

## Determining The Amount of Nitrogen in Irrigation Water

Irrigation water can be collected and analyzed for nitrate by a laboratory to determine the amount of nitrate (NO<sub>3</sub>) or nitrate-nitrogen (NO<sub>3</sub>-N) in water. The concentration of nitrate can then be extrapolated to determine the pounds of nitrogen per acre foot of water.

### How to convert between NO<sub>3</sub> and NO<sub>3</sub>-N:

To convert Nitrate (NO<sub>3</sub>) to Nitrate-Nitrogen (NO<sub>3</sub>-N), multiply by 0.2259.

To convert Nitrate-nitrogen (NO<sub>3</sub>-N) to Nitrate (NO<sub>3</sub>), multiply by 4.4268.

### How to convert to pounds N per acre foot:

Water Content Of:	Multiply By:	To Determine:
PPM NO <sub>3</sub>	0.052	Pounds N/acre inch
PPM NO <sub>3</sub>	0.62	Pounds N/acre foot
PPM NO <sub>3</sub> -N	0.23	Pounds N/acre inch
PPM NO <sub>3</sub> -N	2.74	Pounds N/acre foot

\*water analyses from most labs report NO<sub>3</sub> in units of ppm, but it is very important to pay attention to which units the results are reported.

### How to determine Pounds Nitrogen from Pounds N/acre foot:

Multiply the Pounds N/acre foot (or inches) by the amount of acre/foot (or inches) water applied.

Amount of Nitrogen per Area:	Multiply By:	To Determine
Pounds N/acre inch	Acre inch irrigation water	Pounds Nitrogen
Pounds N/acre foot	Acre foot irrigation water	Pounds Nitrogen

## Converting Total Applied Fertilizer Amounts to Pounds of Nitrogen Applied for Common Products

(see your fertilizer manufacturer for exact conversions)

**Nitrogen fertilizers have three numbers on the label such as 10-20-10 or 10-10-10 and these numbers represent the percentage of the three major nutrients, nitrogen-phosphorus-potassium (N-P-K). Below is a table of examples of how to determine the amount of pounds of nitrogen in different fertilizer products.**

Product / Product Unit:	Multiply By:	To Determine
UN32 / Gallons	3.539	Pounds Nitrogen
Ammonium Sulfate / Pounds	0.21	Pounds Nitrogen
Potassium Nitrate / Pounds	0.15	Pounds Nitrogen
Calcium Nitrate	0.15	Pounds Nitrogen
15/15/15	0.15	Pounds Nitrogen

The table provides the pounds of nitrogen applied based on the concentration of nitrate-N in irrigation water and the amount of irrigation water applied. To calculate the pounds of N applied with irrigation water, determine the concentration of nitrate-N in the irrigation water and the amount of water applied. The number in the table is the pounds of N applied to the field in the irrigation water only.

Concentration of nitrate-N in ppm (mg/L)	1	5	10	15	20	25	30	35	40	45	50	60	70	80	90	100	150	200	250	
<b>Acre-Ft of water applied</b>																				
0.1	0	1	3	4	5	7	8	10	11	12	14	16	19	22	25	27	41	55	69	
0.2	1	3	5	8	11	14	16	19	22	25	27	33	38	44	49	55	82	110	137	
0.3	1	4	8	12	16	21	25	29	33	37	41	49	58	66	74	82	123	164	206	
0.4	1	5	11	16	22	27	33	38	44	49	55	66	77	88	99	110	164	219	274	
0.5	1	7	14	21	27	34	41	48	55	62	69	82	96	110	123	137	206	274	343	
0.6	2	8	16	25	33	41	49	58	66	74	82	99	115	132	148	164	247	329	411	
0.7	2	10	19	29	38	48	58	67	77	86	96	115	134	153	173	192	288	384	480	
0.8	2	11	22	33	44	55	66	77	88	99	110	132	153	175	197	219	329	438	548	
0.9	2	12	25	37	49	62	74	86	99	111	123	148	173	197	222	247	370	493	617	
1	3	14	27	41	55	69	82	96	110	123	137	164	192	219	247	274	411	548	685	
1.25	3	17	34	51	69	86	103	120	137	154	171	206	240	274	308	343	514	685	856	
1.5	4	21	41	62	82	103	123	144	164	185	206	247	288	329	370	411	617	822	1028	
1.75	5	24	48	72	96	120	144	168	192	216	240	288	336	384	432	480	719	959	1199	
2	5	27	55	82	110	137	164	192	219	247	274	329	384	438	493	548	822	1096	1370	
2.5	7	34	69	103	137	171	206	240	274	308	343	411	480	548	617	685	1028	1370	1713	
3	8	41	82	123	164	206	247	288	329	370	411	493	575	658	740	822	1233	1644	2055	