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PEST MANAGEMENT GUIDE 11

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BLACKSBURG, VIRGINIA

Insect, Disease, and Weed Control in Corn and Sorghum

**VIRGINIA COOPERATIVE EXTENSION SERVICE
EXTENSION DIVISION**

VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

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1. Read the label on each pesticide container before each use. Follow instructions to the letter; heed all cautions and warnings, and note precautions about residues.
2. Keep pesticides in the containers in which you bought them. Put them where children or animals cannot get to them, preferably under lock and away from food, feed, seed, or other material that may become harmful if contaminated.
3. Dispose of empty containers in the manner specified on the label.

SEE YOUR DOCTOR IF SYMPTOMS OF ILLNESS OCCUR DURING OR AFTER USE OF PESTICIDES.

in
Corn and Sorghum

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VIRGINIA COOPERATIVE EXTENSION SERVICE
EXTENSION DIVISION
VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

INSECTS-CORN AND GRAIN SORGHUM

J. E. Roberts, Sr.
Extension Specialist, Entomology

Pest	Insecticide and Formulation	Rate per Acre and Remarks and Precautions	Days Between Last Application and Harvest
Corn			
Armyworms -1 	Carbaryl (Sevin) 50% WP or 80% S	Apply 2 to 4 lb. of 50% WP or 1 1/4 to 2 1/2 lb. of 80% S. Apply broadcast at the rate of 25-30 gal. water at 40-60 psi when an average of 1 or more small worms per row ft. are found.	0 days Application to tassel region during pollen shedding period will reduce bee population.
Armyworms, cutworms	Trichlorfon (Dylox) (Proxol) 80% SP or Dylox 40.5 LS	Apply 10 to 20 ozs. of sprayable or 1 to 2 pts. of LS in sufficient water for complete coverage but not less than 1 gallon per acre. Three applications may be made per season. For early application, when plants are 3 to 12 inches high, direct the spray to the lower portions of plant and the soil around the base of the plants. Later applications may be made as full coverage spray.	0 days
Cutworm	Chlorpyrifos (Lorsban) 4E	<u>PREPLANT TREATMENT:</u> Use 2-4 pts. of 4E in not less than 10 gal. of water per acre and apply as a broadcast spray to the soil surface. As soon as possible after treatment incorporate the insecticide into the top 2-4 in. of the soil using a disc or field cultivator. <u>POSTEMERGENCE TREATMENT:</u> Use 2-3 pts. of 4E per acre in sufficient water to ensure thorough coverage. Apply as a broadcast spray using either aerial or ground equipment. For aerial application use at least 2 gals. of water per acre. Treat when field counts indicate that worms are or may become a problem. If the ground is dry, cloddy or crusty at time of treatment, worms may be protected from the spray and effectiveness will be reduced. If such conditions exist, shallow cultivation using a rotary hoe or equivalent equipment before or soon after treatment may improve control. <u>MAKE ONLY POSTEMERGENCE APPLICATION PER SEASON.</u>	Do not allow livestock to graze in treated areas or feed treated corn silage, fodder or grain to meat or dairy animals within 50 days after treatment.
European corn borer -2	Carbofuran (Furadan) 10% G	Apply 10 lb. of 10% G. Apply broadcast over the foliage with air or ground equipment. Apply when eggs begin to hatch or within 2 weeks prior to tasseling. Do not make a foliar application if Furadan 10 granules were applied at more than 10 lb. per acre at planting. Do not make more than 2 foliar treatments per season.	0 days
	Fonofos (Dyfonate) 10% G and 20% G	Apply 10 lbs. of 10G (5 lbs. of 20G) per acre, so granules fall into whorls when 50% of plants show first generation borer feeding. For second generation borer, apply 10 lbs. of 10G (5 lbs. of 20G) when field counts show 100 egg masses per 100 plants. May be applied broadcast using air or ground equipment, or in 6 to 8 inch bands over corn rows 30 inches or more apart.	30 days for harvest and 30 days for grazing or feed.

-1 See footnote on toxaphene elsewhere.
-2 Early planted corn is more likely to be heavily infested with first generation European corn borer larvae. Begin scouting fields when corn is 8" high. Look for egg masses, fresh feeding signs and/or newly hatched larvae. ECB larvae are much harder to kill when they enter the whorl of a corn plant.

Pest	Insecticide and Formulation	Rate per Acre and Remarks and Precautions	Days Between Last Application and Harvest
1st generation European corn borers, wireworms	Carbofuran (Furadan) 10% G	Apply 20-30 lb. in 7" band or in seed furrow at planting time. Application of even the higher rate at planting is not likely to give satisfactory 2nd generation borer control. Apply only once per season.	0 days
	Thimet 15 G	Apply 6.5 lb. of Thimet 15G per acre. By ground or air equipment, apply granules into the whorl of the plant prior to tassel emergence. Do not graze within 30 days of treatment. Do not make more than one application over the plant. Do not apply under prolonged drought conditions.	30 days
Fall armyworm, corn earworm	Methomyl (Lannate) 90% SP OR Lannate 1.8 lb./gal. L	Apply 1/2 lb. of Lannate 90% sprayable or 1 quart of Lannate liquid. Apply when insect infestations first appear and repeat at 5 to 7 day intervals or as needed. Begin treatment when 20% or more of the plants are infested. With ground equipment use sufficient water to obtain uniform coverage; we suggest at least 25 gal. per acre. This insect cannot be adequately controlled by aerial application of an insecticide. -3	Do not graze or feed treated plants to livestock within 3 days after last application.
Japanese beetles	Carbaryl (Sevin) 50% WP or 80% S	Apply 2 to 4 lb. of 50% WP OR 1 1/4 to 2 1/2 lb. of 80% WP. Use only to prevent adult beetles from chewing fresh silks from corn thereby preventing pollination. Treating of field margins is frequently sufficient.	0 days. Application to tassel region during pollen shedding period will reduce bee population.
Mites	Carbophenothion (Trithion) 4 lbs.	Apply 1 pt. only once per season.	21 days harvest 21 days grazing
	Diazinon 4 lbs./gal.	Apply 1 pt. Temporary spotting of foliage may occur following application. Size and maturity of plants will dictate the need for application. Research has shown no yield increase or reduced lodging following treatment in the hard dough or later stages of plant growth. Erratic control with all recommended materials has been experienced in some areas of the U.S. Thorough plant coverage is required.	0 days
-3	Grit your teeth, bite the bullet, make "green chop silage." Do not waste your money trying to control this insect with aerial application of an insecticide. Lannate is the most effective "legal" insecticide that can be used for the control of the fall armyworm on corn.		

