



Animal Health Diagnostic Center

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

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Equine Abortion Kit

The Equine Abortion Kit has been assembled to facilitate proper collection and submission of samples when it is not possible to deliver the entire fetus and placenta to a necropsy service. Small fetuses (i.e., 10 inches or less crown-rump length) should be submitted intact along with the placenta. For larger fetuses, collect and submit samples as outlined in the kit instructions. To maximize the possibility of arriving at a diagnosis, it is critical to obtain, in the prescribed manner, as many samples as possible. Additionally, maternal serum and EDTA blood should be submitted. Consider submitting serum from other horses on the premises (both well and aborting animals) to enhance our ability to achieve a diagnosis.

With the exception of a strong knife (used for the initial incision) and two 18 G 1 ½ in. syringe needles, the kit includes everything needed to perform the necropsy and submit specimens, including detailed instructions. A thorough history is important, so please complete and return the accompanying abortion history questionnaire. Note that we are requesting fresh tissues rather than tissues submitted in a transport medium; this allows us to culture more organisms. However, because the samples are not in a transport medium, it is imperative that you chill them immediately and ship the kit as soon as possible by overnight service.

If you have any questions regarding this kit, please call Dr. Belinda Thompson at the Animal Health Diagnostic Center (607-253-3900); for ordering contact the AHDC Shipping Department (607-253-3935).



Animal Health Diagnostic Center Equine Abortion Kit

Test Fee Schedule

Samples	Tests Performed	Fees to Submitting Veterinarians	
		Out-of-State	NY State Ag & Mkts Contract
Fresh Tissues			
Lung, placenta, and stomach contents	Aerobic culture	\$28.00/tissue	\$0.00
	Leptospira FA	\$16.50	
Lung, kidney, adrenal, and placenta	FA test for EHV-1	\$16.50	\$0.00
	FA test for EAV	\$16.50	\$0.00
	If history indicates a herd problem, FA will be supplemented by virus isolation	\$55.25	\$15.00
	WNV PCR – by Request Only *	\$36.75	\$36.75
Heart Blood	WNV SN – by Request Only *	\$27.50	\$27.50
Fixed Tissues			
Placenta, liver, lung, brain, adrenal, heart, thymus, small intestine, kidney, and fetal skin, brain	Histopathology	1-2 slides \$50.00 3+ slides \$85.00	\$0.00
Dam's Serum	Leptospira (5 serotypes)	\$16.00	\$0.00
	Equine Herpes Virus-1 SN	\$14.50	\$0.00
	Equine Arteritis Virus SN	\$16.50	\$0.00
	Equine Influenza Virus HI	\$14.50	\$0.00
Dam's EDTA blood	Selenium	\$16.50	\$16.50
NYS Contract Fee (as of 12/01/08)		Not applicable	\$50.00
Total Fee (rough estimate)		\$195. - \$340.	\$30. - \$100.
Abortion Kit		\$17.00 each	\$17.00 each

Fees subject to change. Updated to June 1, 2009

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

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Procedure for Collecting, Packaging and Submitting Samples

COLLECTING SAMPLES

1. Collect dam 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.*)

FIELD NECROPSY

2. Observe fetus and placenta for abnormalities. Measure the crown-rump distance as well as the umbilical cord length, if possible; obtain both the fetal and placental weights; record all weights and measurements on the Abortion History form. Carefully lay out the entire placenta; check for completeness, and record any abnormalities.
3. Using a clean knife, open abdomen and thorax of the fetus. Note any lesions – especially in the liver and lungs.
4. Collect the following fresh fetal specimens. Avoid contamination; these specimens will be used for bacteriology, mycology and virology.
 - a. Lung: obtain a sample 2" x 3", if possible. Place in labeled ziplock bag.
 - b. Adrenal: submit one entire adrenal. Place in labeled ziplock bag.
 - c. Kidney: submit entire kidney if not too big, otherwise a large portion (1" x 2") is sufficient. Place in labeled ziplock bag.
 - d. Placenta: 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 ziplock bag.
5. 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, attempt to secure 3 to 10 ml of fetal heart blood. 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 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).

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6. Obtain stomach contents. Disinfect surface of stomach using a swab soaked in alcohol, or sear the surface using a propane torch and flat blade. 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; do not return them with the kit.*)

Assemble Fresh Specimens: Place blood collection tubes into slots in absorbent pouch. Roll up. Combine with fresh tissue bags into larger, labeled ziplock bag. Place inside 95kPa Specimen Pouch. Seal pouch according to printed instructions. Place inside insulated pouch with 2 frozen ice packs and zip shut.

