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The Broodmare in Spring

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One of the prettiest sights of spring is playing, frolicking foals in green pastures. Spring is synonymous with foaling and foals. The broodmare owner finds that spring is filled with both excitement and frustration.

Excitement comes from anticipated foals after waiting through 335 days of gestation and from getting these broodmares in-foal again to selected stallions. Frustration comes from the spring transition open mares must go through before settling into a routine breeding pattern as well as the time and effort it can take to get these mares in-foal.

Broodmares

Broodmares are not all equal. As spring approaches, broodmare owners can place mares into four categories: pregnant, barren, open or maiden. Pregnant mares are going to foal this spring and most likely be re-bred. Barren mares are ones bred last year, but they are currently not pregnant. Open mares are not pregnant because they were not bred last year. Maiden mares have never been bred.

Of these groups, the barren mares give horse owners and veterinarians the most problems unless these mares were properly managed starting last fall. Fall management of barren mares includes body condition scoring them for proper winter management and a reproductive work-up by a veterinarian to determine why they are not in-foal so that a procedure can be developed to correct such problems. Older mares (over 16 years of age) are continually observed in the barren category. They become pregnant as readily as younger mares but many do not stay pregnant.

Failure to have properly processed barren mares last fall places great time pressure on the owner in spring to determine why these mares are not in-foal during the limited breeding season. Too often, these mares are still not pregnant when the breeding season ends about July 1. Because the work-up of these mares was delayed until spring,

inadequate time is available to remedy correctable problems and get them in-foal.

A veterinarian who specializes in broodmare reproduction should be consulted as soon as an owner learns a mare is barren. This is especially critical if it occurs in late winter or early spring.

If barren mares were not placed under artificial lights in the winter, the owner can only wait until these mares naturally transition from winter anestrus to spring breeding readiness. Since most mares do not ovulate until about April 7, breeding such mares before early April is a waste of time and money, especially when using shipped semen.

The mare owner needs to make sure the barren mare is in proper body condition before breeding. Data shows that thin mares are less likely to become pregnant; and if they do, they have less chance of staying pregnant.

Body Condition Score (BCS)

Body condition score is a visual, hands-on method of determining the body fat content of horses. Horses are scored from 1 to 9. One is an emaciated horse while 9 is an obese horse. With a BCS of 5, you cannot see the horse's ribs, but you can feel them with slight pressure when running your hand over the rib cage or barrel.

Data indicates that broodmares must have a BCS of at least 5 for the greatest probability of getting in foal. A BCS from 5.5–7.5 is advised. In addition to not seeing the ribs, there will be some fat along the back bone and some fat around the tail head in this range. There is no reason for broodmares to have a BCS of 8–9.

Recent data from Louisiana State University shows that mares in low BCS (3–3.5) in winter had a longer anestrus period. Low BCS mares took about two weeks longer to their first estrus and over 3 weeks longer to their first ovulation. Interestingly, some of the low BCS mares exhibited behavioral estrus when teased with a stallion during the

winter; however, these mares had no follicular activity. Getting mares in proper body condition in the fall and winter will enhance their reproductive efficiency in the spring.

It is not advisable to try to reduce the body condition of over-fat mares (BCS of 8–9) if they have been or will be bred this spring.

Mares that are gaining weight, thus body condition, come into estrus earlier. Mares that are losing weight, which would occur by placing them on a diet in the spring, do not come into estrus or ovulate as early. So, mares should not be losing weight in the spring.

Pregnant Mares

The primary issues with pregnant mares are when will they foal and what is their current body condition. Mares that will foal in 60 to 90 days give the owner some management options. Mares foaling in the next 30 days require special management now.

Mares that will foal within 30 days should be immunized against Eastern and Western Equine Encephalomyelitis, tetanus and influenza. Vaccination for West Nile Virus and other diseases should be based on your veterinarian's advice. It also helps to start housing these mares where they will foal. Vaccinating and housing the mares in the foaling area will insure that their colostrum (first milk) will provide immunoglobulin protection against these diseases and microorganisms in the foaling area.

It is important that mares in the last three months of pregnancy be fed a nutritionally balanced ration. A high-quality feeding program is essential. Mares may automatically reduce their feed intake in late-pregnancy because of the size of the fetus. In mares with a BCS of 5.5–7.5, feed a high-quality hay at a level of at least 1 pound per 100 pounds of body weight. The grain mix should contain adequate protein (12–14 percent), minerals and vitamins.

Overfeeding grain increases the risk of colic, which is unwanted, especially in late pregnancy.

If mares will foal later (in 60 to 90 days) and are fatter than desired (BCS of 8–9), you must feed them to meet their nutrient requirements without over-feeding energy, which only aggravates an already negative situation. Mares on good-quality spring pasture all of the time do not need any hay and only limited grain. It is also advisable that such mares get plenty of exercise. It is better not to house fat mares in stalls but to keep them on pasture.