Pest	Insecticide and Formulation	Rate per Acre and Remarks and Precautions	Days Between Last Application and Harvest
Mites	Disulfoton (Di-Syston) 6 lbs. or 15% G	Apply 2/3 pt. of 6 lbs. OR 3 1/2 - 4 lbs. of 15% G. Do not apply more than twice per season regardless of method of application. Apply Di-Syston LC as a foliar spray. Use granular formulation as whorl application only. Rates based on 40-in. rows. Do not graze treated fields after any application of Disulfoton Concentrate.	28 days - 6 lbs. 40 days - 15% G
	Ethion 8 lbs./gal.	Apply 1 pt. Do not apply more than once after ears form. Do not feed treated forage to livestock.	50 days
	Phorate (Thimet) 15 G	Apply 6.5 lbs. per acre (40-inch row spacing) or 8 ozs. per 1000 ft. of row for any row spacing (minimum 30-inch row spacing). Apply granules into the whorl of the plant. Do not make more than one application over the plant. Do not apply under prolonged drought conditions.	Do not graze or cut for forage within 30 days of treatment.
Rootworms, Armyworms, Fall Armyworms, Flea Beetles, European corn borer (1st generation - aids in control) -1	Carbofuran (Furadan) 10G	Apply 10 lbs. per acre in a 7 inch band in the seed furrow or direct granules into planter shoe with seed or apply through tube directly behind planter shoe. (Rate per acre is based on 40 inch rows). This treatment will control armyworms for 4 to 6 weeks.	No restrictions when applied at planting time.
Rootworms	Carbofuran (Furadan) 4F (4 lbs./gal.)	Apply 1 1/2 to 2 pt. of Furadan 4F per acre. APPLY ONLY ONCE PER SEASON. Apply as 7" band over the row by mixing with water or liquid fertilizer. When Furadan 4F is used with liquid fertilizers, mix in the following way, making certain that the mixture is physically compatible: premix 1 part Furadan 4F with 2 parts of water. Add this premix to the tank of fertilizer along with rinsings from the pre-mixing container. Maintain agitation in the tank after mixing and during application. Do not mix until ready to use.	0 days

-1 Many Virginia growers of no-till corn use toxaphene preplant in a tank mix with herbicides and liquid nitrogen. Toxaphene is labeled as a preplant insecticide on field corn for the control of armyworms and cutworms. Virginia Tech urges Virginia corn growers to read the label carefully before they use toxaphene on field corn. Observations have indicated, that, when used preplant in accordance with the label toxaphene will adequately control armyworms and cutworms on young corn plants. TOXAPHENE MAY BE SUBJECT TO IMMEDIATE CANCELLATION.

Pest	Insecticide and Formulation	Rate per Acre and Remarks and Precautions	Days Between Last Application and Harvest
Rootworms (continued)	Dasanit 15G	Apply preplant 6.7 lb. Place granules in a 7" band over the row directly behind the planter shoe in front of the press wheel. Or, place directly in the seed furrow behind the planter shoe.	Do not place bands closer than 6". There is a 40-day waiting period.
	Disulfoton (Di-Syston) 15% G	Apply 6.7 lb. of 15% G. Band on each side of the seed furrow at planting time. Do not apply more than twice per season. Do not allow granules to contact seed.	Apply at planting time. Do not apply within 40 days of harvesting for food, feed, or ensilage. Do not graze treated fields after any application of Disulfoton Concentrate.
	Phorate (Thimet) 15% G	Apply preplant 6 1/2 lb. of 15% G but not in direct contact with seed.	30 days
Rootworms (Northern) Seed corn maggot Seed corn beetle	Ponofos (Dyfonate) 20% G	Apply preplant 3 3/4 to 5 lb. Incorporate into top 1/2 to 1 inch of soil in an 8" band as a row application.	When using Dyfonate, do not feed or graze livestock within 45 days of treatment.
Will aid in the control of cutworms.	Chlorpyrifos (Lorsban) 15% G	Apply 6 to 8 oz. per 1000 linear feet or row. Apply amount per acre in accordance with label. Incorporate the granules into the top 1 inch of soil by placing in a 6 to 7 inch wide band over the row behind the planter shoe and ahead of press wheels. Do not make more than one application per season.	0 days
Rootworms, Seed corn maggot Aid in reduction of wireworms	Terbufos (Counter) 15G Banded or in-furrow applications will control seed corn maggots. In addition, in-furrow applications will aid in reduction of corn wireworms.	Apply preplant 6.5 lb. per acre. Place granules in a 7" band over the row directly behind the planter shoe in front of the press wheel. Or, place directly in the seed furrow behind the planter shoe.	

Pest	Insecticide and Formulation	Rate per Acre and Remarks and Precautions	Days Between Last Application and Harvest
Rootworms (Continued) Rootworms, wireworms	Ethoprop (Mocap) 10 G	Apply 10 lb. of 10G. Apply granules evenly in a 6 to 7-inch band over the row at planting time. Mix granules with the top 1/2 inch of soil with the planter press wheel, packing wheel, drag chain, or covering discs, right after application. Do not use as a seed furrow treatment.	
Grasshoppers	Carbaryl (Sevin) 50% WP OR 80% WP	Apply 2/3 to 1 7/8 lbs. of 80% WP OR 1 to 3 lbs. of 50% WP. Apply control when 8 or more grasshoppers are found per sq. yard.	0 days
	Malathion (Cythion) 57% EL	Apply 1 1/2 pts. of 57% EL per acre. Apply control when 8 or more grasshoppers are found per sq. yard.	5 days
	Diazinon 500AG	Apply 1 pt. per acre of Diazinon 500AG in at least 5 gallons of water.	0 days
	Cygon 400	Aerial application; apply one pint of Cygon 400 in one or more gallons of water per acre. Make no more than 3 applications per year. Do not graze within 14 days of last application.	14 days
GRAIN SORGHUM			
Corn earworm	Carbaryl (Sevin) 50% WP OR 80% WP	Apply 2-4 lb. of 50% WP OR 1 1/2 - 2 1/2 lb. of 80% WP. Apply control measures when 3 or more worms per plant are found in whorls.	21 days grain, 0 days forage.
Corn earworm, sorghum webworm (feeding on heads)		Apply control measures when 4 or more worms per row ft. are found in the heads.	
Grasshoppers		Apply 1 3/4 to 2 lbs. of 50% WP or 1 to 1 1/2 lbs. of 80% WP.	
Corn earworm, Sorghum webworm, Sorghum midge, fall armyworm	Lannate (WP)	Apply at recommended rates when insects first appear. Unless otherwise noted, continue application at 5- to 7-day intervals or as needed. Use sufficient water to obtain thorough, uniform coverage. Use 1/4 to 1/2 lbs. per acre on all insects except sorghum webworm, which requires 1/2 lbs. per acre.	14 days (also, includes livestock grazing and feeding)
	Lannate (L)	Apply at recommended rates when insects first appear. Continue application at 5- to 7-day intervals or as needed. Use sufficient water to obtain thorough, uniform coverage. For aerial, use a minimum of 5 gal. per acre. Use 1-2 pt. per acre for all insects except sorghum webworm, which requires 2 pt. per acre.	14 days (also, includes livestock grazing and feeding)
Corn earworm, Fall armyworm, Sorghum webworm, Sorghum midge	Nidrin 90 (Methomyl)	Apply at recommended rates when insects first appear. Unless otherwise noted, continue application at 5- to 7-day intervals or as needed. Use sufficient water to obtain thorough, uniform coverage. Use 1/4 to 1/2 lbs. per acre on all insects except sorghum webworm, which requires 1/2 lbs. per acre. For aerial, use a minimum of 5 gal. per acre.	14 days (also, includes livestock grazing and feeding)

