9 Keys to Equine Nutrition

BY CHRISTY WEST

"Nutrition is the foundation of a healthy, happy horse that performs to the best of its ability," began Lydia F. Gray, DVM, MA, medical director/staff veterinarian at SmartPak. She described nine keys to understanding equine nutrition at the Healthy Horses Workshop, which was an owner seminar that took place during convention.

Key #1: Forage

Forage, either as fresh grass or grass hay, is the basic staple of a horse's diet, said Gray. Free-choice forage most closely matches the constant feeding behavior of horses in wild situations, but this isn't always possible in today's managed environments. She recommended feeding horses a minimum of 1% of their body weight as forage, divided into as many meals as possible. Caveat: Overweight horses or those with equine metabolic syndrome or other disorders might not be able to safely graze or eat hay free-choice; they might require restrictions, particularly on high-sugar forages.

MEGAN ARSZMAN

Forage is the basic staple of a horse's diet. It is recommended that a minimum of 1% of a horse's body weight should be fed as forage, divided into as many meals as possible.

Key #2: Forage Isn't Everything

Most grasses and hays don't have all the minerals and/or vitamins horses need. There are four ways to add the right minerals and vitamins to a horse's diet:

- Mineral or multivitamin/mineral supplement: 1 to 4 ounces per day;
- Ration balancer (minerals plus protein): 1 to 2 pounds per day;
- Fortified grain: 5 to 7 pounds per day;
- Complete feed (forage and grain in one bag): 12 to 14 pounds per day.

The strategy you choose depends on your horse; many horses will do fine with forage and a mineral supplement or ration balancer, while those that are hard-working or hard keepers might need the additional calories of a fortified grain. Complete feeds are helpful for some senior horses that have trouble chewing forage, or horses with airway problems (that can't take the dust of hay), said Gray.

Key #3: Supplementation

Many common feeding strategies don't suit horses' needs very well, noted Gray. Consider two common scenarios: The easy keeper on small amounts of grass hay to keep his weight down often will not get enough of the vitamins and minerals he needs, and the racehorse in heavy work getting lots of fortified grain for energy might be getting far more vitamins and minerals than he needs, plus the additional starches in the sweet feed he's likely getting might contribute to ulcers, colic, or even tying-up.

To find out if your feeding strategy is working for your horse, see Key #4.

Key #4: What a Horse Needs

The sixth edition of the government's equine nutrition reference, *Nutrient Requirements of Horses* (http://www.nap.edu/catalog.php?record_id=11653), was released in 2007 and contains guidelines for all of a horse's nutritional needs. From water to energy, minerals, feed additives, and feeding management concerns, this text has it all.

Key #5: The Digestive Tract

Gray described the form and function of the equine digestive tract's many components, emphasizing how their function affects the way we feed horses. For example, the horse's small stomach (capacity of about 2 gallons) means the horse should eat small amounts continuously or receive feed in several small meals. The large intestine (15-gallon capacity) contains bacteria that ferment fiber the horse can't digest himself; a byproduct of fermentation is heat. Thus, feeding larger amounts of fiber in winter helps the horse "heat up" from the inside out, she explained.

Key #6: The Six Nutrient Classes

Gray described the following six major nutrient classes and their importance to equine life:

Water This makes up 70-75% of the body and functions in metabolism and temperature control. Horses usually drink 5 to 15 gallons per day; clean, drinkable water should be available at all times.

Protein An average adult horse needs at least 540 grams of protein in his diet daily (about 8% of the diet). The amino acids that make up proteins are the building blocks of his muscles, connective tissues, skin, hooves, hair, and many enzymes, hormones, and more. The horse can produce 10 types of amino acids on his own, and another 10 are essential to have in the diet because he can't make them himself. Lysine is the most important amino acid because the horse can't manufacture the proteins his body needs if he doesn't get enough of it (it is termed the first "limiting" amino acid).

Carbohydrates These are the horse's primary energy source, and fibrous carbohydrates help keep the large intestine in good shape. There are different ways to classify carbohydrates, but the most basic way is to divide them into nonstructural carbohydrates (NSC, primarily nonfibrous sugars) and structural carbohydrates that make up plants' cell walls.

