

# 1979 Recommendations for Chemical Weed Control in Grain Sorghum

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Federal regulations on the use of herbicides change frequently, so stay informed on the status of label registration. Based on available information, recommendations in this guide conform to laws and regulations at the time of writing.

You must read and understand the label on herbicides you plan to use. *Using a herbicide in a manner not provided for on the label is illegal.*

## About Recommendations

Recommendations in this guide are based on research and comparative performance over a period of years. However, herbicide performance depends on many factors which cannot be controlled or foretold. (See UMC Guide 4903, "Factors Affecting Herbicide Performance.") For this reason, results may vary widely from those normally expected. These recommendations do not and cannot imply satisfactory performance in all cases. An element of risk is involved in the use of any herbicide.

Comparative performance with emphasis on weed control and crop tolerance is a major factor in herbicide evaluation. Cost has not been considered in these recommendations. Because no herbicide treatment is superior to others in all circumstances, no effort has been made to list treatments in this guide in any order of preference.

## About Application Rates

Because the concentration of herbicides in commercial products may vary, herbicide rates are given on the basis of active ingredient (called "acid equivalent" for some herbicides) per surface acre that actually will be treated. Treated areas will be less than acres of crop in the field if the herbicide is applied in a band.

## Pre-emergence (Surface) Treatments

**Propachlor (Ramrod or Bexton):** This herbicide is available as a 65% wettable powder and 20% granule. It is a good grass killer but only moderately effective on broadleaved weeds. It is a mild irritant to the skin and mucous membranes. The wettable powder must be well agitated in the spray tank. Propachlor on light soils low in organic matter may be leached by heavy rains below the zone in which weed seeds germinate. This can result in less than expected weed control.

Apply 3.9 - 4.8 lbs./A active ingredient (propachlor). This is equivalent to 6-7.5 lbs./A of Ramrod 65 or 20-25 lbs./treated acre of 20% granules. The higher rate should be used on high organic soils or in areas of heavy grass and broadleaved weed infestations.

Apply the wettable powder in 20 or more gals./A water.

Do not graze or feed sorghum forage or silage from treated fields to dairy animals.

**Propachlor (Ramrod) + Atrazine:** This combination is effective in controlling most annual grasses and small-seeded broadleaved weeds. It is available as a packaged mix containing 48.1% propachlor + 20.9% atrazine. This is approximately a 2.3:1 ratio. A ratio of approximately 3:1 is more nearly optimum for most Missouri conditions, but the registered tank-mix label does not provide for a ratio this wide. Suggested rates of application:

### Package Mix:

soil	less than 3% organic matter	
	active ingredient (lbs./A) Propachlor + Atrazine	commercial (lbs./A)
light sandy	2.41 + 1.05	5
silt loams	2.89 + 1.25	6
heavy clay	2.89 + 1.25 to 3.37 + 1.46	6-7
soil	more than 3% organic matter	
	active ingredient (lbs./A) Propachlor + Atrazine	commercial (lbs./A)
light sandy	2.89 + 1.25	6
silt loams	3.37 + 1.46	7
heavy clay	3.37 + 1.46 to 3.85 + 1.67	7-8

### Tank Mix:

soil	less than 3% organic matter	
	active ingredient (lbs./A) Propachlor + Atrazine	commercial (lbs./A)
light sandy	2.47 + 1.04	3.8 + 1.3
silt loams	2.93 + 1.2	4.5 + 1.5
heavy clay	2.93 + 1.2-1.44	4.5 + 1.5-1.8

soil	more than 3% organic matter	
	active ingredient (lbs./A) Propachlor + Atrazine	commercial (lbs./A)
light sandy	2.93 + 1.2	4.5 + 1.5
silt loams	3.38 + 1.44	5.2 + 1.8
heavy clay	3.38-3.9 + 1.44-1.6	5.2-6 + 1.8-2

"Commercial" refers to the packaged product. Ramrod is a 65% wettable powder; atrazine is an 80% wettable powder.

Do not graze or feed sorghum forage or silage from treated fields to dairy animals. Consult the labels for other precautions and mixing instructions.

**Propazine (Milogard):** Propazine can be applied pre-emergence to grain sorghum where annual weeds are a problem. Cocklebur is not controlled by this herbicide. This product is an 80% wettable powder and requires spray tank agitation to prevent settling out. Apply propazine in a minimum of 20 gals./A of water.