DISEASES OF AGRONOMIC CROPS

DISEASES OF CORN

P. M. Phipps
Extension Specialist, Plant Pathology

NEMATODES	NEMATOCIDE & FORMULATION APPLICATION RATE/ACRE METHOD & TIME OF APPLICATION	PRECAUTIONS & REMARKS
Sting Stunt Stubby root Lesion	Furadan 10G; 20.0 lb (40 inch rows); apply at planting in a 12-15 inch band and incorporate in the top 3 inches of soil	Do not plant crops other than alfalfa, corn, peanuts, peppers, potatoes, rice, sorghum, strawberries, sugar beets, sugar cane, and tobacco within 18 months of last application.
	Mocap 10G; 20.0 lb (40 inch rows); same as above	Do not use as a seed furrow treatment or allow granules to contact the seed.
	Mocap 10G; 60.0 lb; apply broadcast and incorporate in top 2-4 inches of soil right after application	
	Counter 15G, 13.0 lb (40 inch rows); apply at planting in an 8-inch band and incorporate in the top 3-4 inches of soil	Seed furrow treatments are not recommended for nematode control. See label for details on restrictions and precautions.
Sting Stubby root	Dasanit 15G; 12.0 lb (40 inch rows); apply at planting in a 12-inch band and incorporate in the top 3 inches of soil	Registered for sting and stubby root nematodes only.

WEED CONTROL IN AGRONOMIC CROPS

WEED CONTROL IN CORN

C. L. Foy, O. E. Rud and H. P. Wilson ***

Corn - No Tillage
Perennial Cover: Bluegrass, fescue, orchardgrass, timothy

Weed Problem	Chemical Rate/A	Product/A	Remarks
Perennial covers: Bluegrass, fescue, orchardgrass, timothy and annuals: barnyardgrass, foxtails (giant, green, yellow), lambsquarters, morningglory (annual), mustard, nightshade, pigweed or redroot, purslane (common), ragweed, velvetleaf, witchgrass, large crabgrass	paraquat 0.5 lb + surfactant + atrazine** 3.0 lb	Ortho Paraquat CL 1.0 qt + Ortho X 77 0.5 pt + Atrazine 80W* 3.75 lb or 4L 3.0 qt or 90W 3.3 lb	Apply 2-3 weeks before corn planting. Paraquat gives contact kill of cover. Atrazine is needed for complete root kill and for control of annual weeds developing from seed. Use 35-45 gal of solution per acre. Paraquat efficacy may be reduced if certain phosphorus-containing soluble fertilizers are used as carriers. Do not allow animals to graze paraquat treated areas. Paraquat is toxic. Follow label for proper mixing procedures.

Annual Cover: Rye, barley, wheat

Weed Problem	Chemical Rate/A	Product/A	Remarks
Contact kill of rye, wheat and barley cover crops and annuals: barnyardgrass, crabgrass, fall panicum, foxtails, goosegrass, lambsquarters, morningglory (annual), mustard, nightshade, pigweed, purslane, ragweed, smartweed, Spanish needles, velvetleaf, witchgrass	paraquat 0.25-0.5 lb + surfactant + OR glyphosate 1.0-4.0 lb + atrazine** 1.0-1.6 lb + simazine** 1.0-1.6 lb	Ortho Paraquat CL 0.5-1.0 qt + Ortho X 77 0.5 pt OR Roundup 1.0-4.0 qt + Atrazine 80W 1.25-2.0 lb, 4L 1.0-1.6 qt or 90W 1.1-1.8 lb + Simazine 80W 1.25-2.0 lb or 4L 1.0-1.6 qt or 90W 1.1-1.8 lb	Apply 10-14 days before planting in 35-45 gpa. Use paraquat 0.5 lb ai on barley. Use 1:2 atrazine to simazine ratio on heavily infested fall panicum fields. Do not plant to any crop, except those specified on the label the following year. Do not allow animals to graze treated forage. See precaution above on use of paraquat. Follow label for proper mixing procedures and adjust rate to soil texture, organic matter content of soil and weed problem.
Contact kill of cover crop: rye, wheat, barley, barnyardgrass, carpetweed, cocklebur, crabgrass, fall panicum, Florida pusley, foxtails, goosegrass, jimsonweed (black), lambsquarters, nightshade, pigweed, purslane, ragweed (common), signalgrass, smartweed, velvetleaf, witchgrass	paraquat 0.25-0.5 lb + surfactant OR glyphosate 1.0-4.0 lb + alachlor 2.0-3.0 lb atrazine* 1.0-2.0 lb OR simazine* 1.0-2.0 lb	Ortho Paraquat CL 0.5-1.0 qt + Ortho X 77 0.5 pt OR Roundup 1.0-4.0 qt + Lasso 2.0-3.0 qt + Atrazine 80W 1.25-2.5 lb or 4L 1.0-2.0 qt or 90W 1.1-2.2 lb OR Princep 80W 1.25-2.5 lb or 4L 1.0-2.0 qt or 90W 1.1-2.2 lb	Apply 10-14 days before and up to day of planting. Use paraquat at 0.5 lb ai on barley. See precaution above on use of paraquat. Follow label for proper mixing procedures and adjust rate to soil texture, organic matter content of soil and weed problem.

** ATRAZINE AND SIMAZINE PRECAUTIONS: (1) Do not apply more than 4 lb ai of atrazine to corn in any one year. (2) Land treated with atrazine should not be planted to any crop except corn or sorghum until the following year or injury may occur. (3) Do not plant tobacco, vegetables or spring-seeded legumes and grasses the following atrazine treatment, or injury may occur. (4) Atrazine-do not graze treated area or feed treated forage to livestock for 21 days following application. Simazine-do not graze treated area. (5) If more than 3 lb ai is used per acre, a crop of untreated corn should precede the next rotational crop. (6) Atrazine and simazine are available with various trade names in addition to AATrex and Princep, respectively. AATrex Nine-O a 90% water Dispersible Granule is available also as well as Princep Caliber 90, a 90% water dispersible granule of simazine.