Fat/fatty acids While horses only need small amounts of omega-6 fatty acids in their diets, fat can safely be fed at up to 20% of the diet (on a dry matter basis), and it is often used to supplement calories for hard-working horses or hard keepers. Some fatty acids, such as the omega-3s, might help decrease inflammation in the body, especially in the skin and respiratory tract. Lastly, feeding more calories that are from fat rather than starches and sugars might reduce excitability in some horses.

Vitamins The horse needs these in small amounts for essential metabolic functions, although his body can manufacture some of the vitamins it needs. Vitamins are divided into fat-soluble (A, D, E, and K) and water-soluble (multiple B vitamins and C).

Minerals Horses need several different minerals for essential body functions. These are broken down into macrominerals and microminerals (or trace minerals, those required in smaller amounts).

Key #7: They're All Different

Horses' nutrient requirements vary with many factors, from age to reproduction status, workload, disease status, stress (i.e., from training/shipping), and individual factors such as whether a horse tends to be an easy or hard keeper. Many more important factors aren't so specific to the individual, such as management/housing, weather conditions, and quality of feeds. Keep an eye on your horse's body condition (see Key #8) so you know if his diet needs to be adjusted.

Key #8: Body Condition Scoring/ Measurements

Is your horse gaining or losing weight? When was the last time you weighed him on scales or wrapped a tape around his middle? An undesirable weight change is one of the clearest signs that the diet isn't right for your horse, or it could be a signal that disease is changing his needs.

You can monitor your horse's weight by using weight tapes, although their accuracy will vary with your horse's body type. Tapes might be best used to identify changes in weight over time rather than to get specific weight measurements. If you want a more accurate estimation of your horse's weight, measure his barrel at the highest point of his withers and his body length from the point of his shoulder straight back to the point of his buttock. Then plug those numbers into this formula:

Heart girth (inches) × heart girth (in.) × body length (in.) ÷ 330 = body weight in pounds.

Body weight isn't the only thing you should be monitoring; there's also body condition, or fat cover, to consider. Body condition is scored from 1 (emaciated) to 9 (obese); knowing your horse's score gives you a good basis for discussions with your veterinarian and nutritionist. For more information on how to determine your horse's body condition score, see TheHorse.com/pdf/nutrition/bcs-poster.pdf.

FREE BCS CHART

For more information on how to determine your horse's body condition score download your free chart at TheHorse.com/pdf/nutrition/bcs-poster.pdf.

Key #9: Keep Reading!

For Gray's complete paper and a glossary of nutrition terms, see www.aaep.org/health_articles_view.php?id=332. She also suggests that owners look into the following resources for additional nutrition information.

Books

Nutrient Requirements of Horses. Sixth revised edition. Washington, D.C.: National Research Council of the National Academies Press, 2007.

Briggs, K. *Understanding Equine Nutrition*. Lexington, KY: Eclipse Press, 2007.

Magazines

The Horse: Your Guide to Equine Health Care (TheHorse.com)

The Horse Journal (www.Horse-Journal.com)

Web Sites

Facts on pasture, fructans, and feeding the insulin-resistant horse: www.safergrass.org

