

## **Irrigation Systems for Strawberry Plants**

### **What is irrigation?**

Irrigation is the supply of water to land or crops to help with growth. It is very likely that you have seen some sort of irrigation at some point. It may have been a sprinkler system on a baseball field or someone's yard. You may have seen an unusual tape running down the inside of rows of vegetables in the community garden. It is even possible that you have seen overhead irrigation slowly moving on a growing crop. Either way, you have seen a type of irrigation.

### **Types of Irrigation**

There are many kinds of irrigation systems:

- Drip or trickle irrigation uses plastic tapes or tubes set on top of the soil or just below the soil surface. Water is piped at low pressure and drips out through emitters or small holes. This is a very efficient use of water, as it is delivered right at the root zone. Because foliage does not get wet, disease problems are reduced as well. Garden soaker hoses serve a similar purpose.
- Central pivot irrigation and large moving boom systems are used on farms with large fields, especially in the Midwest. Central pivot systems are used for corn and wheat.
- Solid set overhead irrigation has pipes laid in the field, with periodic risers coming up from these pipes at intervals, and rotating sprinkler heads on these risers. Solid set irrigation is used for corn, potatoes, etc.
- Furrow or flood irrigation spreads water on top of the soil through ditches through the field. Furrow irrigation is used for cranberries at harvest.

Although there are new technologies that have allowed for more precise uses of water, let's not forget the tried and true method of hand watering through a hose, with buckets, etc. These methods have been used by many home gardeners and farmers throughout the world for over centuries.

### **Plasticulture**

To understand irrigation used for the growth and production of strawberries first we must first look at how strawberries are grown. North Carolina farmers use a method called plasticulture. The strawberry plasticulture system is a high-density system that grows strawberries as annuals. This planting consists of closely spaced plants in double (or even triple) rows planted on raised beds covered with black plastic mulch and with drip irrigation tape placed underneath. Plugs are planted in late summer and removed after spring harvest.

The key here is to understand the role of black plastic. North Carolina farmers use a black plastic to cover the soil. Made for farming, this plastic is very thin yet strong and flexible. The flexibility of the plastic allows it to gently stretch over the soil without tearing. The black plastic

warms the soil, acts as a mulch to suppress weeds, and conserve water. It also limits diseases by keeping fruit from contacting the soil. Agricultural black plastic is usually 5 feet wide and comes in rolls.

With this method of strawberry production farmers use a specific type of irrigation, drip tape, or irrigation tape. The image below shows what the black plastic looks like after it has been laid and the drip tape as it lays beneath the black plastic.



The beds are covered in plastic and ready for strawberry plants. This process is called plasticulture.



The bedder also lays irrigation tape under the plastic. The farmer will use the irrigation tape to irrigate, or water, the plants.

Strawberry farmers using the plasticulture system typically use overhead irrigation ONLY to help establish newly set out plants, for frost protection, and sometimes for evaporative cooling during hot weather in spring. The rest of the time, they rely on drip irrigation. This is partly because of the efficiency of drip irrigation, and because it does not get foliage and fruit wet. Also, they must use a method that delivers water under the plastic since it keeps rain and overhead irrigation from reaching the plant's root zone. The image below demonstrates the use of a sprinkler system to assist in frost protection of growing strawberry plants.



After the plants flower, they must be protected from temperatures below 32 degrees Fahrenheit. When it gets this cold, farmers use overhead irrigation to spray water on the plants during the day and night. The water freezes and insulates the blooms like a blanket. Row covers can also be used.



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