

BAND SPRAYING APPLICATIONS - GPA FORMULAS

Do not confuse band applications with cutting recommended Gallons per Acre rates. The rate applied on a banding basis is the same rate recommended for broadcast applications. Banding of agrichemicals allows for increased acreage to be covered with the same tank volume.

FORMULA (1) - To determine the Gallons per Minute (GPM) capacity required for a spray tip used to band agrichemicals:

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

Where: GPA = Gallons per Acre (Application Rate)
 MPH = Actual field speed in Miles per Hour
 W = Band width in Inches

FORMULA (2) - To determine the Gallons per Acre (GPA) rate on treated spray band:

$$\text{GPA (treated band)} = \frac{\text{GPM} \times 5940}{\text{MPH} \times \text{W}}$$

Where: GPM = Gallons per Minute (per nozzle)
 MPH = Actual field speed in Miles per Hour
 W = Band width in Inches

FORMULA (3) - To determine the Gallons of solution used over the Actual or Field Acre:

$$\text{GPA (Field Acre)} = \text{GPA (Treated Band)} \times \frac{\text{Band Width}}{\text{Row Spacing}}$$

EXAMPLES

If a farmer wants to find the correct capacity spray tip to use for "banding" a pesticide, he should know the chemical manufacturer's suggested application rate (GPA), actual field speed, and band width. For example:

The farmer decides to use a recommended rate of 20 GPA, travel at 4 MPH, and spray a 14" wide band over the crop. The correct capacity spray tip to use would be:

USING FORMULA (1): $\text{GPM (per nozzle)} = \frac{20 \times 4 \times 14}{5940} = 0.19 \text{ GPM Per Nozzle}$

Using a TeeJet 8002E spray tip at 35 PSI, we calibrate the equipment and note that the capacity is 0.19 GPM. If we are spraying a 14" band on 30" row spacing at 4 MPH, the GPA on the "Treated Band" would be:

USING FORMULA (2): $\text{GPA (Treated Band)} = \frac{0.19 \times 5940}{4 \times 14} = 20 \text{ GPA (Treated Band)}$

The Gallons of solution applied over the field acre based on 30" rows would be:

USING FORMULA (3): $\text{GPA (Field Acre)} = 20 \times \frac{14}{30} = 9.4 \text{ GPA (Field Acre)}$

It can be shown that applying agrichemicals in a narrow band as opposed to a broadcast application of 20 GPA increases the actual acres (field acres) covered with a tank of solution. Assuming the farmer used a 100 Gallon spray tank:

Banding: $11 \text{ Acres} = \frac{100 \text{ Gallon Tank}}{9.4 \text{ GPA (Field Acre)}}$

Broadcast: $5 \text{ Acres} = \frac{100 \text{ Gallon Tank}}{20 \text{ GPA (Field Acre)}}$

DESCRIPTION:
 CALCULATING
 GALLONS PER ACRE IN BAND
 SPRAYING APPLICATIONS



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