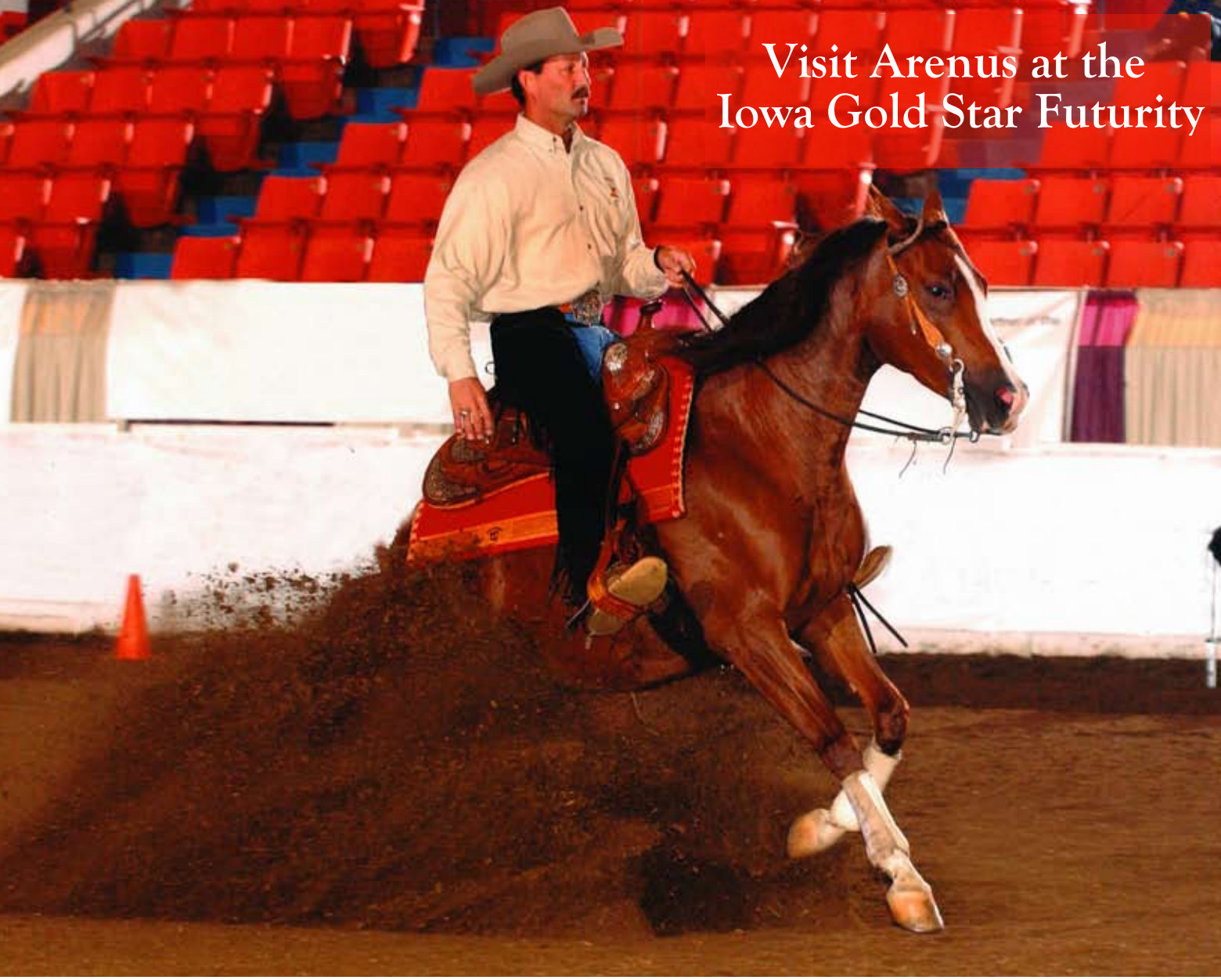
Horse weight prediction equation: http://animalscience.tamu.edu/images/pdf/equine/equine-estimating-horse-body-weight.pdf (or see www.SmartPakEquine.com for a weight calculator)

Hay analysis: www.Equi-Analytical.com

Pictures and instruction on body condition scoring: www.umext.maine.edu/onlinepubs/htmpubs/1010.htm or TheHorse.com Body Condition Score Poster (www.thehorse.com/pdf/nutrition/bcs-poster.pdf)

Rutgers University information on nutrition and horse management: www.esc.rutgers.edu/publications.htm

Online classes on equine nutrition: www.drkellon.com



Visit Arenus at the Iowa Gold Star Futurity

"I'm happy to report I am seeing BIG RESULTS..."

Trainer John O'Hara, Valley View, TX
Riding MVA Scarlet Orzel, 2004 Arabian Nationals
Satisfied STEADFAST™ EQUINE customer

Steadfast™ EQUINE
The One and Only One

ARENUS®