

## Poulin Grain - Forage Extender

Horse hay is in short supply in New England. Good quality hay is even tougher to find. Green Mountain Forage Laboratory reports that 2008 horse hay is low in protein, low in energy and generally very course and mature. The quality of the forage fed to horses can be improved by replacing some of the hay in the diet with Poulin Grain – Forage Extender. This product combines good quality, highly digestible forage products such as beet pulp, soybean hulls and alfalfa in a convenient no-waste pellet. Poulin Grain – Forage Extender comes in a small pellet (mini-bites) and a larger pellet (super bites). So what makes one forage extender better than another? The answer is the quality of forage. Many competitive forage extender products utilize non-digestible oat hulls as a fiber source. Don't be fooled, boost the quality of your forage with Poulin Grain – Forage Extender.



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# Poulin Grain<sup>®</sup>

A Family Feed Company

## Equine Feed Quarterly

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### Nutrition and Management Related Colic in Horses

*Dr. Tania Cubitt and Dr. Stephen Duren*

The term “colic” strikes fear among horse owners. Colic is a generic term that refers to abdominal pain that can result from many different causes. Among domesticated horses, colic is a major cause of premature death. The incidence of colic in the general horse population has been estimated between 10 and 11% per year. In a recent study, colic was second only to old-age as the leading cause of death in horses.

Most colic problems involve the gastrointestinal tract. Colic symptoms have been associated with composition of diet, changes in diet, feeding practices, exercise patterns, housing and inappropriate parasite control programs. With nutrition related disorders being the top 3 causes of colic in otherwise healthy horses, we should consider carefully our horses feeding program.

#### Composition of the diet

Carbohydrates are the primary source of energy in the diet of horses. Horses evolved to digest forages high in structural carbohydrates (fiber) through bacterial fermentation in a highly



developed large intestine. However, the energy needs of performance horses, pregnant and lactating mares and even young, growing horses are higher than the calories supplied by a forage only diet. To meet this increased energy demand, horses are commonly fed more energy dense feedstuffs such as grain concentrates. Grain is rich in starch and sugar, and unlike forage it is digested with enzymes secreted in the small intestine. Surveys have indicated that horses fed large single grain meals, or large volumes of grain throughout the day are more likely to colic with the primary cause due to the limited capacity of the small intestine to digest grain.

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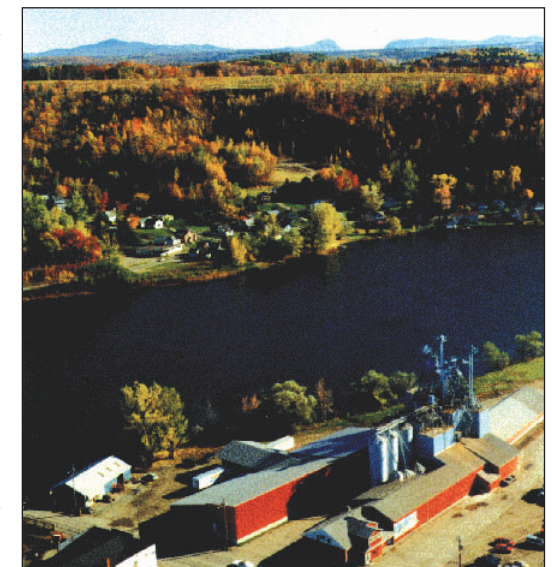
### Poulin Grain

Poulin Grain is located in Newport, Vermont and has established a reputation for making quality horse feeds. Poulin has an expanded product line that includes a selection of premium feeds completely fortified to meet the requirements of each stage of your horse's life.

Poulin Grain provides its customers with state-of-the art feed products. By working with Performance Horse Nutrition, Poulin Grain is able to incorporate the latest horse feed technology and research information into its products and can provide its customers with unrivaled technical support.

Our philosophy on equine nutrition is based around natural feeding habits and involves these standards: feeds that make use of native sources of forages, nutrient rich feeds and feeds that keep the horse's digestive system healthy and able to digest, absorb and synthesize efficiently.

These standards reflect back on the nature of the horse, a grazing animal that can survive well on forages. Nutrition does not need to be complicated; it only needs to be able to change with the demands from the horse, in keeping with the natural nutritional processes of the animal.



