



Animal Health Diagnostic Center

College of Veterinary Medicine, Cornell University
In Partnership with the NYS Dept of Ag & Markets

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Laboratory Operations

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Equine Abortion Kit

The Equine Abortion Kit has been assembled to facilitate proper collection and submission of equine abortion and stillbirth diagnostic samples for veterinarians. Often aborted fetuses are large and cannot easily be transported to a necropsy facility. This kit helps assure proper and complete sampling for large fetuses and placentas, as well as smaller fetuses.

Important considerations to note:

- Small equine fetuses (i.e., 10 inches or less crown-rump length) should be submitted **intact** along with the *placenta*. *They should not be put into formalin. Send fresh, chilled, and overnight.*
- Maternal serum and EDTA blood should be submitted.
- Serum collection from other horses on the premises (both well and aborting animals) may enhance our ability to achieve a diagnosis.
- The kit includes everything needed to perform the necropsy and submit specimens, including detailed instructions except:
 - Personal protective equipment (PPE)
 - Necropsy knife (or similar instrument)
 - 18 gauge needles (2)
- An abortion history questionnaire is provided and should be completed
- Fresh chilled tissues are requested rather than tissues submitted in transport medium.
- Contact Vet Support Services at the Animal Health Diagnostic Center for any questions: 607.253.3900.



Animal Health Diagnostic Center
Equine Abortion Kit

Samples	Tests Performed	Fees to Submitting Veterinarians
Fetal Fresh Tissues and Heart Blood		
Lung, placenta, and stomach contents	Aerobic culture (3 recommended)	\$40.00/tissue
Lung, kidney, adrenal, and placenta	FA test for Equine Herpes Virus-1	\$20.00
	FA test for Equine Arteritis Virus	\$20.00
	Leptospira PCR/tissue (2 recommended)	\$36.75/tissue
	Virus Isolation (If history indicates a herd problem)	\$70.00
	WNV PCR – by Request Only *	\$36.75
Heart Blood	WNV SN – by Request Only *	\$14.50
Fetal Fixed Tissues		
Placenta, liver, lung, brain, adrenal, heart, thymus, small intestine, kidney, and fetal skin, brain	Histopathology	\$66.50 for 1-2 sites; \$20 for each additional site. Field Necropsies add \$56 surcharge.
Maternal Sera	Leptospira MAT (5 serotypes)	\$16.00
	Equine Herpes Virus-1 SN	\$14.50
	Equine Arteritis Virus SN	\$16.50
	Equine Influenza Virus HI	\$14.50
Maternal EDTA blood	Selenium	\$28.00
Total Fee for all tests (estimate)		\$510.75 - \$566.75
Abortion Kit Price		\$34.00
* For West Nile Virus fetal screening, the AHDC recommends performing both the PCR and the SN.		

Each accession received will be charged a \$5.00 accessioning fee, in addition to the requested testing.

Fees are subject to change without notice, please call the lab if you have any questions.

Contract pricing available. For information please refer to the

<https://ahdc.vet.cornell.edu/billing/contract.cfm>.

* For West Nile Virus fetal screening, the AHDC recommends performing both the PCR and the SN.

Instructions

Procedures for Collecting, Packaging, and Submitting Samples

COLLECTING MATERNAL BLOOD SAMPLES

Collect maternal blood into both a red-top and a purple-top (EDTA) blood collection tube. (*Dispose of blood collection needle; do not return it with the kit.*)

COLLECTING FIELD NECROPSY SAMPLES

- Take digital photos of fetus and placenta if possible
- Examine fetus and placenta for abnormalities
- Measure the crown-rump distance as well as the umbilical cord length
- Obtain both the fetal and placental weights; record all weights and measurements on the enclosed **Abortion History** form.
- Using a clean knife or scalpel, open abdomen and thorax of the fetus note any lesions – especially in the liver and lungs.
- Collect the following **fresh** and fixed fetal specimens. Avoid contamination of fresh because they will be used for bacteriology, mycology and virology. See page 4 of this handout for histological sampling and handling.

