

Weed Management in Peanuts - 2013¹

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Successful weed control in peanuts involves using good management practices in all phases of peanut production. Weeds compete with peanuts for moisture, nutrients, and light, with the greatest competition usually occurring during the first six weeks after planting. Although late-season weeds may not be as competitive as early-season weeds, they may interfere with harvesting and also with fungicide and insecticide applications.

Crop Rotation

Crop rotation is an important part of a peanut weed control program. Certain broadleaf weeds, which are not easily controlled in peanuts, may be controlled by herbicides that can be used in a preceding crop such as corn. Other benefits of crop rotation may include a reduction in insect, disease, and nematode problems.

Herbicides

Herbicides are one of the most effective methods for controlling weeds in peanuts. Proper weed identification is critical before deciding on a weed management program that includes the purchase of herbicides. Once the weed problem has been determined, Tables 2 and 3 can be helpful in deciding which herbicide(s) will be most effective.

Effective weed control in peanuts is generally obtained by using an herbicide program that consists of a preplant

incorporated or preemergence treatment, followed by a cracking/early post-emergence treatment, followed by a post-emergence treatment. The cracking/early post-emergence treatment, if properly timed, is generally the most critical application in a peanut weed control program. Maximum effectiveness will be achieved if application is timed to the emergence of the weeds, or to weeds less than three inches tall. All label instructions and precautions should be followed carefully to avoid crop injury or poor weed control. **CAUTION:** It should be noted that peanuts under stress from cold weather, thrips injury, etc., may be subject to injury from early season herbicide applications.

Table 1 lists those products registered for use in Florida peanut production, including rates of application and remarks regarding use. Tables 2 and 3 reflect the performance of these materials on several weeds under Florida conditions.

As with all herbicide applications, do not allow spray to drift to cotton, tobacco, or other sensitive crops. Store herbicides behind locked doors in the original containers, with the label intact, and separated from seed, fertilizer, and other pesticides.

Be aware that recrop intervals occur with certain peanut herbicides. Consult the product label or your local County

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Extension Office for additional information on follow-crop safety.

Cultivation

Cultivation may be utilized in the early season before peanut plants form a canopy and/or begin to peg. Generally, cultivation is used when herbicides are ineffective or may be a component of organic-based peanut production. Cultivation may also improve the activity of certain herbicides under adverse conditions such as drought. However, cultivation generally results in a “flush” of weeds and may increase disease problems. If cultivation is needed, a shallow cultivation (1-2 inches deep) works best with minimal soil movement. This helps to avoid throwing soil on the peanut foliage, which may result in increased incidence of stem rot (white mold).

Mowing generally does not result in effective weed control, but may allow more adequate application of foliar fungicides and insecticide. Mowing is also sometimes used as a “last-ditch effort” prior to peanut digging and harvest. This approach involves cutting the weed biomass above the peanut canopy. Do not cut the peanut foliage.

Table 1. Weed management in peanuts.

