Rideau-St. Lawrence Veterinary Services

A division of Leeds-Grenville Veterinary Professional Corp.

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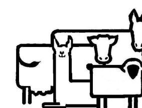

Broodmare Nutrition

Ideally, broodmares should maintain a body score around 5 to 7 out of 9. Under-nutrition and body scores less than 4.5 to 5 have been linked to reduced fertility and lower pregnancy rates.

During the last trimester, your mare should be started on a slowly rising plane of nutrition. The ideal diet incorporates good quality, leafy forage along with a commercial concentrate designed for broodmares that contains 12% to 14% protein. Her diet should also contain the proper ratio of calcium and phosphorus and adequate amounts of the trace minerals copper, zinc and manganese to ensure optimal bone development in the fetus. Mares residing in selenium deficient regions of the country should receive selenium supplement during late pregnancy to prevent white muscle disease in their foals.

Once she foals, the average mare produces up to 3% of her body weight in milk per day. Because of this substantial output, the postpartum mare requires a steadily rising plane of nutrition and an increased amount of water intake to support her increasing milk production. Peak lactation occurs approximately 6 to 8 weeks after delivery. During this period, a mare requires 1% to 2% of her body weight in good quality, leafy hay daily and a commercial concentrate designed for broodmares. These concentrates typically contain 14% to 16% protein.

Nursing mares should receive a diet containing 0.5% calcium and 0.35% phosphorus and should have free access to fresh water and trace minerals.

Broodmare Vaccinations

An important safeguard during your mare's pregnancy is immunization against Equine Herpesvirus 1 (EHV-1) at the beginning of the 5th, 7th and 9th months of gestation. The EHV-1 strain of Equine Herpesvirus is the leading cause of infectious viral abortions in mares. EHV-1 is typically associated with late-term abortions and the delivery of a well-preserved fetus and outwardly normal placenta. Most horses become infected with EHV-1 during the first year of life. In the majority of cases, the virus becomes latent, just waiting for stress-induced reactivation. Sources of infection for pregnant broodmares include: clinically ill horses shedding the virus in nasal secretions; asymptomatic horses experiencing reactivation of latent infection; or virus laden uterine secretions and placenta/fetus from mares aborting due to EHV-1. All horses in close contact with broodmares - such as barren mares, stallions and teaser stallions - should also be maintained on a rigorous EHV-1 vaccination program. It's also important to reduce your pregnant mare's exposure to groups of young horses and any new arrivals that may be shedding EHV-1.

Booster vaccinations 4 to 8 weeks before foaling.
You should booster your pregnant mare 4 to 8 weeks prior to foaling with her regular annual vaccines as decided by you and your veterinarian. This important series of pre-foaling booster vaccinations stimulates the mare to produce high levels of protective antibodies at a time during late pregnancy when she is also producing antibody-rich colostrum. The newborn foal relies on ingestion of colostrum and absorption of these antibodies during the first 12 to 24 hours of life for protection against a wide variety of viral and bacterial diseases during the early post-natal period.

Deworming your Broodmare

Strategic deworming is another essential ingredient of preventive health care. The major gastrointestinal parasites of concern in the mare are large and small strongyles and, in some instances, tapeworms. Another parasite, *Strongyloides*, can be passed from dam to foal in the milk.

Any deworming program should include active ingredients that are effective against mature parasites and migrating or encysted larvae. In general, it's wise to avoid any unnecessary drug administration, including dewormers, during the first 60 days of pregnancy since this is the time when major organ systems are developing in the fetus (organogenesis).

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Delivery and Newborn Foal Care

It may seem like waiting for the birth of a foal takes an eternity, but the average gestation length for most mares is 335 to 340 days (range 320 to 350 days). Normal signs of impending delivery include gradual udder development 2 to 5 weeks prior to delivery.

- The mare's teats wax within hours to a few days prior to foaling. Her mammary secretions change from clear and watery to opaque and sticky as delivery approaches.

  Contact your veterinarian if your mare demonstrates vaginal discharge and/or premature udder development or begins leaking milk well before her due date, as these can be warning signs of placental disease and a compromised pregnancy.

Delivery (parturition): A foal is born.