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Corn - No Tillage (Cont'd) and Corn Preplant				
Annual Cover (Cont'd)	Weed Problem	Chemical Rate/A	Product/A	Remarks
Contact kill of cover crop: rye, wheat, barley and the above Annual weeds	paraquat	0.25-0.5 +	Ortho Paraquat CL 0.5-1.0 qt +	Read label and adjust rates to soil texture and organic matter. Follow label for mixing procedures. Do not use on sand or loamy sand soils with less than 1% organic matter. Apply before crop has emerged. See paraquat remarks above. Residual control is shorter than with atrazine.
	surfactant	+	Ortho X 77 0.5 pt +	
	cyanazine	1.2-3.2 lb	Bladex 80W 1.5-4.0 lb or 4L 1.2-3.2 qt	
Contact kill of cover crop: rye wheat and barley and annual morningglory, barnyardgrass, cocklebur, crabgrass, fall panicum, Florida pusley, foxtails, goosegrass, jimsonweed, lambsquarters, mustards, nightshade (black), pigweed, ragweed, smartweed, velvetleaf	paraquat	0.25-0.5 lb +	Ortho Paraquat CL 0.5-1.0 qt	Read label and adjust rates to soil texture and organic matter. Follow label for mixing procedures. Do not use on sands or loamy sands or soils with less than 1% organic matter. Pendimethalin may injure corn if seed is not well covered with soil.
	surfactant	+	Ortho X 77 0.5 pt +	
	atrazine*	1.0-1.6 lb	Atrazine 80W 1.25-2.0 lb, 4L 1.2-1.6 qt or 90W 1.1-1.8 lb	
	OR		OR	
	cyanazine	1.6-2.4 lb +	Bladex 80W 2.0-3.0 lb, 4L 1.6-2.4 qt +	
Annual and perennial covers, barnyardgrass, crabgrass, fall panicum, foxtails, goosegrass, signalgrass, yellow nutsedge, carpetweed, cocklebur, common purslane, Florida pusley, lambsquarters, morningglory, pigweed, ragweed, smartweed, velvetleaf	paraquat	0.25-0.5 lb +	Ortho Paraquat CL 1.0-2.0 pt +	Apply before, during, or after planting, but before the corn emerges. Adjust rates to soil texture and organic matter. Use lower rate of glyphosate for annual weeds and higher rate for perennial weeds. Do not graze or feed forage to livestock or use for silage. Small grains may be seeded 4.5 months after metolachlor use. Do not graze or feed forage or fodder from small grains to livestock.
	surfactant		Ortho X-77 0.5 pt	
	OR		OR	
	glyphosate	1.5-4.0 +	Roundup 1.5-4.0 qt + Dual 8E 1.5-2.5 pt Atrazine 80W 1.5-2.5 lb or 4L 1.2-2.0 qt or 90W 1.3-2.2 lb	
	metolachlor	1.5-2.5 +	OR Bicep 4.5 lb/gal 2.4-4.0 qt	
Annual and perennial covers, barnyardgrass, crabgrass, fall panicum, foxtail millet, giant foxtail, goosegrass, green foxtail, signalgrass, southwestern cupgrass, witchgrass, yellow roxtail, yellow nutsedge, carpetweed, cocklebur, common purslane, Florida pusley, lambsquarters, morningglory, pigweed, ragweed, smartweed, velvetleaf, sandbur, seedling johnsongrass, volunteer sorghum	paraquat	0.25-0.5 lb +	Ortho Paraquat CL 1.0-2.0 pt +	Apply in 20-60 gallons of water or fluid fertilizer with ground equipment in minimum tillage or no-tillage systems where corn is planted directly into a cover crop, stale seedbed, established sod, or previous crop residues. Use lower rate of glyphosate for annual weeds and higher rate for perennial weeds. Adjust rates of metolachlor, atrazine and simazine to soil texture, organic matter content of soil and weed problem. Check labels for restrictions regarding planting of rotational cover crops.
	surfactant		Ortho X-77 0.5 pt	
	OR		Roundup 1.5-4.0 qt	
	glyphosate	1.5-4.0 lb +	Dual 8E 1.5-2.5 pt	
	either of the following approved tank mixes		Princep 80W 1.5-2.5 lb or 4L 1.0-2.0 qt or 90W 1.1-2.2 lb	
	metolachlor	1.5-2.5 lb +	OR	
	simazine	1.0-2.0 lb	Dual 8E 1.5-2.5 pt +	
	OR		Atrazine 80W 0.75-1.25 lb or 4L 0.6-1.0 qt or 90W 0.66-1.1 lb +	
	metolachlor	1.5-2.5 lb +	Princep 80W 0.75-1.25 lb or 4L 0.6-1.0 qt or 90W 0.66-1.1 lb	
	atrazine	0.6-1.0 lb +		
simazine	0.6-1.0 lb			

* See Atrazine and Simazine Precautions on Page 240.

Corn - No Tillage (Cont'd)

Preplant

Weed Problem	Chemical Rate/A	Product/A	Remarks
Nutsedge and annual weeds: barnyardgrass, crabgrass, foxtails, lambsquarters, morningglory (annual), mustard, nightshade, pigweed, purslane (common), ragweed, velvetleaf, witchgrass	atrazine* 4.0 lb	Atrazine 80W 5.0 lb, 4L 4.0 qt, or 90W 4.4 lb	Apply preplant, followed by light discing, or preemergence prior to crop or weed emergence, or apply 2.0 lb preplant followed by 2.0 lb + gal of crop oil after corn and nutsedge emerge but before nutsedge reaches a height of 3 inches.
Quackgrass and annual weeds listed above	atrazine* 4.0 lb	Atrazine 80W 5.0 lb, 4L 4.0 qt or 90W 4.4 lb	Use 2 lb ai of atrazine per acre in the fall or spring and plow 1-3 weeks later. Before, during or after planting of corn and before annual weeds are 1-1/2 inches high, use second application of 2 lb ai of atrazine per acre. Cultivate at least once.
<u>Yellow and purple nutsedge suppression and annuals:</u> Barnyardgrass, carpetweed, cocklebur, crabgrass, fall panicum, field sandbur, Florida pusley, foxtails (giant, green and yellow), goosegrass, jimsonweed, johnsongrass and bermudagrass from seed, lambsquarters, morningglory (annual), mustards, nightshade (black), pigweed, purslane (common), ragweed, ryegrass (annual), smartweed, witchgrass, velvetleaf, volunteer sorghum, and wild cane	butylate + safener 3.1-4.0 lb + atrazine* 1.0-1.6 lb OR cyanazine 1.6-2.0 lb OR butylate + safener 3.1-4.0 lb + atrazine 1.0 lb + cyanazine 1.6 lb	Sutan + 3.75-4.75 pt + Atrazine 80W 1.25-2.0 lb, 4L 1.0-1.6 qt or 90W 1.1-1.8 lb OR Sutan + atrazine G (18-6) 16.6-22.6 lb OR Bladex 80W 2.0-2.5 lb or 4L 3.0-4.0 pt OR Sutan 3.75-4.75 pt + Atrazine 80W 1.25 lb or 4L 1.0 qt or 90W 1.1 lb + Bladex 80W 2.0 lb or 4L 3.0 pt	All weed growth and crop residue should be thoroughly chopped into the soil before applying. Soil should be dry enough to permit thorough mixing. Mix well into soil 2-4 inches immediately after application. Follow label instructions for proper rate for weeds and soil texture, tank mixing and incorporation procedures. Corn may be planted immediately after incorporation. Has been effective for late season grass control. Combination gives better annual broadleaf control than butylate alone. Do not seed deeper than 2 inches. Do not use on corn seed stock, milo or sorghum. Cultivation suggested especially for sandbur, nutsedge and wildcane control.
<u>Nutsedge suppression and annual grasses:</u> Barnyardgrass, crabgrass, fall panicum, foxtails, goosegrass, sandbur, seedling johnsongrass and bermudagrass, volunteer sorghum, wild cane (suppression), johnsongrass suppression	butylate + safener 3.1-6.0 lb	Sutan + 3.75-7.3 pt	Perennial weeds must be chopped up thoroughly (4 or less nodes per strand) prior to treatment. The soil should be well worked and dry enough for good soil mixing. See remarks above. The heavier rate required for johnsongrass rhizome suppression.

