Section 684.14

(a) Furrow Design Procedure.

A furrow evaluation and design requires that the following factors should be known:

(1) The intake family of the soil (from Section 681.3, Soils or as determined by a soil scientist or onsite field evaluations)

(2) The available water holding capacity of the soil (from Section 681.3, Soils)

(3) The maximum daily consumptive use of the crop to be grown (from Section 683.2, Water Requirements)

(4) Management allowable deficiency before irrigation should start (from Table 682-2, Crops and Section 681.3, Soils)

(5) Available water supply daily rate and annual volume

(6) Slope of field and length of runs and row width designed

(7) Desired set times

(8) When this basic data has been gathered, the following determinations should be made:

(a) The maximum depth of water application needed, based on (2) and (4)

(b) The combination of set times, (7) slope of field, and length of runs (6) and furrow application rate that will give the most efficient system. (IRMA Tables, Tables 684-2).

If it is desirable to leave some storage capacity for rainfall, rarely should the allowance be more than an inch.

This allowance will vary based on some or all of the following considerations:

(a) Labor costs

(b) Cost of all the water and/or energy to deliver the water to the furrow (see Section 688, Economics)

(c) Restrictions on the amount of water that can be delivered to the furrow

It is important that all the feasible alternatives be discussed with the owners at this time. The landuser may also consider the design on the basis of projected future energy and labor costs.

When an alternative is selected, it should also be evaluated with a smaller application that may be needed, such as early season irrigation.