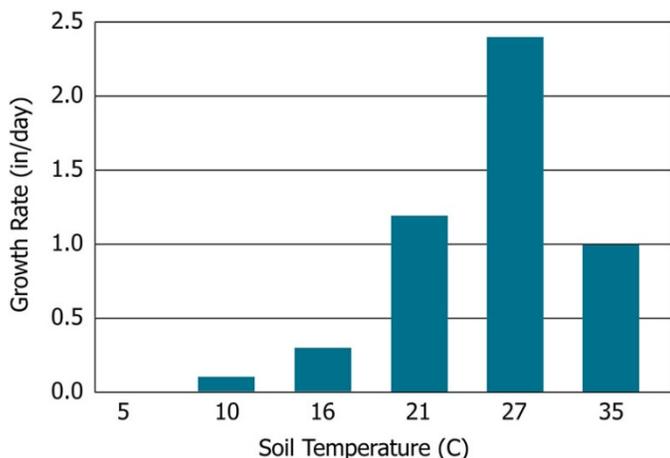


Early Corn Planting Considerations - Canada

Factors to Consider Before Planting Corn

1. Soil temperature of at least 10° C at 2-inch depth and preferably a warming trend in the 3-5 day forecast.

- Germination and root development will not occur below 10° C (root growth will be extremely slow even in the low teens's).
- Prolonged exposure to low temperatures reduces seed and plant metabolism and vigor and increases sensitivity to herbicides and seedling blights.
- The risk of chilling injury decreases incrementally as the soil temperature increases above 10° C during the initial imbibition (water uptake).
- Sustained temperatures of -4° C or below can penetrate the soil enough to damage the coleoptile, mesocotyl, or the growing point and cause plant death in seedlings that haven't emerged from the soil.



Prolonged exposure to soil temperatures below 10° C promotes seed deterioration and seedling disease.

Soil temperature at planting is a key environmental component of stand establishment; however, soil conditions after planting are also critical.

2. Minimum of 24-hours of rain-free following planting.

- When a dry seed imbibes cold water (typically 10° C or below), imbibitional chilling injury may result (causing corkscrewed shoots, fused coleoptiles, premature leaf emergence underground & other germination oddities).
- Cold water can also cause cell walls in the germinating seed to rupture. Ruptured cells can have ill-effects on developing seedlings and can also attract disease pathogens and insects.



Coleoptile injury from freezing temperatures.

3. Avoid planting right before a period of large temperature swings.

- Even if the “average” soil temperatures are above optimum, seedlings can be adversely affected by wide swings in soil temperatures. Affected seedlings will have stunted and distorted leaves and may or may not emerge from the soil.
- Research has shown that a swing of soil temperatures of more than 15° C (soil high temperature minus soil low temperature > 15° C) may adversely affect mesocotyl growth.
- Sandier soils can often be planted earlier in the spring because they dry out faster than heavier soils; however, sandy soils tend to experience wider temperature fluctuations, especially on clear nights with cold air temperatures.
- The effect of adverse conditions can and does vary from seedling to seedling, causing erratic and uneven stands.



Cold-temperature induced “corkscrew” damage symptoms.

The foregoing is provided for informational use only. Please contact your Pioneer sales professional for information and suggestions specific to your operation. Product performance is variable and depends on many factors such as moisture and heat stress, soil type, management practices and environmental stress as well as disease and pest pressures. Individual results may vary.