

Selecting Corn Hybrids for Silage

Key Points

- When choosing a corn hybrid for silage, one needs to consider how the silage will be utilized - for either a feedlot, dairy or cow/calf operation.
- The following factors must be taken into consideration when selecting a corn hybrid for silage:
 - Hybrid maturity, technology traits for insect resistance, agronomic stability, genetic resistance, proven yield potential, starch content, fibre and starch digestibility, and agronomic considerations.



Factors to consider when selecting a corn hybrid for silage:

Hybrid Maturity

- Pick an appropriate maturity to ensure quality and yield are met but that the product is ready in an appropriate harvest window.
- In Canada, maturity is rated in terms of Corn Heat Units (CHU's); i.e., 2100 CHU. CHU is a measure of cumulative heat over the growing season.
- It is recommended to select a silage hybrid that is 100-150 CHU longer than a hybrid grown for grain.

Technology Traits

- Look for hybrids with Insect resistant traits (Qrome[®], Optimum[®] AcreMax[®]) and herbicide tolerance traits.

Agronomic Stability

- Stress emergence and drought tolerance, along with stalk and root strength are key attributes for improved standability.

Genetic Resistance

- Genetic resistance to diseases such as Goss' wilt.

Proven Yield Potential

- Biomass yield – influenced by plant height and maturity of the ear.
- Starch yield – influenced by grain yield of the ear.
- Silage tonnage (dry matter yield) is primarily a function of:
 - Silage harvest timing – important because grain (starch) contributes about half of the dry matter yield (and a significant portion of the energy ~65%)
 - Hybrid genetics
 - Planting date

Starch Content

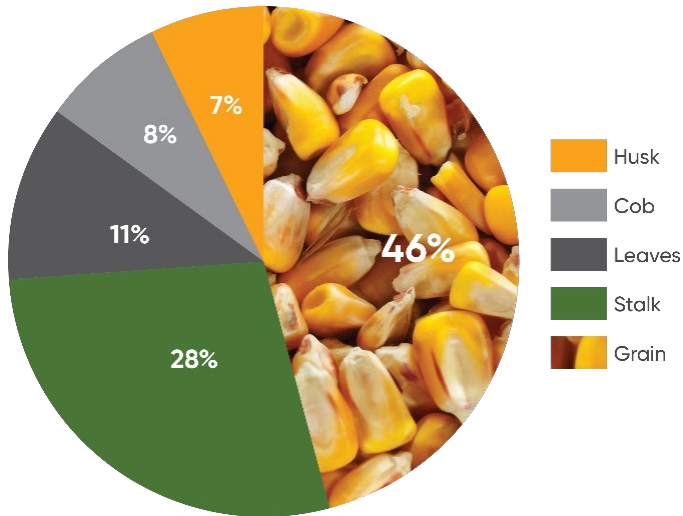
- Primarily driven by genetics and environment.
- Highest energy component of the corn plant is the kernel.
- Heavily influenced by harvest maturity of the kernel.
- Short statured plants generally have high starch energy but may lack overall plant biomass and tonnage.
- Grain to stover ratio is the biggest factor affecting the energy value of corn silage.
- Generally, the grain to stover ratio (G:S) is 30:70 to 50:50 on a dry matter basis.

Fibre and Starch Digestibility

- Starch digestibility is the amount of starch digested in the rumen and the intestines.
- Starch digestibility is influenced by kernel maturity and the extent of kernel processing. It is optimized 60-90 days post ensiling.
- Fibre digestibility is influenced 3 times more by growing conditions than genetics.
- Fibre digestibility between different hybrids is generally the same when measured at 35% dry matter.

Agronomic Considerations

- Pioneer[®] brand corn offers a range of both insect protection traits and proven effective seed treatments to combat both insect pests and damaging diseases that affect corn plants.
- Qrome[®] - provides above and below ground insect protection (European Corn Borer and Corn Rootworm).
- Optimum[®] AcreMax[®] - European Corn Borer
- In addition to broad spectrum standard fungicide seed treatments, Pioneer[®] brand corn offers Lumivia[®] insecticide seed treatment which provides enhanced early season protection against yield robbing insects such as wireworm and cutworms.