Research has shown that small volumes of grain (starch) are digested at a rate of approximately 80 % in the small intestine. If the amount of starch is increased then the small intestine becomes overwhelmed and the excess starch flows into the hind gut where it upsets the microbial population and decreases the pH resulting in hindgut disruptions and colic. No more than 4-5 lbs of grain should be fed in a single meal to a 1000 lb horse.

#### Dietary changes

An association between feeding practices and disturbances in gut function has long been recognized. Studies have shown that dietary changes, particularly a change in amount of grain fed contributes to an increased risk for colic. Research has also listed changes in batch of hay or type of hay as potential risks for colic. Therefore all dietary changes should be made gradually over a 2-week adjustment period. An abrupt change in type of forage fed or an increase in the amount of grain will result in an increased rate of fermentation and noticeable changes in the microbial population, and acidity in the hind gut. With a sudden increase in grain, a portion of the sugar and starch passes into the cecum undigested, where it causes gastric disturbances. These disturbances to the hindgut environment put the horse at greater risk for colic, diarrhea, and laminitis.

Situations to avoid include (1) a sudden introduction to grain feeding or an abrupt increase in the amount of grain concentrate; (2) the feeding of large grain meals that overwhelm the capacity of the small intestine; and (3) rapid changes in the amount, batch or type of hay being fed.

#### Housing, Management and Exercise

Housing conditions can influence the risk for colic: horses maintained outside all year long are less susceptible to colic than horses living indoors. Horses that live indoors typically get less

exercise and are more likely to accumulate gas within their digestive system compared to horses freely exercising outside. Further, a change in housing is often associated with a change in diet further influencing the likelihood of colic.

No association has been found between colic and the type of bedding. However, impaction colic can occur if horses are bedded on straw and consume large volumes of this non-digestible fiber when not given free access to a more digestible fiber source (e.g. hay, forage cubes etc.). Any large changes in exercise pattern can cause stress to the animal and bring about colic. When starting a horses training program or bringing them back into work after a break make sure all changes in their exercise program are done gradually.

Horses that fall into high-risk categories, such as stabled horses in intense training and fit horses recently injured, should be monitored particularly closely. Horses should be allowed as much turnout as possible and owners should maintain a regular feeding schedule. Constant access to an abundant source of clean fresh water is imperative to the avoidance of colic. Care should be taken not to feed moldy or spoiled grain or hay. As with the diet make any housing, management and exercise changes gradually.

## Research Update

### Feeding Your Horse After Colic

*Dr. Tania Cubitt*  
*Performance Horse Nutrition*

The nutritional requirements of horses after colic surgery or other gastrointestinal illnesses have not been determined. Primary considerations include requirements for energy (calories) and protein. In most situations, the energy requirement for a healthy adult horse at a maintenance level of activity can be met if the horse consumes between 1.5% and 2.5% of its BW per day as hay. However, the energy needs of hospitalized horses are probably much lower because of reduced energy expenditure. When energy supply from carbohydrate and fat is limited, muscle protein will be used for energy contributing to a loss of lean body mass. Therefore, in developing a nutritional plan, first ensure that minimal energy needs are being met and then ensure the protein requirements are being met.

Horses with simple colic (i.e., no specific diagnosis) rarely need special dietary management. Feed and water should be withheld during the colic episode, with resumption of normal feeding after the colic signs have resided. An evaluation of diet may be indicated when there is suspicion that diet or feeding practice contributed to the episode of colic. Some recommend the withholding of grain feedings for a few days to limit gas production in the hindgut. Horses recovering from intestinal surgery can resume feeding when there is clinical evidence of intestinal motility.

Initially, the horse should be fed small amounts (1 lb) of good quality forage (e.g., grass hay, alfalfa) four to six times daily, with a gradual increase in the volume of feedings over the following days, providing the horse tolerates the increase in feeding. Alternatively, the horse may be allowed to graze pasture for 20-30 min several times throughout the day or provided a highly digestible; low-bulk pelleted feed such as senior feeds. Grains should be avoided for at least 10-14 days post-surgery (or colic) because of concern that an excess of starch may disrupt an already disrupted hindgut microbial community.

