

Foal Management During the Preweaning Period

During the preweaning, or suckling, phase of the foal's life, the foal is growing rapidly. It is not uncommon for a suckling foal to gain 2.5 to 3 pounds daily under good management conditions. Also throughout this period, the foal increases its interactions with the environment and gains independence from its dam. This publication outlines management steps a horse owner can take during the preweaning phase of the foal's life to ensure optimum health and future productivity of the foal. Information about foal care immediately after birth can be found in Extension publication ANR-922, "Post-Foaling Care of the Mare and Foal."

Gentling and Halter Breaking

Although gentling (training the foal to accept the human touch) and halter breaking (teaching the foal to submit to halter pressure) can be postponed until after weaning, there are several advantages to handling the foal during the preweaning period. Younger foals are smaller and easier to control. The mare can be used to block the foal in a corner of a stall or pasture so that the foal can be easily caught, and most foals learn to follow halter pressure quickly if led alongside their dam. Gentling the foal before weaning should lessen trauma and decrease the possibilities of injury to the foal at weaning, and several university studies have suggested that handling during the preweaning period increases the foal's manageability and learning ability.

There are several different methods for gentling and halter breaking foals. In general, all successful methods work on the basic principle of rewarding the foal for submitting to human touch and for yielding to halter pressure. A good basic gentling practice is to start when the foal is a few days old. While it is with its mother, catch the foal, putting one arm under its neck at the throat latch and holding the tail with the opposite hand. When the foal stops struggling, gently rub its body, including its face, ears, belly, and legs. When the foal relaxes and readily submits to being touched, release it to rejoin its dam (the reward). Be sure that the foal stops struggling *before* releasing it, or it will connect the reward with struggling rather than submitting. The trainer should be very tolerant during the gentling process, and training sessions should be very short (2 to 5 minutes). Give the foal several daily training sessions during the first few days of gentling. After the foal accepts handling, continue handling it several days each week, and introduce management practices such as brushing its coat, picking up its feet, and combing its mane and tail. Remember to always keep an eye on the mare while handling the foal. Normally docile mares can become very aggressive if they think their foal is in danger.

Foals can be halter broken after they are at least 1 week old. Before this age, the foal's neck might be easily injured if pulled. When the foal is gentled so that it readily accepts human touch, slip a correctly fitting halter with a long, *cotton* lead line over its neck. (Cotton rope

burns less than synthetic fibers do if the handler or foal becomes entangled.) Have a helper hold the mare to keep her close to the foal if the horses are in a large pen or pasture. Begin halter breaking with a gentle, *sideways* pull on the halter (straight lines are for advanced halter training). Release *all* halter pressure (the reward) whenever the foal yields slightly to the pressure. Remember that the foal's natural response to pressure is to fight against it rather than to yield to it, so the slightest submission by the foal should be rewarded. If the foal becomes upset and rears or runs sideways, simply maintain light pressure on the halter, and move with the foal. Always use a sideways pull on the halter during the beginning training sessions so that the foal is moving in a zigzag pattern. After the foal has gotten the basic idea, lead it alongside its dam.

Creep Feeding

Broodmares can produce large amounts of milk (Quarter Horse mares average 24 pounds of milk daily during a 5-month lactation). However, the amount of milk the mare produces peaks when the foal is 30 to 60 days old and then gradually declines. Nutrient content of the milk also peaks during the first 30 days of lactation and declines as lactation continues. Mare's milk alone may not provide enough energy to meet the requirements of a 4-month-old or even younger foal.

Providing a nutritionally balanced creep feed for the foal by 2 months of age will increase preweaning growth and acquaint the foal with the feed it will eat when

weaned. Creep feed should be formulated especially for foals to provide the correct amounts of nutrients needed for proper growth and development. Most feeds formulated for mature horses (even high-quality broodmare feeds) do not provide enough overall protein, calcium, or phosphorus for foals. Feeding foals these feeds may result in a deficiency in lysine, the first limiting amino acid that foals need for growth. Broodmare feeds may give the foal enough energy for weight gain without providing the basic nutrients needed for proper growth and skeletal development, resulting in fat foals with improperly developed musculoskeletal systems.

