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ALL ABOUT FEEDING HORSES ALFALFA

HOW MUCH DO YOU REALLY KNOW ABOUT THIS LEAFY GREEN LEGUME?

In some areas of the country, alfalfa is a regular part of life. It's readily available and commonly fed, so it's a logical foundation for many horses' diets. In other areas, it is a delicacy of sorts, shipped in from different regions and bought a bale at a time on a vet's recommendation to help certain horses that need nutritional support. For some types of horses—in either of those areas—alfalfa simply isn't a great choice. And, so, that fragrant green bale comes loaded with nutrients and, for some horse owners, a multitude of misconceptions.

Whatever your alfalfa experience, we're here to tell you everything you need to know about this forage, starting with a little bit of history.

ALFALFA GOES WAY BACK

Forage for horses can be divided into two categories—grasses and legumes. Grasses you're likely familiar with include orchardgrass, timothy, and bermudagrass and are long and stemmy. Forage legumes, such as clover and alfalfa, are members of the pea family and, so, are cousins of peanuts and garbanzo beans.

"Alfalfa is a perennial legume, grown in most regions of the U.S. for horses and other livestock," says Krishona Martinson, PhD, associate professor and equine extension specialist in the University of Minnesota's Department of Animal Science, in Falcon Heights.

It was one of the first domesticated forages, planted and harvested in what is now Iraq, Iran, and Afghanistan several thousand years ago. Early farmers discovered its nutritional benefits, especially for hard-working horses, says Ray Smith, PhD, forage extension -specialist at the University of Kentucky (UK), in Lexington. "The main feed for horses of early armies in those regions was alfalfa," he says.

"When alfalfa was first brought to the eastern part of the U.S. in the 1700s from Europe, it didn't survive well—partly because of wetter soils and lower pH," says Smith.

By contrast, when settlers brought alfalfa west in the 1800s during the California Gold Rush to grow livestock feed, it did quite well. "Use of alfalfa grew rapidly in the western U.S. as people realized it fit well with that climate" and less-acidic soil types, says Smith. "By the late 1800s and early 1900s we began to learn more about adding lime to low-pH soils, to make them more appropriate for growing alfalfa. Plant breeding was also beginning by the 1900s, and plant scientists were able to develop alfalfa plants that were better adapted to various soils in the U.S." Modern plant breeding has also improved this legume's disease resistance.

Today, alfalfa still grows best in well-drained soils rather than wet soils.

WHICH HORSES BENEFIT FROM ALFALFA?

"The biggest benefit of alfalfa for horses is that it tends to be more nutrient-dense than most grasses when harvested at the same stage of maturity," says Martinson. It typically contains more digestible energy, more crude protein and calcium, and fewer nonstructural carbohydrates (sugars and starches).

Because it's so nutrient-dense, it is a good feed for underweight horses. "It can also be beneficial to horses with muscle problems that are prone to tying-up (due to their increased protein needs) or horses with equine metabolic syndrome (EMS) due to the lower amount of nonstructural carbohydrates," says Martinson.

She says alfalfa is ideal for horses on high planes of nutrition, such as lactating broodmares, growing horses, thin horses, racehorses, performance horses, or young foals that aren't getting enough milk.

"With growing horses, however, use caution in amount fed, simply so they don't grow too quickly or get too big too fast and become at risk for DOD (developmental orthopedic disease)," Martinson says.

We know that for horses sensitive to sugar or carbohydrates (e.g., horses with insulin resistance, pituitary pars intermedia dysfunction, etc.), building a diet on a good foundation of forage is especially important—the oats, corn, and barley that make up many feeds are 55-75% carbohydrate. Some grass hays are also too high in sugar for these horses, and this is where a legume diet or mixed legume/grass diet can help lower total sugar intake.

Choosing the right hay for proper balance can be challenging, however. For instance, a horse that's overweight and insulin resistant needs a lower-sugar hay (the alfalfa), says Martinson, but not the additional calories, "So we often end up doing a mix where those horses receive some legume and search for a low-sugar grass hay to mix with it."