FIXED SPECIMENS

7. For histopathology, cut ¼" (1cm) thick sections of each of the following tissues and place in the small jar of formalin:
 - a. Placenta (chorioallantosis) from 3 different locations; if cervical star is included please so indicate
 - b. Liver
 - c. Lung
 - d. Kidney
 - e. Second adrenal gland
 - f. Heart
 - g. Thymus
 - h. Spleen
 - i. Small intestine
 - j. Any other tissue you wish to submit
8. Remove the entire brain, even if it appears autolyzed, and place in the large jar of formalin.

Assemble Fixed Specimens: Close both formalin jars , place inside a single 6ml 8x 10 ziplock bag. Make sure that the absorbent sheet is also inside the ziplock bag. Place inside insulated pouch.

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PACKING AND SHIPPING SAMPLES

1. Place both specimen pouches inside the kit box.
2. Complete both the General Accession form and the Abortion History form; return the forms to their ziplock bag; place them back inside the box. The shipping declaration, if necessary (see below), will be attached to the outside of the box.
3. Close box and tape shut.
4. Put mailing label on outside of box.
5. Return the specimens for testing.

a. **Ground** Shipment

If shipping by UPS **Ground** service or US Postal **Ground** service, DO NOT apply the Formalin shipping label and DO NOT use the "Shipper's Declaration for Dangerous Goods."

b. **Air** Shipment (*Note: This package CANNOT be shipped by UPS Air service or US Postal Air service.*)

If shipping by FedEx, complete all shaded portions of the "Shipper's Declaration For Dangerous Goods" form. For legibility, please type or print. Make two (2) copies of the declaration and include with the original in the resealable adhesive pouch. To outside of box, APPLY both the Formalin shipping LABEL and the POUCH containing completed "Shipper's Declaration for Dangerous Goods."

FOLLOW-UP

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." In some cases we may ask for additional follow-up testing on the mare; e.g., endometrial biopsy (histopathology and Leptospira FA test), urine (Leptospira FA), etc. Please note, there are additional charges for testing convalescent samples.

Thank you!

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Contents of Kit

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

- Kit Box
- Insulated Pouch
- 2 Freezer Packs
- 1 95kPa-rated specimen pouches (large)
- 2 Jars Formalin (1small, 1 large)
- 4 medium sized ziplock bags
- Absorbent material (6-slot pouch, 1 small sheet)
- 3 Red-top blood collection tubes
- 1 Purple-top (EDTA) blood collection tube
- 1 Blood collection needle (20 G 1 ½ in.)
- 2 Syringes-5cc (needles not provided)
- Scalpel
- 2 sterile Dacron swabs
- 2 alcohol swabs
- 4 small ziplock bags for lung, adrenal, kidney, placenta
- 1 10"X12" Ziplock bag
- 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)
- AHDC Mailing label
- Formalin shipping label *
- Formalin shipping form (DL-325)
- Shipper's Declaration of Dangerous Goods *

* It is necessary to use these only in certain shipping circumstances. Current DOT regulations classify Formalin as a hazardous material for air shipments. For explanation, see "Procedure for Collecting, Packaging and Submitting Samples" above.

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Abortion History

Today's Date _____ County _____
Farm Name/Owner _____
Address _____

City State Zip Code
Veterinarian Name _____ Diag. Lab. Acct # _____
Telephone _____

Mare History

Animal Identification: _____
Name Age Breed
Date aborted: _____ Date due to foal: _____
Was there evidence of twins? **No** **Yes**
Fetal weight: _____ Crown-rump distance: _____
Length of umbilical cord: _____
List and describe any abnormalities found on gross examination of the aborted fetus:

Placental weight: _____ Was the placenta retained for >3 hours? **No** **Yes**
List and describe any abnormalities found on gross examination of the placenta:

Number of services: _____ Date of last service: _____
Type of breeding for this mare (circle one):
AI **Natural** **Both AI & Natural** **Embryo Transfer**
How many mares were bred to the stallion which serviced this mare? _____
How many breedings per conception for this stallion? _____
Equine Arteritis Virus status of this stallion (circle one):
Unknown **Negative** **Positive** **Vaccinated** **"Shedder"**

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Date of last normal foaling: _____

Number of previous foals / pregnancies: _____

Is there a history of twins? **No** **Yes**

Has this mare aborted previously? **No** **Yes** If so, when? _____

Were any of these aborted fetuses submitted for a diagnostic workup? **No** **Yes**

If so, please provide the date and accession #: _____

What were the results? _____

Dam's Relevant Vaccination History:

▪ Equine Viral Arteritis **No** **Yes**

_____ Last (date) _____ Previous (date) _____ Previous (date)

▪ Rhinopneumonitis (Herpes) **No** **Yes**

<input type="checkbox"/> MLV <input type="checkbox"/> Killed _____ Last (date)	<input type="checkbox"/> MLV <input type="checkbox"/> Killed _____ Previous (date)	<input type="checkbox"/> MLV <input type="checkbox"/> Killed _____ Previous (date)
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▪ Encephalitis, Eastern & Western **No** **Yes**

