**Section 2 of 22 (2g - QT = DA Calculations for assessing IWM Requirements)**

Q is the flow to the border in cubic feet per second (cfs)
T is the inflow time (hours), i.e. the Irrigation Time set
D is the irrigation application depth (inches)
A is the area irrigated (acres)

**Example:** Alfalfa irrigated with a Hi-flow Turn Out
- available flow per border is 7.5 cfs (Q)
- field took 2.0 hours (T) to irrigate
- 2.5 inches (D) of irrigation water was applied per acre

**Continued:** i.e., 2.0” was needed ÷ 2.5” applied = 0.80 (irrigation has an 80% application efficiency)
- area irrigated was 6-acres (A):
  \( \frac{436 \text{ ft} \times 600 \text{ ft.}}{43,560} = 6.0 \text{ acres} \)

**USDA-NRCS Surface Irrigation System – Graded Border Program** gave the following analysis for irrigated field evaluated:

**Inputs:**
- cfs = 7.5
- Net application depth = 2”
- Field Slope = 0.001ft/ft
- Soil Intake = 0.6
- Roughness Coefficient = 0.15
- Field width = 436 ft
- Field Length = 600 ft

**Results:**
- Application Efficiency = 81%
- Gross Application = 2.48”
- Inflow time = 2.0 hrs.
- Runoff = 0.11”
- Deep Percolation = 0.36”

**NOTE:** Refer to the Field Irrigation Evaluation Guide. This guide is used to assess the actual irrigation application efficiency (Ea), IWM skill & understanding, etc., in order to plan and implement irrigation system and Irrigation Water Management (IWM) improvements.

Irrigation Application Efficiency (Ea): is the ratio of the average depth of irrigation water infiltrated & stored in the root zone to the average depth of irrigation water applied.