* See Atrazine and Simazine Precautions on Page 240.

Corn with Tillage

Preplant (Cont'd)

Weed Problem	Chemical Rate/A	Product/A	Remarks
Annual grasses: Annual ryegrass, barnyardgrass, crabgrass, foxtails, goosegrass, fall panicum, johnsongrass seedlings, sandbur, shattercane, volunteer small grains	EPTC + safener 3.1-4.0 lb + atrazine* 1.0 lb OR cyanazine 1.6 lb	Eradicane 3.75-4.75 pt + Atrazine 80W 1.25 lb, 4L 2.0 pt or 90W 1.1 lb OR Bladex 80W 2.0 lb, 4WDS 3.0 pt	Perennial weeds must be chopped up thoroughly (4 or less nodes per strand) prior to treatment. The soil should be well worked and dry enough for good soil mixing. Incorporate immediately after application to prevent loss from surface. Follow label instructions as to proper rate for weeds and soil texture, tank mixing procedures and incorporation procedures. Do not seed small grains after corn harvest until September. Shallow cultivation suggested especially for sandbur and nutsedge control. Observe all precautions and limitations on Bladex and atrazine labels.
Annual broadleaf weeds: Carpetweed, cocklebur, Florida pusley, lambsquarters, nightshade (black, hairy) morningglory, mustard, purslane, pigweed or redroot, ragweed, shepherdspurse, sicklepod, smartweed, prickly sida and velvetleaf			
Perennials: Bermudagrass, nutsedge (purple and yellow)			
Above annuals and johnsongrass rhizome and bermudagrass suppression, heavy infestations of nutsedge and wild cane (shattercane)	EPTC + safener 6.0 lb	Eradicane 6.7E 7.3 pt	Fall plow soils that cannot be adequately worked in the spring. Disc thoroughly 6-8 inches deep so that rhizomes are cut into 3-4 inch pieces. Work the soil so that it is in good tith before applying. Plant corn varieties that are resistant to maize dwarf mosaic and maize chlorotic virus. Plant mid-season or full season corn varieties tolerant to Eradicane. More additional broadleaf weed control may be obtained by tank mix of atrazine or cyanazine or a sequential treatment with atrazine or 2,4-D. See above remarks.

Preplant (Cont'd)		Corn with Tillage (Cont'd)		
Weed Problem	Chemical Rate/A	Product/A	Product/A	Remarks
Barnyardgrass, crabgrass, fall panicum, foxtails, goosegrass, signalgrass, witchgrass, yellow nutsedge, carpetweed, Florida pusley, pigweed	metolachlor 1.5-3.0 lb	Dual 8E 1.5-3.0 pt		Apply to the soil and incorporate into the top 2 inches within 14 days before planting using a disk, harrow, rolling cultivator or similar implement. Small grains may be planted 4.5 months following treatment. Do not graze or feed forage or fodder from small grains to livestock.
Above weeds and cocklebur, common purslane, lambsquarters, pigweed, morningglory, ragweed, smartweed, velvetleaf	metolachlor 1.25-2.5 lb + atrazine* 1.0-2.0 lb OR metolachlor 1.25-2.5 lb + cyanazine 0.8-2.5 lb	Dual 8E 1.25-2.5 pt + atrazine 80W 1.25-2.5 lb or 4L 1.2-2.0 qt or 90W 1.1-2.2 lb OR Bicep 4.5 lb/gal 2.4-4.0 qt OR Dual 8E 1.25-2.5 pt + Bladex 80W 1.0-3.1 lb or 4L 0.8-2.5 qt		Apply tank mixture to the soil and incorporate into the top 2 inches before planting using a disk, harrow, rolling cultivator or similar implement. Read the label and adjust rate to soil texture and organic matter content. See metolachlor restrictions above.
Barnyardgrass, crabgrass, fall panicum, foxtail millet, giant foxtail, goosegrass, green foxtail, signalgrass, southwestern cupgrass, witchgrass, yellow foxtail, yellow nutsedge, carpetweed, cocklebur, common purslane, Florida pusley, lambsquarters, morningglory, pigweed, ragweed, smartweed, velvetleaf, sandbur, seedling johnsongrass, volunteer sorghum	metolachlor 1.25-2.5 lb + simazine 1.0-2.0 lb OR metolachlor 1.25-2.5 lb + atrazine 0.5-1.0 lb + simazine 0.5-1.0 lb	Dual 8E 1.25-2.5 pt + Princep 80W 1.25-2.5 lb, 4L 1.0-2.0 qt or 90W 1.1-2.2 lb OR Dual 8E 1.25-2.5 pt + Atrazine 80W 0.62-1.25 lb, 4L 1.0-2.0 pt or 90W 0.55-1.1 lb + Princep 80W 0.62-1.25 lb, 4L 1.0-2.0 pt or 90W 0.55-1.1 lb		Apply the tank mixture to the soil and incorporate into the top 2 inches of soil within 14 days before planting using a finishing disk, harrow, rolling cultivator, or similar implement capable of providing uniform 2 inch incorporation. If corn is to be planted on beds, apply and incorporate the tank mixture after bed formation. Read the label and adjust rate to soil texture and organic matter content.

* See Atrazine and Simazine Precautions on Page 240.

Corn with Tillage (Cont'd)

Preemergence

Weed Problem	Chemical Rate/A	Product/A	Remarks
Barnyardgrass, carpetweed, crabgrass, fall panicum, Florida pusley, foxtails (giant, green and yellow), goosegrass, purslane (common), signalgrass, witchgrass	alachlor 2.0-3.0 lb	Lasso 2.0-3.0 qt OR Lasso II 16.0-26.0 lb	Apply after planting and before crop or weeds emerge. Read label and adjust rate to soil texture and organic matter content. Most effective on grasses; higher rate improves control of many broadleaf weeds. Slightly higher rates of the granular material are required.
Above weeds and black nightshade, jimsonweed, lambsquarters, morningglory, mustards, pigweed, ragweed, smartweed and velvetleaf	alachlor 1.5-2.5 lb + atrazine* 1.0-1.6 lb	Lasso 1.5-2.5 qt + Atrazine 80W 1.25 + 2.0 lb, 4L 1.0-1.6 qt or 90W 1.1-1.8 lb	Read label and adjust rate to soil texture and organic matter content. See other remarks and precautions to the use of alachlor and atrazine separately. Alachlor and atrazine may be applied as a tank mix and incorporated into the top 2 inches of soil with 7 days prior to planting or may also be applied as an early postemergent treatment up to the time when weeds reach the 2-leaf stage and corn is no more than 5 inches tall.
Many annuals: barnyardgrass, crabgrass, foxtails, Florida pusley, lambsquarters, morningglory, nightshade, mustards, pigweed, velvetleaf, witchgrass	atrazine* 2.0-3.0 lb	Atrazine 80W 2.5-3.75 lb, 4L 2.0-3.0 qt or 90W 2.2-3.3 lb	Spray immediately after planting. Use lower rate on light soils. Shallow cultivation will usually improve weed control if conditions are droughty following application. Where fall panicum is a problem, simazine has been more effective than atrazine. Do not plant any crop except those specified on the label the following year. Do not apply more than 4 lb of atrazine or simazine in any one year.
Barnyardgrass, Brachiaria sp., carpetweed, crabgrass, foxtails, fall panicum, Florida pusley, goosegrass, lambsquarters, morningglory, mustards, nightshade, pigweeds, ragweed, smartweed, spanish needles, witchgrass	simazine* 2.0-3.0 lb	Simazine 80W 2.5-3.75 lb, 4L 2.0-3.0 qt or 90W 2.2-3.3 lb	
Many annual weeds (see list for atrazine and simazine above)	atrazine* 1.0-1.5 lb + simazine* 1.0-1.92 lb	Atrazine 80W 1.25-1.8 lb, 4L 1.0-1.5 qt or 90W 1.1-1.6 lb + Simazine 80W 1.25-2.4 lb, 4L 1.0-1.92 qt or 90W 1.1-2.1 lb	Tank mix. Use 1:2 ratio of atrazine to simazine on more severe annual grass problem areas. See above.