If these mares are stalled most or even part of the day (such as night), one must not allow them to get any fatter. Feeding an above average quality grass hay and limiting grain can be helpful. These over-fat mares will use their stored body fat for fetal growth in the last trimester and for milk production in early lactation. While the body can store fat for energy later, it cannot store much protein. It is important that adequate protein (14 to 16 percent) be fed during the last trimester if grain intake is kept low.

If mares are below a BCS of 5.5 and will not foal for 60–90 days, you have an opportunity to increase their body condition. One must use caution to not over feed grain to these mares either. Spring pasture forage will be most helpful; however, a grain mix is needed to insure adequate energy and protein nutrition to increase body condition.

Feeding a balanced grain mix to mares in late pregnancy and on high-quality spring pasture should result in them increasing their BCS by 1.0 or more units in 60 to 90 days.

If mares are less than a 5 BCS, special management consideration needs to be utilized to get them to a BCS of 5 or 5.5 by foaling. Again, caution must be exercised because excessive levels of grain increase the risk of colic and/or founder. At no time is it advisable to feed more than 6 pounds of grain at one feeding. If thin mares require more than 6 pounds of grain, they should be fed twice daily. As a general rule of thumb, feeding 1 pound or more of grain per 100 pounds of body weight requires excellent management and careful observation.

Lack of vitamin A supplementation during pregnancy, especially in winter, may increase the risk of retained placentas and congenital contracted tendons. Depleted stores of vitamin A could be a problem in mares fed lower-quality hay and a non-vitamin A fortified grain in winter. Feeding extra vitamin E in late pregnancy and early lactation may enhance the immunoglobulins in colostrum that provide passive antibody immunity to the newborn foal.

Open and Maiden Mares

If these mares were in the herd last fall, they should have been placed on a program to have them in the required body condition (5.5–7.5) before the beginning of the breeding season. Mares starting the breeding season in the proper body condition come into estrus (heat) earlier in the season and tend to ovulate earlier. This applies to maiden mares as well.

A veterinarian should check all open and maiden mares to determine that no problems exist. Occasionally, a maiden mare will have an infantile reproductive tract and cannot be bred.

Some maiden mares will have been performance individuals and may be 8 years old or older. Mares that have been shown at halter or in some performance events may be fatter than desired. It is inadvisable to reduce their body condition during the breeding season. As noted, mares tend to breed earlier and easier when in good body condition. While data has shown no breeding problems in mares with a BCS of 8–9, such broodmares tend to produce less milk and their foals do not grow as well.

Once mares with a BCS of 8–9 are determined in-foal at 40 days, owners have from 40 to 110 days of pregnancy to reduce their BCS and weight. Such mares should not be placed on high-quality pasture. These mares need to be exercised so being on a lower-quality pasture should not be detrimental. Protein, minerals and vitamins may be necessary if the pasture is of poor-quality. Feed a protein-mineral-vitamin supplement designed for feeding with a grass hay. The quantity should be the minimum to meet the protein, mineral and vitamin requirements of such mares.

Clean Pasture

If possible, a clean pasture should be provided for mares and their newborn foals. Such a management program will reduce the level of internal parasites in foals. Mares and all horses over one year of age should be dewormed from September 1 to March 1 in the Southeastern United States as well as after foaling if they foal in March

or later. Do not place these mares on the clean pasture until three to four days after deworming. Other horses should not use this pasture before mares and foals are placed on it in the spring. This procedure will aid greatly in keeping foals relatively parasite-free.

The small strongyles, which are the most serious internal parasite in horses now, are not active in the hot, dry summers in the Southeastern states. These parasites are inactive at temperatures over 85 degrees Fahrenheit.

When horses are dewormed (September 1 to March 1), they defecate parasite eggs on the pasture. So, grazing the clean foal pasture after September 1 would result in parasite contamination. Obviously, one must have adequate pasture to designate one or more pastures as clean pastures for mare/foal grazing from spring through August.

Fescue

Tall fescue is the major pasture forage in the Southeastern states, and it is often infected with an endophyte fungus (*Neotyphodium coenophialum*).

The endophyte infected fescue causes serious problems in broodmares. Mares approach parturition without exhibiting the normal signs of foaling, and the length of gestation is often prolonged, resulting in large, framy foals that are thin and dysmature. Stillbirths are common, but data does not support abortions. Mare and foal deaths occur since the placenta often does not rupture, and mares give birth or attempt to give birth to foals in an intact placenta. Retained placentas are common, and rebreeding problems exist. Especially early embryonic death also occurs when pregnant mares graze endophyte infected fescue.