Corn Silage Summary

- Corn silage yield and quality are determined by the interaction of:

G x E x M (Genetics, Environment, Management)

- Silage yield is primarily driven by biomass (plant height at the ear) and starch content.
 - Starch (grain) typically contributes half of silage dry matter yield.
 - Silage yield is influenced by harvest timing, seed genetics and planting date in addition to weather, soil, and fertility.
- Feed quality is primarily driven by starch content and secondly by fibre digestibility.

Figure 1. Silage yield components. Source: Mahanna et al., 2018. Silage Zone Manual, Third Edition.

Accumulated CHU: May 15 - September 15

Prairie Region: 10 Year Average 2012 - 2021

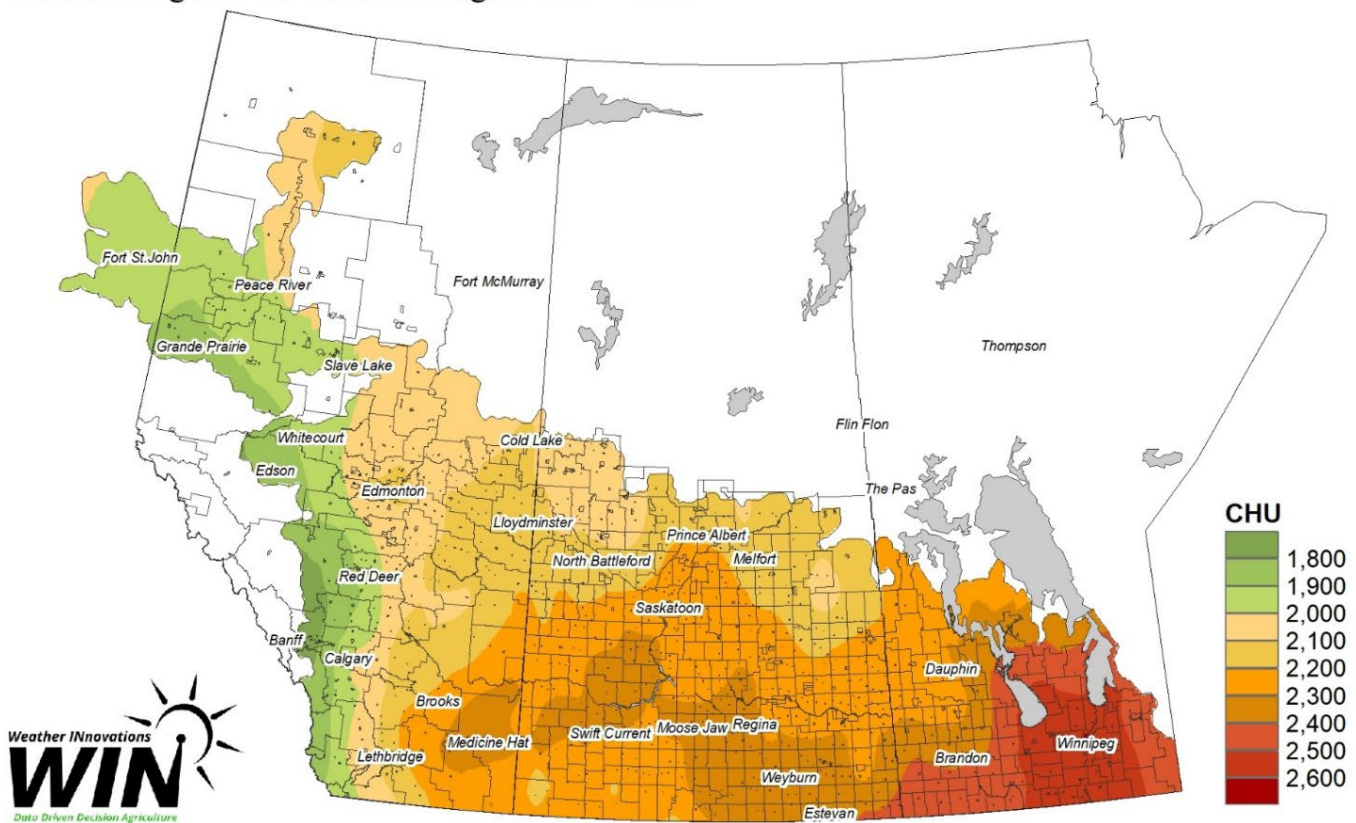


Figure 2. 10-year average corn heat unit accumulation (2012-2021) for Western Canada. Map produced by Weather Innovations Consulting LP.



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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. CF211213

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