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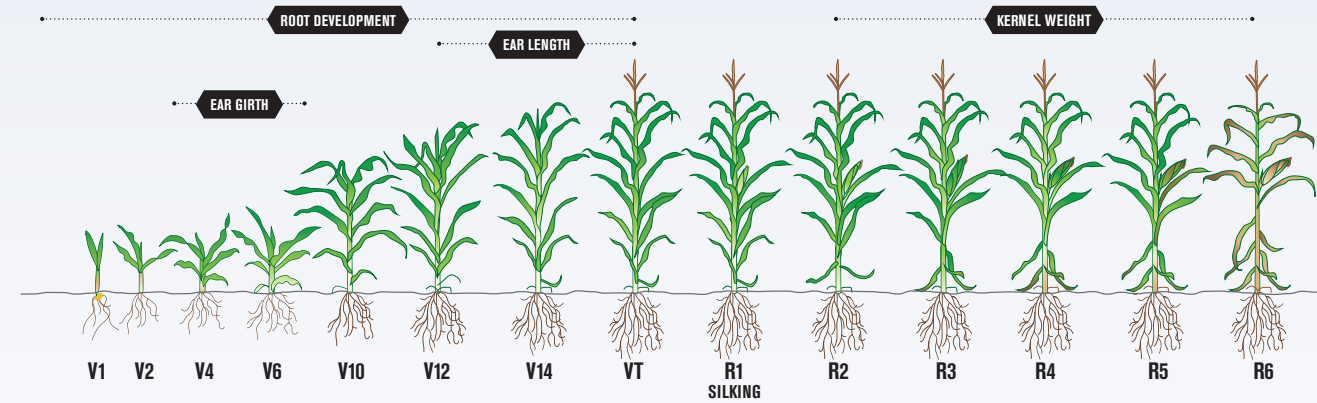
Pollination

It is hard to believe how fast this growing season is flying by, with pulse, cereal, and canola harvest just around the corner we can't forget about what our corn is up to at this time of year. Most of the corn in Western Canada is in the reproductive phase of growth. Over a two-month span corn plants will go through the six stages of grain fill to reach physiological maturity. For our corn silage friends, the corn plants will only go through about five and a half stages before being harvested for feed.

CORN GROWTH & DEVELOPMENT



ESTIMATING PHYSIOLOGICAL MATURITY

Growth Stage	Soft Dough	Full Dent (R5)	Half Milk Line (R5.5)	3/4 Milkline (R5.75)	Blacklayer (R6)
Kernel Moisture	-	50-55%	40-45%	35-40%	30-35%
Est. Days to Maturity	~32	~21	~10	~5	~0

KEEPING INFORMED

AUGUST 2022

Before the corn plants can go through R2- R6 there is a very important yield determining step that needs to happen during R1 – pollination! This newsletter will focus on the process of a proper pollination period in your corn crop.

TASSEL EMERGENCE

The first step in the pollination process is tassel (male reproductive structure) emergence. Each tassel is made up of a main tassel stalk and lateral branches, both filled with anthers that contain thousands of pollen grains. Once the tassel is fully emerged from the whorl these pollen grains will begin to shed.

POLLEN SHED & SILKING

During pollen shed, the pollen will begin to fall from the tassel on to the emerging silks. This process is not continuous, it will stop when the tassel is too wet or too dry and will begin again when conditions are favorable. Pollen shed typically lasts 5 – 8 days with peak pollen shed occurring in the mornings from 9 to 11 am and again in the late afternoon. Most hybrids will tassel and silk at the same time, although there can be variability in different hybrids or conditions. Under good conditions, the silks will all be emerged and ready for pollination within 3 to 5 days. This will provide adequate time to pollinate all silks before pollen shed stops. The pollen of a given plant will rarely fertilize its own silks, 97% or more of the kernels produced by each plant are pollinated by other plants in the same field.

POLLINATION

The silks develop and elongate from each ovule on the ear (female reproductive cells) and provide a pathway for the pollen (male reproductive cells). A well-developed ear shoot should have 750-1000 ovules (potential kernels) each producing a silk. These silks are equipped with little hairs called trichomes that catch the pollen grains. These pollen grains germinate immediately and start to grow a pollen tube down the silk channel within minutes of coming in contact. This pollen tube grows the length of the silk and fully enters the ovule in 12 to 28 hours creating an immature fertilized kernel that is ready to continue with the grain fill stages R2-R6. Once the ovule is fertilized the silks will detach from the immature kernel, turn brown and die off.

During this very busy and stressful season, please remember to always stay safe!

Additional Reading:

- Corn Development Guide
- Corn Plant Pollination