

# SOYBEAN nutrient recommendations

SOIL TEST LEVEL OF THE FIELD

|   | SOIL TEST LEVEL OF THE FIELD  |           |         |      |           |          |
|---|---|-----------|---------|------|-----------|----------|
|   | Very Low  | Low       | Optimum | High | Very High | Ex. High |
| <b>Yield goal</b><br>(BU/A)                   | ----- LB (P <sub>2</sub> O <sub>5</sub> ) OR (K <sub>2</sub> O) /ACRE TO APPLY----- |           |         |      |           |          |
| <b>Phosphate (P<sub>2</sub>O<sub>5</sub>)</b> |   |           |         |      |           |          |
| 15-25   | --  | 25        | 15      | 10   | --        | 0        |
| 26-35   | --  | 35        | 25      | 15   | --        | 0        |
| 36-45   | --  | 40        | 30      | 15   | --        | 0        |
| 46-55   | --  | 50        | 40      | 20   | --        | 0        |
| 56-65   | --  | 60        | 50      | 25   | --        | 0        |
| 66-75   | --  | 65        | 55      | 30   | --        | 0        |
| 76-85   | --  | 75        | 65      | 35   | --        | 0        |
| <b>Potash (K<sub>2</sub>O)</b>                |   |           |         |      |           |          |
| 15-25   | 90  | 45, 70*   | 30      | 15   | 10        | 0        |
| 26-35   | 100   | 55, 80*   | 40      | 20   | 10        | 0        |
| 36-45   | 115   | 70, 95*   | 55      | 30   | 15        | 0        |
| 46-55   | 130   | 85, 110*  | 70      | 35   | 20        | 0        |
| 56-65   | 145   | 100, 125* | 85      | 45   | 20        | 0        |
| 66-75   | 160   | 115, 140* | 100     | 50   | 25        | 0        |
| 76-85   | 170   | 125, 150* | 110     | 55   | 30        | 0        |

-- Very low and very high category does not exist for soil test phosphorus  
\* Use lower values on sandy or organic soils

# ALFALFA nutrient recommendations

SOIL TEST LEVEL OF THE FIELD

|   | SOIL TEST LEVEL OF THE FIELD  |     |         |      |           |          |
|---|---|-----|---------|------|-----------|----------|
|   | Very Low  | Low | Optimum | High | Very High | Ex. High |
| <b>Yield goal</b><br>(TONS/A)                 | ----- LB (P <sub>2</sub> O <sub>5</sub> ) OR (K <sub>2</sub> O) /ACRE TO APPLY----- |     |         |      |           |          |
| <b>Phosphate (P<sub>2</sub>O<sub>5</sub>)</b> |   |     |         |      |           |          |
| 1.0-2.5                                       | 65  | 50  | 25      | 15   | --        | 0        |
| 2.6-3.5                                       | 80  | 65  | 40      | 20   | --        | 0        |
| 3.6-4.5                                       | 90  | 75  | 50      | 25   | --        | 0        |
| 4.6-5.5                                       | 105   | 90  | 65      | 35   | --        | 0        |
| 5.6-6.5                                       | 120   | 105 | 80      | 40   | --        | 0        |
| 6.6-7.5                                       | 130   | 115 | 90      | 45   | --        | 0        |
| 7.6-8.5                                       | 145   | 130 | 105     | 55   | --        | 0        |
| <b>Potash (K<sub>2</sub>O)</b>                |   |     |         |      |           |          |
| 1.0-2.5                                       | 155   | 145 | 105     | 55   | 25        | 0        |
| 2.6-3.5                                       | 230   | 220 | 180     | 90   | 45        | 0        |
| 3.6-4.5                                       | 290   | 280 | 240     | 120  | 60        | 0        |
| 4.6-5.5                                       | 350   | 340 | 300     | 150  | 75        | 0        |
| 5.6-6.5                                       | 410   | 400 | 360     | 180  | 90        | 0        |
| 6.6-7.5                                       | 470   | 460 | 420     | 210  | 105       | 0        |
| 7.6-8.5                                       | 530   | 520 | 480     | 240  | 120       | 0        |

-- Very high category does not exist for soil test phosphorus

## Legume Forage

Where an alfalfa stand is to be maintained for more than three years **increase** the annual top-dressed K<sub>2</sub>O by 20%.  
Apply **30 lb N/acre** in the seeding year if grown on soils with less than 2% organic matter.  
Apply **40 lb N/acre** to legume pasture in seeding year on sandy soils and **20 lb N/acre** on soils with more than 2% organic matter.

