

SCHEDULING SWEET CORN PLANTINGS

THE EASY WAY

By Using Plant Maturity

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Most experienced Sweet Corn growers are familiar with the problem of several plantings maturing all at the same time, and many of you have at least heard of scheduling planting using growing degree days (GDD) to avoid this problem. I have developed a very easy and intuitive method for measuring growing degree days that involves observing the stage of corn plant development rather than temperature recording devices. Jake Guest of Kildeer Farm in Norwich VT remarked enthusiastically the first year he tried it: "This thing really works!"

Corn plants mature proportionally to the number of growing degree days transpired since they were planted. On warm days they grow more than they do on cool days. That's why the method of scheduling corn plantings using the transpired growing degree days works. The plant maturity method of measuring transpired growing degree days, correlates specific stages of corn plant maturity with the number of growing degree days it took to get them that big, and allows a grower to schedule the next planting by observing the maturity of the previous planting.

Visual Growth Stages of Young Corn Plants

First we need to be able to visually recognize incremental growth stages of young corn plants.

This is done by counting the number of leaves the plant has on it, and then by defining which of 4 stages the youngest leaf is in.

The 4 discernable stages each corn leaf goes through before the next leaf emerges are: Spiking, rolled, rolled-plus and flat. See the photos and descriptions below.



Stage 1: Spiking

The leaf is tightly rolled and pointing straight up. In this photo the 4th leaf is a thin spike in the center of the plant.

Stage 2: Rolled

The tight roll in the leaf is loosening and the leaf starts to point away from the previous leaf.

Stage 3: Rolled +

The Roll in the leaf is open, but still provides enough rigidity to the leaf that the outer half does not fall below 45 degrees from the vertical.

Stage 4: Flat:

The leaf is fully open and the outer half of the leaf has fallen below 45 degrees from the vertical.

After the leaf goes through the flat stage, the next leaf appears in the spiking stage. You end up with maturity descriptions like “Second leaf, rolled” or “Third leaf, spiking” These stages can be correlated to transpired GDD and used to time your next planting of sweet corn.

The basic procedure is as follows:

- 1) Planning: Figure out how many GDD you want between plantings (see below) and correlate that with a plant growth stage. A planting can be either one variety or a group of sequenced varieties planted on the same day.
- 2) Plant your first planting.
- 3) Watch the plants in that first planting. You're looking for the "early majority" of the plants in that planting to reach the specified growth stage.
- 4) When your first planting has reached the specified growth stage, it's time for you next planting.
- 5) Continue with the same procedure for subsequent plantings.

In actually implementing the critical step of identifying the growth stage you are looking for in the field it's a good idea to learn to anticipate the desired plant stage. Once you've found the photo showing the stage of maturity that will tell you it's time to make your next planting, take a good look at the photos and descriptions of the stages that come before it. This will help you recognize the subtle differences in maturity, and help you anticipate the stage that you're waiting for. Those of us who have used the system much have come to realize that it's hard to find out that today is the day to make your next planting of corn, and to actually get it done today as well.

How many GDD do I want between my corn plantings?

This depends on 2 variables:

One, how many varieties are there in one planting? We'll call this variable “V”.

In my example I have 3 varieties: Mystique, Precious Gem and Delectable. So, V=3

Two, how many days to harvest are there between the earliest variety and the latest variety in your grouping? We'll call this Variable “DH”

In my example the earliest variety, Mystique, is 75 days, and the latest, Delectable, is 82 days, so in my case DH is 7 (82 -75).

Insert your numbers into this formula:

$$\{DH + (DH/[V-1])\} \times 17^* = GDD$$

In my example this becomes $\{7 + (7/[3 - 1])\} \times 17 = 178 GDD$

*17! Where did 17 come from? One of the basic assumptions of the growing degree day method of spacing Corn Plantings is that there are approximately 17 GDD in a mid summer's day. This is one of the standardizing assumptions used in specifying “Days to harvest” by seed breeders and is the number used to spread out corn planting in the GDD method.

So, I'm looking for the plant growth stage that is 178 GDD. From the Photo Scale below, it appears that I'm looking for something between 3rd leaf flat and 4th leaf spiking.

In my example, I will look for the early majority of the plants in my first planting to reach the “3rd leaf flat” stage, and I will plant my second planting the next day, with a very early 4th leaf spiking.

Photo Scale of Corn Plant Maturity Correlated with Growing Degree Days

