

July 2013

Field Crops 28.47 - 101

Will Corn Mature Before Frost?

Joe Lauer, *Corn Agronomist*

During cool growing seasons, especially when planting is delayed due to wet spring conditions, growers are concerned about whether their corn is vulnerable and will reach maturity before normal frost dates. Often the range in planting dates have implications at harvest time, especially for silage because grain and dairy producers often negotiate the sale of corn in fields that are borderline for development.

Most hybrids require about 55 to 60 days to develop from the silk stage to physiological maturity. Hybrid maturity differences in development time occur primarily from emergence to silking, not from silking to maturity.

Most concern exists when corn does not reach the silk stage (R1) until early August or later. Killing frosts can easily occur by late September, so corn silking in early August would not be safe from major yield reductions due to frost until early October.

Figures 1 and 2 describe typical development of corn silage yield and quality and of a corn kernel. At the dent stage (R5), corn has accumulated 75-85% of silage yield and 60-75% of grain yield and needs about 27-32 days to avoid significant yield reductions due to frost (Table 1). In order to avoid yield reductions caused by frost, corn intended for silage should be silking by late August, while corn intended for dry grain should reach the dent stage by September 1.

To predict whether corn will mature before frost note the hybrid maturity, planting date and tasseling (silking) date of the field. For silage, add 42-47 days on to this date to predict 50% kernel milk, while for grain, add 55-60 days to predict maturity. These dates are guidelines which will require further in-season decisions as the season unfolds.

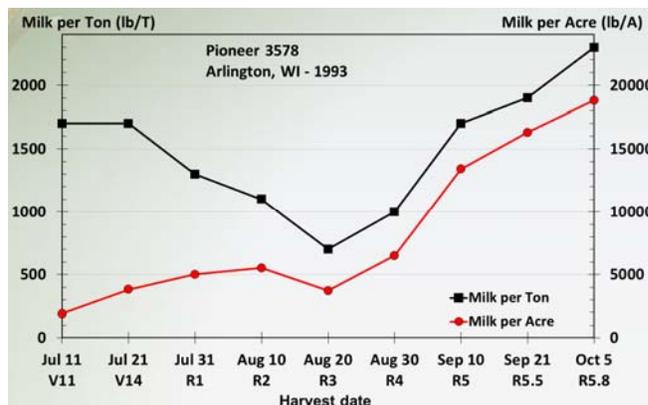


Figure 1. Corn silage yield and quality changes during development.

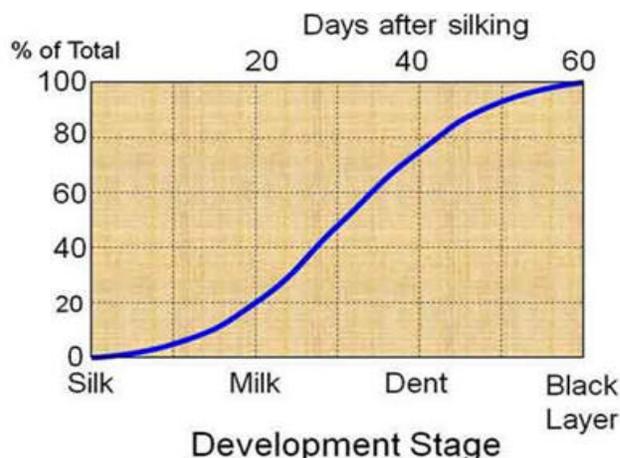


Figure 2. Typical corn kernel development in Wisconsin.

Table 1. The relationship between kernel growth stage and development.

Stage	Calendar days to maturity	GDUs to maturity	Percent of maximum yield		Moisture content (%)	
			Grain	Silage	Grain	Silage
R1: Silking	55-60	1100-1200	0	45-50	---	80-85
R2: Blister	45-50	875-975	0-10	55-60	85-95	80-85
R3: Milk	35-40	750-850	10-30	60-65	70-85	80-85
R4: Dough	30-35	650-750	30-60	65-75	60-70	75-80
R5: Dent	27-32	425-525	60-75	75-85	50-55	70-75
R5.5: 50% Kernel milk	13-18	200-300	90-95	100	35-40	65-70
R6: Black layer	0	0	100	95-100	30-35	55-65

