

THE APPLICATION OF THE WATER.

Having the levelling done and the ditches and flumes constructed, the process of applying the water is simple. The water is permitted to enter the lateral ditches or flumes and the small gates are opened. As the water creeps down the furrows the irrigator must watch to see that no furrows become blocked or run together. The time required to finish irrigation varies from three days to a week or more, but may be determined by the methods mentioned in paragraph on "Amount of water to use."

In case the land is newly graded it should be well irrigated to settle the loose places before planting is started, or great difficulty may be encountered. It is a good plan to place clover or some crop on the land one year previous to planting. This not only permits it to settle, but also enriches the soil.

THE FREQUENCY OF APPLICATION AND THE AMOUNT NEEDED.

The frequency of application and the amount needed depend upon the crop, soil, and climatic conditions. Some crops need more frequent applications of water than others. The frequency of application must be such as will keep the plants in a thriving condition and still not cause too rapid a growth. A sandy soil needs frequent applications of water because it loses moisture by drainage and evaporation, while a clay soil is very retentive and holds water long after the sandy soil is dry. One application of water during the late summer is often sufficient in a semi-arid district. Where one depends entirely upon irrigation, more applications are necessary. In case there is little rain in the spring, the first water should be applied about the 1st of May and about every five weeks until the crop is mature. More frequent irrigations may be needed on some lands; this may be determined by the amount of available moisture in the soil. Cultivation should follow each irrigation and should be repeated every ten days or two weeks until the next irrigation. Do not think for a moment that irrigation can be made to take the place of cultivation, because it is not advisable and will injure the soil.

The quantity of water to use at each irrigation is a local problem and must be determined by experience. In general, if the crop is a deep-rooted one, more water is needed than for a shallow-rooted crop, because of the necessity of soaking up the upper layer of soil before reaching the plant-roots. It has been found that 4 inches of water applied to land at one irrigation makes the first 4 feet of soil moist enough for good plant-growth. However, this is not absolutely correct when applied in practice, because of the loss of water by drainage and evaporation. Since the practical farmer has no way to determine the exact amount of water he has applied, he must rely upon other methods to determine when enough water has been applied. This is easily done by a few observations. Many people make this test by pushing a hoe-handle into the soil. If they can sink it down 18 inches they consider irrigation completed for that time. Another method is to dig down and examine the soil. If it retains its form when compressed in the hand it is considered moist enough. Tests of this nature should be made at intervals over the field, since different soils need more or less water. After a few trials, any one can tell for himself whether or not enough water has been applied. In case a person still feels in doubt about the amount of water necessary for the best plant-growth, an examination of soil upon which plants are doing well will remove all doubts from his mind.