"Many horse owners buy bales of alfalfa and bales of grass hay and feed several flakes of grass hay and one flake of alfalfa" as needed, says Krista Lea, MS, forage extension specialist and research analyst at UK. This can offer some cost savings if you also have horses that do fine on the less-nutrient-dense hay.

continued on page 2

continued from page 1

"I have three horses with three different nutrient requirements, so if I have different kinds of hay I can mix them appropriately for each horse—to get the right balance for what they need," she says. You can add alfalfa pellets or cubes to a grass hay diet for the same effect.

Alfalfa is also suitable for horses prone to gastric ulcers, because the extra calcium acts as a buffer against stomach acid. You might offer performance horses alfalfa an hour or two before work or competition, during which acid can splash up into the nonglandular part of the stomach (where the cells of the lining do not produce protective mucus). The simple act of chewing creates more saliva, which also helps buffer stomach acid, says Lea.

Owners might also offer the legume to horses needing to develop more muscle, particularly along the topline. Stephen Duren, PhD, equine nutritionist and founder of Performance Horse Nutrition, in Weiser, Idaho, says this is because alfalfa provides amino acids needed for muscle regeneration. "We see this practice more in the East where a lot of marginal grass hay is fed."

WHICH HORSES SHOULD NOT EAT ALFALFA?

Some owners believe alfalfa makes horses "hot," but Martinson says there's no scientific basis for this. "(It) does have more energy compared to grass hay of similar maturity, so perhaps a horse eating a lot of alfalfa in the absence of exercise may have more energy," she says. "The biggest issue with alfalfa is weight gain in horses that don't have adequate exercise."

Additionally, it supplies more nutrients than most nonworking horses need, leading to obesity and its associated issues. So feed overweight horses or easy keepers just as you would the sugar- or carb-sensitive ones—offer them a mature grass hay with lower caloric content over a rich legume.

Alfalfa is a good source of nutrients for sport horses, but owners might want to avoid offering it when horses are working hard in hot weather, says Duren. Protein metabolism creates more heat than fat or carbohydrate metabolism. This added heat can impair the horse's ability to dissipate heat. He might even suffer from dehydration (due to extra sweating and increased urination from the alfalfa breakdown/flushing from the kidneys) and be more likely to experience heat stress. "Extra protein cannot be stored in the body like extra fat or carbohydrates and must be excreted," says Duren.

A horse eating more protein than the body can use will also drink more water (to help flush out the additional waste products). This creates more urine and, thus, more ammonia odor. "Ammonia in stalls can irritate airways and make horses susceptible to respiratory problems," says Duren. "This is especially true with foals, since they are smaller and spend more time lying down. Ammonia is heavier than air and concentrated near ground level."

While feeding extra protein is wasteful, a high-protein diet in itself does not hurt a healthy horse. It can be detrimental, however, to horses with impaired kidneys or liver. These individuals have problems processing and excreting protein and should be kept on a very low-protein diet.

Duren also doesn't recommend feeding straight alfalfa to endurance horses due to its protein and calcium content. The last thing you want on an endurance ride where the horse is sweating for long periods is the increased body heat, water needs, and urine production described. High levels of calcium, on the other hand, can interfere with the horse's ability to mobilize bones' calcium stores during exercise. Endurance athletes can benefit from small amounts of alfalfa, just like any other performance horse, says Duren, but make sure it's not their sole forage source.

"Many performance horses are not worked to the point of dehydration, so they can handle a higher percentage of alfalfa," he says. "In California there are many cutting, reining, and other performance horses that eat a lot of alfalfa hay (due to its wide availability) and balancer pellets, and that's their entire diet and they do fine."

Other horses that do best with limited alfalfa are horses with the genetic muscle disease hyperkalemic periodic paralysis (HYPP). These horses are affected by hyperkalemia, or an excessive amount of potassium in the blood, which causes their muscles to contract more readily than normal and makes them susceptible to sporadic episodes of muscle tremors or paralysis. These horses are particularly sensitive to alfalfa's high potassium content.

continued on page 3

continued from page 2

"Potassium levels in forage are dependent on what the plants are pulling out of the soil, however," says Duren. "It can make a difference how and where the alfalfa was grown and whether it was fertilized with manure—which really drives the potassium levels higher. If I had a horse that was sensitive to potassium, rather than exclude alfalfa per se, I would have the hay analyzed. Not all alfalfa hay is really high in potassium, but you have to test it to find out."