Based on the serious effects observed with tall fescue pastures and research data, mares should be removed from fescue pasture at 300 days of gestation. Keep them off of tall fescue pastures until the mare is pregnant at 40 days post-breeding.

Mares must not be fed fescue hay after 300 days of pregnancy either, unless the hay is known to come from non-endophyte fescue. Endophyte-infected fescue hay is as serious a problem as the pasture forage.

Another way to manage broodmares on tall fescue is to use domperidone. This product must be administered daily for 25 days before foaling and is an added expense.

Broodmare owners can test their tall fescue pastures for endophyte infection. To date, about 80 percent of the fescue pastures tested in Tennessee were endophyte infected with an infestation level of 50 percent or more. One must assume that non-tested tall fescue pasture is endophyte infected based on the high percentage of infected pastures found to date in Tennessee.

Barren, open and maiden mares should also not graze tall fescue pastures while being bred. Once mares are pronounced in-foal at 40 days post-breeding, mares can graze tall fescue pasture until they are 300 days pregnant.

Pregnancy Testing

Mares should be tested for pregnancy at 14 to 18 days after breeding to determine if they are in-foal. Most pregnancy testing today is done by ultrasound; however, rectal palpation is still a useful tool. This practice saves time and

money. Mares that are not pregnant can be treated to bring them into estrus for re-breeding.

All mares should be checked again at 40 days post-breeding. Most mares that are pregnant at this time will foal next spring. Early embryonic deaths tend to occur in the first 40 days of pregnancy. Mares pregnant at 40 days can be placed on tall fescue pastures. If mares that were pregnant at 14–18 days are found to be open now, there may be time to short cycle them — bring them into estrus again for re-breeding before the end of the breeding season.

It is also important to properly manage the mare's nutritional program during early breeding. Research has shown that mares on a poor plane of nutrition are more likely to have early embryonic deaths. The protein quality of the ration may be more important in mares in the first 40 days of pregnancy than previously thought.

When the level of the amino acid lysine was fed at twice the current recommended level for broodmares, there were fewer early embryonic deaths and rebreeding problems. Previously, it was thought that protein quality was not a factor in mature, adult horses.

Alfalfa hay, soybean meal and milk by-products are good sources of lysine. Lysine is also available in many protein supplements.

Lactation

The milking broodmare has a higher nutrient demand than she does in late pregnancy. Fortunately, most lactating mares are on spring pastures, which are usually of high-quality. Mares may still require some grain to meet their nutrient needs. They may use stored body fat for energy in early lactation; however, there is not much protein stored in the body. High-quality protein may be more important in early lactating mares that are being re-bred. A 12–14 percent protein grain with added lysine is advised. Or add a lysine supplement to the grain mix. Feed a high-quality legume or grass hay if pasture is poor, limited or not available.

Body fat stored during pregnancy is used for fetal growth and for early milk production. BCSs starts decreasing after about 270 day of pregnancy and continues to decrease during lactation until the foal is weaned. Mares cannot produce enough milk to meet the nutritional needs of foals after they are 3 months old. If foals are to be shown, sold as yearlings or placed in training as long yearlings or two year olds and/or mares lose considerable weight and body condition, owners may want to creep feed foals.

Creep feeds are higher in protein and have adequate lysine, the most limiting amino acid; are usually energy dense; palatable; and balanced for minerals and vitamins.

It has been observed that foals do better if placed on creep feed by 4 weeks of age. Feed management of creep feeding is important. Feed should be fresh daily. If there are several foals, consider putting out fresh creep feed two or three times per day. Provide adequate feeder space or use several rubber feed tubs so large, bossy foals do not prevent other foals from eating.

As a rule of thumb, feed 1 pound of creep feed per month of age. A two-month-old foal will eat about 2 pounds of creep feed per day.

Even when creep feeding foals, it may be necessary to feed grain to broodmares in the first 90 days of lactation, especially if pasture is limited or of low-quality. The grain mix should contain 12 to 14 percent protein with added lysine.

Since mares do not produce enough milk after 90 days of lactation to meet the foal's needs, it is more efficient and cost effective to feed the foals rather than the mares after this time. If summer pasture slump results in a dry, low-quality pasture and mares become thin, especially older mares, one must consider weaning foals. Foals are normally weaned between 4 and 6 months of age.

If mares lose weight and body condition in late lactation when managed without any grain, you have at least five months to get them in the body condition required for foaling and re-breeding next spring.

References are available from the author or at <http://animalscience.ag.utk.edu>.

Tennessee Horse Express

From:

Leader/Agent

West Nile Virus Vaccination

Horse owners need to vaccinate or give the required annual booster shots against West Nile Virus this spring before the mosquito season. If you have questions, contact your veterinarian. You can obtain a copy of "Horse Owners Urged to Vaccinate for West Nile Virus Now," from your county Extension office or at <http://animalscience.ag.utk.edu>.



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