The foal should be presented with both forelimbs extended (one slightly ahead of the other) followed by the outstretched head after the placenta ruptures and the mare expels a large volume of fetal fluids. Delivery should progress rapidly, with the foal being born within 30-45 minutes. If your mare experiences prolonged labour without the delivery of a foal - or if the foal appears in an abnormal position - contact the veterinarian on-call. The mare should pass her placenta within three hours of delivery. It's important that your mare does not retain her placenta, as that could lead to a uterine infection that may affect future fertility, cause laminitis or become potentially fatal. Therefore if the placenta is still present after 4 hours after foaling call the clinic *immediately*.
Save the placenta for the veterinarian who comes out to examine for signs of disease and to be certain that the entire placenta has been passed
It's recommended that all newborn foals receive a routine neonatal examination by a veterinarian within the first 24-48 hours. Early disease detection in both the newborn foal and postpartum mare can be life-saving.

Newborn Foal Care and Observation.

The first few hours of your foal's life are critical. A healthy newborn foal should be able to stand within one hour of delivery and should be nursing within two hours. If your foal is too weak to stand and nurse, contact the clinic immediately. Common causes of newborn foal illness include overwhelming bacterial infection (septicemia), prematurity and/or neonatal maladjustment syndrome (neurological dysfunction associated with lack of oxygen before or during delivery). Early veterinary intervention can be life-saving.

Dip your foal's umbilical stump with dilute chlorhexidine or iodine twice daily for 2-3 days or until the stump is dry. Every foal should pass its first manure, or meconium, within 12-24 hours of delivery. Meconium is pasty or pelleted in consistency and dark brown or black in colour. Following meconium passage, the foal's feces should be soft and light tan in colour.

Your foal should ingest at least 0.5 - 1L (1 – 2 pints) of good quality colostrum within the first 24 hours of life to ensure absorption of adequate antibodies. Peak absorption occurs during the first 6-12 hours following birth.

The primary antibody in colostrum is IgG. Healthy foals that have nursed and absorbed adequate colostrum have an IgG concentration in their bloodstream of at least 800mg/dl. We can draw a blood sample from your foal within 12-24 hours of delivery and can quickly and accurately measure the IgG concentration using the SNAP® Foal IgG Test from IDEXX Laboratories. Newborn foals with IgG concentrations less than 400mg/dl should receive supplemental colostrum and/or a plasma transfusion to provide vital antibodies that help reduce the risk of serious bacterial and viral infections during the first few months of life. A complete blood count can also be performed on each newborn foal to detect early signs of infection or anemia.

You should observe your newborn foal frequently during the first few weeks of life to detect early signs of disease. Often the first sign of a sick foal is lethargy and decreased nursing vigour accompanied by an overly distended udder on the mare. Young foals are at risk for a variety of respiratory diseases and diarrhea. Monitor your young foal's breathing rate and effort, body temperature, nursing behaviour and manure consistency.

Foal Nutrition

Your healthy newborn foal should consume 15%-25% of his body weight in milk daily and gain an average of 0.5 – 1kg (1 – 2lbs)/day. Excessive weight gain, unusually rapid growth spurts or a diet unbalanced in calories, protein, calcium, phosphorus and trace minerals may place your foal at increased risk for metabolic bone disease. Developmental, or metabolic, bone disease includes conditions such as physitis, contracted tendons and defects in bone ossification (e.g., OCD, subchondral bone cysts, wobbler syndrome).

As your foal grows, he will need a gradual transition from an "all milk" diet to solid feed. Typically, creep feed should be introduced slowly after the first month at rates of 0.3 – 0.5kg (0.75 – 1.0lb) of creep feed per 50kg (100lbs). of foal body weight. The type of creep offered will depend on the amount and quality of hay and/or pasture in the diet. You may consult with us to develop a balanced nutrition program for your foal.

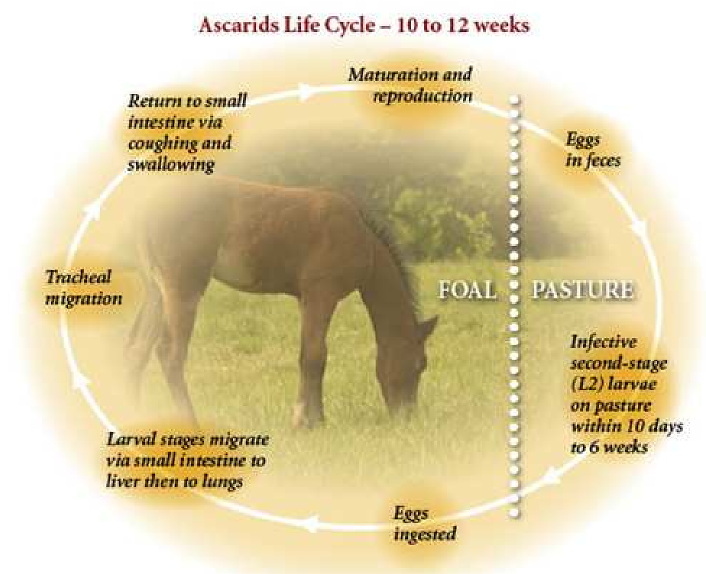
Body Condition Scoring.