* See Atrazine and Simazine Precautions on Page 240.

Corn with Tillage (Cont'd)

Preemergence (Cont'd)

Weed Problem	Chemical Rate/A	Product/A	Remarks
Annual ryegrass, barnyardgrass, carpetweed, cocklebur, crabgrass, corn spurry, curlydock (seedlings), fall panicum, Florida pusley, foxtails, galinsoga, goosegrass, ground cherry, lambsquarters, morningglory, pigweed, purslane, poorjoe, ragweed, smartweed, spiny sida, velvetleaf, witchgrass, jimsonweed, mustards	cyanazine 1.2-3.6 lb	Bladex 80W 1.5-4.5 lb, 4L 1.2-3.6 qt or 15G 8.0-24.0 lb	Read label and adjust rate to soil texture and organic matter. Apply at planting or before corn and weeds emerge. It has shorter soil residual life than atrazine. Do not use on peat or muck soil or very sandy, loamy sands with less than 1% organic matter.
Most annual weeds (see list for cyanazine)	cyanazine 0.6-2.0 lb +	Bladex 80W 0.75-2.5 lb, 4L 0.6-2.0 qt +	Read label and adjust rate to soil texture and organic matter. Apply before planting, at planting or after planting. The combination gives longer residual weed control with shorter soil residual problems associated with atrazine alone. Follow label for tank mixing procedures.
	atrazine* 0.6-2.0 lb	atrazine 80W 0.75-2.5 lb, 4L 0.6-2.0 qt or 90W 0.66-2.2 lb	
	cyanazine 0.6-2.0 lb +	Bladex 80W 0.75-2.5 lb or 4L 0.6-2.0 qt +	
	alachlor 2.0 lb	Lasso 2.0 qt	See cyanazine above.
Cocklebur, Florida pusley, jimsonweed, galinsoga, lambsquarters, morningglory (annual), nightshade (black), pigweed, purslane (common), ragweed, Spanish needles, velvetleaf	2,4-D 1.0-1.5 lb	LVE or oil-soluble amine 1.0-1.5 qt of 4.0 lb/gal formulation	Spray from just after planting to time spikes are just emerging. Grasses are controlled only if conditions are favorable for rapid germination. Use lower rates on sandy soils. Do not use on light sandy soil or when soil moisture is inadequate for normal weed growth.
Barnyardgrass, crabgrass, fall panicum, foxtails, pigweed, signalgrass, witchgrass, yellow nutsedge, goosegrass, carpetweed, Florida pusley	metolachlor 1.5-3.0 lb	Dual 8E 1.5-3.0 pt	Apply after planting and before corn emerges. Small grains may be seeded 4-1/2 months after treatment. Do not graze or feed forage or fodder from small grains to livestock. Adjust rate to soil texture. Under high moisture conditions, while corn is germinating and becoming established, some temporary injury or stunting may occur. Nutsedge control may be only moderate.

* See Atrazine and Simazine Precautions on Page 240.

Preemergence (Cont'd)		Corn with Tillage (Cont'd)	
Weed Problem	Chemical Rate/A	Product/A	Remarks
Above weeds and cocklebur, lambsquarters, ragweed, smartweed and velvetleaf	metolachlor 1.25-2.5 lb +	Dual 8E 1.25-2.5 pt +	See above for respective herbicides.
	atrazine* 1.0-2.0 lb	Atrazine 80W 1.25-2.5 lb or 4L 1.0-2.0 qt or 90W 1.1-2.2 lb	
	OR	OR	
	cyanazine 0.8-2.4	Bicep 4.5 lb/gal 2.0-4.0 qt Bladex 80W 1.0-3.1 lb or Bladex 4L 0.8-2.4 qt	
Barnyardgrass, crabgrass, fall panicum, foxtail millet, giant foxtail, signalgrass, southwestern cupgrass, witchgrass, yellow foxtail, yellow nutsedge, carpetweed, cocklebur, common purslane, Florida pusley, lambsquarters, morningglory, pigweed, ragweed, smartweed, velvetleaf, sandbur, seedling johnsongrass, volunteer sorghum	metolachlor 1.25-2.5 lb +	Dual 8E 1.25-2.5 pt +	Apply the tank mixture during planting (behind the planter) or after planting but before weeds or corn emerge. Read the label and adjust rates to soil texture and organic matter content. Check labels for instructions regarding planting of rotational crops.
	simazine 1.0-2.0 lb	Princep 80W 1.25-2.5 lb or 4L 1.0-2.0 qt or Princep Caliber 90 1.1-2.2 lb	
	OR	OR	
	metolachlor 1.25-2.5 lb +	Dual 8E 1.25-2.5 pt +	
	atrazine 0.5-1.0 lb +	Atrazine 80W 0.62-1.25 lb or 4L 1.0-2.0 pt or 90W 0.55-1.1 lb +	
	simazine 0.5-1.0 lb	Princep 80W 0.6-1.25 lb or 4L 1.0-2.0 pt or 90W 0.55-1.1 lb	
Barnyardgrass, crabgrass, fall panicum, foxtails, goosegrass, johnsongrass from seed, lambsquarters, pigweed, signalgrass	pendimethalin 0.75-1.5 lb	Prowl 0.75-1.5 qt	See label and adjust rate to soil texture and organic matter. Apply to firm seed-bed, free of clods and trash, at planting or immediately after planting corn but before corn or weeds emerge. Some injury can occur if seed is not well covered with soil.
Above weeds and cocklebur, nightshade (black), morningglory, jimsonweed, mustards, ragweed	pendimethalin 0.75-1.5 lb +	Prowl 0.75-2.5 qt +	See above. Refer to label for rate of application for different soil types and organic matter content and for mixing procedures. Some injury can occur if seed is not well covered with soil
	atrazine* 1.0-1.2 lb	atrazine 80W 1.25-1.5 lb, 4L 1.0-1.2 qt or 90W 1.1-1.3 lb	
	OR	OR	
	cyanazine 1.0-2.0 lb	Bladex 80W 1.25-2.5 lb, 4L 1.0-2.0 qt	
Annual ryegrass, annual morningglory, barnyardgrass, carpetweed, cocklebur, crabgrass, fall panicum, Florida pusley, foxtails, goosegrass, jimsonweed, lambsquarters, mustards, nightshade, pigweed, purslane, ragweed, smartweed, velvetleaf	propachlor 2.4-2.9 lb +	Ramrod 65W 3.8-4.5 lb +	See label and adjust rate to soil texture and organic matter. Apply in 20 gpa or more after planting and prior to crop or weed emergence. Corn, sorghum or soybeans may be planted the following year. Thorough agitation in the tank is necessary.
	atrazine* 1.0-1.4 lb	Atrazine 80W 1.3-1.8 lb, 4L 1.0-1.4 qt or 90W 1.1-1.6 lb	
		OR	
		Ramrod/atrazine 5.0-7.0 lb	

* See Atrazine and Simazine Precautions on Page 240.

