

Apricot Irrigation Studies

consumptive use of water by trees and soil salinity control experiment conducted in western Stanislaus County orchards

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Excess water added to apricot orchards irrigated with San Joaquin River water—in Stanislaus County—removes accumulated salts and maintains a favorable salt balance in the soil.

The use of between 1½ and two acre feet per acre of water per year in addition to an annual rainfall of 10" does not prevent the accumulation of salts. An excess of 20%–25% per year of the water requirement of a particular crop will probably maintain a favorable salt balance. An irrigation experiment conducted in a Stanislaus County apricot orchard in 1956 and in 1957 showed that soils with an accumulation of salts may require 75% to 100% excess irrigation to re-establish a favorable salt balance.

Soil Samples

In 1955 the majority of orchards in western Stanislaus County showed marginal leaf burn and partial defoliation. A few orchards had as much as 75% crop loss and some tree loss. Analyses of initial soil samples indicated a relatively low salt content to depths of 5'. With further tree loss soil samples were obtained to 9' depths. Analyses of these samples indicated a distinct increase in salts below 5'. Conductivity of San Joaquin River water at the point of diversion seasonally varies, but is as high as 1.3 millimhos per cubic centimeter.

While soil samples were being collected it was also determined that natural drainage was good with no confined water encountered.

Analyses of soil samples to 9' in an area never before irrigated indicated a relatively low salt content in the entire 9' profile.

Irrigation Trials

A leaching trial was established to apply more irrigation water than the crop required to determine whether the practice was effective in removal of salts. During the 1956 irrigation season 77" of water per acre were applied to leach the salt accumulation and re-establish a favorable salt balance. In the 1957 irrigation season, only 62" per acre were applied.

Soil moisture determinations before and after irrigations indicated that the

consumptive use of water by the apricots during the 1957 irrigation season was 33".

All the water was confined to the test area so the 1957 excess of 29" or 88% was deep percolation and leached the soil. In addition, there was no visual sign of salt damage and the yield of apricots was 13 tons per acre.

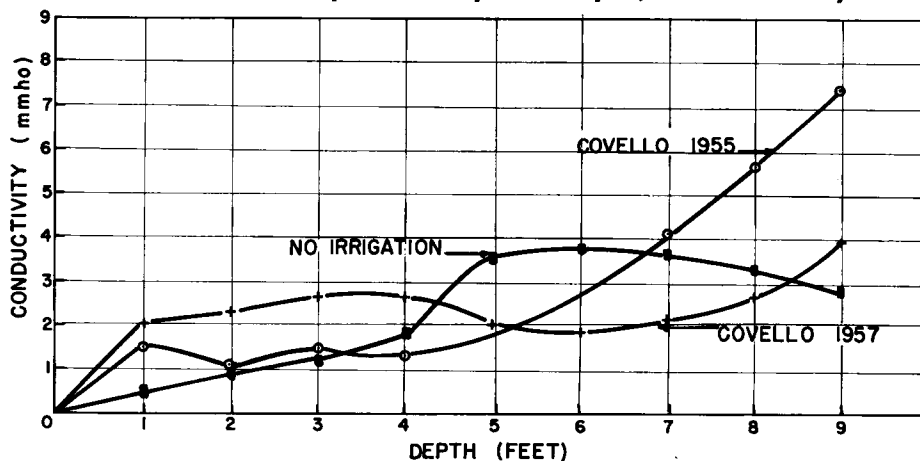
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Grower Carl Covello of Patterson cooperated in the study reported in the above progress report.

The above progress report is based on Stanislaus County Project No. 180.

Salt variation with depth of soil. Apricot test plot, Stanislaus County.



Soil moisture variations. Apricot test plot, Stanislaus County, 1957.