You can use Body Condition Scoring, a system based on visual appraisal and body palpation of six areas, to assess the relative body fat of your mare and growing foal. The ideal body condition score for a foal is between 5 and 7. Consult your veterinarian if your foal's body score is higher or lower. Monitor your foal for contracted tendons, physitis and other angular limb deformities.

Deworming your Foal

Young foals are generally more susceptible to parasites than adult horses. Exposure begins early. One parasite, *Strongyloides westeri*, can be transferred in the mare's milk. Other parasite eggs can be shed in the dam's manure. Therefore deworming your mare shortly after foaling with a product effective against *Strongyloides sp* and a wide range of other parasites is recommended as the first step in protecting your foal from an overwhelming load of parasites.

While any worm can affect your foal, the most significant parasites are ascarids, also known as roundworms. Ascarids prey on the naïve immune systems of horses less than 18 months old and can cause depression, respiratory disease, stunted growth, diarrhea, constipation and potentially fatal colic. Immature ascarid larvae migrate through the foal’s lungs and liver (see chart below). Heavy burdens of adult roundworms can cause a life-threatening impaction in the foal’s small intestines. As the horse matures into his second year of life, he develops a heightened immune response to ascarids, and the threat greatly diminishes.



To ensure your foal stays healthy, the best procedure is to develop a regular parasite control program that never allows a large population of ascarids to become established. The recommended deworming schedule for foals is to start deworming at 2 months of age and then continue deworming every 2 months until 1 year of age. Deworm your foal with either Panacur or Strongid dewormers

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Vaccinating your Foal

Vaccination	Disease	Vaccination Timing
West Nile Virus	Viral disease transmitted to horses via bite of infected mosquito. Clinical signs include lack of coordination, stumbling, loss of appetite, fever, muscle twitching, partial paralysis and neurological signs that may include head pressing, inability to stand up, convulsions and possibly death.	5 months of age for primary immunization; booster 3-4 weeks after primary
Influenza	Highly contagious viral disease; considered the most economically important respiratory disease in horses. Clinical signs include fever 39 - 41°C (102.5 - 106.5°F) frequent dry cough, nasal discharge, dehydration, lethargy, anorexia and possible secondary bacterial pneumonia.	9-11 months of age for primary immunization: - 3-dose series for I.M. vaccines - single dose for I.N. vaccines
Eastern and Western Encephalomyelitis	Viral disease transmitted to horse via bite of infected mosquito. Clinical signs include loss of appetite, fever and neurological signs that may include head pressing and blindness.	6 months of age for primary immunization; booster 3-4 weeks after primary and again 3 months after second booster; in high risk areas vaccination can begin at 3-4 months of age followed by 3 additional doses.
Tetanus	Caused by bacteria found in environment. Enters via penetrating wounds or umbilicus. Causes rigid paralysis and spasms of muscles, including jaw muscles. Often the horse has an anxious expression and may react to noises or movement with spasms or convulsions.	6 months of age for primary immunization; booster 3-4 weeks after primary and again 3 months after first booster
EHV-1 & EHV-4 (Rhinopneumonitis)	Highly contagious viral disease. Respiratory signs include fever, depression, loss of appetite, and nasal discharge. Majority of affected horses establish latent infections, which can be reactivated when the horse is stressed.	6 months of age for primary immunization; booster 3-4 weeks after primary and again 3 months after first booster
Rabies	Contracted from the bite of a rabid animal. Affected horses may exhibit colic, lameness, muscle incoordination, incontinence, muscle spasms and paralysis, blindness and depression. Death follows within 3-5 days.	6 months of age for primary immunization; booster 3-4 weeks after primary
Potomac Horse Fever	Bacterial disease linked to freshwater sources. Severity of clinical signs varies greatly. Most horses develop a fever accompanied by depression, loss of appetite, diarrhea and colic. Some horses founder.	6 months of age for primary immunization; booster 3-4 weeks after primary. Vaccinate if disease is endemic in area.
Strangles Streptococcus equi	Highly contagious bacterial disease. Common clinical signs are swollen lymph nodes, anorexia, fever, nasal discharge and difficulty swallowing. The swollen lymph nodes (especially in the throat area) may abscess.	6 months of age for primary immunization; booster 3-4 weeks after primary. Vaccinate only if there is increased risk of disease

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