11   Year End Water and Nitrogen Use Reports

Question	Update	Type	Standard
Cp 11	D D+O	Req	Attach documentation and/or calculations with specified units. Final use numbers will be based on acres certified in the SIP Certification program **on a per acre basis. You can submit multiple reports to reflect use based on multiple management areas or ranches.** The following reports reflect practices from December 1 through November 30 of the certification year. Year End Reports are due to your inspector by December 15 of the certification year. **(Records required for all certified acres)**

CALCULATIONS   **CONVERSIONS AND EXAMPLES**

General Parameters

Total Area (ac) _____ (y)

Total Yield (ton)_____ (z)

Tons/Ac _____ (x = z / y)

Water Use Report

Total Water on a **per acre basis**.

Applied Irrigation Water (ac-ft/ac)_____ (a) | To convert water units per acre to acre feet, download the UCCE Irrigation Converter.

Applied Frost Water (ac-ft/ac)_____ (b) | To convert water units per acre to acre feet, download the UCCE Irrigation Converter.

Rainfall (ac-ft/ac)_____ (c) | **Example**: Inches per acre can be converted to acre feet per acre by dividing by 12.

$$\frac{10.7 \ in/ac}{12.0 \ in/ac\text{-}ft} = \frac{0.89 \ ac\text{-}ft}{ac}$$

Total Water (ac-ft/ac)_____ (d = a + b + c)

Efficiency

Water Efficiency (ac-ft/ton)_____ (d / x)

Nitrogen Use Report

Total Nitrogen on a **per acre basis.**

Fertilizer (lbs N/ac) _____ (e)	

Example for Solid Fertilizer: Ammonium sulfate [$(NH_4)_2SO_4$] fertilizer contains 21% N or 0.21 lbs N/lb of fertilizer. If 100 lbs of ammonium sulfate are applied per acre, the total N application is 21 lbs/acre.

$$\frac{100 \text{ lbs } (NH_4)_2SO_4}{ac} \times \frac{0.21 \text{ lbs N}}{1.0 \text{ lb } (NH_4)_2SO_4} = \frac{21 \text{ lbs N}}{ac}$$

Example for Liquid Fertilizer: Ammonium nitrate liquid fertilizer (AN 20) has a density of 10.76 Lbs/gal, and 21% nitrogen.

$$\frac{10.76 \text{ lbs}}{\text{gal of fertilizer}} \times \frac{0.21 \text{ Lbs N}}{\text{lb of fertilizer}} \times \frac{5 \text{ gal applied fertilizer}}{Ac} = \frac{11.3 \text{ lbs N}}{ac}$$

Compost (lbs N/ac)_____(f)

Example for Tons/Acre Compost Applied: Wet (as is) compost with 1.7% N content, applied at a rate of 5 tons per acre.

Step 1: Convert % N content to lbs N per ton of compost.

$$\frac{1.7 \text{ lbs N}}{100 \text{ lbs compost}} \times \frac{2000 \text{ lbs}}{\text{ton of compost}} = \frac{34 \text{ lbs N}}{\text{ton of compost}}$$

Step 2: Convert lbs N per ton of compost to lbs available N per ton of compost.

$$\frac{34 \text{ lbs N}}{\text{ton of compost}} \times \frac{0.30 \text{ lbs available}}{1 \text{ lb total N}} = \frac{10.2 \text{ lbs available}}{\text{ton of compost}}$$

Step 3: Multiply lbs of available N per ton by total tons applied per acre.

$$\frac{10.2 \text{ lbs available N}}{\text{ton of compost}} \times \frac{5 \text{ tons compost}}{\text{ac}} = \frac{51 \text{ lbs N}}{\text{ac}}$$

Example for Cubic Yards (CY)/Acre Compost Applied: Wet (as is) compost with 1.7% N content, applied at a rate of 5 cubic yard per acre.

Step 1: Convert % N content to lbs N per cubic yard of compost.

$$\frac{1.7 \text{ lbs N}}{100 \text{ lbs compost}} \times \frac{900 \text{ lbs}}{\text{cy of compost}} = \frac{15.3 \text{ lbs N}}{\text{cy of compost}}$$

Step 2: Convert lbs N per cubic yard of compost to lbs available N per cubic yard of compost.

$$\frac{15.3 \text{ lbs N}}{\text{cy of compost}} \times \frac{0.30 \text{ lbs available N}}{1 \text{ lb total N}} = \frac{4.6 \text{ lbs available N}}{\text{cy of compost}}$$

Step 3: Multiply lbs of available N per cubic yard by total cubic yards applied per acre.

$$\frac{4.6 \text{ lbs available N}}{\text{cy of compost}} \times \frac{5 \text{ cy of compost}}{\text{ac}} = \frac{23 \text{ lbs N}}{\text{ac}}$$

Water (lbs N/ac)_____(g)

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 ppm NO3 x 0.62 = 27.9 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 45ppm 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.

45 ppm NO3 x 2.74 = 123.3 lbs N/ ac-ft

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

$$\frac{123.3 \text{ lbs N}}{\text{ac-ft}} \times \frac{0.89 \text{ ac-ft irrigation water}}{\text{ac}} = \frac{109.7 \text{ lbs N}}{\text{ac}}$$

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

Total Applied Nitrogen (lbs N/ac)_____(h = e + f + g)

Nitrogen Efficiency (lbs N/Ton)_____(h / x)