

# When is the Best Time to Stop Irrigating?

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The last watering of the season can be as important as the first. To ensure optimum yields, adequate soil moisture must be available to crops until they are physiologically mature. Applying excessive irrigation water to the root zone beyond maturity can result in reduced profits. For management decisions on final irrigation, you will need to know the current moisture condition of your soil and the amount available for crop use. Both soil texture and effective root zone will determine the amount of water that can be stored for crop utilization.

Stage of crop maturity and weather conditions will affect the period when the crop continues to use water prior to maturity. Know the signs and symptoms of physiological maturity in crops you are irrigating. Both the extra savings of irrigation and peace of mind that the crop is safe from frost are worth knowing.

Some crops, such as corn, can endure an increased soil water deficit as the crop nears maturity, while others, such as potato or alfalfa, should continue to be irrigated until harvest, maturity or frost.

**Corn** should be irrigated until sufficient soil moisture is available to ensure that the milk layer of the kernel moves down to the tip of the kernel or black layer formation (physiological maturity). If the milk layer is a third to halfway down the kernel no additional water application is needed. Physiological maturity is reached about 55 days after 75 percent of the plants have visible silks. The grain moisture may range from 32 to 40 percent at the time depending on the hybrid. Yellow dent corn is usually well dented at physiological maturity. Once corn is physiologically mature, the drydown rate is approximately 0.5 percent moisture loss per day.

**Dry edible bean:** The last irrigation should occur when the first pods are filling, or irrigation stopped when 50 percent of the leaves are yellowing on the plants. When over watered, indeterminate varieties (pinto) may continue to vine and set flower with delayed maturity. For navy bean, physiological maturity is reached when at least 80 percent of the pods show yellowing and most are ripe, with 40 percent of the leaves still green. Pinto beans are physiologically mature when 80 percent of the pods show yellowing and mostly ripe and only 30 percent of the leaves are still green. Beans within pods should not show evidence of any green. If the beans have begun to dry, irrigation will not be needed because the beans no longer are removing much water from the soil profile.

**Soybean** should be irrigated until sufficient moisture is available to allow full bean development and pod fill. This stage is when leaves are yellowing (75-80 percent) and all pods filled with lower pods just starting to turn brown. At physiological maturity, pods are all yellow and over 65 percent of the lower pods have turned brown. Beans within pods should have little evidence of green color and should be shrinking. Studies do show that yellow pods sprinkled with brown are the best clue of physiological maturity. Usually if one or two pods show this symptom on the upper two or nodes of the plant the plant has reached P.M. The soybeans also should be tolerant of a killing frost at this time also.

**Sunflower** should be irrigated until sufficient moisture is available for the sunflower achenes (seeds) to fill. This is when the back of the head turns from a lime green to yellow-green color and ray petals are completely dried.

**Potato** will utilize soil moisture until harvest. Maturation stage begins with canopy senescence as older leaves gradually turn brown and die. Research has shown final irrigation can be used to reduce bruising during the harvesting process. On sandy soils, soil moisture content between 60 to 80 percent of field capacity (40 to 20 percent moisture depletion) provides conditions for a desirable soil load into the harvester with optimum separation of potatoes and soil. This soil moisture level also minimizes physical tuber damage. If soil is dry before harvest, a final irrigation should be applied at least one week prior to harvest to raise the soil moisture level and raise the tuber hydration level.

**Alfalfa** should be irrigated to maintain active growth until growth is stopped by hard frost. Alfalfa going into the winter with adequate soil moisture has a much better chance of little or no winterkill.

**Small grains** should be irrigated until adequate soil moisture is available to bring the crop to the hard dough stage.

**Sugarbeet** will utilize moisture until harvest time. Irrigation is usually terminated seven to 14 days before harvest to allow the soil to dry.