Fresh Samples Requested

- Lung: obtain a sample 2" x 3", if possible. Place in labeled zip lock bag.
- Adrenal: submit one entire adrenal. Place in labeled zip lock bag.
- Kidney: submit entire kidney if not too big, otherwise (1" x 2") is sufficient. Place in labeled zip lock bag.
- Stomach contents:
 - Disinfect surface of stomach using a swab soaked in alcohol, or sear the surface with flat blade/metal spoon that has been heated with
 - Puncture the stomach with an 18 G 1 ½ in. needle attached to a 5 ml syringe; withdraw 3 to 5 ml of contents.
 - Express into a red-top blood collection tube. (*Dispose of syringe and needle; not return them with the kit.*)
- If you will be requesting WNV*serology (SN) on the fetus, you must obtain fetal heart blood.*

Using a 5 ml syringe with an 18 G 1 ½ in. needle, aspirate 3 to 10 ml of fetal heart blood or as much as possible. It may be necessary to carefully incise the left ventricle and aspirate blood from the surface. (**Pleural and Peritoneal fluids may be used if blood is not available**). Express blood or if pleural or peritoneal fluid is obtained into a red-top blood collection tube. (*Dispose of syringe and needle; do not return them with the kit.*)

* The West Nile Virus can cross the placenta, and may rarely be associated with equine fetal death. We can perform WNV SN on fetal heart blood and WNV PCR on fresh tissues; however, you must specifically request the test(s).

- Placenta: Note any areas that appear abnormal such as discolored, thickened, exceptionally thin, etc. and whether placenta is complete. Take a digital photograph to send with samples if possible. See figure 1 below for laying out placenta for examination and for obtaining optimum sampling areas.
 - Obtain 3 different 2" x 3" segments from different parts of the placenta. Be sure to include pieces from any abnormal appearing areas (discolored, thickened, exceptionally thin, etc.). Place in labeled zip lock bag.

Fixed Specimens

- For histopathology, cut ¼" (1cm) thick sections of each of the following tissues and place in the small jar of formalin:
 - Placenta (chorioallantosis) --7 different locations(see Figure 1); if cervical star is included please so indicate

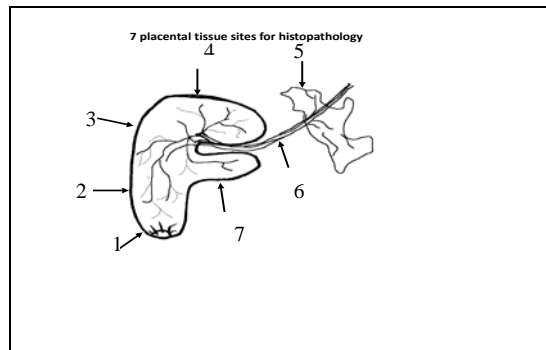


Figure 1. Recommended sites for obtaining placental tissue for histopathology: Sample 1 near cervical star; Samples 2-4 from body and gravid horn; Sample 5 from amnion off umbilical cord; Sample 6 from umbilical cord; Sample 7 from non-gravid horn

- Liver
- Lung
- Kidney
- Second adrenal gland
- Heart
- Thymus
- Spleen
- Small intestine
- Any other tissue you wish to submit
- Brain, remove entire brain even if it appears autolyzed, and place in the large jar of formalin.

PREPARING SAMPLES FOR SHIPPING

- Assemble Fixed Specimens: **Place both formalin jars, with absorbent sheet, inside heavy zip-lock bag.**
- Assemble Fresh Specimens: **Place blood collection tubes, and stomach contents, and place into slots in absorbent pouch. Roll up. Place in labeled zip-lock bag. Place fresh tissue bags into second, larger, labeled zip-lock bag. Place inside a 95kPa Specimen Pouch. Seal pouch according to printed instructions. Place inside insulated foil pouch with 2 frozen ice packs and zip shut.**

PACKING AND SHIPPING SPECIMENS

- Place both the insulated specimen pouch and the bag containing formalin jars inside the kit box.
- Complete both the General Submission form and the Abortion History form; return the forms to their zip lock bag and place them with digital photos (if taken) back inside the box.
- Close box and tape shut.
- Put mailing label on outside of box.
- Return the specimens for testing.

For some areas of NYS and contiguous areas, ground shipment by FedEx or UPS will arrive next day at the AHDC. Check with your courier for arrival dates. Otherwise ship by air for next-day delivery.

