



Am I the only one that can't believe how fast this year went? It just seemed like yesterday was the start of

hay season and here it is December – how did that happen? Speaking of “things sneaking up on you”, have you noticed you have a horse that is overweight? Maybe border line founder candidate? I've included a good article on founder written by MFA Equine Sales Manager, Virgil Bruner. Don't hesitate to send Virgil an e-mail or a give him a call if you have questions or need additional info.

Janice Spears  
MFA Feed Products  
Marketing Manager



## Insulin Resistance in Horses

Virgil Bruner, MFA Equine Sales Representative

It seems like this year has been a year of extremes in the mid-west, as far as the weather is concerned, and exactly where you live might have made a big difference in how severe the extremes affected you. But one thing is for sure, we were all affected to some degree. That being said, the outcome of these extremes are predictable as far as the effects on our pastures, which in turn has an affect on our horses and mules. This fall we have had a larger than normal reported number of equine showing up with laminitis and founder. This was predictable because anytime cool season grasses are stressed (and most of the grass in our area is cool season grass), whether it is due to drought in summer or cold in winter, once we get the right conditions for growth again, the resulting forage will be exceptionally high in sugars. This happens because when cool season grass is stressed it continues to produce sugar even though it is not growing. When growth resumes, sugars that the plant has been storing are transported to the leaves. Warm season grasses produce starch instead of sugar as their energy source. The really nice thing about warm season grasses is that they are more predictable. Because when the plants are stressed they shut down starch production so they don't have a spike in starch levels when the plant resumes normal growth.

Statistics show that 54% of the horses that founder do so on pasture, 8% on grain, and 38% due to other reasons, which include illness or trauma of some sort. Over time we have begun to see an ever increasing number of grass founded horses. So what has changed?

Most horse owners take very good care of their animals. They are now provided good pastures, or maintained in stalls with good hay, as well as supplemented with grain all year. Another piece of this puzzle is that “we” horse owners, and I include myself, are now so busy that our horses/mules no longer get used as much as we would like, or even as much as the animals require to maintain proper condition. The end result is that those real efficient animals become overweight and “we” allow them to stay that way because “we” don't want to think that they might be hungry. Therefore, we wind up with animals that we refer to as “easy keepers” and allow them to stay in this condition. The bad side of this is that fat cells have the ability to convert cortisone to cortisol and to produce resistin; both interfere with the insulin receptor sites. If these animals are allowed to stay in this condition the result is an animal that is producing a large amount of insulin that the body can no longer utilize to maintain normal blood sugar levels. The result is an animal that has an elevated glucose level and an elevated insulin level. We refer to this condition as insulin resistant, which is the equivalent of type II diabetes in humans. We now have a horse/mule that is at a high risk of founder.

The good news is, if we get these insulin resistant equine back to a proper weight through diet and exercise, the insulin receptor sites will usually become active again and allow the animal to lead a normal life.

Some of the things we can do to help are, restricting pasture exposure by limiting turn out time or consider using a grazing muzzle. The nice thing about grazing muzzles is that while the horse is grazing it is walking the pasture getting exercise. In extreme cases hay can be soaked in warm water for one hour and pouring off the water which contains the sugars before feeding. The key to success when doing this is to use plenty of water to dissolve the sugar. I want to see these animals getting a minimum of 1½% of their body weight in hay or the equivalent in pasture and I would prefer they be getting hay that was clean but more mature than what you would normally want. Mature hay will not only be lower in digestible nutrients but will also have a slower rate of passage which will keep the animal full longer. In some cases all these animals need besides hay or pasture is a good loose mineral with vitamins like MFA 5% Horse Mineral. In case we need to feed some concentrate I would suggest a feed like MFA Legends Carb Control, this feed was formulated especially for horses and mules with metabolic disorders and has a very low glycemic response. If you're buying an add pack of some kind it's probably already in MFA's Legends feeds. Just look on the back of the bag at features and benefits.

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(Continued from Previous Page) Winter is just around the corner, and is the easiest time to pull the extra weight off of those overweight horses and mules. The cold weather puts more demand on the animals to burn calories to create body warmth so they are burning fat. Also, winter brings grazed over paddocks and pastures which makes it easier to control forage intake. If we can get these horses and mules back to normal weight, they will have a much better chance to stay healthy next spring when grass growth resumes.

Ideal condition is a body score of 5, on a 9 point scale. The best single indicator of this is in the ribs. I don't want to see the ribs, but I do want to feel them with a light touch. When horses or mules have a winter coat, feeling is the only way to tell how much cover they have because a winter hair coat can cover up a lot of bone.

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