

How grass is being changed

My most recently planted grass paddock was established in conjunction with a research project that required a 'common commercially standard variety'. Around here, that's Regar brome, (*Bromus riparius*) an 'improved' variety developed for intensive grazing and high quality hay production. When I first allowed my most grass sensitive horse to graze in that paddock for 30 minutes, she was sore footed within 48 hours. When I started looking into the reasons why, I emailed and phoned several grass seed companies who recommend this and other nutrient dense grass varieties for horse pasture. I asked 'what is the criteria for choosing these varieties for horse pasture?' They said 'Relative Feed Value', to which I asked, 'And how is that determined?' and they said 'by feeding trials maximizing milk production in dairy cows'. To which I asked, 'so why would I want to feed my horses like dairy cows?!'. And they said 'hey, lady, we don't do the research, we just give the horse people what they want, and they say they want the best'. Well, perhaps we had better evaluate what 'the best' is, and how forage breeders are changing our grass.



These feral, free ranging horses on the Navajo Indian Reservation at Shiprock, NM look fat and healthy eating this sparse, native grass. This picture was taken after a wet winter and spring. This is actually far more green vegetation than in previous years. If this type of grass is what Indian ponies are supposed to eat, no wonder they can't handle the forage developed to fatten cattle. Interesting to note that Native Americans in this area are known to have extremely high rates of Type 2 diabetes, since they have been eating the typical white man's diet.

Forage research and breeding is focused on fattening animals intended for meat, and producing the most milk out of a dairy cow who's productive life is not more than 5-6 years. I have been looking everywhere for a forage expert on equine specific forage issues, and I can't find one. (if you are out there, please contact me). What is considered the 'best' pasture grass for cows is just assumed to be the same for horses. It may be great if you're going to eat a cow when it's 2 years old. Not so great for a pony that you want to keep healthy until he's well beyond 30 years old. Brood mares, or extremely athletic horses may benefit from these nutrient dense forages. But for the average recreational horse, and for many of the 'easy keeper' breeds, this may be way too much sugar. Throw in the fact that we have a lot of new, inexperienced horse owners, and grain companies who are telling them that horses are supposed to eat grain (which I dispute for 90% of the horse population) only adds to the problem.

People say 'But horses evolved to eat grass', but they don't realize that grass has changed, and plant breeders are on a fast track to make grass even more nutrient dense and easily digestible to maximize nutrition in cattle and sheep. The ability to store carbohydrates, in particular fructan, is intrinsically linked to winter-hardiness in cool season grasses, as well as early spring growth in cool conditions, and adaptation to other stress factors such as drought, salt tolerance, or even optimum growth under low management inputs. Even if not part of the selection criteria of the plant breeder, those grasses selected for these traits will be higher in both sugar and fructan. Knowing that many horse owners are not well versed in farming, forage specialists may feel obliged to recommend those varieties that may withstand abuse and neglect for horse pasture, and those may be highest in non structural carbohydrates.

Many people think they have native grass in their pastures, because it was never purposely planted. This does not assure that your horses graze native species. Very little native grass pasture has survived in the United States due to incursion of 'naturalized' grass species that were introduced by early settlers. Native grass will not survive continuous grazing by animals in small pastures. Species that developed in cool regions of Europe, where

intensive grazing had been practiced for centuries were introduced by settlers in the late 1800's. Hungarian, or smooth brome now flourishes over most of the United States, pushing out less competitive native species. Because brome is high in NSC, it has a competitive advantage, especially when native species are weakened by over grazing.

Plant breeders are selecting grass with lower fiber content, and changing the chemical structure of fiber so that it is more digestible. When feeding cattle, it's most efficient to get them to eat as much as possible. Get them fat; get them to the packers. To increase palatability, and therefore intake, new varieties of pasture grasses have been purposely selected for high sugar and fructan content, and lower fiber, so they don't feel so full. [Dr. Hank Mayland](#), of USDA has done work to encourage hay growers to cut hay in the afternoon, when sugar levels are higher. (Please note the list of researchers at the end who are involved in studying and increasing carbohydrate content in forage.) In feeding trials with horses, cattle, sheep and goats, animals preferred hay cut in the afternoon over the same hay cut in the morning. [Mayland, 2000] Remember our discussion above about diurnal fluctuations? Grazing animals like sugar just as much as we do. Whether or not it's a good diet for an animal expected to live 30 years will be up to equine nutritionists to prove or disprove, and I'm not even sure they realize that the new grass varieties are different. I'm meeting grass breeders who own horses, and they admit that they will not feed premium grass hay to their own horses. One said he grazes for 2 hours morning, and 2 hours night. That's all they get. He says they'll get too fat otherwise, and he knows why. Then we have equine specialists telling us that horses need to have forage available all the time; to prevent ulcers, colic, and stable vices. We would all benefit if the equine nutritionists and the forage researchers would talk to each other. It seems all too simple to me. A horse is not a cow. Why would we feed them the same forage? Some of our horses and ponies need grass and hay lite.

Mayland, Shewmaker, Harrison, Chatterton, (2000) Nonstructural Carbohydrates in Tall Fescue Cultivars: Relationship to Animal Preference, Agron. Jrnl Vol. 92, No. 6

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