## Nurse Crops

Where barley or oats are seeded with a forage legume, **eliminate** or **reduce N** for the small grain by 50%.

GRAIN

SILAGE

# CORN nutrient recommendations

SOIL TEST LEVEL OF THE FIELD

|   | SOIL TEST LEVEL OF THE FIELD  |     |         |      |           |          |
|---|---|-----|---------|------|-----------|----------|
|   | Very Low  | Low | Optimum | High | Very High | Ex. High |
| <b>Yield goal</b><br>(BU/A)                   | ----- LB (P <sub>2</sub> O <sub>5</sub> ) OR (K <sub>2</sub> O) /ACRE TO APPLY----- |     |         |      |           |          |
| <b>Phosphate (P<sub>2</sub>O<sub>5</sub>)</b> |   |     |         |      |           |          |
| 71-90   | 65  | 55  | 30      | 15   | --        | 0        |
| 91-110  | 75  | 65  | 40      | 20   | --        | 0        |
| 111-130                                       | 80  | 70  | 45      | 25   | --        | 0        |
| 131-150                                       | 90  | 80  | 55      | 30   | --        | 0        |
| 151-170                                       | 95  | 85  | 60      | 30   | --        | 0        |
| 171-190                                       | 105   | 95  | 70      | 35   | --        | 0        |
| 191-220                                       | 110   | 100 | 75      | 40   | --        | 0        |
| <b>Potash (K<sub>2</sub>O)</b>                |   |     |         |      |           |          |
| 71-90   | 70  | 55  | 25      | 15   | 5         | 0        |
| 91-110  | 75  | 60  | 30      | 15   | 10        | 0        |
| 111-130                                       | 80  | 65  | 35      | 20   | 10        | 0        |
| 131-150                                       | 85  | 70  | 40      | 20   | 10        | 0        |
| 151-170                                       | 90  | 75  | 45      | 25   | 10        | 0        |
| 171-190                                       | 95  | 80  | 50      | 25   | 15        | 0        |
| 191-220                                       | 105   | 90  | 60      | 30   | 15        | 0        |
| <b>@ 35% DM</b>                               |   |     |         |      |           |          |
| <b>Phosphate (P<sub>2</sub>O<sub>5</sub>)</b> |   |     |         |      |           |          |
| 10 - 16                                       | 85  | 70  | 45      | 25   | --        | 0        |
| 16 - 20                                       | 105   | 90  | 65      | 35   | --        | 0        |
| 20 - 25                                       | 120   | 105 | 80      | 40   | --        | 0        |
| 25 - 35                                       | 150   | 135 | 110     | 55   | --        | 0        |
| <b>Potash (K<sub>2</sub>O)</b>                |   |     |         |      |           |          |
| 10 - 16                                       | 160   | 150 | 110     | 55   | 30        | 0        |
| 16 - 20                                       | 200   | 190 | 150     | 75   | 40        | 0        |
| 20 - 25                                       | 235   | 225 | 185     | 95   | 45        | 0        |
| 25 - 35                                       | 300   | 290 | 250     | 125  | 65        | 0        |

-- Very high category does not exist for soil test phosphorus

# SOIL pH liming recommendations

| Crop                                | Target pH |
|-------------------------------------|-----------|
| Alfalfa                             | 6.8       |
| Corn, silage or grain               | 6.0       |
| Pastures<br>(grass or legume-grass) | 6.0       |
| Red Clover                          | 6.3       |
| Soybeans                            | 6.3       |
| Wheat                               | 6.0       |

- Lime should be applied and incorporated at least 6 to 12 months prior to planting an acid sensitive crop such as alfalfa.
- Lime recommendations are made using the target pH for the most acid sensitive crop in a 4-year rotation.
- Application rates for lime should never exceed 12 ton/acre (8 ton/acre for potatoes).
- No additional lime should be applied until the most recent application has had 2-3 years to equilibrate with the soil.