Young foals usually eat to meet their energy needs. That is, they usually consume less feed as the energy level of the feed increases. Therefore, the concentration of protein, vitamins, and minerals needed in a creep feed is influenced by the amount of energy (calories) contained in the feed. More energy-dense feeds should have higher concentrations of protein, calcium, and phosphorus to ensure that the foal is consuming proper amounts of these important nutrients. Because feed tags usually do not indicate the energy density of a feed, the energy density has to be estimated by the percentages of crude fiber and crude fat listed on the tag. Crude fiber is inversely related to energy (more crude fiber equals less energy), and crude fat is directly related to energy (more crude fat equals more energy). With a constant fat concentration, the minimum percentage of crude protein, calcium, and phosphorus needed in the creep feed will decrease as fiber content increases because the foal will consume more of the feed. However, remember that young foals are unable to consume and use large quantities of fiber, so creep feeds should be carefully balanced.

Protein quality, reflected by the amount and type of essential amino acids contained in the protein, is also

a consideration in selecting a creep feed. High-quality protein sources, such as soybean meal, alfalfa meal, animal protein, or milk protein, should be used in formulating a creep feed. Table 1 shows minimum amounts of crude protein, calcium, and phosphorus needed in creep feeds containing various amounts of crude fiber at a constant level of crude fat (3 to 3.5 percent crude fat is the amount occurring naturally in most horse grains). Table 2 is a similar table showing minimum amounts of crude protein, calcium, and phosphorus needed in creep feeds containing supplemental fat, which increases the total crude fat concentration of the feed to a constant 8 to 8.5 percent. Practically, a commercial creep feed containing at least 16 percent crude protein, 0.8 percent calcium, and 0.5 percent phosphorus should meet the foal's nutritional needs. When feeds contain smaller amounts of these nutrients, it is difficult for the foal to consume enough of these nutrients in a reasonable amount of daily feed.

Foals should be introduced to creep feed in small amounts (2 to 3 pounds a feeding), and the amount fed should be gradually increased until feed is available free-choice to the foal. Free-choice feeding allows

the foal to eat small, frequent meals, which is a natural situation mimicking the foal's nursing schedule. Free-choice creep feed also gives timid foals a chance to eat when dominant foals are away from the feeder. However, feeding foals free-choice does increase the level of management needed in comparison with the level required for feeding foals distinct meals. When feeding foals free-choice, managers must carefully monitor the feeder for spoilage and must make sure that fresh feed is always available. Ideally, enough feed must be provided so there is only a small amount left in the feeder the next time feed is given. If the feeder has been empty for a long period, a hungry foal that is allowed free-choice access when the feeder is replenished could overeat and colic. If foals are sorting through the feed and leaving a particular ingredient uneaten, use pelleted feed to ensure that the foals receive a balanced creep ration.

There are numerous designs for creep feeders. Basically, any structure that is accessible to foals but prevents entrance of the mares can serve as a creep feeder. Creep feeders should be located in areas where mares frequently congregate so that young foals will have access to the

Table 1. Minimum percentages of protein, calcium, and phosphorus needed in creep feeds containing 3 to 3.5 percent crude fat and varying amounts of fiber

Crude fiber	Crude protein	Calcium	Phosphorus
2	18	0.90	0.55
3	18	0.85	0.55
4	17	0.85	0.55
5	17	0.80	0.50
6 to 8	16	0.80	0.50

Table 2. Minimum percentages of protein, calcium, and phosphorus needed in creep feeds containing 8 to 8.5 percent crude fat and varying amounts of fiber

Crude fiber	Crude protein	Calcium	Phosphorus
2	19	0.95	0.60
3	19	0.90	0.55
4	18	0.90	0.55
5	18	0.85	0.55
6	17	0.85	0.55
7	17	0.80	0.50
8	16	0.80	0.50

feed without moving far from their dams. Entrances to the creep feeder should be wide enough and high enough so that foals hurrying through the opening do not hit their heads or hips, but they must be small enough to keep out mares. For most light horse breeds in which mares range from 1,000 to 1,300 pounds, the height of the opening should be about 4 feet and the width about 2 feet. If more than one foal will be using the feeder, it should be built with multiple entrances so that one foal cannot be trapped inside by another foal. A good rule of thumb is that feeders with openings restricted by height and width should have one more opening than the number of foals using the feeder. For example, a feeder for four foals should have five entrances. If a large number of foals are using the feeder, two or more sides of the feeder may serve as openings that restrict mare entrance only by height (Figure 1). This makes it easier for the foals to get into and out of a crowded creep feeder. However, with only the height restriction, it is easier for a mare to squeeze under the fence into the creep feeder. When feeding more than three foals, locate the feed trough so that foals can eat from both sides of it. An 8-by-8-foot creep area is large enough for one foal. For each additional foal using the feeder, increase the size of the feeder so that there are 45 to 50 square feet of space for each foal.

