



APPENDIX B

Vaccination Guidelines for Horses in North America

DISEASE/ VACCINE	FOALS/WEANLINGS	YEARLINGS	PERFORMANCE HORSES	PLEASURE HORSES	BROODMARES*	COMMENTS
Tetanus (inactivated toxoid) Core vaccine: all horses	<i>Foal of vaccinated mare:</i> First dose: 6 months Second dose: 7 mo Third dose†: 9-10 mo <i>Foal of nonvaccinated mare:</i> First dose: 3-4 mo Second dose: 4-5 mo Third dose†: 6-8 mo	Annual	Annual	Annual	Annual, 4-8 wk before foaling	Booster at time of penetrating injury or surgery if last dose of tetanus toxoid was not administered within past 6 mo.
Encephalomyelitis (EEE, WEE inactivated vaccine) Core vaccine: all horses	WEE, EEE: (in low-risk areas) <i>Foal of vaccinated mare:</i> First dose: 6 months Second dose: 7 months Third dose†: 9-10 mo <i>Foal of nonvaccinated mare:</i> First dose: 3-4 mo Second dose: 4-5 mo Third dose†: 6-8 mo	Annual, spring	Annual, spring	Annual, spring	Annual, 4-8 wk before foaling	For VEE, follow same protocol as for WEE/EEE if indicated by threat of exposure or requirements for interstate or international transportation. VEE may be available only as a combination vaccine with EEE and WEE.
	EEE: (in high-risk areas) First dose: 3-4 mo Second dose: 4-5 mo Third dose†: 6-8 mo	Annual, spring	Annual, spring	Annual, spring	Annual, 4-8 wk before foaling	In high-risk areas for EEE, booster EEE and WEE every 6 mo. A series of at least three doses is recommended for primary immunization of foals.
West Nile virus (WNV) (inactivated or canarypox-vectored recombinant vaccine) Core vaccine: all horses	<i>Foal of vaccinated mare:</i> First dose: 3-4 mo Second dose: 4-5 mo Third dose†: 6-8 mo <i>Foal of nonvaccinated nonexposed mare:</i> First dose: ≤3 mo Second dose: 1 mo later For the inactivated vaccine, administration of third dose, 2-3 mo	Semiannual (twice annually) or annual depending on regional duration of season for challenge by WNV-infected mosquitoes.	Semiannual or annual depending on regional duration of season for challenge by WNV-infected mosquitoes.	Semiannual or annual depending on regional duration of season for challenge by WNV-infected mosquitoes.	Semiannual or annual; time one booster 4-8 wk before foaling. Avoid administration to mares during the first 60 days of gestation if possible.	Peak seasonal exposure to WNV is in summer and fall. In areas with prolonged season for WNV-infected mosquitoes, time one booster in early spring to precede local mosquito activity and second booster in middle to late summer to precede expected peak local incidence of disease. Mosquito control is important for effective WNV prevention in both

						after second, is recommended.	horses and humans. Maternal antibodies minimally affect response of foals to either inactivated or canarypox recombinant live WNV vaccine, so vaccination can commence at younger age than recommended for many other injectable vaccines.
Influenza. Add to core for horses experiencing contact with other horses at shows, events, competitions, and on breeding farms.	Intranasal modified live virus: First dose: 11 mo Optional second dose 3 mo later	Semiannual	Semiannual	Semiannual	Annual before breeding (see comments). Use inactivated injectable influenza vaccine for prepartum booster.		Modified live intranasal vaccine is recommended as core of influenza vaccination programs because of demonstrated high level of efficacy. If first dose is administered to horses <age 11 mo, administer second dose at or after 11 mo of age.
	Inactivated injectable: <i>Foal of vaccinated mare:</i> First dose: 9 mo Second dose: 10 mo Third dose [†] : 12-13 mo <i>Foal of nonvaccinated nonexposed mare:</i> First dose: 3-6 mo Second dose: 4-7 mo Third dose [†] : 2-3 mo after second dose	Semiannual	Semiannual	Semiannual or annual with added boosters before likely exposure	Semiannual, with 1 booster 4-8 wk prepartum		For injectable inactivated influenza vaccines, a series of at least three doses is recommended for primary vaccination of foals, regardless of vaccination status of the dam.
Rhino-pneumonitis (EHV-1 and EHV-4) Add to core as outlined for influenza. <i>All pregnant mares should be vaccinated against EHV-1.</i>	First dose: 4-6 mo Second dose: 5-7 mo Third dose [†] : 7-10 mo Then at 4-mo intervals	Every 4-6 mo if elected	Every 4-6 mo if elected	Semiannual if elected	Use inactivated EHV-1 vaccine during fifth, seventh, and ninth month of gestation (additional dose during third month of gestation optional).		Vaccination of mares with an EHV-1/EHV-4 combination vaccine before breeding is recommended. Vaccinate breeding stallions semiannually, with one of the doses timed before start of breeding season.