# LEGUME nitrogen credits

| FORAGE  | medium / fine textured  |     | sandy soils |     | REGROWTH   |     |
|---|---|-----|-------------|-----|--|-----|
|   | >8"   | <8" | >8"         | <8" |  |     |
| <b>Alfalfa 1<sup>st</sup> Year</b>  | ----- LB N /ACRE TO CREDIT-----   |     |             |     | In the second cropping year following a fair or good stand on a fine/medium textured soil, take a 50 lb N/acre credit. |     |
| 70-100% alfalfa, more than 4 plants/ft <sup>2</sup>                             | Good  | 190 | 150         | 140 |  | 100 |
| 30-70% alfalfa, 1.5 - 4 plants/ft <sup>2</sup>                                  | Fair  | 160 | 120         | 110 |  | 70  |
| 0-30% alfalfa, less than 1.5 plants/ft <sup>2</sup>                             | Poor  | 130 | 90          | 80  |  | 40  |
| <b>Red Clover, Birdsfoot Trefoil, 80% of alfalfa credit</b> for similar stands. |   |     |             |     |  |     |
| <b>GREEN MANURE, lb N/a</b>   |   |     |             |     |  |     |
| Alfalfa, 60-100   | Use 40 lb N/acre credit if less than 6 inches of growth before tillage. Use upper end of range for spring seedings that are plowed under the following spring; use low end for fall seedings. |     |             |     |  |     |
| Sweet Clover, 80-120  |   |     |             |     |  |     |
| Red Clover, 50-80   |   |     |             |     |  |     |
| <b>FIELD CROPS, lb N/a</b>  |   |     |             |     |  |     |
| Soybean, 40   | No credit on sandy soils. Soy credit applies to non-legume crops other than corn; soybean N for corn is accounted in Corn Nitrogen Guidelines.  |     |             |     |  |     |
| Pea, Snap or Lima bean, 20  |   |     |             |     |  |     |

## Corn Nitrogen Guidelines

| Soil <sup>1</sup>                    | Previous crop   | N: Corn Price Ratio |             |           |           |
|--------------------------------------|---|---------------------|-------------|-----------|-----------|
|                                      |   | 0.05                | 0.10        | 0.15      | 0.20      |
| HIGH/VERY HIGH YIELD POTENTIAL SOILS | Corn, Forage legumes, Legume vegetables, Green manures <sup>5</sup> | 170 <sup>3</sup>    | 150         | 130       | 115       |
| MEDIUM/LOW YIELD POTENTIAL SOILS     | Corn, Forage legumes, Legume vegetables, Green manures <sup>5</sup> | 140                 | 120         | 105       | 95        |
| SANDS/ LOAMY SANDS                   | Soybean, Small grains <sup>6</sup>                                  | 125-----160         | 105-----135 | 95---115  | 80---105  |
|                                      | Corn, Forage legumes, Legume vegetables, Green manures <sup>5</sup> | 125                 | 110         | 100       | 95        |
|                                      | Soybean, Small grains <sup>6</sup>                                  | 110-----140         | 100--115    | 95--110   | 85--100   |
|                                      | Irrigated—All crops <sup>5</sup>                                    | 110                 | 85          | 70        | 60        |
|                                      | Non-irrigated—All crops <sup>5</sup>                                | 90-----125          | 70---95     | 60---80   | 50---70   |
|                                      | Irrigated—All crops <sup>5</sup>                                    | 215                 | 205         | 195       | 180       |
|                                      | Non-irrigated—All crops <sup>5</sup>                                | 205---225           | 195---215   | 180---205 | 170---195 |
|                                      |   | 130---150           | 120---140   | 110---130 | 100---120 |