Trade Name and Broadcast Rate/Acre of Commercial Product	Common Name	Remarks
PREPLANT INCORPORATED (PPI)		
3.3 EC products (Prowl, Framework, others) (1.8 - 2.4 pt) or Prowl H ₂ O (2 pt)	pendimethalin	Effective on most annual grasses and many hard-to-control grasses such as sandbur and Texas panicum. Good control of Florida pusley and pigweeds. Refer to the label for proper incorporation procedures. Prowl may be applied by injection through center-pivot irrigation systems.
Sonalan (1.5 - 2.5 pt)	ethalfluralin	May be tank-mixed with Dual, Pursuit, or Strongarm. Prowl/Pendimax or Sonalan may be applied to soil surface prior to planting and irrigated with 0.25 to 0.50 inches of water. However, reduced control of larger-seeded grasses such as Texas panicum, sandbur and broadleaf signalgrass may result.
Dual Magnum 7.62 EC (and others) (1 - 1.33 pt)	S-metolachlor	Controls certain annual grasses, Florida pusley, pigweed, and yellow nutsedge. Dual applications PPI on loamy sand and sand soils closely followed by rainfall may result in peanut injury in the form of slow growth and reduced germination. For tropical spiderwort better control has been observed when applied with Gramoxone at cracking.
Outlook or Slider (12 - 18 fl oz)	S-dimethanamid	Controls some annual grasses (not Texas panicum) and small-seeded broadleaf weeds. Suppresses yellow nutsedge but not purple nutsedge. May be tank-mixed with Prowl/Pendimax or Sonalan for control of mixed infestations of annual grasses and yellow nutsedge. PPI treatments generally provide better control of nutsedge. Do not apply more than 21 oz/A/yr. Sequential applications of 11 oz followed by 10 oz can be made. Outlook is similar to Dual, but less effective on tropical spiderwort.
Stalwart, Parallel, others (1.0 - 1.33 pt)	metolachlor	This formulation is similar to the Dual 8E formulations in contrast to Dual Magnum. However, rate is reduced from the traditional Dual 8E rate and weed control may be less than expected. For additional information, see above note.
Pursuit (4 oz)	imazethapyr	Controls purple and yellow nutsedge, wild poinsettia, wild radish, pigweed, and several other annual species. Shallow incorporation is preferred. May be tank-mixed with Dual, Prowl, or Sonalan. Consult the label for rotation restrictions. Rotation interval for cotton is 18 months.
Strongarm 84 WDG (0.45 oz)	diclosulam	Provides residual control of broadleaf weeds, especially bristly starbur, ragweed, and pigweed. Will suppress nutsedges. Can be applied Preplant Incorporated or Preemergence up to true peanut cracking. Do not apply after the leaves have emerged through the soil. Preplant Incorporated applications may be more effective for nutsedge suppression.
PREEMERGENCE (PRE)		
Dual Magnum 7.62 EC (and others) (1.0 - 1.33 pt)	S-metolachlor	Provides good control of many annual grasses and certain small-seeded broadleaf weeds. Generally not considered adequate for control of Texas panicum or broadleaf signalgrass. Provides good control of yellow nutsedge. Generally, PRE applications of Dual Magnum provide superior control/suppression of broadleaf weeds compared to PPI applications. Heavy rainfall after planting may result in crop injury expressed as delayed emergence and stunted growth of emerging plants.
Outlook 12 - 18 oz	dimethanamid	See notes in previous section. Do not apply more than 21 oz per season.
Stalwart or Parallel 7.8 (1.0 - 2 pt)	metolachlor	These formulations are similar to the Dual II 7.8 and Dual 8E formulations. For additional information, see above note.
Solicam 1.5 - 1.8 lb	norflurazon	Effective on a variety of grass and broadleaf weeds.

Pursuit (4 oz)	imazethapyr	Provides good control of many broadleaf weeds and grasses, especially burgherkin, wild citron, wild poinsettia, wild radish, and pigweeds. Also effective on purple nutsedge. Do not plant cotton or sweet corn within 18 months of Pursuit application. Refer to label for additional rotation restrictions.
Strongarm 84 WDG (0.45 oz)	diclosulam	Refer to remarks in PPI section. PRE applications may be more effective for broadleaf weed control, while PPI applications result in better nutsedge control. However, nutsedge control with Strongarm has been variable and inconsistent.
Valor (2-3 oz)	flumioxazin	Valor is used for hard-to-control broadleaf weeds. It provides residual control and is especially effective on Florida beggarweed, tropic croton, pigweeds, and sida. Do not use more than 3 oz/A in a season. No rotational restrictions. Valor must be applied within 3 days of planting prior to peanut emergence. Valor will kill peanut foliage. Peanuts should be planted <u>at least</u> 1.5 inches deep to minimize the risk of crop injury. DO NOT irrigate during peanut emergence. Valor has the tendency to adhere to sprayer tanks, hoses, and spray tips. It is important to completely clean the sprayer the same day of Valor application.
CRACKING STAGE (POT)		
Gramoxone SL 2 lb ai/gal (8-12 oz) or Firestorm, Parazone, others 3 lb ai/gal (5.4 - 8 oz/A)	paraquat	Apply at true ground cracking up to 28 days after ground cracking. Paraquat will provide good to excellent control of seedling broadleaf and grass weeds. Paraquat kills weeds through contact burn activity and has no activity on weeds that have not emerged. Paraquat will burn peanut foliage, and degree of burn appears to be related to humidity and time of day that application is made. Do not apply to foliage that is wet with dew or peanuts that are stressed excessively due to drought, insects, or other conditions. A second application may be made if needed but should not be applied until peanuts have recovered from initial burn. Do not apply more than 16 oz per growing season. Always use a nonionic surfactant with paraquat at 1 qt per 100 gal of water. May be tank-mixed with Dual Magnum for residual control, but this will increase peanut injury. Adding 4 to 8 oz of Basagran to the paraquat + Dual combination will lessen peanut injury.
2,4-DB - several brands 1.75 EC (9 - 18 oz) 2.0 EC (8 - 16 oz) AND/OR Basagran (others) (4 - 16 oz)	2,4-DB bentazon	Tank-mixed with paraquat will improve control of cocklebur and morningglory. 2,4-DB may intensify burn on peanut foliage. Basagran tank-mixed with paraquat will aid in the control of bristly starbur, prickly sida, cocklebur, smallflower morningglory, and ragweed. As well as increased weed control, the addition of Basagran to paraquat appears to reduce peanut foliar burn. If applying with paraquat, 4 to 8 oz/A is sufficient to reduce foliar burn. Applying more than this is costly and does not improve foliar injury.
Dual Magnum (and others) 1.3 pt	s-metolachlor	See comments for Dual PPI and PRE. Compared to PPI and PRE at crack applications provide better control of non-emerged weeds such as Florida beggarweed and tropical spiderwort. May be mixed with Gramoxone treatments for improved contact activity and suppression/control of problem broadleaf weeds and yellow nutsedge. Can also be tank-mixed with Basagran, Basagran + 2,4-DB, or Storm. Do not apply more than 2.8 pt of Dual Magnum per season. Research has shown that Dual will provide good to excellent residual control of tropical spiderwort if applied before emergence. Do not apply within 90 days of harvest.
Ultra Blazer (0.5 - 1.5 pt)	acifluorfen	Minimal crop injury and best control will be attained when Ultra Blazer is applied at true ground cracking of peanuts when weeds are present. Ultra Blazer is most active on morningglories, pigweed, tropic croton, hemp sesbania, and other seedling broadleaf weeds. Use in 10-20 gallons of solution per acre at a minimum pressure of 40 psi. Do not use within 75 days of harvest.

