

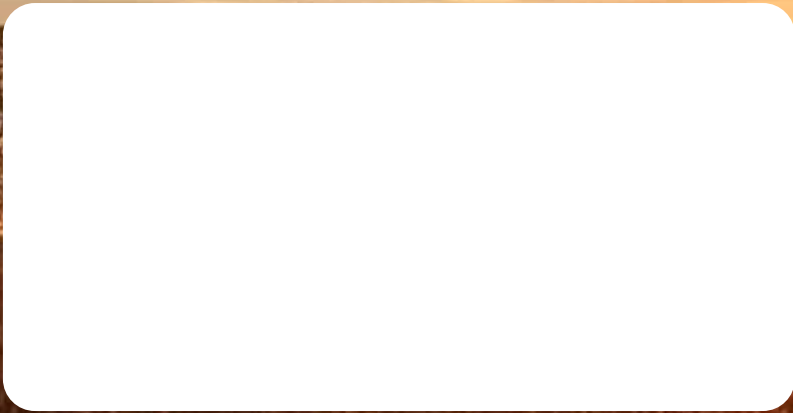
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AGRONOMY & EQUINE EDITOR  
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SINCE

# DOES YOUR HORSE NEED A LOW-STARCH DIET?

It's important to realize that a low-starch (starch being a type of carbohydrate) diet is not ideal for all horses but, rather, depends on their caloric requirements, the disciplines they perform and existing health conditions.

“Low-carb for humans essentially means restricting all easily digestible sugars, starches, soluble fibers, and other digestible fibers from our diet to lose weight,” says Rhonda M. Hoffman, PhD, PAS, Dipl. ACAN, professor and director of the Horse Science Program at Middle Tennessee State University, in Murfreesboro. “Horses, in contrast, rely on carbohydrates as the largest portion of their diet, especially soluble and insoluble fibers.”

## CARBS, SUGARS, AND STARCHES IN YOUR HORSE'S FORAGE AND FEED

Nonstructural carbohydrates (NSCs) in forages are simple sugars and fructans, which horses can readily digest or ferment. They are produced in plants during warmer weather through photosynthesis and tend to be higher in more immature forages. Plants store these carbohydrates during the day, then use them at night for metabolic processes. Pasture is usually lowest in NSCs in the early morning, unless overnight temperatures are cold and cause metabolic processes to slow.

The components of the typical concentrate portion of a horse's diet also contain carbohydrates, including simple sugars and starch. Grains such as corn and oats are seeds and, as such, are high in NSCs, mostly starches. Starches are long chains of attached sugar molecules. These sugars get broken apart during the digestive process and the simple sugars (glucose) readily absorbed. Most horses can digest and absorb sugars and starches in the small intestine, through a process called hydrolysis. From there, glucose in the bloodstream triggers the pancreas to release insulin; the glucose molecules then move into cells for storage as glycogen.

However, sometimes starch makes it into the cecum, which is the first part of the hindgut (everything after the small intestine), where it's rapidly fermented. This usually only occurs if there is more starch in a single meal than the horse can digest.

The byproduct of this fermentation is lactic acid, which lowers hindgut pH, killing the good bacteria that reside there. The endotoxins released from microbial death can contribute to both colic and laminitis (when the laminae that suspend the coffin bone within the hoof capsule become damaged and inflamed).

There is no single definition of a “low- starch” diet. “Carbohydrates by definition would include sugars, starches, and some fiber, which is why I will not use the term low-carbohydrate to describe a horse's diet,” says Amy Parker, MS, manager of technical services and equine nutritionist for McCauley Bros. Inc., in Versailles, Kentucky. “By this definition, a low- carbohydrate diet could mean a low-fiber diet, which would not be healthy and would likely prove fatal for the horse. When discussing feedstuffs, I prefer ‘low-sugar and -starch’ or ‘low-nonstructural-carbohydrates.’ Discussing both the sugar and starch concentrations is important, as describing only one or the other can be misleading.”

## CONDITIONS OF CONCERN

For horses with some conditions, veterinarians and nutritionists might recommend a low-starch diet to help maintain blood glucose levels at a steady level. These are conditions that cause horses to become more sensitive to sugars and starches, requiring owners to reduce these levels in both forages and concentrates. Individual horses have variable responses related to a variety of factors, including age, body condition, fitness, metabolic status, and disease status.