Some horses with unpigmented skin should not eat alfalfa because they could be prone to photosensitization caused by black blotch disease, says Martinson. This is a mold that causes black blotches on the undersides of the leaves of legumes, including alfalfa. "Horses ingesting this mold may experience excessive ¬sunburn—which seriously affects unpigmented areas of their bodies," she says.

The more serious issue with these horses, however, is the liver damage from the toxins in the mold.

SELECTING ALFALFA HAY

When looking for good-quality alfalfa, be sure it's clean with no dust or mold—just as you would with any hay. Also aim for a good leaf-to-stem ratio (most of the nutrients are in the leaves; the stems are more fibrous). "It should be a green color, meaning there are more leaves and the hay is not weathered or rained on before it was put up," says Smith.

If your horse doesn't need the high nutrition value of pure alfalfa, look for a mixed grass/alfalfa hay. To determine the nutrient content of any hay, have it tested. Maturity, harvest conditions, soil conditions, and more can affect protein, energy, and mineral levels, says Smith.

Even after you've selected good hay, it pays to check it for dust, mold, weeds, foreign objects, blister beetles, and dead animals as you feed it.

Poisonous weeds that sometimes grow in alfalfa fields include ragwort, groundsels, Johnson grass, Sudangrass, water hemlock, and hoary alyssum. To steer clear of these, buy hay from a reputable person or company that knows how to grow alfalfa weed-free.

TAKE-HOME MESSAGE

When incorporating alfalfa into a horse's diet, plan for the animal's specific nutritional needs. Your feed salesman, veterinarian, and nutritionist can help you put together a balanced ration and recommend for or against feeding this forage. "A lot of horse owners are intimidated by alfalfa and think they shouldn't feed it, but it is a great feed for horses," says Martinson. "Owners just need to manage the diet carefully … and make transitions to and from alfalfa slowly."

Heather Smith Thomas

DOES HORSE MANURE MAKE SAFE COMPOST?

Do horse feeds made of products treated with herbicides and pesticides create contaminated compost that threatens the health of future gardens? Can deworming your horses then composting their manure lead to drug residue in your pile? Find out how to make the most of your horse's manure.

Are you begging people to come take your horse manure for free—or perhaps even paying to have it hauled away? If so, it may be hard to imagine that your stable waste could be converted into something worth $30, $200, or even $1,000 per cubic yard.

The difference depends on how you compost it, says Rhonda Sherman, a solid waste extension specialist at North Carolina State University (NCSU). It's not just heaping manure into a big pile and waiting for Mother Nature to do her job. Sure, this works. But the compost will likely be of the give-away variety, with weed seeds, pathogens, parasites, and chemical residues potentially contaminating it.

Not all livestock dung is created equal, Sherman points out, but horses that are eating good, balanced diets should produce compost-worthy waste. She is unconcerned about horses being fed beet pulp-based feeds. Although 95% of sugar beets grown in the United States are "RoundUp Ready"—meaning genetically modified to withstand the glyphosate herbicide found in RoundUp—this chemical readily breaks down in organic matter when U.S. Composting Council guidelines are followed.

"Persistent herbicides" are another story, she warned. Pasture, hay, and grain from fields treated with pyridine carboxylic acids are problematic. Chemicals such as aminopyralid, clopyralid, and picloram can pass through the horse's digestive tract and persist in manure and compost piles for long periods without degrading. Tainted compost can kill plants and create liability issues for owners.

To transform livestock waste into high-value soil amendments, the top priority is making sure all the material undergoes a proper hot (thermophilic) phase. This is then followed by a slow cooling and stabilization period, during which the compost should be protected from contamination.

"As composters, we are essentially microbe farmers," explains Sherman. "Our goal is to provide air, water, and nutrients in the right carbon-to-nitrogen ratio so microorganisms have what they need to break down organic matter efficiently."

At 30:1, horse manure has an ideal carbon-to-nitrogen ratio for composting. Bedding within the mix will also impact the level of microbial activity. When heaped and moistened (about as damp as a wrung-out sponge), a cubic yard will heat up readily. For outdoor setups, the gold standard is reaching 131-150° Fahrenheit within the pile for a minimum of 15 days, with at least five turns during that period. Keep in mind, temperatures must reach 104° F to kill parasite eggs and larvae and 140° F to deactivate weed seeds. Turning helps cool and aerate the pile.

