

CAN YIELD POTENTIAL BE MAINTAINED WHEN EARLY FROST OCCURS?

SITUATION

Many factors contribute to how **early frost** in the fall will affect corn harvest and the expenses associated with drying and storage. Damage severity will depend on the stage of the crop, the duration of freezing temperatures and subsequent plant damage.

FACTORS TO CONSIDER

- Maturity at harvest
- Drying considerations
- Storage options
- Reducing risk of frost damage

ACTION PLAN

- 1. Determine crop development stage.** Corn frozen in the milk stage will have very little value as grain and is best used for green chopping or silage. Dough stage or fully dented corn that is frozen will have significantly reduced yield and very wet kernels. If frost occurs at dough stage, delay harvest until grain moisture is around 35 percent. When harvesting grain that has been frozen before maturity, incrementally increase cylinder speed to avoid damage to kernels and reduce concave clearance, as the cob will retain more moisture.
- 2. Adjust drying to accommodate immature corn.** Because dough stage corn will turn brown or darken when kernel temperatures are above 130 to 140 F, use low to medium drying temperatures. Grain that has been frost-damaged sometimes can read two or more points higher than actual moisture. It may take four to eight hours for moisture to equalize.
- 3. Modify storage for lighter corn.** Low-test-weight corn is more difficult to store due to kernel breakage and can be stored only for half the length of time compared with corn that reached full maturity. Dry corn to at least 14 percent for short-term winter storage. This is an acceptable level if grain is to be marketed by spring. For longer storage, corn must be dried to below 13 percent. Greater variability in moisture, increased kernel damage, foreign material and broken cobs can contribute to mold. Screen before storage to remove fines and cobs.
- 4. Select appropriate hybrids to reduce frost damage risk.** Match hybrids to expected seasonal growing degree-days based on planting date and average first autumn frost dates. Corn hybrids should reach physiological maturity before the average date when freeze risk is greater than 50 percent. Plant early to avoid frost and select earlier-maturity hybrids when planting delays occur. Choose hybrids with a range of maturities to decrease the risk of damage to the entire crop in the event of an early frost.

SUMMARY

Stage of corn development, timing and length of frost and associated damage will determine what special treatment is needed to avoid economic loss. For more information, contact your local Mycogen Seeds customer agronomist or trusted agronomic adviser.



Select corn hybrids that are expected to reach physiological maturity before the average date when freeze risk is greater than 50 percent.

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