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**Purina,**

**WellSolve Low Starch Pellet, 50 lbs.**

The low starch and sugar diet for horses with special needs. WellSolve L/S Horse Feed is the result of years of research and development, including controlled studies at the Purina Animal Nutrition Center and extensive field testing. It's an enormous balancing act that requires the consideration of more than just the sugar and starch levels. However, the result is worth it - a nutritionally balanced, highly palatable diet that veterinarians and horse owners can use with confidence. These special conditions include insulin resistance/equine metabolic syndrome, laminitis, and Cushing's syndrome.



**SKU - 66924**

## • OBESITY AND EQUINE METABOLIC SYNDROME (EMS)

Conditions that fall under the metabolic umbrella are of major concern, say Hoffman and Parker. Some breeds are “metabolically thrifty” and can readily convert glucose into fat for storage. These horses need an overall reduction in calories consumed, and not just from starches. They would benefit from a lower-quality forage and no concentrates, except for possibly a ration balancer to provide vitamins and minerals.

## • INSULIN DYSREGULATION (ID)

In these horses, insulin is not effective at transporting glucose from the bloodstream into cells, so both remain elevated. This can lead to increased susceptibility to laminitis. Horses with this condition are very sensitive to starches and, therefore, should be on as low a starch diet and, specifically, soluble-carbohydrate diet as possible. Insulin dysregulation is considered a component of EMS.

## • POLYSACCHARIDE STORAGE MYOPATHY (PSSM)

Horses with the muscle disorder PSSM often have a normal glucose/insulin metabolic process, but they are unable to use the form of glucose stored in their cells as energy. These horses are also susceptible to tying-up (exertional rhabdomyolysis, or the breakdown or destruction of skeletal muscle cells associated with exercise).

## • LAMINITIS

Horses that are prone to laminitis should also consume diets low in soluble carbohydrates and starch. Remember that elevated levels of starch, especially if they reach the hindgut, can lead to hindgut acidosis, effectively killing off the good microbes there. Then endotoxins get released, which can negatively affect enzymes involved in maintaining the integrity of the laminae in the hoof.

## • PITUITARY PARS INTERMEDIA DYSFUNCTION (PPID, FORMERLY EQUINE CUSHING’S)

This endocrine disease mostly affects horses over the age of 15. It develops when the neurons in the hypothalamus at the base of the brain deteriorate and fail to regulate the pituitary gland’s par intermedia. Some (but not all, cautions Hoffman) PPID horses require a lower-starch diet.

## • GASTRIC ULCERS

Horses prone to ulcers and hindgut acidosis might also benefit from a low-starch diet, says Parker. Signs of this condition include poor performance, poor attitude, and mild colic.

Low-starch diets are beneficial to horses prone to gastric ulcers, because chewing and consuming the fibrous carbohydrates produces more saliva, which can help reduce acidity in other parts of the digestive tract, such as the stomach.

## • REACTIVITY

Due to elevated glucose levels, horses that are anxious or hyperactive might benefit from less starch in their diets.

## • GOING LOW-STARCH

If your horse does not have one of the above conditions, then he probably doesn’t need a low-starch diet. In fact, some performance horses, such as Thoroughbred racehorses, benefit from a diet with readily available carbohydrates. These horses need to be able to recover after a training bout or race, which includes replacing the stored glycogen in skeletal muscle. “Performance horses, especially every horse that has anaerobic exercise (short bursts of high-intensity training) as a component of its work, require some starch in their diet to replenish muscle glycogen,” says Hoffman. “For example, I’ve known a limited non-pro reining horse that the owner, in good faith, put on a low-starch, low-NSC diet ... and it literally ran out of gas. When muscle glycogen is low, the muscle adapts by slowing the contraction rate and power in order to conserve fuel (glycogen). This is obviously not desired in a competition horse.”

For the horse that needs a low-starch concentrate, ideally, you’ll transition him the same way you would to any new diet. You must make a slow, gradual change, so as not to upset the hindgut microflora—those microbes must have time to adjust to a new diet. Most nutritionists recommend making the complete transition over about two weeks.

As long as the horse’s nutrient requirements are being met, there is no harm in a horse being on a low sugar/starch diet.

