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The Broodmare in Summer

*Frederick Harper, Extension Horse Specialist
Department of Animal Science*

The broodmare can often be overlooked in summer, especially if she is not lactating. Once mares test pregnant at 40-days post-breeding, our attention is usually focused on non-pregnant mares. Early summer is normally the end of the breeding season for most breeders, an exception being the Tennessee Walking Horse. (See box below.) In summer, broodmares can be classified as lactating pregnant mares, non-lactating pregnant mares, lactating barren mares or non-lactating barren mares. Owners often do not know whether a mare, lactating or not, is barren at this time.

The availability and quality of summer pasture and the mare's stage of lactation and gestation will determine management of the broodmare and her foal in summer.

Summer Pasture. Forage should be the basis of all horse feeding programs. Pasture is the key feed for broodmares and foals in spring, summer and fall. Cool-season grasses, such as fescue, are not as productive in July and August. This period of low pasture production is often known as the "summer slump," which can occur at a critical time for a lactating broodmare, particularly if she is pregnant. It can also impact mares that are in their second trimester, whether lactating or not. Where possible, owners should develop a summer pasture program or management system to supplement cool-season summer pasture forages, if necessary.

The Tennessee Walking Horse Breeders and Exhibitors Association registers foals born in October, November and December as foals of the following year. Therefore, some Tennessee Walking Horse mares are bred late in the year to foal in the fall.

Endophyte-infected tall fescue causes serious problems in pregnant mares in late pregnancy. Clinical problems include lack of impending signs of foaling at term, long gestations, thickened placentas, agalactia, and large but thin foals at birth. Some foals and mares die from foaling difficulty and failure of the placenta to rupture. Re-breeding problems have also been reported when mares graze endophyte-infected fescue pasture; however, most breeding is over by the summer.

Researchers at the University of Kentucky observed no negative effects when mares grazed endophyte-infected fescue in mid-gestation. Pregnant mares can, apparently, graze endophyte-infected pastures safely during summer.

Broodmares should not be grazed on sorghums, sudans or sorghum/sudan hybrid forages typically used as summer pastures for cattle. These forages cause cystitis in horses. Cystitis, an inflammation of the bladder, results in dribbling of urine, frequent urination and staggers. Mares may also abort when grazing sorghum/sudan hybrid forages.

Options for summer annuals are limited. Pearl millet is used; however, it must be carefully managed to prevent problems. Pearl millet should not be grazed until it is 10-12 inches tall and not grazed closer than 5-6 inches. Foxtail and German millet are not recommended for horses.

A summer forage applicable for horse pastures is crabgrass. Crabgrass produces extremely palatable, high-quality forage that horses generally prefer to perennial grasses like bermudagrass and bahiagrass. Crabgrass is a good supplement to tall fescue pastures since its summer production occurs when fescue growth is slowed. A commercial variety, Red River Crabgrass, is now available. Establishing a summer crabgrass pasture for broodmares and foals may be nutritionally sound and cost effective.

If supplemental summer pasture is not available, one should consider rotational grazing. Rotational grazing is the practice of grazing the forage in one pasture down to 2-3 inches, which probably will occur in 10-14 days. At that time, mares and foals are moved or rotated to another pasture. It normally takes about 30 days for pasture forages to

regrow. One needs three or more pastures for a successful rotational grazing system.

Electrical wire embedded in a visible plastic strand is often used as temporary electrical fencing to subdivide large pastures for rotational grazing. Foals can easily roll under these fences, becoming frightened and injured in attempting to reunite with their dams. Therefore temporary electrical fencing is not recommended for mares and foals.

Barren Mares. Mares are normally pregnancy checked at 14-18 days and again at 40-days post-breeding. If pregnant at both times, one naturally assumes they are still pregnant later in summer. Since the breeding season is normally over in early summer (July 1) for most breeders, mares not pregnant at 40-days and not rebred will be barren. Barren mares are the easiest to manage in summer.

Owners need to carefully consider whether to keep or cull such mares, especially if they are 16 years or older and/or are not efficient, profitable producers.

Data shows that mares 16 years and older have a lower foaling rate. In today's economy, it is normally not feasible to keep such mares. One must also consider culling non-profitable mares. Mares producing below average foals will usually not be profitable.

