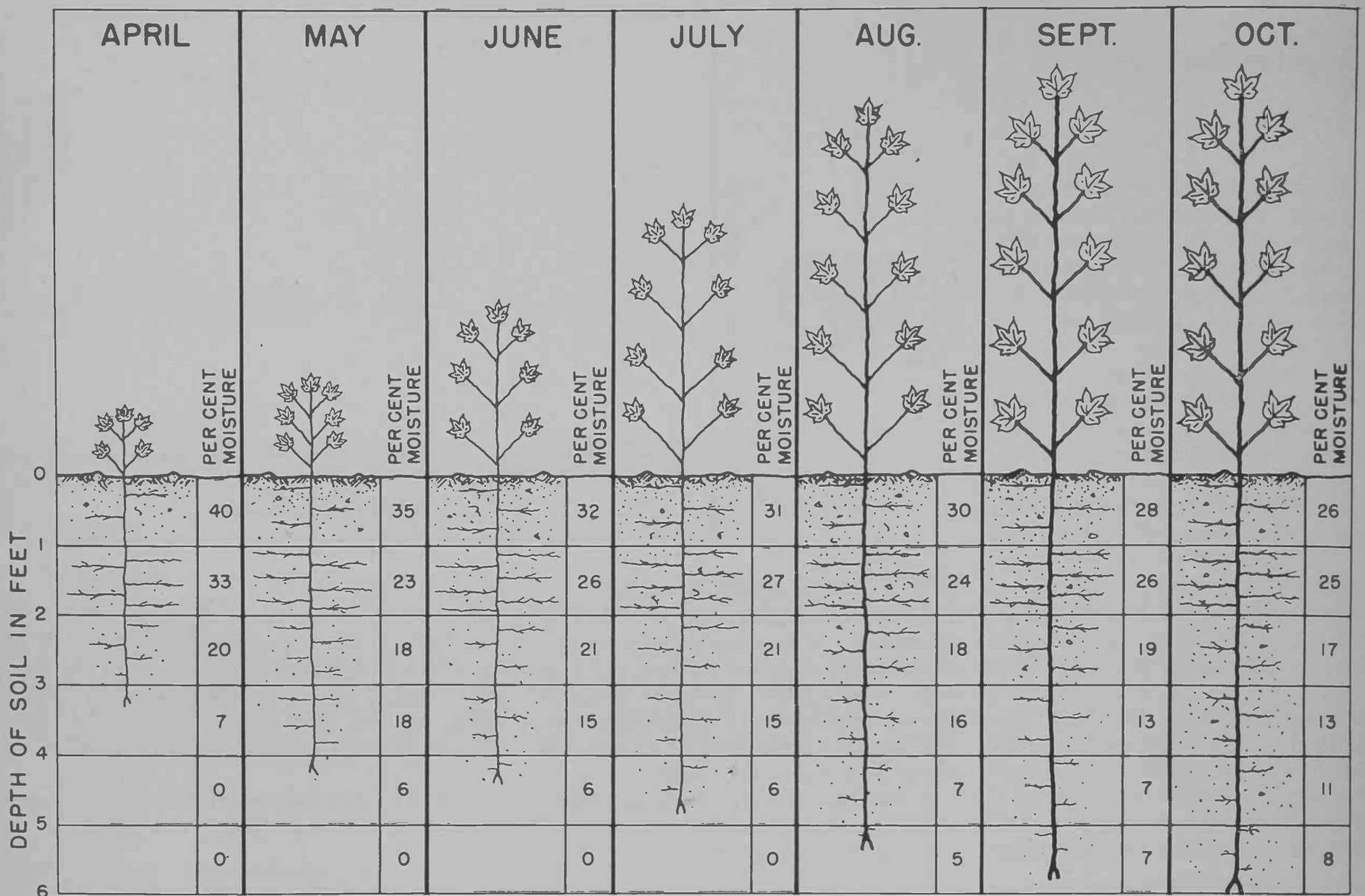


Pre-Planting Irrigation



Percentage of soil moisture used by cotton plants and lost by evaporation from various depths during the growing season. Water put into the 5th and 6th foot levels at the pre-planting irrigation is used to insure adequate moisture during the latter part of the season.

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In Arizona, pre-planting irrigation has a greater influence on yield than any irrigation of the entire season. This is the time when deep moisture penetration can be obtained with the least waste of water by surface runoff and evaporation.

After the seedbed has been prepared, the crop planted, and one or more irrigations given, the water intake rate is greatly reduced. Under such conditions, in most of the agricultural soils of the state, it is very difficult to get enough water through the surface layers to wet the soil to a depth necessary for high production.

In areas where salty water must be used, the pre-planting irrigation affords the best opportunity to leach the excess salt below the root zone. This leaching process has made profitable crop production possible even under what is often considered an excessive salt condition.

The depth of the pre-planting irrigation determines, to a minor degree, the frequency of subsequent applications. It has a definite influence on the date of the last irrigation needed for seed producing crops such as grain and cotton.

Whenever the plant is either growing vegetation or maturing its fruit, water is needed to take care of the cell structure development. With only shallow wetting, it is often impossible to apply water at frequent enough intervals during the heat of the summer so that the plant does not suffer. The water it is able to get from the deeper depths is the insurance that will allow the plant to continue to grow.

If there is a supply of deep moisture available from early irrigations, the last irrigation need not be given as late in the season as would be necessary if only a shallow penetration had been secured. As the plant approaches maturity, it still needs water, but not in the quantity needed during the pe-

riod of most rapid growth. The water available at the lower depths will take care of the needs of the plant. Therefore, abundant supplies of moisture are not needed in the upper two feet of soil by the mature plant.

The amount of water to apply at the pre-planting irrigation is dependent upon several factors such as:

1. Texture and depth of the soil.
2. Rooting habits of the crop.
3. Amount of salt to be leached below the root zone.
4. Amount of moisture already in the root zone.

In general, roots work deeper in sandy soils than they do in clay soils, but the sands hold less water per foot of depth. Thus, the amount of water to apply on the two soil types tends to equalize. The heavy soils should be wet to a depth of six feet and the lighter soils deeper. If the soils are dry, this requires about an acre foot of water, exclusive of runoff.