

14.3.3 WATER FORMULAS

Presumptions: Two methods are presented below for converting irrigation water applications per acre to lbs N per acre. Nitrogen content of water is most commonly reported in ppm NO₃ or ppm NO₃-N. NO₃ is converted to lbs N/acre foot of water by multiplying by 0.62. NO₃-N is converted to lbs N/acre foot of water by multiplying by 2.74. A detailed description of these conversion factors can be viewed [online](#).

Example for lab report of ppm NO₃: Report from lab shows 45ppm NO₃ and a total of 0.89 acre feet (ac-ft) of irrigation water was applied.

Step1: Convert ppm NO₃ to lbs N/acre foot of irrigation water applied.

$$45 \text{ ppm NO}_3 \times 0.62 = 27.9 \text{ lbs N/ac-ft}$$

Step 2: Multiply lbs N/ac-ft by total irrigation water applied per acre.

$$\frac{27.9 \text{ lbs N}}{\text{ac-ft}} \times \frac{0.89 \text{ ac-ft irrigation water}}{\text{ac}} = \frac{24.8 \text{ lbs N}}{\text{ac}}$$

Example for lab report of ppm NO₃-N: Report from lab shows 10ppm NO₃-N and a total of 0.89 acre feet (ac-ft) of irrigation water was applied.

Step1: Convert ppm NO₃-N to lbs N/acre foot of irrigation water applied.

$$10 \text{ ppm NO}_3\text{-N} \times 2.74 = 27.40 \text{ lbs N/ ac-ft}$$

Step 2: Multiply lbs N/ ac-ft by total irrigation water applied per acre.

$$\frac{27.40 \text{ lbs N}}{\text{ac-ft}} \times \frac{0.89 \text{ ac-ft irrigation water}}{\text{ac}} = \frac{24.34 \text{ lbs}}{\text{ac}}$$

Efficiency of fertilization and of irrigation are not factored into the above equations.