



Current Report

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Weed Control in Soybeans

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The best program for weed control in soybeans involves the use of various cultural and mechanical methods in combination with the proper selection of herbicides.

Cultural and Mechanical Methods

Crop rotation can be very important in a total weed control program. By rotating crops and using herbicides which cannot be used in soybeans, a specific weed problem can be reduced. For example, a grower could rotate grain sorghum into soybean fields having heavy cocklebur and morningglory infestations. Growing grain sorghum in the rotation would permit the use of 2,4 D, which is very effective and economical for control of cocklebur and morningglory. Rotation to wheat, where perennial weeds are a problem, can be very effective by killing winter weeds during the summer fallow period.

Good seedbed preparation may be beneficial in controlling weeds. A firm weed-free seedbed should be prepared. Rapid germination will be enhanced by planting soybeans in a warm, moist soil. This practice will give the soybean plants a head start on weed seedlings.

Cultivation of soybeans helps reduce weed competition and herbicide costs. The rotary hoe is most effective when most of the weeds have germinated but have not emerged. The rotary hoe can be used from one to three times, but use should be delayed until the heat of the day. If herbicides are not used for weed control, shallow cultivation with sweeps may be needed. If herbicides are banded in the soybean rows, cultivation with sweeps can be used to control weeds in the row middles. Cultivation should be done early in the growing season. Ridging of soil should be avoided because this may contribute to combining difficulty and harvest loss.

Herbicides

Timely application of properly selected herbicides in conjunction with appropriate cultural and

mechanical practices is important for good weed control. Unfortunately, no single herbicide will solve all weed problems in soybeans for the entire growing season. Generally, a weed control "Systems Approach" is required which includes use of preplant, preemergence and/or postemergence applications. Chemicals may not be needed at all three stages, but often applications at two or more of these stages are necessary for an effective program. This often involves use of a herbicide or a mixture of two herbicides as either a preplant or preemergence application to control the early germinating weeds, and then applying postemergence herbicides to control escape weeds or large seed weeds, such as cocklebur and morningglory, that soil applied herbicides do not adequately control all season.

There are several principles in using herbicides to obtain effective weed control.

1. Know the weed problems and choose herbicides that will control problems. Study available information, including herbicide labels, to determine susceptibility of weed problems to various herbicides before designing a program.

2. Do not depend on just one herbicide, but develop a weed control program to fit weed problems and farming operations. If several herbicides are available to control the expected weed infestations, select the most cost effective treatment based on retail herbicide costs. Fact Sheet 2750 provides information that may be helpful in selecting herbicides.

3. Read the herbicide label for registration information, precautions, directions and limitations. This information may prevent use of the wrong herbicide for the soil type and environmental conditions. Use of the wrong herbicide can be very expensive.

4. Apply the herbicide at the proper rate and time for maximum effectiveness. Uniform application is very important. Fact Sheets 1215, 1216, 1217 and 1218 should be helpful in selecting and using spray equipment.

5. Study the climatic, soil and application factors that would most likely affect the herbicides to be used, and adjust for these factors as much as practical.

See Fact Sheet 2768 for further information on these factors.

incorporated herbicides applied early in the season, or with paraquat or Roundup.

Weeds Before Planting

Weeds that are problems prior to planting soybeans can be controlled with proper tillage, preplant

Weeds	Herbicide & Rate	Comments
Seedling Weeds	Gramoxone Super (paraquat) 1 1/2 to 5 pts/A + non-ionic surfactant 8 fl. oz/100 gal.	This herbicide can be used to control seedling annual weeds that come up before soybeans are planted. Paraquat has no residual activity, therefore, it controls only weeds that are up at the time of application.
Johnsongrass and annual grasses	Roundup (glyphosate) 8 fl oz to 3 qts/A + surfactant	Rates of Roundup and surfactant to use depends on weed species, size of weeds, method of application and other factors; therefore refer to the label to determine the rate needed and whether to use Roundup alone or mix it with another herbicide.

