University of California Cooperative Extension – Kern County

NEWS RELEASE

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Corn Planting and Early Season Growth

The long growing season in Kern County allows for a very wide window for corn planting. However, highest yields are obtained when the growing environment is favorable for all stages of plant growth. Any unfavorable conditions, for Kern County that usually means excessive heat, will reduce yield potential, especially in the numbers of silks produced which will result in poor pollination and a reduction in the number of kernels produced.

The weather is warming and corn planting is just around the corner. Germination of corn seed requires a minimum soil temperature of 50°F at planting depth. That temperature should be measured at about 8:00 am when the soil temperature is at its lowest. Germination starts when the seed absorbs sufficient soil moisture, about 30% of the seed weight. The radicle will first emerge from the tip of the kernel usually within 2 to 3 days of planting. The first roots develop from the radicle. Soon thereafter the shoot emerges and grows toward the soil surface. The shoot is protected by the coleoptile which grows through the soil but stops growing and splits open once it is exposed to sunlight allowing the shoot to emerge. While coleoptile elongation is more rapid at warmer temperatures, delayed planting pushes silking and pollination into hotter summer temperatures.

Corn seed should be planted between 1½ and 3 inches deep (ideal is 2 inches) with sufficient moisture for germination. Corn can be planted shallower when planted early with plenty of moisture and deeper when planted later. Deeper planting usually means planting into cooler soils and requires more energy for plant

emergence. Soil texture should also be considered when determining optimum planting depth. Shallower for heavy soils, deeper for sandy soils. Corn seed planted too shallow (<1 inch) has a negative impact on the development of nodal roots.

Between 100 and 120 DD_{50} are required for plant emergence. Degree Day calculations are $((AirTemp_{max} + AirTemp_{min})/2)-50)$. Corn growth uses 50°F minimum and 86°F maximum. Temperatures above 86°F are set to 86°F for the purpose of this calculation. While extreme high temperatures can have a negative impact on growth they are not included in the calculation. Similarly, minimum temperatures less than 50°F are set at 50°F. Degree day calculations with weather station data can be obtained at **http://www.ipm.ucdavis.edu/WEATHER/ddretrieve.html**

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