## TAKE-HOME MESSAGE

A low-starch diet might be in the picture for your horse, depending on his health. If not, however, it’s likely not necessary and might even reduce performance. Before making the change, talk to your veterinarian and a qualified equine nutritionist. It is also important to know how your feed company uses the term “low starch,” so you are making decisions based on the best information available.

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# EQUINE DENTISTRY

Horse owners are accustomed to preparing their horse to show; including making sure their hooves are trimmed and shoes set. In the Spring, Veterinarian's schedules book up with vaccinations, coggins and health certificates. But don't forget your horses' teeth! And if you missed this in the Spring, Fall is a great time to take care of this important procedure as well. After all, we want our horses to be as healthy and comfortable as possible. A horse's teeth erupt continually throughout lifetime; therefore, changes can occur in our horses' mouths in a year's time or less. Sharp edges can form, causing ulcerations on the cheeks and tongue. Putting a bit in the mouth can further add insult to injury.

So where do we begin? Find someone in your area that specializes in equine dentistry. Some states have regulations on individuals that do dentistry. You can check your state laws regarding floating horse's teeth. Veterinary schools have just started teaching dentistry, so most of our vets were not taught dentistry when they were in vet school. If your veterinarian is offering dentistry, you should inquire about any specialized training he or she has obtained. Some vets attend continuing education classes offered over a two or three day period. Others have attended dentistry schools that offer extended programs that may range anywhere from two to four weeks or more. Dentistry schools are working to educate vets, dental technicians and lay dentists. Whoever you use, they should be specialized in equine dentistry.

Balance in young horses is important. As soon as the foal is born the teeth are coming in (erupting) and eventually will be replaced with a set of permanent teeth by the age of 5 years old. Most of the caps (baby teeth) that a horse sheds will fall out on their own. Retained caps can cause teeth to become offset by holding back permanent teeth. With a simple check, we can simply go in and remove these caps that may be wedged in by the surrounding teeth and help the permanent tooth to move into normal placement. Shedding caps starts around 2.5 years of age. When the young horse eats, they may turn their heads to the side as they chew or drop grain from their mouths. Some may not show any signs at all, and you may find a tooth in the feed pan. This is normal and no need to be alarmed.

Wolf teeth are normally a small rooted tooth that can cause discomfort when the bit makes contact. Ideally most wolf teeth are removed and allowed to heal around 10 days before a bit is put into their mouths. Caps, retained caps, float or smooth the sharp edges, removing wolf teeth and possibly installing bit seats for added comfort, are a few things your dentist can perform before sending your horse for training.

A statement I often hear is "My horse is fat and eating fine so he doesn't need anything done". That is a myth and seems to be related mostly with the middle-aged horse. I have found that once a horse is not eating or chewing normally and losing weight, you wished you had taken action earlier, not only for your horse's sake but for your pocketbook as well! In general, it is important to float the sharp edges at least once a year. Often owners have not seen any signs of discomfort from their horses, but I assure you when I touch the ulcers along the cheek areas, they become reactive. This tells us they hurt, and you may not always recognize the signs.

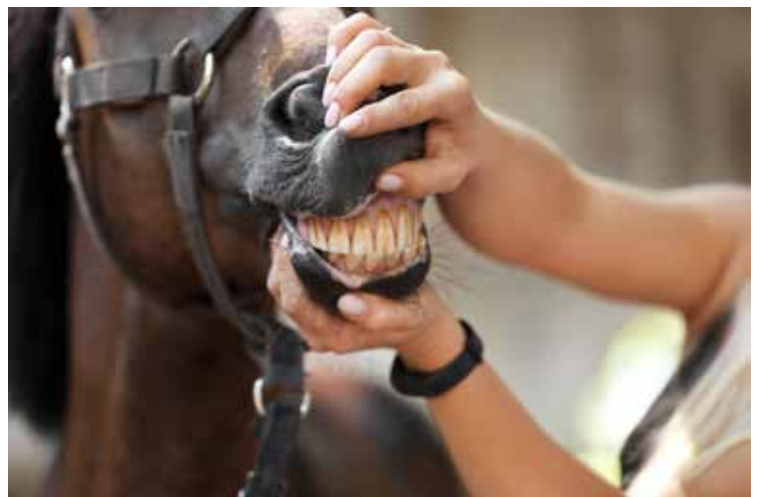
Teeth that become overpowering cause premature wear on the opposing teeth. These are important issues and the reason yearly maintenance for middle-aged horses should be performed. A yearly check can assure the teeth stay in good condition as our horses move into their geriatric years.

