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Body Condition Score in Horses

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Body Condition Score (BCS) is a practical management tool for evaluating body fat that horse owners should use to determine if their horses are being properly fed for their level of activity. A horse is scored from 1 to 9. A BCS of 9 designates an obese horse while a BCS of 1 indicates an emaciated horse. Table I describes the physical parameters for the various body parts.

The BCS system, developed at Texas A&M University, is a component of the “Nutrient Requirements of the Horse” and is used universally. BCS has been accepted in law courts as a standard for establishing neglect.

Body Parts to Evaluate. In assaying BCS, one needs to view and feel the horse’s neck, withers, shoulder, ribs, back, croup, tailhead and flank (Table I). A horse tends to deposit body fat from front to rear and from top to bottom.

The single best area to feel is the rib cage. By running your fingers over the horse’s ribs, you can get a good indication of the amount of fat covering the ribs. However, all body parts in Table I should be evaluated both visually and by palpation.

Why is BCS Important? Evaluating BCS every 30 days allows you to monitor your feeding program. If a horse loses BCS, its level of energy intake is inadequate to maintain its current level of activity. An increased BCS indicates too much energy is being fed.

Energy is a horse’s major nutritional need and the basis of all other nutrients. Once the energy need is established, the amount of protein, minerals and vitamins can be determined. A loss of BCS indicates not only a lack of energy but also likely lower levels of other required nutrients if a balanced ration is fed.

The Best BCS? Is there a single best BCS for all horses? No. The horse’s type of performance, age and conformation affect BCS. Five, the median BCS, is a good

level for most horses. At a 5 BCS the ribs cannot be seen but can be felt with slight pressure.

If a horse’s ribs are visible, the horse has a BCS of 4 or lower. If the ribs cannot be seen and more than slight pressure is required to feel them, the BCS is above a 5.

Horses with a BCS of 1 or 2 are considered malnourished and need special feeding and management. Such horses, if neglected, can starve to death. Feeding grain to starved horses (BCS of 1 or 2) can result in death. The University of California, Davis, has developed a protocol to re-feed such horses. BCS 1 or 2 horses should be fed 1 pound of leafy alfalfa hay every four hours for the first three days. From day four to 10, slowly increase to feeding 4 pounds of alfalfa hay every eight hours. After 10 days, feed as much alfalfa hay as the horse will eat in two daily feedings. Some weight gain can occur within one month. Only after the horse is well on the road to recovery, after several months, should it be fed grain. These



BCS Score 5



BCS Score 4

horses should have clean, fresh water and trace mineralized salt available at all times.

There is no need for a horse to have a BCS of 8 to 9. As athletes, horses should not be at this level of excess fatness.

The acceptable range for BCS is from 4 to 7. Within that range, various physiological needs help further refine the target BCS number for various type horses.

BCS for Maintenance Horses. Most horses owned for personal or pleasure use are in a maintenance nutritional category, with no weight gain or loss, part of the year. Some owners think that fat horses (BCS 8 – 9) “look good;” but, in reality, this is not normal for horses. Horses, even if not ridden often, should not be too fat.

Fat horses require more feed to retain their high level of condition. Colic and founder are also a higher risk in such horses. In the hot, humid weather of summer, fat horse have more problems regulating their body temperature, especially when ridden.

For health, performance and efficient feeding, maintenance horses should have a BCS of 5.5 – 7.5. Pleasure horses should not fall below a BCS of 5. A maximum, for owners who want “fatter” horses, would be a BCS of 7.5.

BCS for Broodmares. BCS was initially researched in broodmares. Broodmares with a BCS of less than 5 have more difficulty becoming pregnant and maintaining pregnancy. Thin mares (BCS of 3 to 4) have fewer foals, have a longer anestrus period and take three weeks longer to their first ovulation in spring (which may be as late as early May).

Broodmares should have a BCS of 5.5 to 7.5. They should be at their required BCS at 220 days of pregnancy or the start of the last trimester. Pregnant mares will, if fed properly, gain in BCS until about 280 days of pregnancy. From then till foaling, their BCS will decline. Body fat stored in early gestation will be used as energy in late pregnancy and early lactation.

The rapidly growing fetus rests on the mare’s digestive tract, making it difficult for mares to eat enough to meet the combined nutritional needs of their fetus and themselves. While the mare can store body fat for use in

late pregnancy and lactation, she can not store adequate protein. The protein level of ration in late pregnancy is very important.

Stored fat is also used in early lactation since the nutritional demands of milk production are even greater than those of late pregnancy. BCS of lactating mares normally declines until weaning. The lactating mare can make compensatory body fat gain after weaning; she increases in BCS more than non-lactating mares in late pregnancy.

Mares with a BCS of 8 to 9 do not milk as well, and their foals do not grow as rapidly. Broodmares known to be heavy milkers can be preconditioned to a BCS of 7.5, but there is no reason to exceed BCS 7.5.

BCS for Stallions. A BCS of 5.5 – 7.5 is desirable for breeding stallions. Most will do well with a BCS of 6 – 7. Older stallions with arthritis may mount mares and/or breeding dummies more easily at a BCS of 5.5. Some stallions that exit the breeding season thin (BCS of 3 – 4) can be pre-conditioned to a BCS of 7.5 before the next breeding season. Obese stallions (BCS 8 or 9) are likely to have low libido.

BCS for Performance Horses. BCS is also a good tool for evaluating performance horses, which should have a BCS 5 – 5.5. Horses with a BCS of less than 5 do not have the energy to perform well, while those above a BCS of 5.5 have a level of body fat that may hinder some performance. Horses that are too fat or too thin perform less efficiently.

