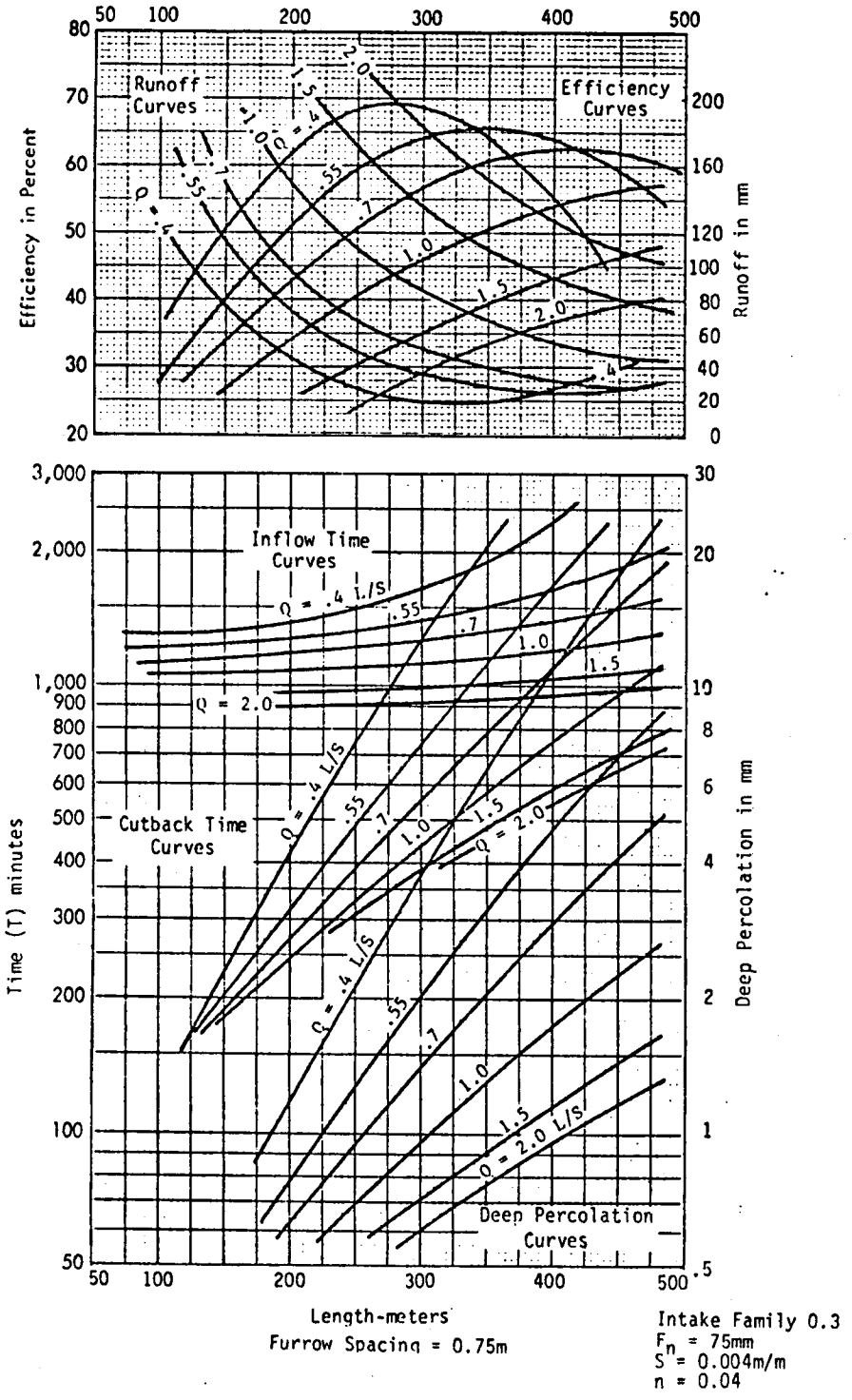

Average opportunity time is the second term of equation [13.38] and was calculated in the previous example as part of $T_{(o-L)}$.

$$T_{o\,avg} = 47.6 \text{ min}$$

Average intake

$$F_{(0-L)} = (0.925\,(1309-47.6)^{0.720} + 7.0)\,\frac{0.36}{0.75} + (0.925\,(47.6)^{0.720} + 7)\,\frac{(0.40-0.36)}{0.75}$$

$$= 81 + 1.2 = 82 \text{ mm} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{ (equation [13.47])}$$

Gross application

$$F_g = \frac{60}{(0.75)(275)}\,(0.6)\,(144) + (0.6/2)\,(1165) \quad \ldots\ldots \text{ (equation [13.48])}$$

$$= 127 \text{ mm}$$

Surface runoff

$$RO = (127 - 82) = 45 \text{ mm} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{ (equation [13.42])}$$

Deep percolation

$$DP = (82 - 75) = 7 \text{ mm} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{ (equation [13.43])}$$

Application efficiency

$$AE = 100\,(75/127) = 59 \text{ percent} \quad \ldots\ldots\ldots\ldots \text{ (equation [13.45])}$$

Level Impoundment Furrows

Surface runoff is elimated in level furrow systems with diked ends. Water is applied at one end of the furrow at a rate that will provide coverage of the entire length in a relatively short time. The water is then ponded until it infiltrates. The inflow rate should be large enough to advance to the end in not greater than 1.5 times the net opportunity time required for the design application. The rate, however, must not exceed the flow capacity of the furrow nor result in excessive erosion.

The design relationships for level furrows are based on the following conditions or assumptions:

1 The volume of water delivered into the furrow is equal to the average intake over the entire furrow length.

2 The intake opportunity time at the last point covered is equal to the time required for the net application to enter the soil.

3 The longest intake opportunity time at any point along the furrow is such that deep percolation is not excessive.

4 The ends of the furrows are blocked or diked to prevent outflow during the irrigation, and the depth of flow is no greater than can be contained