

Respiratory disease

A. History

- Provide information on herd/flock size, numbers of animals affected, animal age, onset/duration of problem, vaccination history, and any treatments administered.

B. Submitting samples

- Select histology samples from several areas of affected and unaffected lung, including the junction between affected and unaffected lobules, if possible.
- Please request **specific tests**, and submit **separate tissue samples**, in separate labeled Whirl-Pak bags, for each lab section.

C. Samples required

Swine pneumonia

Lab	Tests	Specimen type / volume Collection protocol
Bacteriology	<ul style="list-style-type: none"> • Bacterial culture, swine (cults) 	<ul style="list-style-type: none"> • affected areas of lung • pleural fluid/swab
	<ul style="list-style-type: none"> • Atrophic rhinitis (cults) 	<ul style="list-style-type: none"> • submission of nasal swabs from several pigs is necessary • consult laboratory for numbers and to obtain swabs (provided for a fee) for testing
Histology	<ul style="list-style-type: none"> • Histopathology, food animal (hist) • Immunohistochemistry is available on formalin-fixed tissues for PRRSV, PCV-2, influenza A virus 	Formalin fixed: <ul style="list-style-type: none"> • sections of SEVERAL pieces of lung from cranial and caudal lobes, including borders of affected and unaffected areas • trachea, bronchial lymph node
Mycoplasmology	<ul style="list-style-type: none"> • <i>M. hyopneumoniae</i> PCR and molecular typing (mhpcr) – note: <i>M. hyopneumoniae</i> cannot be cultured 	<ul style="list-style-type: none"> • lung, oral fluids
	<ul style="list-style-type: none"> • <i>M. hyorhinis</i> PCR (hrhpcr) • <i>Mycoplasma</i> culture (mcult) 	<ul style="list-style-type: none"> • lung
Serology	<ul style="list-style-type: none"> • PRRSV (prrx3) • Influenza A virus (H1N1, H3N2) HI (h1n1hi, h3n2hi) • <i>M. hyopneumoniae</i> (mheiadx) • <i>Actinobacillus pleuropneumoniae</i> (xappmul) – APP serology is only useful on a herd basis, please phone the laboratory before submitting large numbers of sera • PRCV (pcve2) – antigenically indistinguishable from TGEV 	<ul style="list-style-type: none"> • serum samples from animals of various age groups • consult lab for submission details – e.g., the number of samples to be submitted, age of animals to be submitted

Lab	Tests	Specimen type / volume Collection protocol
Virology	<ul style="list-style-type: none"> Influenza A PCR (inflpcr) PRRSV PCR (prtqn) <i>M. hyopneumoniae</i> PCR (mhpcr) PCV-1,2,3 PCR (pcv123) 	<ul style="list-style-type: none"> lung, tonsil nasal swabs in virus transport medium

Bovine pneumonia

Lab	Tests	Specimen type / volume Collection protocol
Comprehensive bovine respiratory disease panel	Includes: (brsppnl) <ul style="list-style-type: none"> bovine viral diarrhea virus bovine adenovirus bovine coronavirus bovine respiratory virus panel PCR (BOHV-1/IBR, BPIV-3, BRSV) <i>Mycoplasma bovis</i> PCR bacterial culture 	<ul style="list-style-type: none"> two samples needed per test PCR – collect swabs with virus transport medium (VTM) or a swab in 2mL of sterile saline in a red-top tube tissue in leakproof container may pool up to 5 samples – indicate pooling instructions on submission form bacterial culture – swab in bacterial medium or lung tissue, no pooling if pooling is requested, individual tests of the panel will be ordered rather than the panel AHL splitting charges may apply
Bacteriology	<ul style="list-style-type: none"> Bacterial culture, food animal (cultf) 	<ul style="list-style-type: none"> affected areas of lung, pleural fluid/swab, tracheobronchial aspirate, bronchoalveolar lavage fluid
Histology	<ul style="list-style-type: none"> Histology, food animal (hist) Immunohistochemistry is available on formalin-fixed tissues for BVDV, BCV, BoHV-1 (IBRV), BRSV 	<ul style="list-style-type: none"> Formalin-fixed sections of SEVERAL pieces of lung from cranial and caudal lobes, including borders of affected and unaffected areas, trachea, bronchial lymph nodes
Molecular Biology	<ul style="list-style-type: none"> <i>Mycoplasma bovis</i> PCR (mbpcr) and/or culture (mcultf) 	<ul style="list-style-type: none"> lung from the borders of pneumonic areas deliver or freeze immediately
Parasitology	<ul style="list-style-type: none"> Baermann (baer) for lungworm larvae 	<ul style="list-style-type: none"> feces
Serology	<ul style="list-style-type: none"> BoHV-1 (IBRV) ELISA (ibre) BPIV-3 (pi3) BRSV (brs) 	<ul style="list-style-type: none"> submit paired sera from affected animal and/or survivors/herdmates