Corn with Tillage (Cont'd)

Postemergence

Weed Problem	Chemical Rate/A	Product/A	Remarks
Barnyardgrass, crabgrass, foxtails, lambsquarters, morningglory, nightshade, pigweed, purslane, ragweed, cocklebur, mustards, smartweed	atrazine* 2.0-3.0 lb OR atrazine* 2.0 lb + crop oil	atrazine 80W 2.5-3.75 lb or 4L 2.0-3.0 qt or 90W 2.2-3.3 lb + emulsifiable crop oil 1.0 gal	Use in a single broadcast spray before weeds exceed 1-1/2 inches in height. Use oil-atrazine in 20 gal per acre. Do not include oil in atrazine sprays when corn is under stress from prolonged cold, wet weather, poor fertility, or other factors, or when corn is wet and succulent from recent rainfall as crop injury may occur. Do not use oil in sprays when treating inbred lines or other breeding stock. Adding other pesticides, fertilizers, or other material to the oil-water emulsions may cause compatibility problems or crop injury. Follow instructions on the container for proper mixing and maintaining the emulsion in the spray tank.
Above weeds and nutsedge control	atrazine* 2.0 lb + crop oil	atrazine 80W 2.5 or 90W 2.2 lb OR 4L 2.0 qt + Emulsifiable crop oil 1.0 gal	Apply atrazine with 1 gal of crop oil in a minimum of 10 gal of water per acre, after crop emergence and before nutsedge is 3 inches tall. Follow with second application at the same rate 10-20 days later but prior to layby stage (corn 20-30 inches). See precautions above concerning use of atrazine-oil mixtures.
Weeds listed for atrazine above and nutsedge control	atrazine* 4.0 lb + crop oil	atrazine 80W 5.0 lb or 90W 4.4 lb OR 4L 4.0 qt + Emulsifiable crop oil 1.0	Apply atrazine-oil mixture in a minimum of 10 gal of water per acre after the crop has emerged but before nutsedge has reached 3 inches in height and corn 20-30 inches in height. See above precautions on atrazine-oil mixtures.

* See Atrazine and Simazine Precautions on Page 240.

Corn with Tillage (Cont'd)

Postemergence (Cont'd)

Weed Problem	Chemical Rate/A	Product/A	Remarks
Barnyardgrass, carpetweed, crabgrass, fall panicum, Florida pusley, foxtails (giant, green, yellow), galinsoga, goosegrass, lambsquarters, pigweed, morningglory, purslane (common), ragweed (common), smartweed, prickly sida, cocklebur, morningglory, sicklepod, sesbania, spiny sida, velvetleaf	linuron 0.75-1.5 lb + surfactant 1.0 pt	Lorox 80W 1.0-3.0 lb +	Apply as a single directed spray in 25 gal of water after corn is at least 15 inches high and weeds up to 5 inches tall. Thoroughly cover weed foliage without contacting upper leaves or whorl of corn as such contact causes crop injury. Use wetting agent suggested by manufacturer. Do not plant to other crops not on the label within 4 months after treatment. Gauge wheels and/or leaf lifter equipment should be used to prevent corn leaf contact with spray. Provide continuous agitation in tank.
Above weeds and nutsedge, shattercane, and signalgrass	ametryn 1.0-2.0 lb	Evik 80W 1.25-2.5 lb	Same as above. Apply in a minimum of 20 gal of water or nonpressure nitrogen solution. Do not harvest, graze or feed forage to livestock until 30 days after application. Do not apply if temperatures are low. Do not plant any rotational crop other than small grains until the following year. Do not apply within 3 weeks of tasseling.
See weeds listed for preemergence use of cyanazine	cyanazine 1.2-2.0 lb	Bladex 80W 1.5-2.5 lb	Apply from crop emergence through the 4-leaf stage of growth, but before weeds exceed 1.5 inches in height. Do not apply to corn if that 5th-leaf is visible. Do not exceed the dosage rate specified by soil texture for preemergence use. Follow label for proper mixing and spraying directions. Can be very weak against pigweed.
Canada thistle, beggars ticks, cocklebur, day flower, jimsonweed, prickly sida, ragweed, smartweed, spurred anoda, velvetleaf, wild mustard, wild sunflower, yellow nutsedge	bentazon 0.75-1.0 lb	Basagran 0.75-1.0 qt	Refer to label as the rate of application is dependent upon leaf stage and height of weeds to be controlled. For Canada thistle and yellow nutsedge, follow with a second application if needed in 7-10 days. Cultivation within 10-14 days after application will improve control.

Corn with Tillage (Cont'd)

Postemergence (Cont'd)

Weed Problem	Chemical Rate/A	Product/A	Remarks
Beggar ticks, bindweed, burdock, cocklebur, coffeeweed, carpetweed, Florida pusley, galinsoga, horseweed, jimsonweed, lambsquarters, morningglory (annual), mustards, nightshade (black), purslane (common), ragweed (common), smartweed, Spanish needles, sunflower, velvetleaf, pigweeds, sicklepod	2,4-D 0.25-0.5 lb	2,4-D amine or LVE 0.5-1.0 pt of a 4.0 lb/gal formulation	Use from time corn emerges until lay-by. Do not cultivate for 10 days, or corn may break off. Small weeds are easier to kill; use higher rate for larger weeds. Grasses are not controlled. After corn is more than 10 inches high, direct the spray below top of corn plant (use drop nozzles).
	2,4-D 0.25-0.5 lb +	2,4-D amine 0.5-1.0 pt of a 4.0 lb/gal formulation †	See above for use of 2,4-D. Dicamba may be used alone or in combination with 2,4-D. Addition of dicamba improves control of smartweed and certain other hard-to-kill species. Do not make more than one application per season. Do not apply dicamba after corn reaches 36 inches. Do not graze or harvest for dairy animal feed prior to ensilage (milk stage). Do not apply if daily temperature is expected to be over 85 F. Use all precautions to prevent drift to sensitive crops. Use higher rate for suppression of perennial weeds and when weeds are under growth stress of more mature.
	dicamba 0.12-0.25 lb	Banvel 0.25-0.5 pt or Banvel K 0.8-1.6 pt	
Johnsongrass	glyphosate 2.0-3.0 lb	Roundup 2.0-3.0 qt	After corn harvest, permit new growth of johnsongrass to reach 12 inches or more in height and approaching the boot stage of growth. Apply in 20-60 gal of water at least 7 days before frost or before tillage. Rainfall within 6 hours may reduce effectiveness; within 2 hours retreatment is necessary. Do not plant subsequent crops, other than those on the label, for 1 year following application. Do not feed or graze treated crops within 8 weeks after treatment. Use an effective johnsongrass seedling control herbicide on corn and soybeans. Glyphosate may be used for spot treatment of certain perennial weeds in corn. Treated corn will be killed. Treatment must be made prior to silking of the corn.