Preplant Incorporated Herbicides

Preplant incorporated herbicides can provide good to excellent control of susceptible weeds, if the chemicals are carefully incorporated at the depth and by the tillage implements recommended on the herbicide label. Unsatisfactory weed control and/or crop injury may occur if the herbicide is incorporated too deep, too shallow, or is not thoroughly mixed with the soil. Several of the herbicides that are used extensively as preemergence applications can also be

applied preplant incorporated, if applied and incorporated according to label directions. These herbicides will be listed under the preemergence category in this publication. Only volatile type herbicides that must be used preplant incorporated are listed in this table. Check labels to determine the rate of formulation to use. Many herbicides are liquid formulations, therefore, the label will give rate in pints per acre.

Weeds	Herbicide & Rate	Comments
Annual Weeds	Treflan or Trilin (trifluralin) 1/2 to 1 lb/A	Incorporate thoroughly into the soil as soon as practical after application. This herbicide will control annual grasses better than broadleaf weeds. Other formulations of trifluralin may also be available. Many herbicides may be used following trifluralin.
Annual Weeds	Prowl (pendimethalin) 1/2 to 1 lb/A	Incorporate thoroughly. Control of annual grasses is usually better than control of broadleaf weeds. Several other herbicides that control broadleaf weeds can be used with or following Prowl.
Annual Weeds	Sonalan (ethalfluralin) 3/4 to 1 1/2 lb/A	Incorporate thoroughly soon after application. Sonalan controls grasses more effectively than broadleaf weeds. Several other herbicides may be used following Sonalan.

Nutsedge
&
Annual weeds

Reward or Vernam
(vernolate)
2 to 3 lb/A

Apply just prior to planting soybeans and incorporate immediately after application. This herbicide is effective for control of several annual weeds, including morningglory, but will not adequately control brachiaria or Texas panicum. It is effective for suppression of yellow nutsedge

Preemergence Herbicides

Preemergence herbicides can be applied to weed-free soil before emergence of weeds and soybeans. Most of these herbicides can either be applied alone or in a mixture with another herbicide or piggyback after a preplant incorporated herbicide. Some of them can be used preplant if label directions are followed. Rainfall is needed following preemergence applications of

herbicides to move them into the soil. Band applications of these herbicides over the crop row and use of cultivation between the row can reduce costs. Rates are usually based on active ingredient. Check the herbicide label to determine how much of each formulation to use.

Weeds	Herbicide & Rate	Comments
Annual Weeds	Dual (metolchlor) 1 1/2 to 3 lb/A	Soybeans have good tolerance to Dual. It controls annual grasses better than broadleaf weeds but can be mixed with many of the "broadleaf type" herbicides. It also helps control yellow nutsedge.
Annual Weeds	Lasso (alachlor) 2 to 3 1/2 lb/A	Soybeans have good tolerance to Lasso. It controls annual grasses better than broadleaf weeds. It can be mixed with many other herbicides that control broadleaf weeds effectively.
Annual Grasses	Surflan (oryzalin) 1 to 2 lb/A	Surflan is effective for control of annual grasses for several weeks without incorporation by tillage. It can be mixed with several "broadleaf type" herbicides or used prior to postemergence applications of other herbicides.
Annual Weeds (Velvetleaf)	Command (dimethazone) 1 to 1 1/4 lb/A (2 to 2 1/2 pts/A)	Check the current label to determine whether to use Command preplant incorporated or in preemergence applications. It is effective for control of annual grasses and some broadleaf weed species, including velvetleaf. It is also approved for use in combination with several other herbicides.
Annual broadleaf weeds	Sencor or Lexone (metribuzin) 3/8 to 3/4 lb/A	This herbicide is effective for control of many broadleaf weed species. It can be mixed with many of the herbicides listed in this table. It is very soluble and can injure soybeans in sandy and low organic matter soils if heavy rainfall occurs.

