

WATER SUPPLY

WATER SUPPLY PLANNING

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INTRODUCTION

When analyzing on-farm systems and management, there are three distinct segments to identify; the primary water supply, the actual farm irrigation systems, and [drainage](#). The successful farm has a sufficient, flexible, reasonably priced, and good quality water supply. Its irrigation system and farm management can apply water effectively and efficiently. Finally, sufficient drainage is available to allow maintenance of a salt balance and good soil structure.

This chapter will provide methods for analyzing seasonal water requirements. It is the foundation of the crop year to determine how much and when water supplies are going to be needed. When compared to available water, this will tell you if your water supply is sufficient. If not, the crop rotations must be modified. The simple budgeting methods introduced in this chapter will assist in planning for the farm water requirement for any month or for any field.

Three levels of planning will be introduced. First will be the Farm Water Budget. This budget identifies the total seasonal water needs in distinct periods of two water years, March thru February while the crop year is generally planned on a October thru September time period, which covers the main growing season.

The second level of planning will break down the seasonal requirements on a monthly basis. The monthly planned schedule can then be compared to the actual water deliveries to help see when water use, reported on the monthly

water billing, is getting out of line with projections.

Finally, a technique for tracking the requirements and deliveries for any one field will be demonstrated. This will help to identify problem fields and also provide better profit/loss estimates for any one crop.

The District has an unreliable water supply at best. Many water users depend on groundwater to help meet the requirements of their desired crop rotations. Groundwater can be expensive and requires special management to prevent salinity problems. The District strongly encourages growers to use the techniques demonstrated here and in the [Irrigation Scheduling](#) chapter to best plan their irrigation programs.

FARM WATER BUDGETING

Westlands Water District's limited water supply is allocated to eligible land that applies for an annual water allocation. Water users may predict annual water requirements for various cropping patterns by completing this [Farm Water Budget](#) worksheet. This worksheet can be saved on your computer to be used without being connected to the Internet. See the instructions on the lower part of the page.

This worksheet was designed to allow realistic planning for the overlap of crop, calendar, and water years. Water requirement planning utilizes two distance time periods: the upcoming water year requirements and requirements supplied by water delivered in the previous October-February period, from the previous water year.

The first period (March-September) covers the seasonal water needs of most crops grown in the District. To finish the water year, the

period October-February is included. This period will allow users to plan pre-irrigations for the subsequent year.

The next section covers the October-February period of the previous water year. This allows you to account for water needs, such as preirrigations, taken care of by the previous year's water supply.

Typical values for ET, effective precipitation, and salinity control are included in the table on the bottom of the form page. These values are provided as a starting point, but you should use or adjust these values from actual experience for your location in the District.

A typical range of irrigation efficiencies for crops grown in the District is provided. The lower part of the range is generally related to furrow irrigation systems and the upper part of the range is generally related to micro-irrigation systems. Crops with shallower rootzones will generally have lower irrigation efficiencies, but improved irrigation systems such as micro-irrigation systems can be in the lower part of the range if not properly designed or maintained. A combination of sprinkler preirrigations and furrow for seasonal irrigation has proved very effective for cotton and is widely utilized. The average District efficiency over the last 20 years has been about 83%, with a low year of 73% and a high year of 93%.