The range of acceptable BCSs for performance horses depends to some extent on the type of performance. At light levels of performance such as trail riding and pleasure classes on the rail, horses can do well with a BCS of 5.5 – 7.5.

As the level of performance intensifies to activities such as reining, barrel racing or jumping, BCS should be in range of 5 – 5.5.

For intense activities such as racing, polo and three-day events, horses will be observed with a BCS of 4.5 – 5.5. Physical conditioning can also be important. Horses that have been properly conditioned and trained can perform intense activities at a BCS of 4.5.

The Trevis Cup 100 Mile Endurance Ride occurs in 24 hours over rough terrain. All horses with a BCS of 5.5



BCS Score 6

completed this grueling ride. No horse with a BCS less than a 3 finished. Completion was highest for horses with a BCS of 5 – 5.5. As BCS decreases below 5.5, horses have lower energy reserves to complete such strenuous activities.

BCS for Pasture. BCS can also give an indication of the quality, as well as quantity, of pasture. This works best with three or more horses on your pasture.

Starting at the beginning of the spring pasture season and taking BCS every 30 days, you can monitor both horses and pasture. If horses increase in BCS in the spring months, it indicates adequate quantity and/or quality pasture for the number of horses. A decline in BCS shows that either there is not adequate pasture forage or it is of poor-quality for the number of horses.

Horses often lose BCS in July and August when cool-season forages in the Southeast, such as fescue, become dormant. A slight decline in BCS at this time is not adverse for most horses. Cool season forages will make considerable growth in the fall, assuming adequate soil moisture. With adequate quantity and quality fall pasture,



BCS Score 7

horses will increase their BCS as they normally do in the spring.

Increasing BCS. You can raise a horse's BCS by increasing its intake of energy, expressed as Megacalories (Mcal). About 9 Mcal of energy are needed per pound of

Table I. Body Condition Score

| CONDITION | NECK | WITHERS | SHOULDER | RIBS | BACK/LOIN | TAILHEAD |
|------------------------|---|--|---|---|--|---|
| 1 POOR ¹ | Bone structure easily noticeable. | Bone structure easily noticeable. | Bone structure easily noticeable. | Ribs projecting prominently. No fatty tissue can be felt. | Spinous processes project prominently. | Tailhead, point of buttocks and hip bones projecting prominently. |
| 2 VERY THIN | Faintly discernible. | Faintly discernible. | Faintly discernible. | Ribs prominent. | Spinous processes are prominent. Transverse processes of lumbar vertebrae feel rounded. | Tailhead prominent. Hip bones prominent. Point of buttocks prominent. |
| 3 THIN | Neck accentuated. | Withers accentuated. | Shoulder accentuated. | Slight fat cover over ribs. Ribs easily discernible. | Fat build-up halfway on spinous processes but easily discernible. Transverse processes cannot be felt. | Tailhead prominent but individual vertebrae cannot be visually identified. Bones appear rounded, but are still easily discernible. Point of buttocks not discernible. |
| 4 MODERATELY THIN | Neck not obviously thin. | Withers not obviously thin. | Shoulder not obviously thin. | Faint outline discernible. | Slight ridge along back. | Prominence depends on conformation; fat can be felt. Hip bones not discernible. |
| 5 MODERATE | Neck blends smoothly into shoulders. | Withers rounded over spinous processes. | Shoulder blends smoothly into body. | Ribs cannot be visually distinguished, but can be easily felt. | Back level; no ridge or crease. | Fat around tailhead beginning to feel spongy. |
| 6 MODERATELY FLESHY | Fat beginning to be deposited along side of neck. | Fat beginning to be deposited along side of withers. | Fat beginning to be deposited behind shoulders. | Fat over ribs feels spongy. | May have slight crease down back. | Fat around tailhead feels soft. |
| 7 FLESHY | Fat deposited along neck. | Fat deposited along withers. | Fat deposited behind shoulder. | Individual ribs can be felt; noticeable, filling between ribs with fat. | May have crease down back. | Fat around tailhead is soft. |
| 8 FAT | Noticeable thickening of neck. | Area along withers filled with fat. | Area behind shoulder filled in flush with body. | Difficult to feel ribs. | Crease down back. | Tailhead fat very soft. |
| 9 EXTREMELY FAT | Bulging fat along neck. | Bulging fat along withers. | Bulging fat behind shoulder. | Patchy fat appearing over ribs. | Obvious crease down back Flank filled with fat. | Bulging fat around tailhead. |

¹Horse extremely emaciated; no fatty tissue can be felt.

gain for mature horses. About 7.2 to 9 pounds of weight gain are required to increase the BCS by one unit.

A mature horse can add one BCS unit in 60 days when consuming 5.3 to 6.7 Mcal of energy daily above its maintenance requirement. This is an increase of 32 to 41 percent more energy. This can be accomplished by feeding 1 to 2 pounds of grain and 3 to 6 pounds of hay in addition to the horse's regular maintenance ration. The energy level of hays and grains vary.

If a mature horse had a BCS of 4.5 when fed only pasture or hay, one could feed 4.5 pounds of grain daily and expect this horse to have a BCS of 5.5 in 60 days. Feeding less energy would require longer to add another BCS unit.

References are available from the authors at 2505 River Drive, Knoxville, TN 37996-4575 or on the Internet at: http://animalscience.ag.utk.edu/horses/newsletter_THE.htm

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Tennessee Horse Express

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