Strongarm 0.45 oz		24(c) label for use in Georgia and Florida. Only weed on current 24(c) label is tropical spiderwort. Can be applied up until 30 days after planting. Use in combination with a NIS @ 0.25% v/v (1 qt/100 gals). When applied postemergence in peanut, cotton rotation restriction is 18 months. Follow other rotation restrictions listed in PPI section. Label must be in the possession of user at the time of application.
Storm (1.5 pt)	bentazon + acifluorfen	Controls morningglories, cocklebur, prickly sida, ragweed, eclipta, tropic croton, and several other broadleaf weeds with less injury than Blazer alone. Application timing is critical — weeds must be small. Include surfactant or crop oil concentrate. Can be mixed with 2,4-DB or paraquat for control of larger weeds and for control of sicklepod. Do not apply within 75 days of harvest. May be tank-mixed with paraquat. Rain-free period for Storm is 4 hours.
EARLY POSTEMERGENCE (POT)		
Cadre or Impose 4 oz	imazapic	Cadre is very active on small weeds (3-4" in size). Best when applied following paraquat as a late cracking to early postemergent spray. Excellent on both purple and yellow nutsedge. Very good on cocklebur, morningglory species, wild radish as well as many other broadleaf weeds. Good activity on small grass weeds. May be mixed with Ultra Blazer to improve control of hairy indigo or tropic croton. Cadre has strict rotational restrictions with respect to following crops, the most notable of which is an 18-month restriction before planting cotton. See label for complete spectrum of control and rotation restrictions. Do not apply within 90 days of harvest. Cultivation 10-21 days after application may provide additional control under droughty conditions.
POSTEMERGENCE (POT)		
2,4-DB Several Brands 1.75 EC (1.1 pt) or 2.0 EC (1 pt)	2,4-DB	Controls morningglory, sicklepod, and cocklebur. Poor control of Florida beggarweed and hairy indigo. Apply 2 to 12 weeks after planting. A second application may be made 3 weeks later. Do not apply to drought-stressed peanuts. Do not apply within 30 days of harvest.
Classic (0.5 oz)	chlorimuron	Apply Classic 60 days after peanuts emerge to 45 days before harvest for postemergence Florida beggarweed control. Under good conditions, other broadleaf weeds may be suppressed. Classic should be applied to Florida beggarweed 10" in height or smaller for good control. Spray should include 2 pt of nonionic surfactant per 100 gal of spray. Classic may be tank-mixed with Bravo, and surfactant should still be used. Classic application may cause temporary yellowing of peanuts, increase severity of TSWV, and reduced canopy growth. Classic injury is worse if peanuts are stressed at time of application. Check label for peanut variety restrictions. May be tank-mixed with 2,4-DB for bristly starbur control.
Cobra 8 - 12.5 oz	lactofen	Good to excellent control of morningglory, pigweed, hemp sesbania, and other broadleaf weeds. Apply after peanuts have 6 true leaves. Delay sequential applications for 14 and do not exceed 25 oz/A/yr. An adjuvant must be used. Any adjuvant may be selected, but oil-based products will increase peanut injury and weed control relative to non-ionic surfactants. Crop injury with Cobra will be similar to, but often greater than, Ultra Blazer. Do not apply within 45 days of harvest.
Basagran (0.75 - 1.5 qt)	bentazon	Good control of cocklebur, bristly starbur, and smallflower. Rate depends on weed species and size; therefore, refer to the label. Good spray coverage is essential for control. Do not apply to peanuts that have been subjected to stress. Must be applied with crop oil concentrate.
Ultra Blazer (0.5 - 1.5 pt)	acifluorfen	Good control of many broadleaf weed species including hemp sesbania, crotalaria, and citron. Rate depends on size of weeds and species; therefore, refer to the label. Good spray coverage is essential for control. Add a surfactant as suggested on the label. Do not apply when weeds or peanuts are stressed. Do not apply within 75 days of harvest. Sprayed leaves and stems may be crinkled or burned but new leaves will appear normal.

