Hail Damage Affects Silage Corn

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Anyone who has ever seen the devastation a hailstorm can cause to a stand of corn knows that the potential for yield loss can be very high. In severe cases, a field of corn can be shredded beyond recognition — sometimes to the point it looks more like a poor crop of bamboo instead of a cornfield.

Surprisingly, in other situations, the corn plant has the ability to recover and yield reasonably well.

There are two primary factors that determine how much potential yield loss has occurred due to hail damage. One of these factors is the amount of defoliation the plant encounters. In the most severe cases, 100 percent of the leaves can be stripped off the plant. The other factor influencing the amount of yield loss is the growth stage of the corn when the hailstorm strikes.

There has been a fair amount of research done documenting the effect hail damage has on grain yield, but not much is known about the yield and quality loss to corn harvested as silage. We have just completed the second year of a trial that studied the effects of hail damage on corn silage. We hope to determine how much loss occurred under the following conditions: 100 percent defoliation at V7 (7 leaf stage), V10 (10 leaf stage), silking and early dough; 50 percent defoliation at V10, silking, and early dough; and 25 percent defoliation at silking and early dough.

For the trial, a popular silage variety was planted in 30-inch rows at 32,000 seeds per acre. The hail damage was simulated in the trial by clipping off a portion of the leaf area of each plant, corresponding with the percents defoliation and growth stages listed above.

As one might expect, some of the plots showed severe losses in yield. When averaged over two years, the highest yield reduction (75 percent) occurred when the corn was 100 percent defoliated at silking. These plots had no grain in the forage due to the severe stress at silking. The lowest yield loss over two years was nine percent and took place when silking corn was defoliated 25 percent. The table summarizes the average yield losses over the various treatments in the study.

Growth Stage	Defoliation %	%Forage Yield Reduction (2 Year Average)
-	None	
V7	100	16 3
V10	50	10 2
V10	100	43 5
Silking	25	9 0
Silking	50	21 1
Silking	100	75 3
Early Dough	25	10 7
Early Dough	50	14 0
Early Dough	100	40 8

Not surprisingly, there was a large difference in forage quality among the different treatments. The forage was analyzed for crude protein (CP), neutral detergent fiber (NDF), neutral detergent fiber digestibility (NDFd), starch, and ash. Some of the largest quality differences were with the 100 percent defoliation treatment at silking. This treatment was significantly higher in CP, NDF and Ash, but lower in starch than all others. It is not surprising that this corn was ranked lowest in starch because it was completely stripped of its leaves at silking and therefore did not produce any grain.

A summary of the quality analyses from the 2001 trial is shown in the table.

Growth Stage	% Defoliation	CP	NDF	NDFd	Starch	Ash
-	None	6 8	49 72	42 53	25 24	2 98
V7	100	7 1	40 32	43 30	37 52	2 37
V10	50	7 0	43 35	44 13	34 91	2 49
V10	100	7 3	43 65	44 18	30 77	2 85
Silking	25	6 8	44 86	42 55	33 15	2 53
Silking	50	7 0	48 50	44 30	28 05	2 77
Silking	100	8 0	63 48	43 28	7 52	4 99
Early Dough	25	6 8	53 67	42 43	21 52	3 30
Early Dough	50	6 5	52 73	43 28	24 38	3 03
Early Dough	100	6 6	53 63	40 80	28 29	3 43

How does this information affect producers in our region? Probably the most important way a producer could be affected is if a crop insurance adjuster needs make a fair estimate of yield losses because of hail damage. The estimates insurance companies have used for grain losses in the past may not be applicable to silage losses.

Also, since a hailstorm can change forage quality in such a dramatic way, it would benefit livestock producers to have a rough idea of how their feeding program might change if they have to feed a significant amount of hail damaged corn during the year.

We plan to conduct a third year of this study in 2002. Our colleagues at the University of Wisconsin are conducting parallel trials. At the end of the third year, we plan to summarize our findings and develop some guidelines for assessing the effects of hail damage on silage corn for producers and the hail insurance industry.

Sterling Financial Forms New Affiliate

LANCASTER (Lancaster Co.) — Sterling Financial Corporation (NASDAQ: SLFI), a Lancaster-based bank holding company with assets of more than $1.8 billion, recently announced the formation of a new affiliate called Sterling Financial Trust Company. The move is aimed at offering unparalleled financial expertise in a way that sets a new standard for efficient and effective customer service.

As of Jan. 1, the trust, investment, and fiduciary services previously spread among four separate Sterling-owned banks — the Bank of Lancaster County, the Bank of Lebanon County, the Bank of Hanover, all in Pennsylvania, and the First National Bank of North East in Maryland — were combined into a single unit under Sterling Financial Trust Company.

"We are concentrating and focusing the power of our experience and expertise into a single, high-performance organization," said Gregory S. Lefever, president and CEO of Sterling Financial Trust Company. "We are achieving efficiencies of scale that will result in better service and at the same time will create for us a stronger identity and presence in the marketplace."

The new company includes an investment services group to provide market research and analysis, professional investment management, and securities trading; a wealth-management group to administer trusts, estates, and guardianships; a retirement services group to administer employee benefit and retirement plans; and a private banking group to serve the special needs of high net-worth customers.

The creation of the region-wide trust company is also viewed as a major step in enabling the individual banks in the Sterling Financial corporate family to serve their customers better and more completely. "This dramatically raises the level of service we can offer to our local customers," said Tom Dautrich, president and chief operating officer of the Bank of Lancaster County. "We can give our customers access to whatever depth and breadth of expertise they need — and do it within an existing relationship that they already trust and feel comfortable with."

Sterling Financial Trust Company serves customers in Adams, Lancaster, Lebanon, and York counties in Pennsylvania and Cecil and Carroll counties in Maryland.