AGRICULTURAL
GUIDE
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Chemical weed control in small grains

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Federal regulations on herbicide usage are frequently changed. So dealers and growers must stay informed on the status of label clearance. Read labels carefully and understand them before the herbicide is applied. Labels include application instructions as well as limitations and restrictions for a particular herbicide.

Information included in this guide conforms with FDA regulations and USDA registrations and is based primarily on research information obtained under Missouri conditions.

Herbicide rates are based on **acid equivalent** for chemicals derived from acids or on **active ingredient** for chemicals derived from non-acid materials.

Label rates take precedence over rates included in this guide.

Wheat, barley, oats, and rye

A successful weed control program in small grains combines sound cultural practices supplemented by herbicide application. Where herbicides are used, an accurate identification of the weed problem is essential because herbicide applications must be based on growth stages of both the crop and the weeds. If not, injury may occur.

Wheat sensitivity to herbicides

Developmental growth stages are closely related to herbicide tolerance.

1. Emergence to four-leaf stage (fall). Wheat will be injured by MCPA or 2,4-D applied at this stage. Yield will be reduced; plants will be stunted and malformed.

2. Full-tillered stage (spring). There are five or more leaves present, but stem elongation is not initiated. Wheat is quite tolerant to MCPA and 2,4-D. Weeds are small and easily killed.

3. Jointing (stem elongation) through flowering and pollination. Wheat is sensitive during this stage, and serious yield reduction can result.

4. Hard dough to maturity. 2,4-D and MCPA can successfully be applied during this stage. Weed control is less effective as weeds approach maturity. Desiccation may enhance harvesting.

2,4-D (several trade names)

Use ½ to ¾ pound per acre of 2,4-D acid equivalent. The amine is safer than the ester form from the standpoint of crop injury. The perferable time of application is from the tillering to the joint stage of growth, but you can apply it just before the boot stage if necessary. Avoid applications during the seedling stage and from the boot until after the milk stage. Preharvest spraying to kill large broad-leaved weeds can be done from the milk stage to maturing of the grain. This requires 1 to 1½ pounds per acre, depending on the weed species present and their condition of growth.

These treatments can kill legumes seeded in the small grain, but a dense weed canopy will afford some protection from the chemical.

Generally, wheat can be kept from grading garlicky by applying ¾ pound of 2,4-D ester between tillering and jointing. (You can spray as late as the boot stage, if necessary.) This treatment can result in slight injury to the wheat. It will not eradicate the onion or garlic plants. MCPA can also be used for garlic control.

Dicamba (Banvel) + 2,4-D

Tank mix .125 pound Banvel + .25 pound 2,4-D amine. Apply when temperature is about 60 degrees F and when no rain is expected for 12 hours. Do not graze livestock for 30 days after harvest. Do not graze dairy animals until harvest.

Glean (no common chemical name)

Use Glean for selective control of several annual broad-leaved weeds and certain grasses in wheat and barley. The product is a dry flowable granule applied in a water carrier as a foliar spray. Apply before broad-leaved weeds are 2 inches tall and before seedling grasses are beyond the two- to three-leaf stage. Use a rate of ⅙ to ⅓ ounce per acre. Use a surfactant at 1 pint per 100 gallons spray unless label directs otherwise. Avoid drift to other plants and crops. Do not contaminate any body of water, and avoid contact with fertilizers, pesticides, and agricultural seeds.

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Before using Glean, carefully consider your crop rotation plans. Crops other than wheat and barley can be extremely sensitive to low concentrations of Glean in the soil. Therefore, Glean is **not** recommended for use on land that will be rotated to crops other than wheat or barley.

Experimental herbicides

Herbicides designated as **experimental** are generally new products, so we suggest they be used on a limited basis until you have observed their performance.

Bromoxynil (Buctril)

Apply for broad-leaved weed control when plants are less than 6 inches in height and not past the three-to-four-leaf stage of growth. Use ⅓ to ½ pound per acre before the crop has reached the boot stage. Good coverage is essential. Avoid drift onto adjacent crops or pasture.

Bromoxynil (Buctril) + MCPA

Apply tank mix of ¼ to ½ pound Buctril + ¼ to ½ pound MCPA. Observe same precautions included above.

Rice

The following herbicides can be used to control several weed species in rice. Check label for rates and application precautions.

