (if neuro- logic signs)	For each bird: Whirl-Pak® or Ziploc® pooled by system (respiratory, enteric, reproductive)	

⁶Refer to <u>https://www.aphis.usda.gov/animal_health/lab_info_services/downloads/WIAV0020.pdf</u>



Collecting Tissue Samples

Tissue samples for formalin: at a minimum, collect 1 cm thick sections of any lesions, trachea, esophagus, heart, lung, thoracic lymph nodes, liver, spleen, kidney, abdominal lymph nodes, bladder, stomach, duodenum, jejunum, ileum, colon, and bursa for avian species.

If neurologic signs, collect brain, cut in half along midline, and submit as fresh and fixed. For the fixed brain sample, ensure sufficient volume of formalin is included to maintain the 10:1 ratio of formalin to tissue.

If small lesion, put entire lesion in Whirl-Pak® or Ziploc® for virology, NOT in formalin.

DO NOT FREEZE SAMPLES. Submit cool on frozen gel packs.

Contact FADDL about sample submissions at: fad.submissions@usda.gov