Rates for sorghum grown in Missouri are:

soil	active ingredient (lbs./A)	commercial product (lbs./A)
sandy or loamy sand		do not use
sandy loam and loam	2	2.5
silt loam, clay loam	2.4	3
heavy clay and high organic matter soil		do not use

Propazine is not fully effective if rainfall does not occur soon after application. Corn may be planted 12 months after treatment. Other crops should not be planted for 18 months after treatment. Only sorghum can be replanted in soil previously treated with propazine. Do not make a second application if replanting is necessary. Do not contaminate domestic or irrigation water supplies, lakes, streams or ponds.

## Postemergence Treatments

**Atrazine (Numerous Brands and Formulations):** Weeds should be less than 1.5 ins. tall for best results. Apply 2 lbs./A active ingredient when sorghum is between 1.5 and 4 ins. tall. This amount of atrazine is equivalent to 2.5 lbs. of an 80% wettable powder formulation or 2 qts. of a 4 lbs./gal. formulation. The wettable powder requires spray tank agitation to insure uniform coverage throughout the entire load of spray mixture. Apply it in a minimum of 20 gals./A of water. The liquid formulation can be applied with somewhat less gallonage.

Do not graze treated areas or feed forage from treated land to livestock within 21 days of application. Following harvest of a treated crop, plow (moldboard or disk-plow) and thor-

oughly till the soil to minimize possible injury to rotational spring-planted crops. If the atrazine was applied after June 10, do not rotate with crops other than corn or sorghum the next year or injury may occur. Observe other precautions on the label.

Atrazine applied with emulsifiable oil or surfactant in water is not considered safe. Injury to grain sorghum can be expected.

**Glyphosate (Roundup):** This herbicide is registered for spot treatment to control hard-to-kill weeds in grain sorghum. Apply according to label instructions.

**2,4-D Amine (Numerous Brands and Formulations):** Most annual broadleaved weeds in grain sorghum can be controlled with 2,4-D. The rate suggested is 0.5 lb./A of acid equivalent. Follow the label and do not exceed the rate allowed for grain sorghum.

Sorghum is most tolerant to 2,4-D when it is 4-20 ins. tall. Injury may occur if applications are made before the 3-inch stage or after flowering has begun. Use drop nozzles to prevent contact with foliage. Label directions and precautions vary among different brands of 2,4-D. Do not violate the label recommendation on the specific brand of 2,4-D used.

## Experimental Pre-emergence Treatments

**Cyanazine (Bladex + Atrazine):** Check Bladex label for rates of application and other information.

**Propachlor (Bexton) + Cyanazine (Bladex):** Check label for application rates and other information.

**Terbutryn (Igran 80W):** Recommended rates range from 1.6 lbs./A (2 lbs./A Igran 80W) for loamy sand soils to 2.4 lbs./A (3 lbs./A Igran 80W) for clay loam soils. Apply terbutryn at planting time or immediately after planting before weeds and sorghum emerge.

Winter wheat may be planted 4 months following application. Other crops may be planted the following spring. Consult the label for more information.

**Terbutryn (Igran 80W) + Atrazine:** This combination can be used on loams and finer soils. The recommended rates are 1.6-2 lbs./A of terbutryn (2-2.5 lbs./A Igran 80W) plus 0.8 lbs./A of atrazine (1 lb./A) of an 80% wettable powder. Consult the Igran 80W label for more information.

**Terbutryn + Propazine (Igran 80W + Milogard 80W):** This combination can be used on sandy loam soils. The recommended rates are 1.6 lbs./A of terbutryn (2 lbs./A Igran 80W) plus 0.4 lb./A of propazine (0.5 lb./A Milogard 80W). Consult the Igran 80W label for more information.

**Atrazine (Preplant Incorporated or Pre-emergence):** This combination is labeled but injury has been observed under Missouri conditions. Additional research is in progress.

## Experimental Sequential

**Terbutryn (Igran), then Propazine (Milograd) or Terbutryn (Igran) then Atrazine (Aatrex):** Check label for application rates.

This guide is, in part, a report on Research Project 350, Weed Control and Project 364, Botany of Weeds, Agronomy Department, Missouri Agricultural Experiment Station.



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