



Use of Glyphosate as a Harvest Aid in Early Planted Grain Sorghum

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Many producers are adopting crop rotations to facilitate the transition to no-till practices. Crop rotations include crops such as soybean, corn, grain sorghum, canola and wheat. When producers grow three crops in two years, they utilize a summer crop in the rotation. Of these summer crops, soybean and corn die after reaching maturity. However, grain sorghum may require a harvest aid to facilitate harvest. Grain sorghum is a tropical perennial plant requiring either a hard freeze or chemical application to kill the plant. In fields with early planted grain sorghum (April to early May), where producers intend to plant either wheat or canola in the fall, using a harvest aid serves two purposes. First, it helps with harvest scheduling, and second, it stops plant growth, preventing unnecessary use of soil moisture required for emergence of the fall planted crop.

The most important aspect of utilizing a harvest aid is knowing when to apply them. Using the harvest aid too early will reduce grain yields and test weights. A harvest aid should be applied when grain sorghum reaches a physiological maturity known as black layer (Figure 1), or when grain is at approximately 30 percent moisture. Since grain sorghum flowers from the top down, it also matures from the top down. Therefore, to determine when black layer is reached, always check the lower part of the head first. As grain sorghum matures, seed color increases from green or yellow to red, bronze or cream. When color appears at the bottom of the head, it is time to determine if black layer has been reached. To do this pull seeds from the bottom of the head and remove the glume. If a black dot appears on the seed (Figure 1) then the black layer has been reached and it is time to apply a harvest aid. Glyphosate is the most common chemical used as a harvest aid in grain sorghum.

Application of Glyphosate

Applications may be made by ground equipment or airplane, but the two most important factors are coverage and rate. Rate will depend upon the amount of active ingredient (ai) in the glyphosate product that will be utilized. Generally, products contain either 4, 5.5 or 6 pounds active ingredient per acre (Table 1). One pound of glyphosate is the recommended rate to kill grain sorghum. As with all glyphosate applications always use 17 pounds of Ammonium Sulfate per 100 gallons of water. It is important to add ammonium sulfate to the water prior to adding glyphosate to the tank.



Figure 1. Stages of maturity for grain sorghum seed, example on far right is at black layer, the stage to spray with glyphosate.

Table 1. Herbicide application rate required to apply one pound of glyphosate demonstrated for multiple glyphosate formulations.

Active ingredient (pounds/gallon)	Product application rate (oz/acre)
4.0	32 oz
5.5	24 oz
6.0	22 oz

Increasing the application rate (more gallons per acre) always improves coverage. If applying with a ground equipment, a minimum of seven gallons per acre is recommended. If utilizing an airplane, three to five gallons per acre is recommended, with the five-gallon rate generally providing better coverage.

Harvesting After Spraying

Never spray the harvest aid to an area more than can be harvested in two days because after spraying, stalks of grain sorghum will start to weaken within two weeks, which can lead to lodging and yield loss. After spraying, expect harvest to begin in seven to ten days, depending upon weather conditions.

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