The AHDC has prepaid FedEx or UPS ground and air shipping labels available for discount shipping rates. These must be purchased in advance, prior to the day of shipping. Call 607-253-3935 or see <http://www.diaglab.vet.cornell.edu/test/feeman/specialCourier.pdf>

FOLLOWUP

- Fourteen (14) days later, collect a second maternal serum sample (clotted blood sample only) and submit this separately. On the submission form, be sure to identify the sample as a “second serum sample – abortion kit.” Please note, there are additional charges for testing convalescent samples.

Contents of Kit

Note: You must provide a knife for necropsy, personal protective equipment and two sterile syringe needles (18 G 1 ½ in.)

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Kit Box

- 1 Insulated Pouch
- 2 Freezer Packs
- 1 95kPa-rated BioPak specimen transport bags (large)
- 2 Jars 95kPa-rated plastic formalin jars (1small, 1 large)
- 4 medium sized zip lock bags (2 for formalin jars and 2 for small tissue zip locks)
- Absorbent material (6-slot pouch, 1 small sheet, 1 larger sheet)
- 1 Purple-top (EDTA) blood collection tube
- 1 Red top blood collection tube
- 1 Blood collection needle (20 G 1 ½ in.)
- 2 Syringes-5cc (needles not provided)
- Scalpel
- 2 alcohol swabs
- 4 small zip lock bags for lung, adrenal, kidney, placenta
- 1 10"X12" zip lock bag (for paperwork)

Paperwork

- General Submission form (DL-100)
- Instruction sheet
- Equine Abortion Kit Test Fee Schedule
- Contents of Kit list (this page)
- Abortion/Reproduction History Form
- Supply Request form (DL-350)
- Mailing label UN3373 Biological Substance Category B

Equine Abortion Kit Submission Form



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LAB USE ONLY Equine Abortion Kit

AHDC Accession No./ Date _____

Pathology Case Number (if any) _____

PLEASE COMPLETE ALL FIELDS. PRINT LEGIBLY, AND ENTER ONLY ONE OWNER PER FORM

Enter Your Cornell AHDC Acct No. _____	Your Internal Case/Reference No.* _____
Veterinarian _____ Clinic Name _____ Address _____ City, State, Zip _____ Phone Number (_____) _____ Fax Number (_____) _____	Owner _____ Address _____ City, State, Zip _____ Phone Number (_____) _____ County _____ Town _____ NYS Premise ID _____

ATTENTION:

Additional Instructions: _____

ABORTION **Single abortion** or **Farm Problem**

General History: An *adequate history must* accompany submissions in order to qualify for NY State Contract charges (see AHDC Test & Fee Schedule).

Date of onset of abortions on farm _____ Age of animals aborting _____

mares on farm _____ No. aborted _____ Gestation stage of animals aborting _____

Please use history questionnaire provided with kit instructions for detailed history including vaccines

For previous related submissions, please enter Accession numbers and Dates here: _____

Check if related material has been submitted previously for this animal(s): Y N Unknown for this herd: Y N Unknown

Cross out any test names not desired | **Date Samples Taken:** _____

NAME/NO.	Species	BREED	SEX	AGE/DOB
1 Fetus of (dam name)				
2 (Dam ID, if dam blood included)				
3 Fetus of (dam name)				
4 (Dam ID, if dam blood included)				
5 Fetus of (dam name)				
6 (Dam ID, if dam blood included)				

Fresh Tissues-----
 Lung, Kidney, Heart, Liver
 Stomach Contents, Adrenal
 Placenta
 ↓
 1. Aerobic culture (3/fetus)
 2. Lepto PCR (2/fetus)
 3. Equine Herpesvirus-1 FA
 4. Equine Arteritis Virus FA
 5. Virus Isolation

Fixed Tissue-----
 Lung, Kidney, Brain, Heart, Skin, Liver,
 Thymus, Sm. Intestine, Placenta
 12. Histopathology

Dam Serum-----
 Red top tube clotted blood
 or separated serum
 ↓
 17. Lepto MAT, 5 serovar
 18. Equine Herpesvirus-1 SN
 19. Equine Arteritis Virus SN
 20. Equine Influenza Virus HI

Dam Whole Blood-----
 EDTA tube whole blood
 28. Selenium

BY REQUEST ONLY: Check if desired *****

Fetal Heart Blood sample West Nile Virus SN
 Red Top tube Clotted Blood

Fresh Tissue West Nile Virus PCR
 Lung, Kidney, adrenal, placenta

Do not use this form for more than three fetuses and/or dam blood tests. Please note if you do not want complete testing on each item if more than one fetus or blood sample are included. Use separate general submission form for other testing. Dam blood can be retained and submitted separately, paired with convalescent sample.