Storm (1.5 pt)	bentazon + acifluorfen	Prepackage mix of bentazon + acifluorfen. Apply when weeds are small and actively growing from cracking stage up to 75 days before harvest. Add 1 pt/A of a crop oil concentrate. See label and previous comments on Blazer + Basagran for weed size to treat and expected control spectrum.
Poast Plus (1.0 - 2.5 pt) or Poast (1.0 - 2.5 pt)	sethoxydim	Good control of many grass weed species, including crabgrass, goosegrass, and Texas panicum. Split applications may be required for certain hard to control grasses (2 pt) but no more than 2.5 pt may be applied per acre/ growing season. Will likely not control bermudagrass. Best results will be obtained when applied in 15-20 GPA carrier volume. All applications should include a crop oil concentrate at 2 pt/A.
Select Max or TapOut 8 - 24 oz	clethodim	Similar to Select 2EC, but formulated differently. For rate conversion, multiply the Select 2EC rate by 1.5 to determine the Select Max rate. May be applied with either surfactant or crop oil.
Select 2EC or Arrow, Shadow, others (6 - 16 oz)	clethodim	Good control of annual and perennial grasses. Do not apply more than 32 fl oz per acre per season. Use a minimum of 5 gals and a maximum of 40 gals of spray solution per acre. All applications should include a crop oil concentrate at 2 pt/A. Rates of 6 to 8 oz/A will adequately control small annual grasses. For Texas millet, rates should be increased to 12 oz when weeds reach 6 inches in height. For bermudagrass, 16 oz will be required and 2 applications are often necessary.
Control of Tropical Spiderwort		
Gramoxone SL 8 oz + Dual Magnum 1.3 pt	paraquat +S-metolachlor	Applications of Gramoxone Max + Dual Magnum have been found to be the most effective herbicide combination for tropical spiderwort. Applications should be made when peanuts are cracking and spiderwort is 1" in height or less. Peanut injury will be greater than when Gramoxone is applied alone, but peanuts will recover within 7 days. To reduce injury, 6 to 12 oz of Basagran may be added to the spray mix.

Table 2. Estimated Effectiveness of Recommended Herbicides on Common Weeds in Florida Peanuts¹

Weed Name	Pendimax Prowl or Sonalan	Pursuit	Strongarm	Valor	Dual Magnum and Outlook	Basagran	Ultra Blazer or Cobra
Time of Application	PPI	PPI	PPI/PRE	PRE	PRE	POT	POT
amaranth, Palmer	F-G	E	G	E	G	P-F	F
anoda, spurred	P	G-E	G	G	-	G	P
balloonvine	P	-	-	-	P	F	F
barnyardgrass	E	F-G	P	P	G	P	P
beggarweed, Florida	P	P	F-G	E	F	P	P-F
bermudagrass	P	P	P	P	P	P	P
burgherkin	P	G	F	F-G	P-F	P-F	G
carpetweed	F-G	G	G	G	-	G-E	G
citronmelon	P	P-F	F	F-G	P	P	F
cocklebur, common	P	G-E	E	P	P	E	G-E
cowpea	P	P	-	P-F	P	P	F
crabgrass	E	F	P	P	E	P	P
crotalaria, showy	P	P-F	-	-	P	P	E
croton, tropic	P	P	F-G	G	P-F	P	F-G
crowfootgrass	G-E	F	P	P	E	P	P
dayflower, spreading	P	P	P	P	P-F	F	F
eclipta	P	P	E	G-E	P-F	G	F-G
goosegrass	E	F	P	P	E	P	P
groundcherry, cutleaf	P	-	-	-	-	-	F
horsenettle	P	P	-	P	P	P	F
indigo, hairy	P	P	G	G	P-F	P	F-G
johnsongrass (rhizome)	P-F	P	P	P	P	P	P
johnsongrass (seedling)	E	G	P	P	F	P	P
lambsquarters, common	G	F-G	G	E	P-F	P	F
morningglory, bigroot	P	F-G	G	F-G	P	P	P
morningglory, cypressvine	P	G	G	G	P-F	G	G
morningglory, entireleaf	P	G	G	E	P-F	F	G
morningglory, ivyleaf	P	G	G	E	P-F	F	G
morningglory, palmleaf	P	G	G	G	P-F	-	G
morningglory, pitted	P	G	G	G	P-F	P	G
morningglory, purple	P	G	G	G	P-F	F	G
morningglory, red	P	G	G	E	P-F	F	G
morningglory, smallflower	P	E	G-E	E	P-F	G-E	G
morningglory, tall	P	G	G	G	P-F	F	G
nightshade, eastern black	P	G	-	G	P	P	P
nutsedge, purple	P	G	F	P	P	P	P
nutsedge, yellow	P	F-G	F	P	F-G	F-G	P
panicum, fall	G-E	F	P	P	G	P	P
panicum, Texas	G-E	P-F	P	P	P-F	P	P
passionflower, maypop	P	P	P	P	P	P	P-F
pigweed, redroot	E	E	E	E	E	F	G
pigweed, smooth	E	E	E	E	E	F	G

