



## BEATING MOTHER NATURE'S RAIN



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Each year many forage producers have moments of great frustration as the rain clouds form, the rain drops fall and their potentially perfect crop of hay turns into something that their livestock won't touch. Mother Nature can be very unpredictable and down right aggravating when trying to harvest high quality forages.

Usually, the most challenging time to make hay is during the first cutting time period of May. It can take between two and five days to complete a harvest. Unexpected thunderstorms can wreak havoc in a short period of time. The best bet to beat the rain and Mother Nature is to have a well-stocked arsenal of dependable hay making equipment.



Crimped Stem



Linear Crack

The most important tool to reduce curing time is the mower-conditioner. USDA research has shown that properly set conditioning rolls can reduce the drying time of first cutting by 80% as compared to using a sickle-bar mower. The conditioning roll gap and tension are the two most important items to check and readjust with each harvest. Ideally, the conditioning roll gap needs to range from 0.060 ( $\frac{1}{16}$ ) to 0.090 ( $\frac{3}{32}$ ) inches. The crop needs to show 90% crimping and/or cracking (See figures on this page.). The roll tension should be set so there is no more than 5% leaf bruising occurring; this is the point at which bruising is first noticed. Refer to the machine's owner's manual on how to make the adjustments.

Research has indicated that there is little difference between conditioning roll types and their influence on hay drying rates. Many equipment companies are now offering a type of conditioning known as flail conditioning. This process originated in Europe and was intended mainly for grass-type crops. If they are used on legumes, you can expect a slight increase in dry matter loss with a minimal increase in drying rates as compared to conditioning rolls.

Another important tool that can help improve hay-drying rates is a tedder. Although tedders are not always needed, they can be "worth their weight in gold" when trying to beat the rain.



Tedding a swath

The most critical thing when using a tedder is to use it at the right time. If it is used when the crop is too dry, especially with legumes such as alfalfa, leaf loss can be very high. Ideally the crop needs to be tugged at 60% or greater moisture. This typically is about four hours after mowing or the morning after mowing while the dew is still on the swath or windrow.

Management can play an important role in making hay in a timely manner. An example of this would be setting a mower-conditioner to lay out narrow windrows with the intention of letting the soil dry between the windrows. Then come back with a tedder and spread the hay out to maximize its exposure to solar radiation. Another example would be setting the mower-conditioner for the widest swath that will fit between the tractor tires to help expose the most hay possible to the sun with out tugging it.

Recent Purdue University research has shown that the use of a hay tedder can decrease drying times of first cutting by up to 10% as compared to no tugging. However, during later harvests, a tedder does not make a significant difference in hay drying rates. Canadian research indicates that more than one tugging of the hay is uneconomical and has little benefit on the overall drying rates of the hay.

The next tool needed in hay production is the rake or windrow inverter. The purpose of these tools is to turn and/or combine windrows of hay. Rakes ranging from the traditional side delivery rake to the more recent rotary rake are available. Regardless of the type of rake it needs to be set properly. The windrows need to be turned over to expose the green underside and they also need to be fluffed to help improve air circulation through the hay. The operator and the precision of their job can also control this. It is also important to rake when the moisture content of the hay is 40 to 50%. This helps reduce leaf shatter and loss of forage quality.

Finally, there are many different baler options to consider. If you don't have a dependable baler, then you are at a greater risk of losing your crop due to breakdowns. Your baler doesn't need to be the newest or biggest, it just needs to be sized to your farm and in good repair. Many round balers are capable of making high-moisture (approximately 50% moisture) bales, that will subsequently be wrapped, individually or in a tube, and ensiled. The use of a bale wrapper or tuber adds additional cost to the harvest process, but can be justified when weather conditions do not permit baling dry hay. Balers can be outfitted with preservative applicators. Preservatives, such as propionic/acetic acids, can save a crop of hay from potential rain damage by permitting hay to be baled at higher moisture content without risk of heat and subsequent mold formation..

Being aware of the weather forecast and using available hay-harvest technologies will not guarantee that you can always beat Mother Nature, but at least you have a fighting chance if you do.