While the hot phase kills weed seeds, parasites, and pathogens, modulating the process preserves energy and nutrients. This is especially important when the manure is intended as fodder for earthworms. And it is composting with worms (vermicomposting) that converts organic matter into a biologically active, natural fertilizer worth upward of $200 per cubic yard. Because worms will die at temperatures above 90°, the mix must cool before it can safely be put into worm beds. This initial heating phase is known as "pre-composting."

Horse dewormers are another concern. Ivermectin, for example, can be identified in the environment at 45 days post-deposit at levels harmful to beneficial insects and organisms. A Cornell University study shows that hot composting can speed chemical breakdown, cutting the time ivermectin remains in manure by half. The highest concentrations pass from the horse within days of deworming. But if you're vermicomposting, it would be wise to withhold the manure from worm beds for 30-45 days, until it undergoes thorough hot composting—or simply skip the worms altogether.

Importantly, turning horse manure into high-value compost requires a beyond-the-basics approach. Sherman's book, The Worm Farmer's Handbook, offers practical advice, as do NCSU's composting publications. For more how-to information, visit NCSU Extension's online composting guide.

Betsy Lynch

EQUINE ASTHMA

Equine asthma can affect horses in winter and summer, indoors and outdoors.

WHAT IS EQUINE ASTHMA?

It's a pretty broad definition, but essentially what we are talking about are horses that show respiratory signs but don't seem to be sick, per se, in the sense that they don't have a fever and don't act like they have an infection – their appetite is fine, and they are bright.

The most severely affected can have what we call heaves; those horses are easy to recognize in the sense that they are very obviously having a hard time breathing just standing in the stall. Their nostrils will be flaring and they have a lot of abdominal push, which is where the term 'heaves' came from. Those have severe asthma.

At the other end of the spectrum, there are horses who are not very affected at all. You might only hear a cough once in a while or the horse might not be performing as well as he used to, and there's nothing else we can find to explain that decrease in performance. These are mild asthma cases.

What all cases have in common is that they have some degree of airway inflammation if you look at their deep lungs. The best way to assess the degree of inflammation is by doing a bronchoalveolar lavage (BAL), also called a 'lung wash'.

TOP TIPS FOR REDUCING EQUINE ASTHMA IN THE BARN:

- Using high-quality hay or haylage
- Steaming hay before feeding it, which can reduce the most damaging smaller particles that can travel deeper into a horse's lungs
- Feed hay from the ground, rather than from a hay net
- Keeping the barn as dust-free as possible
- Sweeping the barn aisle or using leaf-blowers when the horses are not in the barn
- Keeping the barn doors open for better ventilation
- For horses prone to asthma in the barn, allowing regular turnout on pasture
- For those prone to asthma related to pasture allergies, more barn time
- Omega-3 supplements have been known to help

EVENTS / CALENDAR

PRE-BLACK FRIDAY SALE
Friday, November 13 (8 AM – 6 PM) &
Saturday, November 14 (8 AM – 5 PM)
Augusta True Value Staunton location – 1205B Richmond Road
Additional information: www.AugustaCoop.com or (540) 885-1265
Huge deals in-store on clothing, boots, power tools and much more!

END OF YEAR FARM SUPPLY SALE
December 1 – 31
All Augusta Co-op store locations
Additional information or list of sale items:
www.AugustaCoop.com or (540) 885-1265

AGRONOMY CUSTOMER APPRECIATION DAY
Friday, February 5 – 11 AM – 2 PM
Augusta Co-op Warehouse – 963 Laurel Hill Road,
Verona, VA 24482
Additional information: RSVP to Staci Alger at
(540) 885-1265 x 243 or SAlger@AugustaCoop.com

AUGUSTA CO-OP VENDOR DAY (TENTATIVE)
Wednesday, February 24 – 3 PM – 8 PM
Weyers Cave Community Center – 682 Weyers Cave Rd.
Additional Information: www.AugustaCoop.com
or (540) 885-1265
Book your 2021 items at drastically reduced rates at our annual vendor day!
*In person event pending COVID restrictions, otherwise will function as a booking event.