Annual broadleaf weeds	Lorox, Linex (linuron) 3/4 to 2 1/2 lb/A	Other trade names may be available. This herbicide may be mixed with other herbicides. Restrictions on soil type should be observed.
Annual broadleaf weeds [cocklebur]	Scepter (imazaquin) 2/3 pt/A	Scepter has provided excellent control of cocklebur and good control of pigweeds. It will also control many other broadleaf weeds, and is approved in tank mixtures with several other herbicides. It is also effective in early postemergence applications for cocklebur and pigweed control.
Annual broadleaf Weeds	Canopy 6 to 14 fl oz/A	Canopy is a mixture of chlorimuron plus metribuzin which is effective for control of several tough broadleaf weeds. It has some of the same soil restrictions as Sencor or Lexone. It can be mixed with some of the "grass type" herbicides.

Postemergence Herbicides

Postemergence herbicides that can be applied over-the-top of soybeans usually require very timely applications. Delaying application beyond the optimum time will result in decreased weed control. Weed

species that each herbicide will control and optimum weed size for timing of application is provided on the herbicide label. These herbicides are less effective if the plants are stressed from heat and/or lack of moisture.

Weeds	Herbicide & Rate	Comments
Annual grasses & johnsongrass	Fusilade (fluaziflop -butyl) 1/4 to 1/2 pt/A + crop oil concentrate or nonionic surfactant	Rate of herbicide needed to control each grass species and the optimum size of weed for application is provided in a table on the label. Apply to actively growing grass at the stage indicated. A repeat treatment is usually required to adequately control johnsongrass.
Annual grasses & johnsongrass	Poast (sethoxydim) 1 to 2 pt/A + oil concentrate	Rate of herbicide needed to control each grass species and the optimum size for application is given on the label. Apply to actively growing grass at the stage indicated. A repeat treatment is usually required for johnsongrass control.
Annual grasses & johnsongrass	Whip (fenoxaprop-ethyl) 1.2 pts/A (19 fl oz/A)	Whip is similar to Fusilade and Poast in that it controls grasses and the plants should be actively growing at application. Addition of oil concentrate can be helpful on larger grasses where the cuticle is more developed than on smaller seedlings.

Broadleaf weeds	Classic (chlorimuron) 1/2 to 3/4 oz/A	Classic rapidly inhibits growth of susceptible weeds but final death may be slow. Many broadleaf weeds listed on the herbicide label are susceptible to Classic if it is applied early when weeds are small. Use with a surfactant as directed.
Broadleaf weeds	Cobra (lactofen) 12 1/2 fl oz/A	See the label for a list of weeds that Cobra will control and when to apply the herbicide to get effective control. It has good performance on some of the "tough" large seed broadleaf weeds.
Broadleaf weeds	Blazer or Tackle (acifluorfen) 1 1/2 to 2 pts/A	This herbicide provides good control of several species of broadleaf weeds such as morningglories, pigweeds and crotons if applied at the optimum stage of weed growth. See the table on the label for rate and time of optimum application for various weed species, and for approved mixtures with other herbicides such as Basagran or 2,4-DB. Add a surfactant or crop oil concentrate as directed on the herbicide label.
Broadleaf weeds	Basagran (bentazon) 3/4 to 1 lb/A	Basagran will control several weeds including cocklebur, velvetleaf and prickly sida if applied at the optimum stage of weed growth. It can be mixed with certain other herbicides such as Blazer or 2,4-DB
Certain Broad- leaf weeds	2,4-DB 1/5 lb/A	Several formulations and trade names of 2,4-DB are available including Butyrac and Butuxone. Low rates of this herbicide are used in mixtures with other herbicides such as Blazer, Tackle, or Basagran to increase cocklebur and morningglory control or late in the season as a salvage treatment. Read the label of the formulation that you are using for rate, mixtures and use directions.
Broadleaf weeds	Rescue 2 to 3 qt/A + nonionic surfactant or oil concentrate	Salvage treatment. Apply when soybeans are at least 14 inches tall to salvage a soybean crop that is very weedy. Follow label use directions closely in application of this herbicide to get the optimum weed knockdown.

Directed Spray Applications

Several herbicides can be used very economically in directed spray applications that would otherwise cause excessive crop injury if used over-the-top of soybeans.

These applications require a height difference between the weeds and the soybeans. Spray solution must cover the weed foliage.

