A Fast & Accurate Pregnancy Test for Corn

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- Silk clipping can interfere with pollination success.
- Silks normally detach from fertilized ovules within days of successful pollination and thus can be used as an early indicator of pollination progress and/or success.

As corn rootworm beetles, Japanese beetles, and other obnoxious critters feast on corn pollen, they often unintentionally clip ear silks to an extent that pollen capture may be impeded. While you may be tempted to apply insecticides at the first sign of these insects, Purdue entomologists tell us that treatment is not necessary unless the silks are being continuously clipped back to less than 1/2 inch long before pollination is 50 percent complete. Silk length is easy to measure, but how do you determine how the progress of pollination?

Within 10 to 14 days after silking, you can easily estimate the success of pollination by inspecting ears for kernel blister development. At that point in time, the developing kernels will resemble white blisters on the cob. But by then, the insect damage has already occurred. Luckily for us, the corn plant has a quicker mechanism for indicating the current progress of pollination.

Silk Detachment From Fertilized Ovules.

Remember that each potential kernel (called an ovule) on the ear develops its own silk that elongates and eventually emerges from the tip of the ear shoot. The silks provide the pathway for the pollen to access the ovules.

Once a single pollen grain is “captured” by a silk, the pollen grain germinates and develops a pollen tube that contains the male genetic material. Given adequate moisture and temperature, the pollen tube grows down the length of the silk within 24 hours and fertilizes the ovule.

Within 2 to 3 days after an ovule has been successfully fertilized, the base of the silk will collapse and detach from the immature kernel. The kernel itself will usually not be recognizable to the naked eye at this stage.

Silks of unfertilized ovules remain attached, however, and will continue to lengthen and be receptive to pollen for up to 10 days after emergence from the ear shoot. Even if never fertilized, silks will remain attached to the ovules. Within days of full silk
emergence, therefore, pollination progress may be estimated on individual ears by estimating percent silk detachment.

**The Ear Shake Technique.**

For each ear, make a single lengthwise cut from the base of the ear shoot to the tip with a sharp knife, through the husk leaves to the cob. Slowly unwrap the husk leaves, taking care not to rip any silks from the ovules yourself. Then gently shake the ear. Silks of fertilized ovules will drop away, silks from unfertilized ovules will remain attached.

With practice, pollination progress can be easily determined by estimating the percentage of silks that fall away from the cob. Sampling several ears at random throughout a field will provide an indication of the progress of pollination for the whole field.

**One Last Comment.**

While the 'ear shake' technique will tell you how much of the ear has been fertilized, remember that pollination progress is also determined by pollen shed duration. Check the tassels in early to mid-morning hours to determine whether pollen shed is still occurring. If pollen shed is finished, it doesn't matter how badly those nasty insects are clipping silks. Unfertilized ovules will remain unfertilized ovules if there is no pollen left in the field. Spraying the bejeebers out of a field at that point is simply a costly form of revenge! For more information on the pollination process, see this week's accompanying articles on tassels and silks (P&C Newsletter, 7/19/02).


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