

Down on the Farm



Vaccination Schedules

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Spring is the traditional time for annual vaccinations, partly because many diseases are summer and fall problems. Some are spread by summer insects (mosquitoes spread encephalomyelitis), or have a seasonal occurrence (such as Potomac Horse Fever) or are more likely to be spread from horse to horse during competitions (most commonly held in seasons other than winter) or during periods of stress such as the weaning of foals in the fall (influenza, strangles, and another respiratory disease).

Some diseases may occur at any time of year (tetanus, botulism) but an annual vaccination will generally protect the healthy horse. How often you vaccinate (some diseases require booster shots during the year for best protection) and which diseases you vaccinate against, will depend upon your geographic location and the amount of exposure your horses have to other horses or to the causative agents. Your veterinarian will know which diseases are common to your area.

Not every horse should be vaccinated against every preventable disease. Some vaccinations are necessary only in cer-

tain regions or circumstances. Almost all horses should be vaccinated against tetanus, since this is a highly fatal disease and the spore-forming bacteria that cause it lurk nearly everywhere in the soil, especially in regions that have been intensely cultivated for many years. There are a few small areas, including parts of the Rocky Mountains, where tetanus is not a problem. Vaccine is cheap protection, however, and it's best to play it safe. Most veterinarians recommend a primary vaccination of two doses a month apart, followed by an annual booster. It is customary to give pregnant mares their annual booster a month to six weeks before foaling, to confer immunity to the foal via colostrum.

Botulism is a problem in some regions. Vaccination is especially important for pregnant mares, to give immunity to foals via the maternal antibodies in colostrum. Potomac Horse Fever (caused by bacteria found in fluke larvae that parasitize fresh-water snails) is a threat in many regions—usually where there are rivers and streams, springs and other snail habitats. Rabies is also a threat in many areas—wherever there is a high population of wildlife

that can harbor the disease. This deadly viral disease goes in cycles in the wildlife populations and is such a health risk that all pets and horses should be vaccinated if there is any evidence of rabies in your area.

Sleeping sickness comes in a variety of forms. Venezuelan equine encephalomyelitis (VEE) occasionally threatens horses and humans in the Southwest but is not a concern for horses in other parts of the U.S. Eastern and western encephalomyelitis (EEE, WEE) can be a threat for most horses in North America. These two should almost always be included in annual vaccination programs. In northern regions, an annual booster is sufficient to give protection (after the initial series of shots the first year the horse is vaccinated), but in areas with a long summer season, horses need two shots—one in spring and another in late summer. Some southern areas require three shots for full protection.

The viral diseases that cause respiratory problems in horses (influenza, rhinopneumonitis, equine viral arteritis) need to be included in a vaccination program if your horse comes into contact with other horses. EVA may or may not

be a problem in your area, so check with your veterinarian. Many viral respiratory infections can also cause abortions in pregnant mares, so if mares leave your farm to be bred, or are stabled where strange horses come and go, they should be vaccinated. Horses at high risk (on farms with lots of horse traffic, breeding stallions, mares sent to other farms to be bred, horses stabled at racetracks, etc.) may need to be vaccinated as often as every two months, depending upon the situation. The schedule for viral respiratory disease vaccinations should be discussed with your veterinarian.

Strangles is a highly contagious bacterial infection. Horses with risk of exposure, or living where strangles has occurred in the past, should be vaccinated. There is now an intranasal vaccine that seems to be more effective—the modified live vaccine gives longer protection than the injectable inactivated (killed) vaccines, and also places the vaccine in the nasal cavity where the bacteria enters the respiratory system. Horses that are not likely to be exposed to strangles do not need to be vaccinated.

Vaccinating Foals:

The timing for foalhood vaccinations will depend upon if and when the mare was vaccinated during pregnancy. If a mare is vaccinated in late pregnancy (four to six weeks before foaling) she can pass more protective antibodies to the foal via colostrum. This can protect a foal until his own immune system matures to the point where it can start building its own protection. Once the maternal antibodies from colostrum begin to wane, the foal can build his own immunity to disease. Horsemen traditionally started vaccination of foals at about three months of age, but recent research has shown that foal vaccination may be ineffective if given too soon, when the foal still has maternal antibodies in his system. The maternal antibodies interfere with the foal's ability to mount his own response.

The one exception is tetanus. Vaccination of the mare prior to foaling does not seem to interfere with a foal's development of immunity from vaccination, and tetanus toxoid can be given to the foal at any time, but is usually given at

about three to four months of age. If the mare was not vaccinated prior to foaling, the foal can be given toxoid at birth, to start his immune response.

At four months of age a foal can be started on other immunizations, including EEE and WEE, but vaccination against influenza should wait until he is at least six (or preferably nine) months old if the mare was vaccinated during pregnancy. Giving the foal an influenza vaccine at an early age not only fails to stimulate a good immune response (because of the maternal antibodies) but also seems to affect the young horse's ability to respond to influenza vaccinations later in life.

For a vaccination to be most effective, it must be given at the proper time to maximize the immune response in the foal. When figuring out a vaccination schedule, it is important to base your decisions on specific goals. Are you trying to give the foal immediate protection from a disease that might threaten him early in life, or trying to give him long-term protection against diseases that are more likely to occur later? The best way to protect him early in life is to keep the mare regularly vaccinated, with boosters given four to six weeks before foaling. This will increase the levels of antibodies in her blood so they can be concentrated at high levels in her colostrum.

The antibodies that the foal receives from colostrum will give him temporary protection, but this protection drops about 50 percent per month thereafter. The greater the concentration of antibodies in the colostrum, the more the foal absorbs and the longer they persist at levels that can protect him. This protection may last from just a few weeks to several months. The foal will be constantly encountering pathogens, so he starts to develop his own immune system, but if he is adequately protected by maternal antibodies, this takes longer. The passive immunity he obtained from colostrum can interfere with building his own immunity as well as with the effectiveness of the vaccination as well.

When vaccinating a foal to give long-term protection (as for the first year of his life), you must wait until he no longer has antibodies from colostrum. The maternal

antibody interference with foalhood vaccination can be a frustrating problem in trying to protect foals, especially in a group situation where the antibody level of each foal varies. If all foals in the group receive their first vaccinations at three months, the ones that no longer have maternal antibodies would develop protection, while those with persistent maternal antibodies would not.

Research in 1998 at the University of Kentucky has made veterinarians rethink their recommendations for vaccinating foals. It is now recognized that foals must have at least three doses of vaccine to start their immunity rather than the two doses as earlier recommended, and that foals started on vaccination at three months of age generally fail to produce enough antibodies (with the exception of tetanus toxoid). It is now recommended that foals be started on vaccinations at four months of age, and that no foal should be vaccinated for influenza before six months of age.

With most viral vaccines (such as equine herpes and EEE or WEE) maternal antibodies in the foal's bloodstream do not seem to negatively impact his immune response to later boosters, so these can begin at less than six months of age. By contrast, influenza vaccine is affected by any maternal antibodies that remain in the blood, sometimes as late as six months of age. Giving the foal an influenza vaccination earlier than this may adversely affect his own production of antibodies, not only for the short term, but also for the rest of his life. Thus the horse vaccinated at a young age (for influenza) may be unable to develop adequate immunity as an adult, even with repeated vaccinations.

Regardless of when a foal or young horse is first vaccinated, at least three doses of vaccine, rather than the two recommended by most vaccine manufacturers, seem to be necessary to begin building adequate immunity, especially with killed vaccines. The new intranasal modified live products for influenza may confer immunity with just two doses. Your veterinarian can help you decide which products to use, and when to use them, so as to ensure the best results for each particular situation.