_____ Last (date) _____ Previous (date) _____ Previous (date)

▪ West Nile Virus **No** **Yes**

<input type="checkbox"/> Recomb <input type="checkbox"/> Killed _____ Last (date)	<input type="checkbox"/> Recomb <input type="checkbox"/> Killed _____ Previous (date)	<input type="checkbox"/> Recomb <input type="checkbox"/> Killed _____ Previous (date)
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▪ Lepto 5-way **No** **Yes**

_____ Last (date) _____ Previous (date) _____ Previous (date)

▪ Immune Stimulant **No** **Yes**

_____ Last (date) _____ Previous (date) _____ Previous (date)

▪ Gram negative bacterial LPS-type toxoid **No** **Yes**

_____ Last (date) _____ Previous (date) _____ Previous (date)

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List and describe any recent changes in this mare's feeding program: _____

Herd History

Number of resident breeding mares: _____

Number of non-resident breeding mares: _____

Number of newborn foals: _____ Number of orphan foals: _____

Number of breeding stallions: _____

Number of non-breeding horses on the farm:

Performance: _____ Pleasure: _____ Yearlings: _____

Have any horses returned to the farm within the previous ... (circle all that apply):

3 months **Year** _____

Have any horses from this farm traveled internationally? **No** **Yes**

If yes, please list all locations visited within the last 4 years: _____

Number of horses purchased within the previous:

4 months _____ Year _____

Date of last purchase: _____

What is the health status of new additions? _____

Are pregnant mares isolated from new and or transient animals? **No** **Yes**

Are pregnant mares separated from yearlings? **No** **Yes**

In addition to horses, what other animals are on the farm? _____

Have abortions occurred in these other species? **No** **Yes**

Please list and describe any illness in these other species: _____

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REPRODUCTION

How many abortions in the past ...

Week? _____ Month? _____ 6 Months? _____

At what stages of pregnancy? _____

Was material submitted to the Diagnostic Center from any of these fetuses? **No** **Yes**

If so, please provide the date(s) and accession number(s): _____

What were the results? _____

Have there been problems in *term* foals born on this farm? (circle all that apply)

Stillborn foals **Deformed foals** **Weak foals** **Ataxic foals**
Diarrhea **Pneumonia** **Other** (describe): _____

How many foal deaths have occurred ...

This season? _____ Last year? _____ Two years ago? _____

Please indicate age at death and, if determined, cause of death: _____

How many breedings per conception for this farm? _____

Regular prebreeding exams? **No** **Yes**

Regular pregnancy exams? **No** **Yes**

Is ultrasound used for pregnancy determination? **No** **Yes**

Have there been breeding problems on the farm? **No** **Yes** What %? _____

Herd reproductive problems (circle all that apply):

Anestrus **Irregular cycles** **Metritis** **Repeat breedings** **Retained placenta**
Cystic ovaries **Other** (please describe): _____

HEALTH

Have there been other clinical illnesses on the farm in the last 6 months?

No **Yes**

If "Yes," please indicate which problems (circle all that apply):

Respiratory **Ocular** **Enteric** **Fever**

Other (describe and give approximate numbers): _____

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Housing (circle all that apply):

Box stall without turnout **Box stall with turnout** **Run out shed - Individual** **Run out shed - Group**
Pasture - Individual **Pasture - Group** **Other (describe):** _____

NUTRITION

Forages (circle all that apply):

Legume hay **Grass hay** **Grass-Legume hay mix** **Pasture**
Hay pellets **Other (please list):** _____

Is there any exposure to fescue? **No** **Yes**

Types of grain (circle all that apply):

Sweet feed **Commercial grain** **Oats** **Corn** **Beet pulp**
Other (please list): _____

Are any feeds moldy? **No** **Yes**

Do mares receive selenium supplements? **No** **Yes**

If so, by which method? **Injection** **Feed**

Have blood selenium levels been checked on this farm in the last 6 months? **No** **Yes**

If so, what were the levels? **Low** **Normal** **High**

EPIDEMIOLOGICAL ASSESSMENT OF ABORTION STORMS (*optional*)

Valuable clues on environmental toxicities, spread of disease, etc. can be obtained from this information.

Please provide a brief sketch of the farm; indicate the location of different animal groups, traffic patterns, exercise areas, pasture, water (including wells, ponds, streams, and runoff/pooling), and stored feedstuffs.

For the barns/stables, diagram this mare's stall including the location of feed trough(s), water bucket(s), etc. Also indicate the stall's location in relation to other animals.