Postemergence (Cont'd)		Corn with Tillage (Cont'd)	
Weed Problem	Chemical Rate/A	Product/A	Remarks
Barnyardgrass, crabgrass, fall panicum, foxtails, yellow nutsedge, carpetweed, common purslane, Cocklebur, Jimsonweed, lambsquarters, mustard, pigweed, prickly sida, ragweed, smartweed, velvet leaf	metolachlor 1.5-2.5 lb + atrazine* 1.2-2.0 lb	Dual 8E 1.5-2.5 pt + Atrazine 80W 1.5-2.5 lb or 90W 1.3-2.2 lb or 4L 1.2-2.0 qt OR Bicep 4.5 lb/gal 2.4-4.0 qt	Apply early postemergence before grass and broadleaf weeds pass the 2-leaf stage and before corn exceeds 5 inches in height. Occasional corn leaf burn may occur, but should not affect later growth or yield. Do not apply tank mix in liquid fertilizer as severe crop injury may occur. See restrictions on individual labels regarding crop rotations.
Harvest Aid			
Weed Problem	Chemical Rate/A	Product/A	Remarks
Morningglory and other broadleaf weeds	2,4-D 0.5-1.0 lb	2,4-D amine 1.0-2.0 pt of a 4.0 lb/gal formulation	Apply after hard dough or denting stage. Do not forage or feed corn fodder for 7 days following application.

* See Atrazine and Simazine Precautions on Page 240.

WEED CONTROL IN SORGHUM

C. L. Foy *

No Tillage

Weed Problem	Chemical Rate/A	Product/A	Remarks
Mulch cover: Contact Kill of annual weeds in small grain stubble Will not control horseweed, prickly lettuce, or perennials	paraquat 0.25-0.5 lb	Ortho Paraquat CL 1.0-2.0 pt + Ortho X-77 0.5 pt	Apply before or after planting but before crop emergence in at least 40 gal/A spray solution. Must be followed by a preemergence residual herbicide or may be tank- mixed with atrazine (see below). Do not graze treated areas.

Preplant or Preemergence

Barnyardgrass, browntop panicum, crabgrass, fall panicum, giant foxtail, green foxtail, red rice, signalgrass, southwestern cupgrass, witchgrass, yellow foxtail, yellow nutsedge, common purslane, lambsquarters, morningglory, pigweed, sandbur, seedling johnsongrass, volunteer sorghum	metolachlor 1.25-2.0 lb + propazine 0.65-1.1 lb	Milocep 1.5-2.5 qt	Use only if the sorghum seed has been properly treated by the seed company with concep at 8 oz per 100 lb of seed. Apply to the soil and incorporate into the top 2 inches of soil within 14 days before planting using a finishing disk, harrow, rolling cultivator, or similar implement capable of providing uniform 2 inch incorporation. If crop is to be planted on beds apply and incorporate after bed formation. Preemergence applications may be at planting (behind the planter) or after planting, but before weeds or crop emerge. Do not use on coarse soils or on soils with less than 1% organic matter. Read and observe precautions on the label.
See list for metolachlor + propazine. Also goosegrass, carpetweed, cocklebur, Florida pusley, smartweed, velvetleaf	metolachlor 1.5-1.75 lb + atrazine 1.2-1.4 lb	Bicep 2.4-2.8 qt	

Preemergence

Weed Problem	Chemical Rate/A	Product/A	Remarks
Carpetweed, lambsquarters, morningglory (annual), pigweed, ragweed, smartweed (annual), velvetleaf	propazine 2.0-2.4 lb	Milogard 80W 2.5-3.0 lb	Apply immediately after planting but before weeds and sorghum emerge. Do not use on sand to loamy sand soils, or on eroded slopes. Corn may be planted 12 months or any other crop within 18 months after treatment. Weak on fall panicum.

*Extension Specialist, Plant Physiology.

Sorghum (Cont'd)

Preemergence (Cont'd)

Weed Problem	Chemical Rate/A	Product/A	Remarks
Annual ryegrass, annual morningglory, barnyardgrass, carpetweed, cocklebur, crabgrass, fall panicum, Florida pusley, foxtails, goosegrass, jimsonweed, lambsquarters, mustards, nightshade pigweed, purslane, ragweed, smartweed, velvetleaf	propachlor 2.4-2.9 lb + atrazine* 1.0-1.4 lb	Ramrod 65W OR Bexton 65W 3.8-4.5 lb + AAtrex 80W 1.3-1.8 lb or 4L 1.0-1.4 qt or 90W 1.1-1.6 lb OR Ramrod/Atrazine 5.0-7.0 lb	See label and adjust rate to soil texture and organic matter. Apply in 20 gpa of water after planting and prior to crop and weed emergence. Thorough agitation in the tank is necessary. Corn, sorghum or soybeans may be planted the following year. Do not graze or feed sorghum forage or silage from treated fields to dairy animals.

Preemergence or Postemergence

Weed Problem	Chemical Rate/A	Product/A	Remarks
Barnyardgrass, crabgrass, Florida pusley, foxtails, lambsquarters, morningglory (annual), nightshade (black), pigweed or redroot, purslane, ragweed (annual), velvetleaf, witchgrass	atrazine* 1.5-2.4 lb	Atrazine 80W 2.0-3.0 lb pr 4L 3.2-6.0 pt or 90W 1.7-2.7 lb	See label and adjust rate to soil texture and organic matter. Do not graze or feed forage from treated areas for 21 days after treatment. Heavy rains immediately after treatment may result in crop injury. Do not plant treated areas to any crop except corn or sorghum the following year, if applied after June 10. This treatment is weak on fall panicum.

Postemergence

Weed Problem	Chemical Rate/A	Product/A	Remarks
Cocklebur, coffeeweed, Florida pusley, galinsoga, horseweed, jimsonweed, lambsquarters, morningglory, mustards, nightshade (black), pigweed, poorjoe, ragweed, sicklepod, spanish needles, sunflower, velvetleaf	2,4-D amine 1/4-1/2 lb	1/2-1.0 pt of a 4.0 lb/gal formulation	Apply after crop reaches 6 inches high and before it reaches 15 inches high, but prior to boot stage. A directed spray is desirable if crop is over 8 inches high. Do not apply during boot to early dough stage. Hybrids vary in susceptibility to 2,4-D. Treat only those known to be tolerant.

* Atrazine is available with various trade names in addition to AAtrex. Land treated with atrazine should not be planted to any crop except corn or sorghum until the following year or injury may result. Do not plant tobacco, vegetables or spring-seeded legumes and grasses the year following atrazine treatment or injury may occur. If more than 3.0 lb ai is used per acre, a crop of untreated corn should precede the next rotational crop.