If creep feeding will not work in a certain management situation, feed the creep ration to the broodmare, and have the foal eat with its dam. The creep feed exceeds the mare's nutritional requirements, but the excess nutrients will not harm her and will provide a balanced ration to the foal as it eats with its dam.

A young foal has the potential of gaining 2.5 to 3 pounds daily. Creep feeding the foal with a balanced ration allows owners to increase the foal's growth rate while minimizing bone and joint disorders (developmental orthopedic disease, or DOD)

sometimes found in large-framed, rapidly growing horses. This disease complex includes problems such as contracted tendons, epiphysitis, osteochondrosis, and enlarged or deformed joints. Genetic predisposition, nutrient imbalance, and excessive exercise of stalled horses have all been identified as possible causes of DOD in horses. Inadequate protein, vitamin, and mineral concentrations relative to the energy concentration of the diet may promote DOD in foals. However, creep feeding foals with a balanced ration does not contribute to DOD. Remember that the purpose of creep feeding is to increase foal growth and development by compensating for the nutritional deficiencies in the mare's milk. Maximal growth and overly fat foals are not goals of a creep feeding program and may contribute to bone and joint disorders in young horses.

Health Care

A horse is at the highest risk of disease in its first 12 months of life. Newborn foals do not have any natural disease defense mechanism because immunity is not passed from

the dam to the unborn foal in utero. A newborn foal's immune system is not mature enough to form antibodies until the foal is 3 to 6 months old. Therefore, the newborn foal must depend on immunoglobulins it obtains from the colostrum (the first milk) to protect it from disease during the first months of life.

Diarrhea and septicemia are the greatest disease risks to the foal during the first week of life. Diarrhea during the first week of life can seriously dehydrate a newborn foal, especially if the foal is not nursing enough or the dam is not producing enough milk. Foals that do not receive adequate immunoglobulins from the dam's colostrum are at a high risk for diarrhea. Septicemia, commonly called joint ill or navel ill, is caused by bacteria, or toxins produced by bacteria, in the blood and tissues. It affects the entire body and organs of the foal and is the leading cause of death in newborns. Foals can contract bacteria in utero or through the umbilical stump, intestinal tract, or lungs. Septicemia usually occurs within 3 to 4 days of birth, and often the foal shows no noticeable signs until the disease is well advanced. Signs of septicemia are

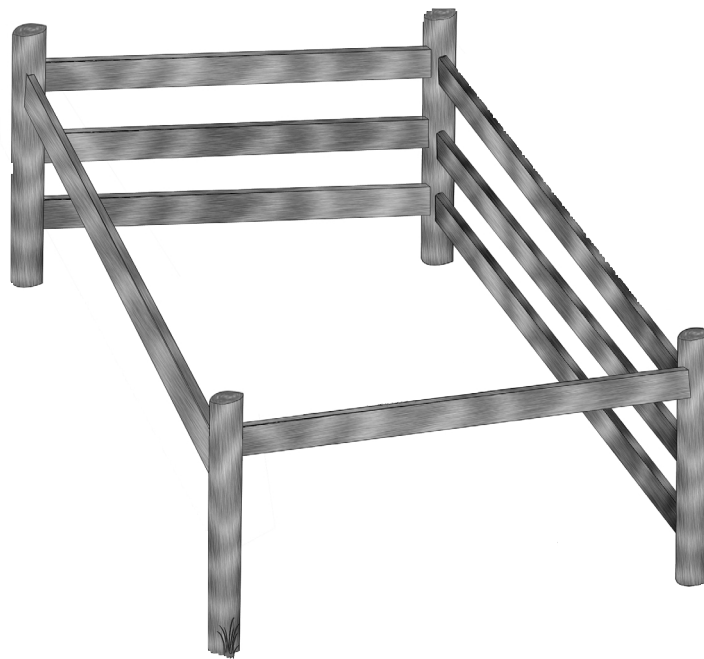


Figure 1. Creep feeder in which two sides restrict mare entrance only by height. The other two sides of the feeder may be the corner of an existing fence.

depression, a decrease in nursing activity, diarrhea, and excessive sleeping or resting. Septic foals may have milk on their foreheads, and the mare's udder may be full and hot. Other common health problems in young foals include respiratory infections and pneumonia. A viral or bacterial respiratory infection often weakens the foal so that it is more susceptible to pneumonia-causing organisms.

