

## HOW LONG SHOULD YOU RUN YOUR SPRINKLERS?

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The novice avocado grower often asks the question "How long should I run my sprinklers?"

Now that is a good question, but it cannot be answered in one sentence, or without taking many factors into consideration. Geographic location, size of the trees, type of soil, quality of the water, pressure of water at the sprinkler, and the type of sprinkler, are all factors to be considered before a reasonable answer can be attempted.

Although irrigation may be accomplished successfully by any method of applying water, this discussion applies to the use of various types of sprinklers. It should be stated that most types of sprinklers are being successfully used where conditions are favorable, and that the misuse of any type sprinkler can bring dire results.

There are several articles, both practical and scientific, giving information on the amount of water required annually for trees of various sizes and age. Suffice it to say experiments have established that mature avocado trees require from 28" of water on the coast to 54" in the hot interior valleys. Otherwise with 10" normal rainfall along the coast of San Diego County an additional water supply of 18" is sufficient; in the hot interior valleys, with 18" rainfall, an additional supply of 36" would be required. Variations of these requirements are also brought about due to location with reference to drying winds, soil types, and direction of slopes which affect the length and exposure of the land surface to the sun.

*Soil type* affects the water application in the physical acceptance of water into the soil. Loss of rain water and irrigation water from open porous soils with low water holding capacity will call for additional irrigation water. Tight soils, and lands with heavy subsoils will have high water holding capacity and in general will give greater return of water applied.

Water of poor quality, that is, relatively high in injurious salts, but still within the range of usable irrigation water for avocados, will cause injury to the trees unless care is used in seeing that the soil moisture is kept relatively high to prevent high concentration of salts. Where water quality is poor, good drainage is essential to maintain healthy trees. It should be noted here that water of high chloride content sprayed on the trees by overhead irrigation increases "tip burn".

Pressure of water at the sprinkler will determine to some extent the type of sprinkler used. All manufacturers can give the amount of water distributed by their product at various pressures. Overhead types of sprinklers with relatively wide diameter of coverage have little leeway in the variation of pressure, and are also greatly affected by variation in winds. Underhead whirling type sprinklers with spread of 20 to 30 feet are

most universally used and in general are giving the most satisfactory distribution of water.

For most irrigations through the year you should run the sprinklers just long enough to bring the soil in the rooting area up to field capacity. That is, about 24 hours after irrigation, the soil should be wet, but not wet enough to squeeze water out, or make a mud pie. Generally speaking, the loam soils in which most of the avocados are growing, require an inch of water to wet the soil one foot deep.

How can you tell when you have run your sprinklers long enough to put on an inch of water? A very simple method is to place five or six cans, of the same diameter, evenly spaced between two sprinklers. Run the sprinklers for an hour and measure the average depth of water in the cans. This gives you the average depth of irrigation by running sprinklers one hour. From this you can time the application to give an average depth of penetration which appears to be correct for that irrigation. Checking with a soil auger is the only practical method of knowing what is happening to the water you are applying, as well as knowing when and how much to apply.

Frequency of irrigation will vary with the soil, atmospheric conditions, and size of trees. Until you know your soils you cannot intelligently irrigate your avocados without frequent checking for soil moisture with your soil auger. You must also know where the roots are feeding so as to know the area of the soil and the depth to maintain optimum moisture conditions.

About twice in the irrigation season it is advisable to apply a heavy irrigation to obtain some leaching effect even though it does cause some lateral movement of water in the heavy subsoil areas. This tends to keep the accumulation of salts in the soils fairly well leached out of the root zone. These heavy irrigations should be made the latter part of July and again in September.

How long should you run your sprinklers? The answer is, "Just long enough to bring the soil moisture in the root zone up to field capacity."