Horses are living longer today because of numerous health care and nutrition advancements. Older horses' teeth can also loosen naturally as the root begins to erupt to the surface, leaving the support structure weak. Overlong teeth can cause excessive wear or cupping (compromising the opposing teeth) or can act as a chisel. Each time chewing takes place, one out of balanced tooth can cause enough damage to destroy an opposing tooth. Because they have weakened roots structures, the malocclusions can cause early loss of teeth. We can help prevent early tooth loss with modern dentistry. Power tools can make balancing quicker, and more precise. We can correctly alter the proper angles on one tooth at a time, whereas the large surfaces of hand floats make it difficult to work on individual teeth.

Another improvement is the palatable feeds available today. Many of the feed distributors are making feeds specifically for our older horses. Check with your local feed supplier and ask about their senior feeds. These feeds cost a bit more but are well worth the price.

Equine dentistry has come so far over the past 10 years, and now it is time for us as horse owners to educate ourselves to the many benefits of equine dentistry.

*Stephanie Surprenant, EqDT, ProFloats Equine Dentistry, Buchanan, VA*



# FALL CHECKLIST FOR PREPARING YOUR HORSE AND PROPERTY FOR WINTER



The fall season is the perfect time to begin preparing your horses and your property for the cumbersome winter months approaching. Doing this can be overwhelming, but we have compiled this list to help guide you through the steps you should take to assure that you are ready for whatever winter brings.

## PREPARE YOUR WINTER HAY SUPPLY

Now is the perfect time to secure the hay that you will need to get you through the winter. Buying early makes it more likely that you'll find high-quality hay without paying outrageous prices. It is recommended that a horse should receive 2% of its body weight in hay (or forage) per day. For an average size horse, that adds up to be about 20 pounds of hay per day or 600 pounds per month for each horse. It's also important to keep in mind that a couple of extra pounds of hay fed on extremely cold nights is the best heat source you can provide your horse. Be sure to look for green, leafy, fresh-smelling hay without mold, weeds, dust or discoloration.

## LET YOUR PASTURES REST

If you have pastures, now is the time to let them breathe. Pastures grazed too closely in the autumn will be subject to winter damage and are slow to start growing in the spring. During this time, pastures simply cannot survive trampling and continuous grazing. It's best if you move your horses off your pasture and allow the grass plants to produce a good amount of leaf growth for winter protection—at least four inches. A good option for managing your horses during this time is to create a confinement area to keep your horses in during the winter months.

## BRING IN BEDDING AND FOOTING MATERIAL

Now is also the perfect time to stock up on material for bedding and footing. Pelleted beddings are readily available and are a cost-effective alternative that are highly absorbent and compost well. They also reap benefits including that they are very low in dust, good if either you or your horse have respiratory issues. Now is also the time to consider what material you would like to use in your confinement area. Popular material includes chipped wood, crushed rock or sand. It's best to get this material now before supplies are low and prices are high.

## CHECK ON MISCELLANEOUS THINGS AROUND YOUR PROPERTY

Make needed repairs or additions to your roof runoff system.

Review your lighting needs.

Review equipment needs for daily chores.

Fix anything that looks like it could become a problem in the next few months. Better to do it now than be faced with a problem you can't avoid any longer in freezing weather.

## CATCH UP ON NECESSARY VACCINES

During this time, it is also important to make sure that your horses' health is at its best and make any necessary changes to improve their health. Ask your veterinarian his or her recommendation of which vaccines your horses need in the fall. This can vary depending on your location and what each individual horse needs.

## PARASITE CONTROL / DEWORMING

As summer is fading out, the number of parasites tend to increase. Work with your vet to design a fall deworming program that works yet decreases the risk of creating drug-resistant parasites.

## LAMINITIS

Recent research has found that there is a seasonal elevation of the hormone ACTH in all horses during the fall. This begins mid- to late August and continues into November. In fact, for many older horses a bout of fall laminitis is often what leads to the initial diagnosis of Cushing's disease.

