Grain-fed veal factsheet: acidosis

Introduction

The goal of a of a grain-fed veal farmer is to achieve the desired finish at the right weight and age when marketing veal cattle. Ideally market-ready grain-fed veal cattle should weigh between 295 to 320 kg (650 to 705 lbs.) at 28 to 32 weeks (seven to eight months) of age. To achieve this goal, it is critical to have the right feed rations and ratios.

Veal is defined as cattle of any dairy breed or dairy crossbreed dressing no more than 190 kg (419 lbs.). This converts to a live weight of roughly 349 kg (769 lbs.), which is reached at approximately eight months of age. Producers are strongly encouraged to target a dress weight of 180 kg (397 lbs.) to maintain some flexibility within the system to manage veal carcass weights.

- Average daily gain (ADG) should be 1.2 kg (2.6 lbs.) or better. Targeting daily gains above 1.5 kg (3.3 lbs.) may require additional nutrient requirements.

Grain-fed veal cattle are fed a balanced ration based of grain (usually clean, whole-shelled corn) and pellets made of protein, vitamins, and minerals. A small amount of fibre should be offered daily to maintain rumen health. Cattle should also have continuous access to their feed, to encourage slower eating and stimulate chewing. Ensure there is adequate bunk space for each animal.

What is acidosis?

Ruminal acidosis is a common metabolic disorder that has significant economic implications in the grain-fed veal industry. Feeding excessive amounts of rapidly fermentable carbohydrates to ruminants, in conjunction with inadequate fibre, can cause acidosis.

Why is it important?

If left untreated, acidosis could lead to rumenitis, laminitis, liver abscesses, reduced feed intake, sudden death syndrome, off-feed syndrome, and clostridial infections (Vermeire, 2012). All these conditions are affecting your bottom line; you cannot afford to overlook acidosis in your operation.

Symptoms to watch for:

- Depression/lethargy
- Off-feed
- Elevated heart rate
- Diarrhea
- Poor body condition
- Reduced growth/weight loss
- Elevated temperature
- Bloat
- Reduced rumen contractions
- Liver abscesses (at slaughter or post-mortem)

Avoiding acidosis

Healthy and productive cattle have a ruminal pH of 6.5 to 7. If the ruminal pH changes too much (gets too low or too high), cattle begin to experience symptoms that impact health and reduce performance.

How?

Cattle have a specific balance of microbes living in their rumen. These microbes help cattle to break down feed and absorb nutrients. At any time, cattle have both 'good' and 'bad' microbes in the rumen. When ruminal conditions are ideal (at the right pH), the 'good' microbes thrive, and so do the cattle. However, when ruminal conditions change, the 'good' microbes become less effective or die, leaving room for the 'bad' microbes to grow.

When the pH of the rumen falls, 'bad' acid-producing microbes become more active, which makes the pH fall further, and rumen more acidic, in a harmful cycle.

If the rumen becomes too acidic (pH falls below 5.5), the rumen can stop moving. This reduces appetite as well as production—cattle that do not eat and digest cannot grow. When the rumen becomes very acidic, acid is absorbed out of the rumen and into the blood stream. This form of acidosis, metabolic acidosis, can cause shock and death.

Why does the rumen become acidic?

The rumen becomes more basic (pH increases) when cattle are deprived of feed. This change can harm 'good' rumen microbes. Some of these 'good' microbes are essential to helping cattle cope if the rumen becomes too acidic. So, if the rumen becomes basic and good microbes are harmed, once the rumen returns to normal, the 'bad' microbes can take over, creating a more acidic rumen. These shifts in pH are undesirable.

For example, an animal that was transported for several hours went without feed, and the rumen became more basic (pH increased). This harmed 'good' rumen microbes. When the animal gets off the trailer, it consumes a large meal of concentrates. This can cause the rumen to become more acidic, falling below the ideal range. Now the animal has an acidic (low pH) rumen and the microbes that would have helped them bring the pH back to normal were harmed when the animal was off-feed. In this way, cycles of feed deprivation followed by overeating greatly increase the risk of acidosis.

Any other situation that causes cattle to eat large meals of concentrates, such as competition for bunk space, can also increase the risk of acidosis.

Controlling rumen pH

Feeding high-grain diets without access to fibre can also cause the rumen to become more acidic. Fibre in the diet can reduce the risk of acidosis. Fibre needs to be chewed and ruminated more than concentrates. This chewing and ruminating creates saliva, which is swallowed and ends up in the rumen. Saliva makes the pH of the rumen less acidic (this is called buffering).

Feed that is easier to digest, such as cracked corn, requires less chewing, leading to less saliva buffering, and a more acidic rumen. Including fibre in the diet provides other benefits, such as encouraging rumen development and rumination, and reducing abnormal behaviour. Reducing the risk of acidosis is another reason to consider providing forage to veal cattle.

Chewing is the key

There is a science behind the eating process and how it affects the metabolism. Chewing is the key to digestion. Cattle need to chew to produce saliva, which contains enzymes and bicarbonate that aid in digestion. Non-grain-fed cattle chew on hay or silage to produce saliva, whereas grain-fed cattle chew on corn. The corn that you feed must be whole-shelled corn without fines. Too many fines in the feed reduces chewing and therefore saliva production, which may result in bloat. Fines should be screened out and avoided.

When doing pen checks, check the manure to see the amount of corn in it. If you see a lot of whole corn in the manure, this means the animal has not chewed enough. To determine why the animal is not chewing enough, assess the pen for overcrowding, determine if the weight range of animals in the pen is too varied, or there is not enough bunk space available.

Like most metabolic disease, for every animal you identify, there are several more who are experiencing the disease but not showing symptoms.

Keep an eye on the manure of your herd. Any changes should be quickly addressed.

View these articles:
Avoiding Acidosis (http://bit.ly/AvoidingAcidosis)
Feeding fibre to young veal cattle (https://bit.ly/FeedingFibre)

For more information:

As part of your research into starting a grain-fed veal farm, you are encouraged to talk to experienced veal producers, visit their farms (while following strict biosecurity protocols), and attend industry events and meetings. No two veal farms are the same and a lot of valuable information will be learned from each visit and event.

Find producer resources on the VFO website here: https://bit.ly/VFOProdResources

Find the *Code of Practice for the Care and Handling of Veal Cattle* here: http://bit.ly/theVealCode

Find OMAFRA veal resources here: https://bit.ly/OMAFRAVealBusiness

References available upon request.

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