## Additional Guidelines:

- ✓ For maximum silage yield, use N rate for 0.05 price ratio. To adjust rates for silage, use price ratio that reflects typical prices for N and grain.
- ✓ If >50% residue at planting, use upper end of range.
- ✓ If all N is from organic sources, use top end of range. Plus, up to 20 lb N/acre as starter may be used.
- ✓ For medium & fine-textured soils with >10% soil organic matter, use low end of range; <2% OM, use high end of range.
- ✓ For coarse-textured, medium yield potential soils with <2% OM, use high end of range; >2% OM, use mid to low end of range.
- ✓ When corn follows small grains on medium & fine-textured soils, use the mid to low end of range.
- ✓ For irrigated, medium yield potential soils, use rates for high yield potential soils.
- ✓ If potential for carry-over (residual) N, use low end of range or use the high end and subtract preplant soil nitrate test (PPNT) credits.

| Price of N (\$/lb N) | N: Corn Price Ratios |      |      |      |      |      |      |      |      |  |
|----------------------|----------------------|------|------|------|------|------|------|------|------|--|
|                      | 2.75                 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 |  |
| 0.25                 | 0.09                 | 0.08 | 0.08 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.05 |  |
| 0.30                 | 0.11                 | 0.10 | 0.09 | 0.09 | 0.08 | 0.08 | 0.07 | 0.07 | 0.06 |  |
| 0.35                 | 0.13                 | 0.12 | 0.11 | 0.10 | 0.09 | 0.09 | 0.08 | 0.08 | 0.07 |  |
| 0.40                 | 0.15                 | 0.13 | 0.12 | 0.11 | 0.11 | 0.10 | 0.09 | 0.09 | 0.08 |  |
| 0.45                 | 0.16                 | 0.15 | 0.14 | 0.13 | 0.12 | 0.11 | 0.11 | 0.10 | 0.10 |  |
| 0.50                 | 0.18                 | 0.17 | 0.15 | 0.14 | 0.13 | 0.13 | 0.12 | 0.11 | 0.11 |  |
| 0.55                 | 0.20                 | 0.18 | 0.17 | 0.16 | 0.15 | 0.13 | 0.13 | 0.12 | 0.12 |  |
| 0.60                 | 0.22                 | 0.20 | 0.18 | 0.17 | 0.16 | 0.14 | 0.14 | 0.13 | 0.13 |  |
| 0.65                 | 0.24                 | 0.22 | 0.20 | 0.19 | 0.17 | 0.16 | 0.15 | 0.14 | 0.14 |  |
| 0.70                 | 0.25                 | 0.23 | 0.22 | 0.20 | 0.19 | 0.18 | 0.16 | 0.16 | 0.15 |  |
| 0.75                 | 0.27                 | 0.25 | 0.23 | 0.21 | 0.20 | 0.19 | 0.18 | 0.17 | 0.16 |  |
| 0.80                 | 0.29                 | 0.27 | 0.25 | 0.23 | 0.21 | 0.20 | 0.19 | 0.18 | 0.17 |  |

To use an online calculator go to <http://www.soils.wisc.edu/extension/>

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# MANURE information

## APPROX. AVAILABLE NUTRIENT CONTENT

1<sup>ST</sup> YEAR [2<sup>ND</sup> YEAR]

