

# Teff as a viable forage source for horses.

By Natalie Shaw

Teff Grass

Let me tell you a story. A story about my friend Nancy and her horse Marquee. One day Marquee, an arab-morgan cross, showed up lame and a trip to the veterinary clinic was made. The veterinarian diagnosed Marquee with a severe case of laminitis as a possible result of insulin resistance. The veterinarian suggested that Nancy do two things; decrease Marquee's weight and lower the total non-structural carbohydrates in the diet. With this in mind, Nancy went home, put Marquee back at pasture, went to her computer and consulted Dr. Google. Dr. Google had a lot to say about feeding insulin resistant horses. Every blog and website suggested that she feed less than 10% NSC in the diet, soak her hay, and use a slow feeder. Next, Nancy went to her local feed store and was happy to find that there were many low-carb options. Since they weren't close to the "less than 10% standard" she purchased one of them and diluted it with beet pulp and alfalfa pellets. Now, feeling good about this, she called up her local hay dealer and was stymied to find that he had never put up or marketed a bale of "low-carb" hay in his career and neither had his neighbors. She searched high and low for "low-carb" hay, paid for carb testings on multiple lots, and never found anything that was packaged in two string bales. This is where the frustration set in. She would have to just make due soaking the hay that she had already bought and stored in the barn. Balancing the total ration for a horse that requires BOTH a low-carb and low-calorie diet is much easier said than done! Here is a list of horses that could need forage based diets low in BOTH calories and carbs.

- Equine Metabolic Syndrome
- Cushings
- Insulin Resistance
- Laminitis (or at risk)
- PSSM
- Allergies to other forages
- Chronic colic

Nancy's story is not unique. Many of you readers can relate all too well to Nancy's dilemma feeding an easy keeper with sugar-starch sensitivities. Over the course of my 9 years traveling the Pacific Northwest as the Equine Nutrition Consultant for CHS, I have found this type of horse to be the most difficult to consult for, because the nutrition tools available are few and suboptimal. Let's be fair...the term "easy keeper" is a misnomer! Horses with good "feed efficiency" are often the horses that require the most creativity. We must consider our management techniques, constraints, and preferences very carefully. Of course, if you board one of these horses and don't have complete control of their diet, you're at an even greater disadvantage. Many facilities can't accommodate multiple types of hay or hay soaking due to the additional labor and mess it creates.

Many years ago, I was introduced to teff hay by a PhD equine nutritionist from California. I started looking into the grass as an option for these difficult cases. Inspired by teff's potential to satisfy this very pressing niche in the equine nutrition industry, I set out to bring the power of teff to more horse owners in the Northwest in a form that was available all year long, affordable, and palatable. In 2015 I embarked on a Master's degree with the WSU forage agronomist to study the growing and harvesting factors that influence the non-structural carbohydrate values of teff hay. My research objective is to refine the farming practices necessary to make teff a viable, consistent forage source in the market.

Let me take a moment to explain exactly what teff grass is and why it can be such a unique tool for horses that require low-carb and low-calorie diets. Teff grass is originally from equatorial Ethiopia, Africa where it is the staple grain of the region. It is what plant biologists refer to as a warm season, C4 grass species. This is important to remember, because it means that the plant is fundamentally different than the cool season, C3 grasses that we are used to feeding horses and that we are really good at growing in the Northwest. Timothy, orchardgrass, bluegrass, and rye



grasses are cool season. If you drove past a field of teff grass, you probably wouldn't distinguish it from any other grass hay, but it is unique in the way that it metabolizes and stores carbohydrates. You see, teff grass is an annual plant. This means that farmers have to plant it every year. It also means that the plant doesn't prioritize storing excess carbohydrates for over-wintering. Cool season grasses must store carbohydrates for energy in the form of fructans. Warm season grasses store some carbohydrates as starch. For this reason and others, if we were presented with a pile of teff hay, a pile of timothy hay, and a pile of orchardgrass hay, we'd put our money on the teff to be lower in non-structural carbohydrates. Now this is not ALWAYS the case. I've certainly come across my fair share of high-carb teff, but on average we can grow teff to be lower in simple sugars and starch compared to other grasses. Pretty cool, huh? Another important point to remember; low-carb does NOT mean low-calorie. Teff grass can be harvested to have both low caloric value or high caloric value. In my teff research, protein values have ranged from 5% to 22%. So, as you seek out teff, don't assume that all teff is created equal.

Low carb and low calorie teff grass hay is immensely difficult to find. Especially when you consider the extreme variability in carbohydrates and protein, the need for convenient packaging (i.e. small bales), and the potential for weeds and poor palatability. Because of these difficulties, I'm very excited to have introduced the Equis Teff Natural to the market in 2016. After many years of development, the formula has been tested and perfected. Horse owners with easy keepers at risk for laminitis can rest assured that the Equis Feed has taken the headache out of sourcing an appropriate forage option. Equis Teff Natural is the only grass hay based, low carb, and low calorie complete feed on the market. Here are three things you must know about Equis Teff Natural.

1. It is very low calorie, so don't feed to skinny horses. At only 1 Megacalorie per pound, Equis Teff Natural is like celery sticks for the easy keeper. There is no added fat (add your own omega 3 source) and no added molasses. The vast majority of "low carb" products at your local feed store are very high calorie with digestible fiber sources and added fat! This is why Equis Teff Natural is so incredibly unique.
2. At 22% fiber, it is a forage replacer. Equis Teff Natural was

specifically designed as a tool to replace suboptimal forages. For example- when you purchase a barn full of hay and later find out that it's very high carb. Or perhaps, you board at a facility that won't allow you to bring in another forage source. Replace your suboptimal or poor quality hay pound for pound with Equis Teff Natural at an amount appropriate to the severity of disease, your current forage options, your financial constraints, and to what degree you want to control the diet. It is very safe to feed when fed as directed.

3. This is so much more than hay in a bag. Equis Teff Natural is a complete feed- fully fortified to balance protein, energy, vitamins and minerals when fed as intended. It's been suggested to me more than once, to just grind up teff hay and sell it at a simple hay pellet. This is a HORRIBLE idea! Remember what I said about the plant's variability? I've analyzed literally hundreds and hundreds of teff samples, and I will tell you that you don't want to leave the nutrient content to chance. We've balanced the proprietary blend of teff grass with the highest quality protein source and the entire Equis Feed package (i.e. Zinpro Performance Minerals, organic selenium, BioMOS and Diamond V Yeast Culture) to produce a feed that is safe, consistent, and palatable bag after bag, and year after year.

Feeding easy keepers with sugar-starch sensitivities is very difficult in practice. It is also difficult to understand the complexity of carbohydrates as one nutrient in the horse's total diet. Carbohydrates are an extremely diverse array of molecules ranging from table sugar to tree bark. To make matters worse, the jargon used to express carbohydrate values are confusing and often conflicting. When trying to unravel the carb mysteries, it helps to realize that the way a plant biologist, an analytical chemist, and an animal nutritionist talks about carbohydrates are all different. The archaic tests we have to analyze plant carbohydrate values (WSC, ESC and Starch) do not neatly line up with the way they are digested or the way that we categorize them. If you need help understanding carbohydrate values and what they mean to your horse, contact Natalie Shaw at [Natalie.shaw@chsinc.com](mailto:Natalie.shaw@chsinc.com) or 406-599-7694. For more information on the Equis Teff Natural go to [www.equisfeed.com](http://www.equisfeed.com) and check out our blog articles about the product. Happy Feeding.



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