A well-known horseman once said that the "prettiest color in the world is fat." One body condition score unit can be added on a horse in 45-60 days, but it will probably take longer with lactating mares. If a mare had a 5.5 BCS and the owner wanted her to be a 7.5 at sale time, it would take 90-120 days or longer to accomplish this. Non-lactating barren mares will likely have a higher BCS than lactating mares.

Barren mares kept in the herd should be managed so they do not go below a BCS of 4. You have several months to get these mares ready for breeding next spring.

Non-Lactating Pregnant Mares. It has been shown that 70 percent of the weight gain of pregnancy occurs in the second trimester. If a 1,200-pound mare gains about 165 pounds during pregnancy, most of this increase in weight will occur between 111 to 223 days of pregnancy. About 70 percent of the growth of the fetus occurs in the last trimester or from 223 days till foaling at about 335-340 days. These two situations are not physiologically contradictory. In late pregnancy, the rapidly growing fetus results in a reduction in the mare's capacity to eat adequate feed to meet the nutritional demands of her fetus as well as her own needs. The fetus has priority for nutrients over the mare.

As shown in Table 1, mares increase in BCS in the second trimester by adding body fat that can be used for fetal growth in late pregnancy and for milk production in early lactation. Non-lactating pregnant mares tend to add body fat throughout the first and second trimester.

Owners need to determine the level of body condition desired in broodmares at foaling. It is recommended that mares be at least a 5.5, and a range of 6.5 to 7.5 is preferred. Mares need to be at this desired body condition at 223 days or at the start of the last trimester since many mares cannot consume adequate feed for fetal growth and maintenance of their own body fat in the last trimester of pregnancy. Fat mares (BCS 8 and 9) are not desirable as they do not milk

as well, and their foals do not grow as rapidly as mares in moderate fleshy condition.

If summer pasture is limited or of low quality, it may be necessary to supplement a mare's diet with hay. If hay is limited or expensive, feeding grain is advised. Feeding 1 percent of body weight of an average or better-quality hay or 5-6 pounds of grain should be adequate. Protein content of the grain should be 10-12 percent. Non-lactating mares will usually be in good body condition in spring and gain BCS on good-quality spring pasture. These mares should not be allowed to go below a BCS of 5.5.

Lactating Mares. Early lactation is from foaling to 90-days and late lactation is from 90-days until weaning. Early lactation normally occurs in the spring if mares foal in March or April. After 90-days of lactation, mares normally do not produce enough milk to meet the nutritional needs of their rapidly growing foals. Late lactation usually occurs in summer when pastures often are less productive.

Mares in early lactation in July and August likely will require increased grain intake as summer pastures become less productive. Increase grain by 10-15 percent and closely monitor these mares' BCS. Protein intake will decrease as pastures become drier. Mares do not store protein as they can body fat. The grain mix at this time should be 14-16 percent protein. The higher percentage is more critical earlier in the lactation curve.

Lactating mares past 125 days of gestation (second trimester) also require intense management. Lactating mares will normally lose body condition until their foals are weaned, as shown in Table 1, when foals were weaned at 120 days. Since milk production after 90 days does not meet the nutritional needs of the foal, it is usually best to provide grain to foals as a creep feed rather than grain feed their dams.

Foals not fed a creep feed are normally not going to be stunted. They will reach their expected mature size, just a little later.

Heavy-milking mares on low-quality summer pasture can become thin with a BCS at or near 4. If foals are to be weaned soon, these mares will tend to rebound in body con-

Table 1. Body Condition Score Changes in Non-Lactating and Lactating Pregnant Mares

Gestation, days	Non-Lactating	Lactating
0	6.10	6.15
30	6.31	5.85
60	6.31	5.75
90	6.26	6.00
120	6.47	5.85
150	6.46	6.33
180	6.52	6.50
210	6.74	6.52
240	6.79	6.73
270	6.89	6.98
300	6.73	6.63
330	6.64	6.50

dition (Table 1), especially on good fall pastures. Heavy-milking mares that foal later in the spring may require supplemental feed on less productive summer pastures.

The key factors influencing feeding decisions are the date the second trimester of pregnancy begins at 111 days relative to summer pasture, the quantity and quality of summer pasture, and whether foals are creep fed. Lactating mares and foals should be on the highest quality pasture available.

