

Orifice Selection for Actual GPA

- GPA** 1. Need gallons per acre - actually set Pump
 2. Putting out what product- you need weight per 1 gallon
- Actual GPA x WT Conversion** a. Chart based on Water Conversion Factor is 1.00
 b. Convert to product other than Water - See Spraying Systems book for explanation.

GPA Water Standard x WT Conversion x Space Conversion* = GPA to look for (not actual)

**In. Space divided by Standard*

STANDARD 20 Inch (Std.) FURTHER APART
 ActualGals./Acre x 11 Lbs./Gallon x 36 In. Space* = **GPA**
 28.70 1.15 1.80 **59.41**

STANDARD 20 Inch (Std.) CLOSER
 ActualGals./Acre x 11 Lbs./Gallon x 9 In. Space* = **GPA**
 28.70 1.15 0.45 **14.85**

STANDARD 40 Inch (Std.) CLOSER
 ActualGals./Acre x 11 Lbs./Gallon x 36 In. Space* = **GPA**
 28.70 1.15 0.90 **29.70**

- Actual GPA x WT Conversion x Space Conversion** 3. Chart based on 20" as Standard
- a. Space further apart puts on less GPA, therefore with chart based on 20", need space divided by 20 (36/20=1.80). Larger amount will equal the amount when spread out.
- b. Space closer together puts on more GPA, therefore with chart based on 40", need space divided by 40 (36/40=.90). Smaller amount will equal the amount when run closer together.

From NCI Catalog

Weight of Solution	Specific Gravity	Conv. Factor
7.0 lbs/gallon	0.84	0.92
8.0 lbs/gallon	0.96	0.98
8.34 lbs/gallon - WATER	1.00	1.00
9.0 lbs/gallon	1.08	1.04
10.0 lbs/gallon	1.20	1.10
10.65 lbs/gallon - 28% Nitrogen	1.28	1.13
11.0 lbs/gallon	1.32	1.15
12.0 lbs/gallon	1.44	1.20
14.0 lbs/gallon	1.68	1.30

Example: Desired application rate is 20 GPA of 28%N. **Asume spacing of chart**

- Determine the correct nozzle size as follows: GPA (solution) x Conversion Factor = GPA (from table)
 20 GPA (28%) x 1.13 = 22.6 GPA (water) - Standard
- The applicator should choose a nozzle size that will supply 22.6 GPA of water at the desired pressure.
 But set metering pump for 20 GPA of 28%nitrogen