



**dhia**

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**Dairyman to Dairyman**

Written by: George Cudoc, PA DHIA Consulting Dairyman

**Question: Our TMR is made up of haylage, high moisture corn, and a protein supplement. How fine should we grind the high moisture corn?**

The first piece of information that we need is already supplied in the question. The type of forage that we feed plays a large part in the way we balance the diet. This holds true for the physical preparation of the grains that we use to achieve this balance. Balancing the amount of corn on this or any dairy is key to fine-tuning carbohydrate feeding that will optimize production while avoiding rumen health problems. Haylage is the only forage fed on this dairy, therefore we need to consider fine to medium processing of the high moisture corn. This should work well since the corn is part of a TMR and there is no other major source of starch in the diet. Knowing if the grind should be medium or fine can be determined according to the moisture content of the high moisture corn.

We need to remember that fermentation of the corn is like the start of the digestion process of the cow. For high moisture corn and corn silage, wetter usually means more and quicker availability of the starch component. High moisture corn below 25%

moisture may ferment well enough to store, but we usually can use it the same as dry shelled corn and will need to process it accordingly. High moisture corn over 30% moisture is usually very readily available to the cow even to the point of being somewhat "explosive" as it enters the rumen. Keeping this in mind, we can often grind it much coarser and get full utilization. Corn silage that has adequate grain in it, reacts in the cow similarly with higher moistures bringing along a faster and greater availability. Processing of corn silage in the field has had a dramatic effect on how it is used by the cow.

Observing manure is the easiest method to use to determine if the corn used in this diet is processed properly. Undigested parts or whole kernels of corn may tell us that we need to process the grain finer. On this farm a great deal of corn is observed in the manure. Fiber particles are not seen and the manure throughout the barnyard appeared very consistent. The same screen is being used in the hammer mill, as was last year. The current corn tests 18% moisture, which is considerably drier than last year at 27%. Corn that is this dry needs to be enhanced physically for cows to use it properly and grinding with a smaller screen may help.

Fine-tuning the ration to best utilize carbohydrates will lead to better production as a result of increased rumen health. We also need to consider the physical properties such as moisture and processing. The same feeds processed differently can lead to much different results. As a general rule higher moistures in the source of the carbohydrates will require less processing. Forages that are higher in carbohydrates will also reduce the need to process grains as much. TMR feeding will allow us to feed finer grains when that becomes necessary. These are only rules of thumbs and you should look to manure observation and cow performance as your guide. The MUN tool will also be of help by evaluating protein and carbohydrate balance in the diet. We want to be sure that protein needed for digestion of the corn is adequate or grinding finer will just make it harder to see in the manure.

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