



TECHNICAL INFORMATION



All tabulations in the spray charts are based on spraying water which weighs 8.34 lbs. per gallon. Conversion factors must be used when spraying solutions which are heavier or lighter than water. To determine the proper size nozzle for the solution to be sprayed, first **divide** the desired GPM or GPA of solution by the water rate conversion factor. Then use the new converted number to select the proper nozzle size.

Weight of Solution	Spec. Gravity	Conversion factor
7.0 lbs. per gallon	.84	1.09
8.0 lbs. per gallon	.96	1.02
8.34 lbs. per gallon-Water	1.00	1.00
9.0 lbs. per gallon	1.08	.96
10.0 lbs. per gallon	1.20	.91
10.65 lbs. per gallon 28%	1.28	.87
12.0 lbs. per gallon	1.44	.83
14.0 lbs. per gallon	1.68	.77

NOTE: be sure to divide by this number

COMMON FORMULAS

Round tank Capacity = Dia²(inches) x Length(inches) x .0034

Rectangular Tank Capacity = $\frac{L \times W \times H \text{ in inches}}{231}$

Gallons per foot in Round tanks = Dia(ft)² x 5.875

Circumference of Circle = Diameter x 3.1416

Area of Circle = 3.1416 x radius²

Acres = L(ft)xW(ft) divided by 43,560

Acres/hour = $\frac{\text{swath(inches)} \times \text{mph}}{100}$

USEFUL INFORMATION

1 acre = 43,560 ft.²

1 mile = 5,280 ft.

1 gallon = 128 ounces

8 pints

4 quarts

3.79 liters

.1337 cubic ft.

1 cubic ft. = 7.48 gallon

1 cup = 8 ounces

1 ounce = 2 tablespoons = 3 teaspoons = 28.35 grams

PRESSURE DROP

Flow gpm	Pressure drop in PSI (10 ft. length less couplings)				
	1/4"ID	3/8"ID	1/2"ID	3/4"ID	1"ID
0.5	1.4	.2			
1.0		.7			
1.5		1.4	.4		
2.0		2.4	.6		
2.5		3.4	.9		
3.0			1.2		
4.0			2.0		
5.0			2.9	.4	
6.0			4.0	.6	
8.0				.9	.3
10.0				1.4	.4

USEFUL FORMULAS

$$\text{GPM per nozzle} = \frac{\text{GPA} \times \text{MPH} \times \text{W(inches)}}{5940}$$

$$\text{GPA} = \frac{5940 \times \text{GPM (per nozzle)}}{\text{MPH} \times \text{Width (inches)}}$$

Volume in hose in Oz.
Oz = 5.236 x ID squared (in) x length (ft)

$$\text{Speed} = \frac{\text{Distance (ft.)} \times 60}{\text{Time (seconds)} \times 88}$$

(PSI X GPM divide by 1460)=Electric HP(x 1.3 for gas engines)

RAVEN FORMULAS

$$\text{New speed cal. \#} = \frac{\text{cal.\#} \times 5280}{\text{console distance reading (1 mile)}}$$

$$\text{New meter cal.\#} = \frac{\text{cal.\#} \times \text{console volume reading}}{\text{actual volume}}$$

ANHYDROUS AMMONIA

Pounds per Gallon of NH₃ = 5.15

Pounds per Gallon of actual "N" = 4.22

SPEED CALIBRATION

Speed	Time in seconds to travel a distance of:		
	100 feet	200 feet	300 feet
3.0	23	45	68
4.0	17	34	51
5.0	14	27	41
6.0	11	23	34
7.0	9.7	19	29
8.0	8.5	17	26
9.0	7.6	15	23
10.0	6.8	14	20
12.0	5.7	11	17
15.0	4.5	11	13.6
20.0	3.4	6.8	10.2

NOZZLE SPACING CONVERSION

Factors of 20" Spacing

Row Spacing	10"	12"	14"	16"	18"	20"	22"	24"	26"	28"	30"
Factor	2.0	1.67	1.43	1.25	1.11	1.00	.91	.86	.77	.71	.67

Factors for 40" spacing

Row Spacing	22"	24"	26"	28"	30"	32"	34"	36"	38"	40"
Factor	1.83	1.67	1.54	1.43	1.33	1.25	1.18	1.11	1.05	1.00

NOTE: MULTIPLY WHEN USING ABOVE.

SUGGESTED MINIMUM SPRAY HEIGHT

SPRAY ANGLE	20" Spacing	30" Spacing
73°	20" to 22"	29" to 31"
80°	17" to 19"	26" to 28"
110°	10" to 12"	14" to 18"