

## HAIL DAMAGE TO CORN

In recent days, growers in some parts of the County experienced severe hail storms. Though they haven't lasted long, the hail caused severe damage to alfalfa hay and to new seedling corn plants. In some cases there was severe defoliation of most plants. This has been most unfortunate since the alfalfa hay was ready to harvest. All that alfalfa growers can do after the storms is to harvest what is left and allow second crop to begin growing back. That, too, has been delayed with persistent spring storms.

An obvious question at the Extension office this week has to do with the survivability of the young corn plants. Proper assessment of potential yield loss after these early-season storms can help growers determine whether to replant or to patiently wait for re-growth. Again, wet field conditions have made waiting the only option growers really have.

Fortunately, new corn plants are very resilient. They will likely survive and do just fine. Information from Purdue University Department of Agronomy suggests that evaluation of hail-damaged corn fields should not be attempted the day after the storm occurs. It can be very difficult to predict survivability of injured plants by simply looking at the damage itself. Patience is required to allow the damaged plants enough time to visibly demonstrate potential recovery. Damaged but viable plants will usually show noticeable recovery within 3 to 5 days if weather and moisture conditions are favorable. Young corn has an amazing ability to recover from early season injury.

Experience and observation show that prior to, and for some time after emergence, the corn plant is affected very little by hail damage. At emergence, the plant's growing point is below the soil surface and will remain there for about 3 weeks. Because the growing point is below the soil surface and in the leaf whorl, plant damage due to hail at these early stages rarely results in any significant stand or yield loss.

One thing growers can do a few days after a hail storm is to evaluate the relative condition of the main growing point area of the stalk. The growing point, or apical meristem, of a young corn plant is an area of active cell division. Located near the tip of the pyramid-shaped top of the stalk tissue inside the stem of the plant, the growing point region is responsible for creating all the leaves and the tassel of a corn plant.

Examination is done by using a sharp knife to vertically cut the stems of several obviously damaged plants. Experts suggest this be done in various parts of the field. If the growing point (pyramid-shaped upper stalk tissue) is whitish-yellow in color, the plant is alive and should survive. If discolored and soft, the plant is dead or dying. Leaf damage by hail usually looks worse than it really is. Tattered leaves that remain green and connected to the plant will continue photosynthesis and likely be fine. Patience on the part of the grower is a virtue at this point.

Approximately 3 weeks after emergence, all nodes and internodes have developed. At this stage the growing point is elevated above the soil surface due to internode elongation. For the next 4-5 weeks, the plant grows rapidly and becomes increasingly vulnerable to hail damage. Corn plants are most

vulnerable to hail damage through the tassling stage. Hail during tassling can reduce yields significantly. Once past tassling, hail will cause progressively less yield loss as the plant approaches maturity.

Had the plants been older when the hail came, damage would likely have been much worse. In 2000, agronomists at The Ohio State University assessed hail damage to corn at four on-farm sites, replicated eight times. In this case a severe hail storm came through six weeks after the corn was planted. Overall growing conditions following hail damage were favorable for the remainder of the growing season. In this study researchers rated plants using four different categories from normal to dead. One week after the hail damage, agronomists observed nearly half the plants exhibited tied whorls. Three weeks later the whorls decreased to near zero. Canopy heights were lower, silking was delayed by approximately 10 days, lodging was negligible, and yields were 50 to 85 percent lower in the damaged corn. It was too late to replant, however, so growers simply harvested what there was.

Fortunately, for us, the hail storm was early in the growing season. It appears most of our damaged seedling corn will bounce back nicely and produce acceptable yields. Warm, sunny days will be the best antidote for struggling corn. May we be so blessed for the benefit of the corn and alfalfa.