Mares that foal in March and April will be in their second trimester of pregnancy in July and August. If summer pastures are of low quality or stressed by dry weather and foals are not creep fed, these mares may benefit from grain intake to aid in maintaining body condition. It is advisable to body condition score mares every month as a management tool. The amount of grain fed will depend on pasture availability and body condition. Feeding 0.5 to 0.75 pound of grain per 100-pounds of body weight would be adequate. A 14-16 percent protein grain mix is recommended. The higher percentage should be fed if foals eat grain with their dams. Lactating pregnant mares in their second trimester should not go below a BCS of 5.5 and certainly not below a BCS of 5. If a 1,200-pound lactating mare ate 18 pounds of pasture dry matter, she would also need 9 pounds of good-quality grass hay and 9 pounds of a 13 percent protein grain mix.

Even though mares tend to lose body condition during lactation, they will increase their body condition after their foals are weaned. After weaning, lactating mares appear to make a compensatory gain in body condition, even storing more body fat than non-lactating mares in late pregnancy (Table 1).

Feeding hay is especially important if there is no pasture, it is limited or of poor quality. It is advisable to feed adequate amounts of grain and/or hay so lactating mares do not become too thin and lose more body condition. Feed intake should provide for the nutrients in the milk produced plus the maintenance of the mare. There is little fetal growth in the second trimester.

Non-pregnant lactating mares are not as critical. You have several months from weaning until the breeding season next spring for these mares to regain weight lost in the summer months and reach the desired body condition.

Deworming. Deworming broodmares in summer is not recommended. The small strongyles, which are the most serious internal parasites in horses, are not active in the hot, dry summers in the Southeastern states.

Water. Water should not be overlooked in summer, especially for lactating mares. Mature horses will drink from 8 to 12 gallons of water daily. Lactation may increase water intake by 50 percent. Water should be clean and fresh. Ponds are not a recommended water source for horses. Mares should always have a source of trace-mineralized salt, especially in summer.

Virus Abortion Injection. The single most important infectious abortion is caused by equine herpesvirus Type 1 (virus abortion). Mares should be vaccinated against virus abortion in their fifth, seventh and ninth months of pregnancy. It is likely that the fifth and seventh months of pregnancy occur in summer.

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West Nile Virus Back in 2003

*Frederick Harper, Extension Horse Specialist
Department of Animal Science*

Horse owners should be alert to the fact that West Nile Virus (WNV) has already been diagnosed in Tennessee in 2003. The first WNV positive bird was discovered on May 27. Interestingly, this is about the same time the first WNV positive bird was reported last year. Approximately six weeks later, the first WNV positive horse was discovered.

Tennessee had 148 positive WNV horses in 2002, and at least 42 of these horses died or were euthanized. It appears that the WNV risk will be as great, if not greater, this year.

The WNV vaccine has been shown to be 94-98 percent effective. Horses should have been vaccinated before the mosquito season.

If horses have not been immunized for WNV, they should be vaccinated immediately with the first of a two-injection series given 3-4 weeks apart. It takes about 3-4 weeks after the last injection before a horse develops protective immunity. Pregnant mares in their first trimester should not be vaccinated. Discuss vaccination of mares in their second trimester with your veterinarian.

The WNV vaccination protocol for foals depends on whether their dams were vaccinated. Foals from unvaccinated mares or mares not given a booster 4-6 weeks before foaling should be given a three-vaccination series starting at 3 months of age. Foals from mares given a booster vaccination within 2 months of foaling should be given the three-vaccination series starting at 4-6 months of age. There should be 3-4 weeks between the first and second

injections and 6-8 weeks between the second and the third injections. Foals from vaccinated mares have passive immunity acquired from their dam's colostrum so they are vaccinated at an older age.

Owners are urged to eliminate mosquito breeding areas in and around their horse facilities. A list of recommended management practices is noted in West Nile Virus Facts for Horse Owners, which is available from your county Extension office.

You can keep up to date on WNV by viewing the University of Tennessee's Department of Animal Science WNV Web site at <http://animalscience.ag.utk.edu/horses/WestNileVirus.htm>.



Associate Professor, Extension Animal Science

Tennessee Horse Express

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