Irrigation of deciduous orchards and vineyards influenced by plant-soil-water relationships in individual situations

Today this article may seem too simplistic an explanation of basic irrigation concepts — field capacity, permanent wilting point, readily available moisture. But in 1957, much more land in California was still dry-farmed, and the widespread use of irrigation was a new idea to many.

1957 “One of the principal cultural practices in deciduous fruit orchards and vineyards is irrigation and its successful accomplishment frequently determines whether the grower makes a profit.

“The cost of irrigation — preparing the land for surface irrigation, the labor of applying the water and the cost of the water — may be one of the important items in the production of fruit. Because experience has shown that much time and labor may be wasted, the selection of a rational program of irrigation is of great importance.

“Whether to irrigate or not, or when to irrigate, are questions that can be answered only from consideration of the moisture properties of the soil, the kind of plant, its depth of rooting, the kind of root system, prevailing climatic conditions, and whether there is a supply of water for irrigation.

“A grower should consider the soil as a reservoir for the storage of water for use by the plants. Therefore, he needs to know how much readily available water can be stored in the soil...


Frank J. Veihmeyer was already an emeritus professor of irrigation at UC Davis when this article was published in 1957. He joined the university in 1918 as an assistant professor of irrigation at Davis, then still known as the University Farm. Veihmeyer was recognized and honored worldwide for his research and writings on irrigation. The home of the UC Davis Department of Land, Air and Water Resources, Veihmeyer Hall, is named in his honor.

Emeritus pomologist Arthur H. Hendrickson joined the UC Berkeley faculty in 1913 as assistant in pomology, and in 1924 moved to UC’s Agricultural Experiment Station so he could conduct his research full-time. Together, he and longtime research associate Frank Veihmeyer practically invented many of the irrigation science terms defined in this article, words and ideas that today are considered fundamental to understanding hydrology on the farm.

—W. J. Coats