|                      | N      | N*     | P <sub>2</sub> O <sub>5</sub> | K <sub>2</sub> O |
|----------------------|--------|--------|-------------------------------|------------------|
| <b>Dairy</b>         |        |        |                               |                  |
| Solid (lb/ton)       | 3 [1]  | 4 [1]  | 3 [1]                         | 7 [1]            |
| Liquid (lb/1000 gal) | 7 [3]  | 10 [2] | 5 [1]                         | 16 [2]           |
| <b>Beef</b>          |        |        |                               |                  |
| Solid (lb/ton)       | 4 [1]  | 5 [1]  | 5 [1]                         | 9 [1]            |
| Liquid (lb/1000 gal) | 5 [2]  | 7 [2]  | 5 [1]                         | 16 [2]           |
| <b>Swine</b>         |        |        |                               |                  |
| Solid (lb/ton)       | 7 [1]  | 9 [2]  | 6 [1]                         | 7 [1]            |
| Liquid (lb/1000 gal) |        |        |                               |                  |
| Indoor Pit           | 25 [5] | 33 [5] | 25 [4]                        | 24 [3]           |
| Outdoor Pit          | 17 [3] | 22 [4] | 10 [1]                        | 16 [2]           |
| Farrow-nursery       |        |        |                               |                  |
| Indoor Pit           | 13 [2] | 16 [3] | 14 [2]                        | 18 [2]           |
| <b>Poultry</b>       |        |        |                               |                  |
| Solid (lb/ton)       | 20 [4] | 24 [4] | 30* [5]                       | 24 [3]           |
| Liquid (lb/1000 gal) | 8 [2]  | 10 [1] | 6 [1]                         | 10 [1]           |
| <b>Horse</b>         |        |        |                               |                  |
| Solid (lb/ton)       | 3 [1]  | 4 [1]  | 4 [0]                         | 8 [1]            |

\* Manure incorporated within 3 days  
\* 24 for turkey

## MANURE OUTPUT\*

| Animal            | weight  | lb/day | ton/year | gal/day | 1000 gal/year |
|-------------------|---------|--------|----------|---------|---------------|
| Dairy             | 1400 lb | 148    | 27       | 17.7    | 6.5           |
| Beef              | 1100 lb | 80     | 15       | 9.5     | 3.5           |
| Swine             | 150 lb  | 9.5    | 1.7      | 1.2     | 0.44          |
| Chicken (broiler) | 2 lb    | 0.18   | 0.031    | 0.02    | 0.008         |
| Horse             | 1000 lb | 50     | 9.1      | 6.0     | 2.2           |

\*Volume as excreted.

## DETERMINING MANURE APPLICATION RATE

### Step 1: Figure load size:

Weigh spreader in tons for solid or semi-solid manure  
Use 90% tank capacity in gallons for liquid manure

### Step 2: Determine field acreage:

$$\frac{\text{field length (ft)} \times \text{field width (ft)}}{43,560 \text{ ft}^2/\text{a}} = \text{acres}$$

### Step 3: Calculate manure application rate:

$$\frac{[(\# \text{ of loads}) \times (\text{load size})]}{\text{field acreage}} = \text{tons or gallons / acre}$$



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Nutrient Management

FAST FACTS

indicates information pertains to Wisconsin only.

# PLANTING & HARVEST information

## DETERMINING PLANT POPULATIONS

| Row Width   | 20"   | 28"   | 30"   | 32"   | 36"   | 38"   | 40"   |
|-------------|-------|-------|-------|-------|-------|-------|-------|
| Row Length* | 26'1" | 18'8" | 17'5" | 16'4" | 14'6" | 13'9" | 13'1" |

\*Row length required to equal 1/1000 acre.