**Small Intestinal Disorders**  
Disorders of intestinal motility are of primary concern after small intestinal surgery. Fresh grass (hand grazing) and

mashes or slurries made from alfalfa pellets or pelleted complete feeds are suitable feedstuffs. Molasses may be added to the mash or slurry to enhance palatability of the ration. Small meals (1lb) should be fed every 3-4 h, again in an effort to minimize physical stress at the surgery site. In uncomplicated cases there should be a gradual introduction to long-stem hay after 3-4 days of soft diet feeding. Bran mashes are not recommended for horses during the early phases of recovery from small intestinal surgery because of the adverse effects of high bulk feeds on the healing of incision sites.

#### Large Intestinal Disorders

Horses with impaction of the large intestine should not be fed until after resolution of the impaction. Fresh grass, alfalfa pellets, chopped alfalfa hay, and other sources of highly digestible fiber are preferred. Diarrhea is a complication of all types of colic surgery, but the risk seems to be highest in horses undergoing surgery for large intestinal disorders. Horses fed grass hay were one half as likely to develop severe diarrhea as horses not fed grass hay. Horses should be fed small amounts of grass or soft grass hay at frequent intervals (every 2-3 h) as early as 12 h post-surgery, providing there is no evidence of complications. First cut hay is preferred because of higher dry matter digestibility compared with more mature forages. No grain or concentrate should be introduced until 10-14 days post-surgery. However, the feeding of a low bulk pelleted feed may be beneficial during this period. If additional calories are needed for weight maintenance, a "fat and fiber" concentrate rather than grain or sweet feed is recommended.

After your horse has been treated for colic it is important to monitor signs carefully. Note attitude, water intake, passage of manure (consistency and amount) and gas, urination, gut sounds, gum color (pink is normal), hydration (check gum moisture and skin pinch on point of shoulder), and temperature (less than 101.5 F). Look for any signs of discomfort such as pawing at the ground, looking or kicking at the belly, a distended or tucked-up abdomen, lying down frequently or rolling.

Most horses drink 8-10 gallons of water per day during the summer and 6-8 gallons during the winter. Horses that colic usually have a reduced water intake that may last several days. Warm, clean water should be provided for your horse - if the horse does not drink, try providing a bucket of flavored water in addition to the bucket of fresh water. You can flavor a five gallon bucket with 2 tablespoons salt, 1/8 cup of molasses or 1 can frozen apple juice concentrate or carrot juice or Gatorade.

Geor, R.J. 2007. How to Feed Horses Recovering from Colic. AAEP Proceedings. Pp 196.



## Question & Answer with Dr. Tania Cubitt

**Q.** Will feeding a bran mash once a week to my horse stop him getting colic?

**A.** NO, it is a common misconception that feeding a bran mash to a horse will "clean out his system" and stop him from getting colic. There is no scientific evidence that wheat bran has any laxative effects in horses. The practice of feeding a warm bran mash once a week actually conflicts with one of the basic principles of feeding a horses which is to make feed changes gradually and over a period of time. Offering a horse a large meal of a product they are not used to can create digestive upsets. This practice may be why some people can think it is working as a laxative, the rapid change in diet may cause mild diarrhea. This is not good for the horse's sensitive digestive system and may actually lead to colic. Bran is also very high in phosphorus compared to calcium (12 parts phosphorus compared to 1 part calcium). If bran is fed on a regular basis and over a long period of time bone disorders may occur.

**Q:** Will my horse choke on pellets?

**A:** NO, there is no scientific evidence that shows a horse that eats in a normal manner will choke on pellets, choke is more commonly caused by the way in which the horse eats. To keep a horse from bolting their food you may want to place a couple large rocks or a brick in the feed bucket. Also try feeding your horse in a shallow feed tub on the ground; this mimics the horse's natural eating position when grazing. Adding water and/or chopped forage to the feed can also slow the horses eating rate. Some horses bolt their food to avoid being pushed away by a dominant stable-mate; it may be a good idea to feed these horses individually. Horses that bolt their food are not the only ones at risk of choking. Frequent chokes can also result from poor chewing and eating habits. On a regular basis you should check your horse's teeth and float them if necessary. During feeding it is critical that you let them have access to plenty of fresh water no matter what type of feed you are giving your horse.

## Do you have a question on Equine Nutrition?

Ask your question here and mail it to:

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