## PREGNANT MARES AND WEANING FOALS

Weaning age and the age your baby should receive his first vaccinations, or last foal booster, are often the same. Weaning is very stressful for a foal, so you want to make sure you have vaccinations out of the way at least two weeks before weaning to make sure that stress doesn't interfere with a good response to the vaccines. Your vet or a nutrition professional are the best sources for advice on how to bring your mare's diet up to requirements.

*Alayne Blickle (The Horse), Katie Navarra (Horse and Rider), EQUISEARCH*

# TRAIL RIDING ESSENTIALS

Having the right equipment and being prepared for trail rides can help prevent a disaster. Here are some tips for a successful and safe riding season:

## Make sure you have a riding buddy

Riding buddies not only make the trip more enjoyable, but they are also a great source of defense. If something happens to you, having another person there to administer first aid or get help is essential.

## Wear a helmet

Your brain is the most important organ in your body—make sure to protect it.

## Navigation

The GPS on your phone may be convenient, but it is useless if your battery dies or if you don't have a cell signal, so it shouldn't be your only source of navigation. Always carry a map of the area you'll be riding, even if you know the trail. You can refer to your map at trail junctions and major landmarks to keep yourself oriented. You should also carry a compass, a GPS, and extra batteries on every ride.

## Water

You can survive for weeks without food, but only a few days without water. In addition to bringing extra water, you should consider carrying a small water purifier in case you need to refill your water bottle from a stream.

## Clothing

It's always a good idea to bring one more layer than you're expecting to need. In addition to rain gear, it can also be a good idea to bring hand warmers and a blanket if you're expecting it to get cold. These things can take up more space, but you'll be happy to have them if the weather gets bad.

## First aid

You should have two first aid kits; one kit for you and another for your horse.

In your first aid kit, it's handy to have bandages, insect repellent, an anti-itch cream, antibiotic ointment, gauze pads, adhesive tape, needle for removing splinters, Ace bandage, sunscreen and pain-relief tablets.

In your horse's first aid kit you should have vet wrap, gauze pads, antiseptic scrub, an equine thermometer, and Banamine (flunixin meglumine; always use under the supervision of a veterinarian).

## Tools

You should always bring a good knife. This is essential because it can also be used in fire-building, first aid and food preparation. It's also a good idea to bring shoelaces or baling twine for tack emergencies.

## Food

Bring food for one more meal than you think you'll need. Things like trail mix, energy bars, nuts or dried fruit are good, easy snacks that don't take up much space.

## Light

If the sun goes down, you'll want a flashlight and/or headlamp.

## Fire

Waterproof matches and a fire starter, such as a candle stub, are great for keeping you warm if you get stranded overnight. You could also carry a few cotton balls and a small tube of Vaseline because smearing the Vaseline all over the cotton balls produces a long-burning fire starter that doesn't take up much room in a saddlebag.

## Tell someone where you'll be

It's important that someone knows where you're going, when you're going and when you plan to be back so someone will know to look for you if you're not back when you say you'll be.

Keep in mind that if you and your horse get separated, all the equipment in your saddlebag won't do you any good. Be sure to keep the most important items on your person—your cell phone, waterproof matches, and a knife are probably the bare minimum. If your clothes are short on pockets, use a fanny pack or some other pouch to carry important items. Also, be sure to put your contact information on your horse in case he runs off. Also, remember that it's better to be over-prepared than underprepared. Ride safely and have fun on the trail!



# EVENTS / CALENDAR

## ANIMAL HEALTH & FARM SUPPLY

### FALL BOOKING SALE

September 1-30, 2020

Take advantage of the huge selection and best prices of the season on all of your animal health and farm supply products! Contact your sales representative or visit [AugustaCoop.com](http://AugustaCoop.com) to shop online or to view a full list of sale items.

## SMALL ENGINE SALE

September 17 – 19 | 8 AM – 5 PM

Augusta Co-op Small Engine Shop (1205B Richmond Road, Staunton, VA - across from Sheetz)

Huge deals on SCAG, Husqvarna, STIHL and Oregon power equipment. Call or order ahead, or stop by (socially distanced) to talk to our knowledgeable staff about all of your fall and winter needs.

# AUGUSTA CO-OP EQUINE & DINE VIRTUAL SEMINAR

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