All tests listed at the right appropriate for the species and samples designated will be performed and associated fees per test/sample charged UNLESS test names are crossed out. One antimicrobial sensitivity test will be automatically added/fetus if significant aerobic bacteria isolated.

West Nile Virus serology and/or PCR are added by request only. Please check box if desired.

The submitting veterinarian is responsible for the requested tests, fees associated with this submission, and to notify the owner of test results.

LAB USE ONLY OPENED BY: _____	COURIER RECORD:	DATE RECD: _____	DATE SHIP'D: _____
<input type="checkbox"/> AB <input type="checkbox"/> Mail	<input type="checkbox"/> Frozen	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> Room Temp
<input type="checkbox"/> FX <input type="checkbox"/> Pri Mail	<input type="checkbox"/> TIME RECD: _____	<input type="checkbox"/> Not Frozen	<input type="checkbox"/> Cold Pack
<input type="checkbox"/> UPS-Grnd	<input type="checkbox"/> Exp Mail	<input type="checkbox"/> None	<input type="checkbox"/> Cold
<input type="checkbox"/> UPS-ND	<input type="checkbox"/> Other: _____	Comment _____	

PLEASE NOTE: SAMPLES SUBMITTED FOR TESTING BECOME THE PROPERTY OF THE ANIMAL HEALTH DIAGNOSTIC CENTER AND MAY BE SUBJECT TO REGULATORY TESTING AT NO ADDITIONAL COST

* If your Internal Reference No. is entered on this form, it will be used to identify this case on the test result form and on the billing statement (max. 17 character fields).

Additional History:

NYS CONTRACT SUBMISSION ADDENDUM

****Please note: Owner information, clinical history and differential diagnosis must be completed in full on submission form, as well as herd data and signature field below to qualify for contract pricing.**

(If required information is not provided, the submission will be handled as a routine submission without NYS subsidy)

***** HERD DATA *****

Date: onset of illness: _____ in animals submitted: _____

Herd size: Adult _____ Young _____ No. dead: _____ No. affected: _____

I have emailed pictures

Email case photos to: ahdccasephotos@cornell.edu;

Subject: ACCOUNT NUMBER and OWNER NAME

I certify that this submission is for an animal located in NYS that is being raised for food or fiber production or it is a horse. In addition, I have listed in the differential diagnosis one or more conditions or contagious infectious diseases that is/are consistent with the clinical presentation for this animal or herd and that would threaten other animals or people. I also certify that this testing is not routine surveillance testing or testing to help eradicate a disease or condition already diagnosed in this herd or flock. Also, this submission includes samples and requests for testing or assistance from the lab to attempt to make a definitive diagnosis. This is not an insurance or legal case.

Signature NYS licensed veterinarian _____

I have attached other forms or pages

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****Please note: Owner information, clinical history and differential diagnosis must be completed in full on submission form, as well as herd data and signature field below to qualify for contract pricing.**

***** HERD DATA *****

Date: onset of illness: _____ In animals submitted: _____

Herd size: Adult _____ Young _____ No. dead: _____ No. affected: _____

Check here if add'l history is on back or attached.

I certify that this submission is for an animal located in NYS that is being raised for food or fiber production or it is a horse. In addition, I have listed in the differential diagnosis one or more conditions or contagious infectious diseases that is/are consistent with the clinical presentation for this animal or herd and that would threaten other animals or people. I also certify that this testing is not routine surveillance testing or testing to help eradicate a disease or condition already diagnosed in this herd or flock. Also, this submission includes samples and requests for testing or assistance from the lab to attempt to make a definitive diagnosis. This is not an insurance or legal case.

Signature NYS licensed veterinarian _____

I have attached the Contract subsidy submission continuation page or Other forms or pages