



Grain Protectant Application Equipment Standards

Proper application of liquid grain protectants such as those offered by Central Life Sciences, is an integral step in achieving control and prevention of stored product insects.

Please find below suggested Grain Protectant Application Equipment Standards to help guide you with the selection of necessary equipment to assist in product application success.

NOZZLE SELECTION – Select a nozzle size based on the grain flow at the application point. The target solution rate is 5 gallons per 1,000 bushels of grain flow.

Example: 8,000 bushels per hour grain flow = a nozzle capable of applying 40 gallons of solution per hour (5 Gal * 8 = 40) or .66 gallon per minute (84 ounces per minute).

Select a nozzle that will deliver a “coarse” droplet size or larger at the target pressure range of the nozzle (325 micron or larger). If using a single nozzle, it is best to select an “even” type that delivers a consistent spray across the pattern of the nozzle.

Tapered nozzles can be used when multiple nozzles are used for the application.

Preferred Nozzles are: Air Induction Even Flat Fans, Extended Range Air Induction Flat Fans, or Turbo TeeJet Induction (all are designed to deliver coarse or larger droplets and operate in the 15 to 50 PSI range).

The nozzle body should include a check valve and nozzle screen (screen size should be 50 mesh or larger).

PUMP – Must be capable of enough capacity for the desired output of the application nozzle, plus enough output for bypass recirculation of the tank. It is recommended that the tank be recirculated 4 times per hour.

Example: 40 GPH is delivered through the nozzle. Tank size is 250 Gallon.

$250 * 4 \text{ times recirculation} = 1,000 \text{ GPH.}$

$1,000 \text{ GPH} + 40 \text{ GPH (nozzle)} = 1,040 \text{ GPH or } 17.3 \text{ GPM.}$

Another option for tank recirculation is a secondary pump or a tank impeller device to maintain the solution in the tank.

If you have any additional questions, please visit www.bugfreegrains.com, call 1-800-248-7763 or visit your local ag chemical distributor for additional information.

MANIFOLD – Should include the following:

- Inlet from pump that should include filter (50 mesh screen or larger)
- Output to nozzle with 3/4 or 1” to connect hose to nozzle.
- Pressure relief / bypass valve for tank recirculation.
- 1” connections and return hose to tank.
- Pressure gauge at manifold.

TANK SIZE – Should be based on an average application day. It is suggested the tank be mixed and filled no less than once per day.

Example: If delivering 40 GPH application, the tank should be large enough to contain 320 gallons to accommodate 8 hours of application time. Refill and mix at least daily.

OPTIONS

1. Automated on/off switch that can be activated by an amp pull off belt/leg motor, a Micro switch device that is activated when grain is being moved, a “flapper switch”, or is activated by an infrared sensor.
2. In line flow meter on hose to nozzle to visually access if solution is flowing to the nozzle. These can be extremely helpful when nozzle location is not easily visible. These can be mechanical devices such as Red Ball or electronic flow meters.
3. Pressure gauge near output nozzle if hose from pump to output nozzle is greater than 100’.
4. When calibrating, a digital flow meter is also recommended.

