STRESS FACTORS LEADING TO ZIPPER EARS

SITUATION

Zipper ears, or ears with missing kernel rows, are a result of stress during pollination or grain fill. Ears affected by zippering have kernels that developed poorly or more slowly than other kernels, or ovules that aborted shortly after pollination. It's important to understand how and why zipper ears occur and how to minimize their occurrence in the future.

Severe case of zipper ear.

FACTORS TO CONSIDER

- Drought or heat stress during pollination and grain fill
- Silk clipping or feeding by insects
- Ear shank size
- Less-than-ideal weather and growing conditions
- Genetics of hybrid

Less severe, but commonly seen zipper ears.

ACTION PLAN

1. Know under what circumstances zippering can occur. There are many schools of thought surrounding the cause of zippering in corn ears. Some key ideas of causes of zipper ears are:

- Late pollination of silks is associated with zippered rows, since later-pollinated kernels are more susceptible to abortion.
- Heavy silk feeding or clipping by Japanese beetles and/or corn rootworm beetles during pollination can prevent pollen from reaching the ovule.
- Under heat or drought stress, silk emergence might be slower than pollen shed. Zippering can occur if a portion of the ear pollinated but the developing kernels could not compete with the neighboring corn row.
- Ear shank size may contribute to zippering. Short shanks may collapse or pinch in a drought situation, impeding transfer of nutrients to the developing kernels.
- Hail damage at the late silk and early blister stages can cause zippering.

2. Take action against the source of zippering in season, when possible. Before and during pollination, scout for beetles that can clip silks and be prepared to take action if insect pressure thresholds are reached.

3. Select hybrids with drought tolerance. If zippering is an issue, prepare for next season by selecting hybrids that have demonstrated a greater degree of tolerance to drought stress. Putting these hybrids in your portfolio can help hedge against less-than-ideal weather and growing conditions.

SUMMARY

Zipper ears can occur in any corn plant when environmental conditions known to cause this condition are present during key plant development stages.

For more information, contact your local Mycogen Seeds customer agronomist or trusted agronomic adviser.

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