



Hail Damage in Alfalfa

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The month of July is thunderstorm and hail season in Manitoba but this year there seems to be an abnormal number predicted.

During this period of the growing season, hail on annual crops like wheat or canola can have a devastating outcome. You only get the one crop per year and when hail hits, there's little room for recovery.

Forages, on the other hand, aren't subject to just one crop per season. If hail hits an alfalfa field there is the potential for damage to the existing stand but with good growing conditions, a second or third cut is still possible.

If an alfalfa field is damaged by hail the first question usually is regarding harvest management. Hail damaged fields vary in degree of severity, ranging from some terminal bud and leaf damage to completely defoliated plants. Stands may also be lodged by accompanying wind and rain.

Hail physically defoliates alfalfa and can damage its growing points. Alfalfa grows from the terminal growing point (top of each stem) of the plant. If these are damaged, further growth in height is stopped on that stem. If hail damages the terminal growing point of a stem, the plant must re-grow as branches from buds further down the stem or from crown buds.

If hail hits alfalfa, the amount of damage and the timing are two key elements to consider.

Recommendations for Managing Hail Damaged Alfalfa			
		Less than 50% of terminals damaged	50% or more of terminals damaged
Damaged more than 2 weeks before planned harvest	For harvest as hay	Wait until normal harvest time – expect reduced yields	Wait until regrowth reaches harvest maturity
	For harvest as silage	Wait until normal harvest time – expect reduced yields	Flail or cut immediately. Then wait until regrowth reaches harvest maturity
Damaged less than 2 weeks before planned harvest	For harvest as hay	Wait until normal harvest time – expect reduced yields	Harvest immediately if yield justifies harvest. If lodged, delay 3-4 days before harvest. If yield does not justify immediate harvest, wait until regrowth reaches harvest maturity.
	For harvest as silage	Wait until normal harvest time – expect reduced yields	Flail or cut immediately. Wait until regrowth reaches harvest maturity.

The table above from the University of Wisconsin provides some guidelines on how to manage the crop at different stages after a hail event.

Losses and re-growth will be the same whether the crop is cut for hay, silage or baleage. The major difference is that for alfalfa to be harvested and fermented (for either baleage or chopped haylage/silage), it is recommended to flail chop or mow the stems remaining after hail by four to six inches so that the material cannot mold and affect fermentation of the next harvested crop.

Hail can also affect forage quality due to leaf loss and soil contamination. When we look at alfalfa in the early bud stage most of the dry matter yield and leaf material is in the top 8 inches or half of the plant. The bottom part is mostly stem. When harvesting damaged hail, taking a feed test is a good practice and for high producing livestock like dairy, determining ash content is a good practice to ensure adequate nutrients.

There isn't a lot of information on how hail affects other forages such as grass. We might assume that the effects to legumes and grasses with upright stems will likely be most dramatic to the top portions of the stems. Since legume leaves are more fragile than grass leaves, we would expect less damage to grass leaves than legume leaves. In addition, grasses and legumes that do not have upright stem growth during summer and fall will likely have less loss of yield. Of course, the size of hay will have a significant effect on damage.

In pastures where standing forage may now be lying on the ground, it's a good idea to move animals from the affected pasture to allow plants to recover. If re-growth does occur, graze appropriately so overuse doesn't occur. When dry conditions and hail happen at the same time, re-growth may not happen and returning animals to the pasture may not be an option until moisture returns.

Hailstorms are unavoidable. When a storm impacts your forage production, assessing damage and adjusting management appropriately can help make the best of an unfortunate situation.