Calculation: (# of plants in row length) x 1000 = plants/acre

## NUTRIENTS REMOVED BY CROP AT HARVEST

|   | P <sub>2</sub> O <sub>5</sub> | K <sub>2</sub> O |
|---|-------------------------------|------------------|
| lb per yield unit   |                               |                  |
| <b>Alfalfa* / Red Clover</b> , per ton (dry matter)         | 13                            | 60               |
| <b>Barley</b> ,   |                               |                  |
| Grain, per bu (1 bu = 48 lb @ 14.5% moisture)               | 0.40                          | 0.35             |
| Straw, per ton (dry matter)                                 | 10                            | 32               |
| <b>Corn</b>   |                               |                  |
| Grain per bu (1 bu = 56 lb @ 15.5% moisture)                | 0.38                          | 0.29             |
| Silage, per ton (65% moisture)                              | 3.6                           | 8.3              |
| Sweet, per ton (fresh)                                      | 3.3                           | 6.0              |
| <b>Outlage</b> , per ton (dry matter)                       | 11                            | 44               |
| <b>Oats</b>   |                               |                  |
| Grain, per bu/a (1 bu = 32 lb @ 14% moisture)               | 0.29                          | 0.19             |
| Straw, per ton (dry matter)                                 | 9.4                           | 47               |
| <b>Potatoes</b> , per cwt (fresh)                           | 0.12                          | 0.50             |
| <b>Rye</b>  |                               |                  |
| Grain, per bu/a (1 bu = 56 lb @ 14% moisture)               | 0.41                          | 0.31             |
| Straw, per ton (dry matter)                                 | 3.7                           | 21               |
| <b>Sorghum</b> , Grain, per bu (1bu = 56 lb @ 14% moisture) | 0.40                          | 0.40             |
| <b>Sorghum-Sudan</b> , Forage, per ton (65% moisture)       | 15                            | 60               |
| <b>Soybean*</b>   |                               |                  |
| Grain, per bu (1 bu = 60 lb @ 13% moisture)                 | 0.80                          | 1.4              |
| Straw, per ton (dry matter)                                 | 5.4                           | 19               |
| <b>Wheat</b>  |                               |                  |
| Grain, per bu (1 bu = 60 lb @ 13.5% moisture)               | 0.50                          | 0.35             |
| Straw, per ton (dry matter)                                 | 6.0                           | 28               |

\*Nitrogen removal by alfalfa is 60 lb N/ton and by soybeans is 4 lb N/bu.

## CONVERTING POUNDS HARVESTED TO BUSHELS WITH % MOISTURE CONTENT CORRECTIONS

### Shelled Corn

$$[\text{lbs harvested} \times (1 - \% \text{ moisture in corn})] \div 47.32 = \text{bu @ 15.5\% moisture}$$

### Ear corn

$$\text{lbs harvested} \div \text{number from chart below} = \text{bu @ 15.5\% moisture}$$

| moisture % | 15   | 15.5 | 16   | 17   | 18   | 19   | 20   | 21   | 22   | 23   | 24   | 25   | 26 | 27   |
|------------|------|------|------|------|------|------|------|------|------|------|------|------|----|------|
| equation # | 68.1 | 68.6 | 69.2 | 70.4 | 71.6 | 72.8 | 74.1 | 75.4 | 76.6 | 78.0 | 79.4 | 80.7 | 82 | 83.4 |

### Soybeans or wheat

$$\text{lbs harvested} \times (1 - \% \text{ foreign matter}) = \text{adjusted lbs harvested}$$

$$[\text{adjusted lbs} \times (1 - \% \text{ moisture})] \div 52.2 = \text{bu soybeans @ 13\% moisture}$$

$$\text{bu wheat @ 0\% moisture}$$

## CALCULATING ACRES HARVESTED:

$$\text{acres harvested} = \frac{[\text{row length(ft)} \times \text{row width(ft)} \times \# \text{ of rows harvested}]}{43,560 \text{ ft}^2/\text{acre}}$$

Example with corn harvested by combine :

- Step 1: 12,580 lbs corn harvested @ 21.35% moisture  
12,580 lbs x (1 - .2135) ÷ 47.32 = 209 bu of corn @ 15.5 % moisture
- Step 2: Four-row harvester: 16 rows , each 30 inch (2.5 ft) row is 1210 feet long  
(1210 ft x 2.5 ft x 16 rows) ÷ 43,560 ft<sup>2</sup>/acre = 1.10 acres
- Step 3: 209 bu of corn ÷ 1.10 acres = 190 bu/acre