Preplant incorporated (water-seeded rice only)

Molinate (Ordram 8-E or Ordram 10-G)

Apply during final seedbed preparation with ground equipment and incorporate immediately. Apply 10G by air or ground and incorporate within six hours. Incorporate thoroughly 2 inches deep and seal soil. There is less activity with 10-G. There will be partial control of barnyardgrass.

Early postemergence (contact control)

Propanil (Stam M-4)

Use on dry or water-seeded rice. Weed foliage must not be covered with water at time of application. Repeat treatment if necessary.

Postemergence (contact and residual control)

Propanil + Pendimethalin (Stam + Prowl)

Apply to rice in spiking to three-leaf stage. Excessive injury may occur on zinc deficient soils and where water stands within three days of treatment. Excessive leaf burn may also occur following long periods of cloudy weather.

Early postemergence (speciality use)

Propanil + 2,4,5-T (Stam M-4 + 2,4,5-T)

Apply after rice is three weeks old. Use on dry or water-seeded rice. Drain to expose weeds to herbicide. It is more effective on smaller weeds. Mixture may injure rice more than either herbicide used alone. Use at least 5 gallons per acre volume. Flood rice within five days after treatment.

Propanil + Bentazon (Stam + Basagran)

Apply on broad-leaved weeds up to 6 inches tall, (all except for cocklebur, 10 inches, and redstem, 4 inches). Propanil timing for grasses should be applied as for propanil alone. Apply on dry or water-seeded rice. See general propanil information, and follow instruction on state label. There is no residual control.

Postemergence (after flooding)

Molinate (Ordram 10G)

Apply to barnyardgrass 3 to 24 inches or to sprangletop 8 inches or less. Use on dry or water-seeded rice. Apply to flooded field, and maintain flood until grass is controlled.

General information on phenoxy herbicides

Drain field or lower flood sufficiently to expose weeds to herbicides before treatment. Phenoxy herbicides are hazardous to cotton and soybeans. **Avoid drift.** Cotton is extremely sensitive to 2,4-D; soybeans are more susceptible to 2,4,5-T and silvex. Apply aerially at 3 gallons per acre, or more total volume. Apply only when temperature is 70 to 90 degrees F. Rain one to six hours after treatment may reduce effectiveness.

Do not apply nitrogen during the seven to 21 days before phenoxy herbicide application since the nitrogen stimulates the rice plant growth, making it more susceptible to phenoxy treatment injury. Do not apply 2,4-D or MCPA earlier than when internode begins to elongate. Do not apply 2,4,5-T or silvex until rice is three weeks past emergence.

Note: Not all brands of 2,4-D, 2,4,5-T silvex, and MCPA are labeled for use on rice. Choose a brand labeled for the intended use.

Postemergence (broadleaf and aquatic weed control at midseason)

2,4,5-T amine or 2,4-D amine; MCPA or 2,4-D amine + 2,4,5-T amine

Application results in broad-leaved and aquatic weed control. To hasten recovery of rice plants, apply 20 to 30 pounds of nitrogen within five days after phenoxy herbicide treatment. Apply additional nitrogen 10 to 14 days after the recommended internode

elongation stage for the variety. For specific nitrogen rates and timing, consult your county extension agent.

If for some reason, nitrogen is applied first, a phenoxy herbicide can be safely applied within five days after nitrogen application, if the first elongating internode is not longer than ½ inch.

Propanil (Stam M-4)

Apply at midseason to weeds less than 5 feet. Expect slow results. Use on flooded or drained fields for coffeebean (Hemp sesbania) at 2 to 3 pounds per acre.

Acifluorfen (Blazer 2S)

Apply when hemp sesbania is 1 to 5 feet tall. Do not apply past the boot stage of rice. It may cause tip burn on rice, but symptoms will be quickly outgrown. Do not apply more than 1 pint per acre per season.

Propanil (Stam M-4)

Apply to weeds less than 1 foot. Do not apply after internode exceeds ½ inch. Expect slow results. Use on flooded or drained fields. It may cause tip burn on rice, but symptoms will be quickly outgrown. Use for curly indigo (Northern jointvetch) at 3 pounds per acre.

Preharvest

Sodium Chlorate (Shed-A-Leaf L, Oxy Leafex-3, Riverside Sodium Chlorate, or Defol-Sodium Chlorate

Use to desiccate green weed foliage when average moisture is 25 percent or below. See label for details. Harvest within seven days after application to prevent overdrying.

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