Lab	Tests	Specimen type / volume Collection protocol
	<ul style="list-style-type: none"> • bovine coronavirus (bcv) • BVDV 1 and 2 (bvdn, bvds, bvd2) • bovine adenovirus (bav3) 	
Virology	<ul style="list-style-type: none"> • BVD PCR (bvdr) • BoHV-1/IBRV PCR (ibrtr) • BRSV PCR (part of brvp3 panel) • bovine coronavirus PCR (bvdrco) • bovine parainfluenza 3 virus PCR (part of brvp3 panel) • Note: BoHV-1 (IBRV), BRSV and PI3 are included in the bovine respiratory panel PCR (brvp3) 	<ul style="list-style-type: none"> • lung, trachea • nasal swabs

Sheep/goat pneumonia

Lab	Tests	Specimen type / volume Collection protocol
Bacteriology	<ul style="list-style-type: none"> • Bacterial culture, food animal (cultf) 	<ul style="list-style-type: none"> • affected areas of lung, pleural fluid/swab
Histology	<ul style="list-style-type: none"> • Histology, food animal (hist) • Immunohistochemistry is available for small ruminant lentiviruses (CAEV, MVV) 	<ul style="list-style-type: none"> • Formalin-fixed sections of SEVERAL pieces of lung from cranial and caudal lobes, including borders of affected and unaffected areas, trachea, bronchial lymph node
Molecular Biology	<ul style="list-style-type: none"> • <i>Mycoplasma</i> culture (mcultf) 	<ul style="list-style-type: none"> • frozen or fresh lung
Parasitology	<ul style="list-style-type: none"> • Baermann (baer) for lungworm larvae 	<ul style="list-style-type: none"> • feces
Serology	<ul style="list-style-type: none"> • OPP , CAEV ELISA (mvveh) 	<ul style="list-style-type: none"> • serum
Virology	<ul style="list-style-type: none"> • Bovine respiratory PCR panel (brvp3) • CAEV PCR (send out) 	<ul style="list-style-type: none"> • lung, nasal swab

Equine pneumonia

Lab	Tests	Specimen type / volume Collection protocol
Bacteriology	<ul style="list-style-type: none"> • Bacterial culture, aerobic (cultnm) 	<ul style="list-style-type: none"> • affected areas of lung, pleural fluid/swab, tracheobronchial aspirate, or bronchoalveolar lavage fluid

Lab	Tests	Specimen type / volume Collection protocol
Histology	<ul style="list-style-type: none"> Histopathology (histcm3) IHC, Equid herpesvirus 1 (ehvi) 	Formalin fixed: <ul style="list-style-type: none"> SEVERAL pieces of lung from cranial and caudal lobes, including borders of affected and unaffected areas, trachea, bronchial lymph node
Mycoplasmology	<ul style="list-style-type: none"> <i>Mycoplasma</i> culture (mculn) 	<ul style="list-style-type: none"> lung (fresh or frozen), pleural fluid
Serology	<ul style="list-style-type: none"> Equine respiratory serology panel (respe) includes: <ul style="list-style-type: none"> Equid herpesvirus 1/4 VN Equid herpesvirus 2 VN Equine rhinitis A VN Equine rhinitis B VN H7N7 influenza HI H3N8 influenza HI 	<ul style="list-style-type: none"> serum (paired samples)
Virology	<ul style="list-style-type: none"> Equid herpesvirus 1 PCR (ehv12) Influenza A matrix PCR (inflpcr) 	<ul style="list-style-type: none"> lung, bronchial lymph node, nasal/pharyngeal swabs

Dog/cat pneumonia

Lab	Tests	Specimen type / volume Collection protocol
Bacteriology	<ul style="list-style-type: none"> Bacterial culture, aerobic, companion/other (cultnm) 	<ul style="list-style-type: none"> Affected areas of lung, pleural fluid/swab, tracheobronchial aspirate, or bronchoalveolar lavage fluid
Histology	<ul style="list-style-type: none"> Histopathology, companion/other (histcm3) Immunohistochemistry is available on formalin-fixed tissues for canine distemper virus (CDV), feline coronavirus (FIP), feline herpesvirus, influenza A virus 	Formalin fixed: <ul style="list-style-type: none"> sections of SEVERAL pieces of lung from cranial and caudal lobes, including borders of affected and unaffected areas trachea, bronchial lymph node heart, liver, kidney, spleen
Serology	<ul style="list-style-type: none"> Influenza A virus ELISA (aifem) Canine adenovirus (CAAdV) VN (cav12) Canine parainfluenza virus (CaHV) VN (cpi) 	<ul style="list-style-type: none"> paired sera
Virology	<ul style="list-style-type: none"> Canid herpesvirus 1 (CaHV-1), canine adenovirus 2 (CAAdV-2), canine parainfluenza virus (CPIV) triplex PCR (chappcr) 	<ul style="list-style-type: none"> live: nasal swab dead: kidney, liver, lung, spleen
	<ul style="list-style-type: none"> Canine distemper virus (CDV) PCR (cdvmb) 	<ul style="list-style-type: none"> lung, retropharyngeal or bronchial lymph nodes, kidney, bladder, brain tonsillar or conjunctival scrapings

Lab	Tests	Specimen type / volume Collection protocol
	<ul style="list-style-type: none"> Feline calicivirus, felid herpesvirus PCR panel (fcfhpcr) 	<ul style="list-style-type: none"> live: nasal swab, conjunctival swab dead: lung, trachea
	<ul style="list-style-type: none"> Influenza A virus PCR (inflpcr) 	<ul style="list-style-type: none"> lung tonsillar or conjunctival scrapings