Weeds	Herbicide & rate	Comments
Annual Weeds	Loxox, Linex (linuron) 1/4 to 1/2 lb/A + surfactant	This herbicide may be applied twice if needed to small weeds but after soybeans are 12 inches tall. It is usually applied in a mixture with 2,4-DB to increase the weed spectrum that will be controlled.
Annual Weeds	Sencor, Lexone (metribuzin) 1/4 to 1/2 lb/A	Apply to soybeans after they are at least 8 to 12 inches tall and before weeds are three inches tall for broadleaf weed control. See label for application information and additives.
Cocklebur morningglory	2,4-DB 1/5 lb/A	This herbicide is effective for control of cocklebur and morningglory and helps control other broadleaf weeds when used in combination with herbicides. There is more flexibility in rates that can be used and combinations for directed applications than with over-the-top applications.
Seedling annual weeds	Gramoxone Super (paraquat) 5 1/2 fl oz/A + nonionic surfactant 1 to 2 qts/100 gal.	Follow label directions closely and apply after the soybeans are at least 8 inches tall. This is a contact herbicide that kills weeds at time of application. It has no soil residual to kill later germinating weeds.

Selected Equipment Application

Equipment designed to selectively spray or wipe herbicide mixtures on weeds is useful for control of weeds that are taller than the crop. The best use of this method is control of johnsongrass with Roundup and the equipment most widely used is wiper equipment.

This is a helpful way to control johnsongrass before it sets seeds, but this late treatment does not result in higher soybean yields the year that the application is made. It is done too late to reduce competition and increase yields in that crop.

Weed	Herbicide & Rate	Comments
johnsongrass	Roundup (glyphosate) 33% solution	Wiper equipment such as the ropewick is a selective method of getting Roundup on the weeds without getting it on the soybeans. Repeat treatments may be needed if new johnsongrass reaches the appropriate growth stage after the initial treatment.

Harvest Aid

Harvest aids are chemicals used after the soybeans are mature to knock down and desiccate weed foliage

so that normal harvest operations can occur. These treatments will not be needed if good weed control programs are used during crop growth.

Weeds	Herbicide and Use	Comments
Annual weeds	Gramoxone Super (paraquat) 11 to 21 fl oz/A + nonionic surfactant 1 qt/100 gal	Be sure that soybeans are mature (1/2 of the leaves have dropped off) before desiccating weeds with paraquat. Good coverage of all vegetation with the spray solution is necessary for the desired effect.
Annual broadleaf weeds	Sodium Chlorate (label rate)	Use as directed on the label of the formulation that is purchased. Ensure that a fire retardant has been added to the formulation.

Herbicide Package Mixtures

Several new names of herbicides for soybeans are promoted each year. Many of these are package mixtures of herbicides already on the market for use in soybeans. This table will provide information about

some of these mixtures that are available and may be promoted in Oklahoma. Use the recommended rate that is on the label. Many of the soybean herbicides can be tank mixed also.

Weeds	Herbicide Mixture	Comments
Annual Weeds	Squadron (Prowl + Scepter)	Squadron is used most effectively as a preplant incorporated application in Oklahoma. It should be thoroughly incorporated into the top 1 to 2 inches of soil for control of a broad spectrum of annual broadleaf weeds and grasses.
Annual weeds	Salute (trifluralin + metribuzin)	Thoroughly incorporate this mixture into the top two inches of soil soon after application for broad spectrum weed control. Follow label directions on soil types and incorporation instructions.
Annual Weeds	Turbo (metolachlor + metribuzin)	This mixture is usually applied preemergence in Oklahoma but can be used preplant if shallow incorporation is done according to label directions near planting time. Follow label directions on soil types and rates to use.
Annual weeds	Commence (trifluralin + dimethazone)	This mixture combines the excellent grass control of trifluralin with the broad spectrum of control of velvetleaf and other annual weeds from Command. The herbicide mixture should be incorporated soon after application according to label directions.

Annual broadleaf weeds	Storm (Blazer + Basagran)	This mixture applied postemergence will control a broader spectrum of broadleaf weeds than either herbicide alone.
Annual weeds	Tri-Scept (Scepter + trifluralin)	Incorporate according to label directions for control of a broad spectrum of annual weeds.



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