



Grain Crops Update

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Storm damage, estimating yield loss, and disease threat

Strong storms progressed through the northern part of the state last weekend causing some localized hail damage and greensnap in corn fields. Hail damage may be assessed by estimating the percentage of dead leaf area and leaf area removed from the corn plants relative to its growth stage. Mutilated leaf area still green and intact should not be included in the defoliation estimate. Figure 1 shows corn yield loss expected depending upon degree of defoliation from hail damage.

Figure 1. Estimated corn yield due to defoliation occurring at various growth stages. Adapted from the National Crop Insurance Service’s “Corn Loss Instructions” (1984). This chart is commonly used to estimate potential corn yield loss when hail defoliates leaf area at different growth stages.

Corn Growth Stage	Percent Leaf Area Defoliated									
	10	20	30	40	50	60	70	80	90	100
12 leaf	0	1	3	5	9	11	15	18	23	28
14 leaf	0	2	4	8	13	17	22	28	36	44
16 leaf	1	3	6	11	18	23	31	40	49	61
18 leaf	2	5	9	15	24	33	44	56	69	84
Tassel	3	7	13	21	31	42	55	68	83	100
Silks Brown	2	6	11	18	27	36	47	60	74	90
Blister	2	5	10	16	22	30	38	50	60	73

Greensnap - Greensnap is a term describing corn stalks broken by high winds. This phenomenon normally occurs during rapid vegetative growth stages when corn is around three feet tall until nearly tassel. Greensnap is much more common in the windy plains states, but Mississippi corn has experienced more problems this year (during early to mid-May as well as this recent storm) than any year I can recall. During mid to late vegetative stages the stalk is rapidly developing and may be somewhat brittle, particularly when sunny, favorable weather promotes rapid growth, preceding a windstorm. Stalk breakage normally occurs well below where the ear develops. Although plants will likely attempt to develop an ear at the highest node on the broken stalk, little grain yield normally

results, due to pollination difficulty and drastically reduced leaf area. Thus, yield reduction is closely correlated to the percentage of broken stalks. Several factors, including corn hybrid, high nutrient levels, in-season nitrogen application, row orientation perpendicular to the wind direction, high plant population, and plentiful water availability and timing are known to influence greensnap.

Figure 2. Corn stalks broken by high winds are commonly called “greensnap.” Stalks rapidly developing through vegetative stages may be somewhat brittle, making plants more prone to greensnap, than other growth stages. Strong storms with high winds have promoted this problem much more than normal this season.



Assessing yield loss from disease - Disease threat to corn yield potential is dependent upon the reduction of leaf photosynthetic capacity relative to crop growth stage, somewhat similar to the well-recognized hail damage chart shown in **Figure 1**. Many foliar diseases of corn, including the leaf blights and spots, initially infect lower leaves, and then spread up the canopy, because the fungus that causes them can survive in infested corn residue on the soil surface. Higher humidity also promotes initial infection low in the canopy. Therefore, crop consultants and others **regularly scouting** their corn crop have ample opportunity to identify disease infection and recommend timely fungicide application, before the critical upper leaves are infected. Because the upper leaves produce the vast bulk of the photosynthetic energy used to fill grain, **considerable disease infection may occur on lower leaves before any yield reduction is likely**. In fact, Figure 1 shows leaves below the ear (~12 to 14 leaf) can tolerate 15 to 20% defoliation loss before any yield reduction occurs.

Figure 3. Greensnap normally breaks stalks below ear level. Therefore, yield reduction is closely correlated to the percentage of broken stalks.



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