Continued

DISEASE/ VACCINE	FOALS/WEANLINGS	YEARLINGS	PERFORMANCE HORSES	PLEASURE HORSES	BROODMARES*	COMMENTS
Strangles. Add to core when risk of exposure is high, particularly on breeding farms.	Intranasal live vaccine: First dose: 4-6 mo Second dose: 2-3 wk later Third dose†: 7-10 mo	Semiannual	Optional: semiannual if risk is high	Optional: semiannual if risk is high	Semiannual, but use M-protein injectable vaccine for prefoaling booster 4-8 wk before foaling	Use when endemic conditions exist or risk is high. Foals as young as 6 wk have been vaccinated with intranasal product, but a third dose should be administered before weaning.
	Injectable inactivated vaccine: First dose: 4-6 mo Second dose: 5-7 mo Third dose†: 7-9 mo (depending on product used) Fourth dose: 12 mo	Semiannual	Optional: semiannual if risk is high	Optional: semiannual if risk is high	Semiannual, with one dose of inactivated M-protein vaccine 4-8 wk before foaling	Use when endemic conditions exist or risk is high. Vaccination of seropositive horses with SeM ELISA titers >1:1600 is not recommended because it may increase risk of purpura.
Rabies (inactivated vaccine) Add to core when significant risk of exposure to wildlife vectors of rabies exists.	<i>Foals of vaccinated mares:</i> First dose: 6 mo Second dose: 7 mo Third dose: 12 mo <i>Foals of nonvaccinated mares:</i> First dose: 3-4 mo Second dose: 12 mo	Annual	Annual	Annual	Annual, before breeding	Vaccination is recommended in endemic areas where potential exists for contact with wildlife vectors such as skunks, raccoons, foxes, badgers, and bats.
Potomac horse fever (inactivated vaccine) Special circumstances only in endemic areas	First dose: 5-6 mo Second dose: 6-7 mo Third dose in primary series should be given if first dose was given before 5 mo.	4- to 6-mo interval	4- to 6-mo interval	4- to 6-mo interval	4- to 6-mo interval, with one dose 4-6 wk before foaling	Efficacy of vaccination protocols for prevention of Potomac horse fever is questionable. Booster during May to June in endemic areas if elected.
Botulism (shaker foal; inactivated type B toxoid) Special circumstances only in endemic areas to protect foals	<i>Foal of vaccinated mare:</i> Three-dose series at 30-day intervals is best delayed until foals are 6 mo old, but can be started as early as 2 mo of age.	Not applicable	Not applicable	Not applicable	Initial three-dose series at 30-day intervals with last dose 4-6 wk before foaling. Annually thereafter, 4-6 wk before foaling.	Only in endemic areas on breeding farms where risk of infection is high. Protection of foal is best accomplished by vaccinating the mare. Vaccination of young foals from nonvaccinated mares is often practiced but may not protect them during first few months of life, when they are most susceptible.

Equine viral arteritis (modified live vaccine) Special circumstances only	<i>Intact colts intended for future use as breeding stallions:</i> One dose at 6-12 mo of age	Annual for colts intended for use as breeding stallions	Annual for colts intended for use as breeding stallions	Annual for colts intended for use as breeding stallions	Annual for seronegative, open mares before breeding to carrier stallions; isolate mares for 21 days after breeding to carrier stallion.	Use only under special circumstances. Annual for breeding stallions and teasers, 28 days before start of breeding season. Vaccinated mares do not develop clinical signs after breeding to carrier stallions even though they become transiently infected and may shed virus for a short time. Vaccination will render horses seropositive and may complicate exportation.
Rotavirus A (inactivated vaccine) Special circumstances only on breeding farms	Little value to vaccinate foal because there is insufficient time to develop antibodies to protect during susceptible age	Not applicable	Not applicable	Not applicable	Vaccinate mares at 8, 9, and 10 mo of gestation, each pregnancy. Passive transfer of colostral antibodies aid in prevention of rotaviral diarrhea in foals.	Use on endemic farms or when risk of infection is high. Check concentrations of immunoglobulins at 24 hours of age to verify adequate passive transfer.

Compiled by W. David Wilson, University of California, Davis, 2006.

Appropriate application of these guidelines depends on specific assessment of risk on your particular premises by your veterinarian. As with the administration of all medications, the label and product insert should be read before administration of all vaccines.

*Schedules for stallions should be consistent with the vaccination program of the adult horse population on the farm and modified according to risk.

[†]When a third dose is recommended in the primary immunization series, this should be administered 8 to 12 weeks after the second dose.

EEE, Eastern equine encephalomyelitis; *WEE*, western equine encephalomyelitis; *EHV*, equine herpesvirus; *SeM*, M protein of *Streptococcus equi*; *ELISA*, enzyme-linked immunosorbent assay.