# FERTILIZER ANALYSIS

|  | N  | P <sub>2</sub> O <sub>5</sub> | K <sub>2</sub> O | other        |
|--|----|-------------------------------|------------------|--------------|
| % content                              |    |                               |                  |              |
| <b>Nitrogen</b>                        |    |                               |                  |              |
| Ammonium nitrate                       | 34 | 0                             | 0                |              |
| Ammonium sulfate (AMS)                 | 21 | 0                             | 0                | 24(S)        |
| Ammonium thiosulfate (ATS)             | 12 | 0                             | 0                | 26(S)        |
| Anhydrous ammonia                      | 82 | 0                             | 0                |              |
| Aqueous ammonia                        | 20 | 0                             | 0                |              |
| Calcium nitrate (CN)                   | 15 | 0                             | 0                | 17(Ca)       |
| Urea                                   | 46 | 0                             | 0                |              |
| 28% Urea ammonium nitrate (UAN)        | 28 | 0                             | 0                |              |
| 32% UAN                                | 32 | 0                             | 0                |              |
| <b>Phosphorus</b>                      |    |                               |                  |              |
| Ammonium polyphosphate (dry)           | 15 | 62                            | 0                |              |
| Ammonium polyphosphate (liquid)        | 10 | 34                            | 0                |              |
| Diammonium phosphate (DAP)             | 18 | 46                            | 0                |              |
| Monoammonium phosphate (MAP)           | 11 | 52                            | 0                |              |
| Triple superphosphate (TSP)            | 0  | 46                            | 0                |              |
| <b>Potassium</b>                       |    |                               |                  |              |
| Potassium chloride (muriate of potash) | 0  | 0                             | 60-62            |              |
| Potassium-magnesium sulfate            | 0  | 0                             | 22               | 22(S),11(Mg) |
| Potassium nitrate                      | 13 | 0                             | 44               |              |
| Potassium sulfate                      | 0  | 0                             | 50               | 18(S)        |

**Liquid weights:**  
1 gallon water weighs 8.3 lbs  
1 gallon UAN (28%) weighs 10.6 lbs  
1 gallon 10-34-0 weighs 11.6 lbs  
1 gallon 9-18-9 weighs 11.1 lbs

# CONVERSIONS

| Take column 1                      | multiply by column 2 | to get column 3                |
|------------------------------------|----------------------|--------------------------------|
| acre (a)                           | 43,560               | square feet (ft <sup>2</sup> ) |
| acre (a)                           | 0.405                | hectare (ha)                   |
| square mile (mi <sup>2</sup> )     | 640                  | acres (a)                      |
| cubic yard (yd <sup>3</sup> )      | 27                   | cubic feet (ft <sup>3</sup> )  |
| cubic feet (ft <sup>3</sup> )      | 7.48                 | gallons (gal)                  |
| bushel (bu)                        | 1.244                | cubic feet (ft <sup>3</sup> )  |
| bushel (bu)                        | 8                    | gallons - dry                  |
| bushel (bu)                        | 9.31                 | gallons - liquid               |
| ounces (oz)                        | 29.6                 | milliliters (ml)               |
| gallon (gal)                       | 3.78                 | liters (l)                     |
| gallon (gal)                       | 128                  | fluid ounces (fl oz)           |
| gallon (gal)                       | 4                    | quart (qt)                     |
| acre-foot                          | 43,560               | cubic feet (ft <sup>3</sup> )  |
| acre-foot                          | 325,851              | gallons (gal)                  |
| chain (ch)                         | 66                   | feet (ft)                      |
| chain (ch)                         | 4                    | rods (r)                       |
| rods (r)                           | 16.5                 | feet (ft)                      |
| mile (mi)                          | 5280                 | feet (ft)                      |
| ton (short)                        | 2,000                | pounds (lb)                    |
| ton (long)                         | 2,230                | pounds (lb)                    |
| gallons/acre (gal/a)               | 9.354                | liters/hectare (l/ha)          |
| miles/hour (mph)                   | 88                   | feet/minute (ft/min)           |
| pounds/acre (lb/a)                 | 1.12                 | kilograms/hectare (kg/ha)      |
| P <sub>2</sub> O <sub>5</sub> (lb) | 0.44                 | P (lb)                         |
| K <sub>2</sub> O (lb)              | 0.83                 | K (lb)                         |
| ppm-plow layer (6 in)              | 2                    | lb/acre (lb/a)                 |
| ppm-top soil (12 in)               | 4                    | lb/acre (lb/a)                 |

To get column 1, divide column 3 by column 2