Weigh and measure horses during development to ensure that the skeleton maintains a steady rate of growth while preventing the animal from becoming too heavy.

By JOE D. PAGAN*

ACEHORSE owners and breeders often ask if the size of their foals and yearlings affects either their sale price or their ability as athletes on the racetrack, and if bigger is better, is there a downside to having a large yearling? Over the last two decades, Kentucky Equine Research (KER), in conjunction with Hallway Feeds, has studied the growth and development of thousands of Thoroughbred foals and now has answers to these questions.

Hallway Feeds is a feed manufacturer located in Lexington, Ky., that caters to the Thoroughbred breeding and racing market. Since the early 1990s, it has offered a weighing program to its store customers. On a monthly basis, foals are weighed and their wither height measured. Foals are also condition scored (to assess the amount of body fat they are carrying using a body condition scoring system adapted from one developed by Don Henneke in the early 1980s at Texas A&M University. With this system, body condition is divided into nine categories ranging from one (extremely thin) to nine (extremely fat). Typically, young Thoroughbreds range between four and six depending on their age and plane of nutrition. Each of the measurements is recorded into a software program called Gro-Trac, which KER developed specifically to allow breeders to track the growth rate of their foals and make comparisons to foals of the same breed, age, gender, and geographic location.

Bodyweight, height, and condition score are entered for each foal on a specific weigh day, and the foal's age for that day is calculated. The growth rate of the foal is displayed graphically along with a reference growth curve. KER has reference growth curves for Thoroughbreds raised around the world that were developed using weights and heights collected from more than 13,000 foals worldwide (Brown-Douglas and Pagan, 2006).

Although size matters, the geographical location where Thoroughbreds are raised affects their growth rate. For instance, American Thoroughbreds tend to be heavier than English Thoroughbreds at 6, 12 and 18 months of age but are smaller than Australian and New Zealand Thoroughbreds between 15 and 18 months of age.

Skeletal condition
There is reason to believe that large foals and yearlings may be more susceptible to OCD and osteochondritis dissecans (OCD). It is generally accepted that excessive energy intake can lead to rapid growth and more body fat, which may predispose young horses to DOD.

KER has conducted field studies that support the idea that size affects skeletal disease. In one study, growth of 271 foals on one central Kentucky Thoroughbred farm was monitored over a four-year period (Pagan, 1998). The incidence of OCD surgery in these foals was also recorded, with 10% of the foals requiring surgery for OCD. Yearlings that developed hock and stifl e OCD were 10 lb. heavier than the Kentucky average at 25 days of age (about 5% of bodyweight) and, by 240 days, were 30 lb. heavier than the population average (about 5% of bodyweight). A second study conducted by KER also confirmed that young foals' height and condition score may play a role in the pathogenesis of OCD. In this study, 186 Thoroughbred foals from central Kentucky farms were studied (Pagan et al., 2001).

On each of these farms, the foals were weighed and measured monthly. The main purpose was to assess the relationship between glycemic response and OCD. The overall incidence of OCD in this study was 11.5%, which is similar to the previous study. However, the incidence on individual farms varied widely.

The main findings from this study were that foals with extreme glycemic responses had an atypical incidence of OCD. Foals with a high glycemic response had a high incidence of OCD; those with a low response had a low incidence of OCD. The glycemic index of the foals' feed was a factor. Additionally, bodyweight and condition score were factors.

Two farms in the study had very different incidences of OCD. Farm 1 had no OCD, while Farm 2 had a high incidence of OCD, with six of 19 foals requiring OCD surgery. The height of the foals on both farms was similar, but those foals that required OCD surgery on Farm 2 were much heavier and had much higher condition scores than the other foals.

These studies and general experience in the field suggest that large yearlings are more prone to certain types of OCD. However, are there benefits to having a large yearling that potentially outweigh the risks? Do large yearlings sell for higher prices at public auction? These are certainly relevant questions for commercial breeders.

Furosemide has health, welfare benefits for racehorses

A GROUNDBREAKING study published in the July 1 Journal of the American Veterinary Medical Assn. shows that furosemide (Lasix) may have more benefits than enhance performance in Thoroughbred racehorses; it also has beneficial effects on their health and welfare.

Most countries ban the race-day use of furosemide because it improves performance, but only the U.S., some South American countries such as Brazil and some tracks in Canada allow using the drug on race day.

“The data in the study provide the most reliable information to guide the highly politicized debate over use of furosemide in horses. To date, there has been only a limited amount of data from a study conducted by Hallway Feeds and — and none matching the quality of this study — to inform the debate," said Dr. Ken- neth Hinchcliff, professor and dean of the faculty of veterinary science at the University of Melbourne and article co-author.

“We know that furosemide is associated with improved performance and that exercise-induced pulmonary hemorrhage (EIPH) markedly affects race performance. However, we didn’t know the answer to the third — and most important — leg of the trifecta: whether furosemide is effective in treating EIPH. We now know," he added.

The study, “Efficacy of Furosemide for Prevention of Exercise-Induced Pulmonary Hemorrhage in Thoroughbred Racehorses,” is the first of its kind to draw a definitive link between the use of the drug and preventing the bleeding condition in Thoroughbreds. Hinchcliff wrote the article with professors Paul Morley of Colorado State University and Alan Guthrie of the University of Pretoria in South Africa.

The study included 167 Thoroughbred racehorses that performed under typical racing conditions in South Africa between Nov. 20 and Nov. 28, 2007. Each horse raced twice: once after receiving furosemide before the race and once after receiving a placebo.

The results showed that horses were 3-11 times as likely to have EIPH after placebo administration as they were after administration of furosemide. In addition, about two-thirds of the horses that had EIPH af- ter administration of the placebo had a reduction in EPH severity when treated with furosemide.

Hinchcliff, Morley and Guthrie conducted what is considered the “gold standard” of scientific studies by performing a well-designed, randomized, controlled clinical trial. Once the results were circulated, the authors anticipate that some racing jurisdictions may reconsider their ban on furosemide.

“It is likely that racing jurisdic- tions will reconsider, in one way or another, their position on the use of furosemide,” they said. “However, the decision to allow or disallow the use is based on the balance of a number of factors, and resolution of this complex situation will take some time.”