Proper management of the mare and foal can reduce the incidence of disease in the foal. Mares should be introduced to the foaling area (stall, pasture, or breeding farm) 30 days before foaling to give them time to develop antibodies to disease-causing organisms common to the foaling environment. Also, mares should receive their annual booster vaccinations about 30 days before foaling so that they can pass a high level of immunity to their foals through colostrum. Mares also should be on an effective deworming program before and after foaling to reduce parasite exposure to the foal. Ideally, mares should be allowed to foal outside in a clean, grassy pasture. However, if foaling stalls must be used, they should be kept clean and should be thoroughly disinfected between mares. Foaling stalls should be well ventilated, and buildings that retain moisture, such as concrete block buildings, should be avoided as foaling areas. If foaling stalls are used, healthy mares and foals should be moved outside within several days after foaling. Overcrowding mares and foals should be avoided because it concentrates disease organisms and causes stress, which increases disease risks. Ideally, mares and foals

should be segregated from horses that move on and off the farm, such as show horses and outside mares brought in for breeding.

Vaccination programs for foals should begin at 3 to 4 months of age. All foals should be vaccinated against eastern and western equine encephalomyelitis and tetanus. Horse owners should consult their veterinarians about the need and timing of other vaccinations such as rabies, rhinopneumonitis, strangles, and influenza. There is some recent evidence that influenza vaccines may not be effective in the foal until it is about 8 months old because of prolonged activity of colostral antibodies to influenza.

Deworming programs for foals can begin at 1 to 2 months with a dewormer that is labeled safe for foals this young. With the assistance of a veterinarian, horse owners should develop a deworming program that fits their management situation.

Horse owners should also perform regular hoof care on foals. Regular hoof trimming can help keep the foal's bones properly aligned and can correct minor feet and leg problems before they seriously affect the foal's movement or health.

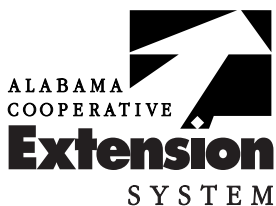
Cuts, bruises, and scrapes are also common health problems in foals between 1 and 6 months of age. If possible, maintain mares and foals without halters to reduce the possibility of the foal getting tangled in the mare's halter or getting its halter caught on objects in the stall or pasture. However, if it is necessary to leave halters on horses, make sure they fit properly and are either

leather halters or specially made "breakaway" safety halters. Nylon halters can be deadly because they do not break, and they are more likely to irritate the foal's skin than leather halters are. Check the fit of the foal's halter every 2 weeks to make sure it does not become too tight as the foal grows.

Maintaining safe pastures is especially important with foals because of their natural curiosity. Pastures should be free of trash and farm equipment. Low tree branches should be removed, and pasture fencing should be safe and highly visible to the foal.

Conclusion

Breeding a mare and feeding her for 11 months before a foal is born is a substantial investment in time and money. In order to protect the initial investment in the foal and to optimize its health and productivity after birth, horse owners should practice good horse management, including gentling, halter breaking, creep feeding, and overall health care. Friendly, confident foals that are gentled before being weaned are usually less stressed during the weaning process and may learn more rapidly than unhandled foals do. Creep feeding foals with a balanced creep ration can optimize growth and introduces the foal to the feed it will be eating after weaning. Careful attention to health management of the foal can reduce injuries and diseases. Although all these management procedures represent investments in time and money, horse owners who take these steps are usually rewarded with a healthy, active foal.



ANR-1123

Cynthia McCall, *Extension Animal Scientist*, Associate Professor, Animal and Dairy Science, Auburn University.

For more information, call your county Extension office. Look in your telephone directory under your county's name to find the number.

Issued in furtherance of Cooperative Extension work in agriculture and home economics, Acts of May 8 and June 30, 1914, and other related acts, in cooperation with the U.S. Department of Agriculture. The Alabama Cooperative Extension System (Alabama A&M University and Auburn University) offers educational programs, materials, and equal opportunity employment to all people without regard to race, color, national origin, religion, sex, age, veteran status, or disability.

UPS, 4.5M07, **New Aug 1998**, ANR-1123