Weed Name	Pendimax Prowl or Sonalan	Pursuit	Strongarm	Valor	Dual Magnum and Outlook	Basagran	Ultra Blazer or Cobra
Time of Application	PPI	PPI	PPI/PRE	PRE	PRE	POT	POT
poinsettia, wild	P	E	G	G	P	P	G
purslane, common	G	G	-	G	-	G	G
pusley, Florida	E	G	G	G	G	P	P
radish, wild	P	E	-	-	-	F	G
ragweed, common	P	P	G-E	G	P-F	F	G
redweed	P	G	G	G	P	G	P
sandbur, field	E	P	P	P	G	P	P
senna, coffee	P	P-F	P	F	P	F	P
sesbania, hemp	P	P	P	G	P	P	E
sicklepod	P	P	P	P	P	P	P
sida, arrowleaf	P	F-G	G	-	F	F-G	P-F
sida, prickly	P	G	G	G-E	F	F-G	P-F
signalgrass, broadleaf	G-E	P	P	P	G	P	P
smartweed, Pennsylvania	P-F	G	G	-	-	G	G
spurge, spotted	P	G	G	G	F	P	F
starbur, bristly	P	F	E	F-G	F	G	F
tropical spiderwort	P	P	F-G	F	G-E ²	F	F

¹ Estimated effectiveness based on rates recommended in this report. Effectiveness may vary depending on factors such as herbicide rate, size of weeds, time of application, soil type, and weather conditions.

Weed Control Symbols: E = 90-100% control; G = 80-90% control; F = 60-80% control; P = less than 60% control.

Time of Application Symbols: PPI = preplant incorporated; AC = cracking stage; EP = early postemergence; POT = postemergence over the top; PRE = preemergence; - = insufficient observations.

Herbicide recommendations in this report are contingent upon their registration by the Environmental Protection Agency and the Florida Department of Agriculture and Consumer Services. If a registration is canceled, the herbicide would no longer be recommended.

² Dual Magnum is significantly better on tropical spiderwort than Outlook.

Table 3. Estimated Effectiveness of Recommended Herbicides on Common Weeds in Florida Peanuts (cont.)¹

Weed Name	Paraquat	2,4-DB	Cadre	Classic	Poast	Select	Storm
Time of Application	POT	POT	POT	POT	POT	POT	POT
amaranth, Palmer	G	F	E	-	P	P	F
anoda, spurred	P	P	E	-	P	P	P
balloonvine	-	P	P	-	P	P	F
barnyardgrass	E	P	-	P	G	E	P
bermudagrass	P	P	P	P	P	E	P
burgherkin	F	F	G-E	P	P	P	F
carpetweed	F-G	F	G	G	P	P	F
citronmelon	F	F	G-E	F	P	P	F
cocklebur, common	E	E	E	G	P	P	G
cowpea	G	P	P-F	F	P	P	P
crabgrass	G	P	F	P	G	E	P
crotalaria, showy	E	P	-	-	P	P	F
croton, tropic	P-F	P	P-F	P-F	P	P	F
crowfootgrass	E	P	G	P	P	E	P
dayflower, spreading	P	P	P	P	P	P	F
eclipta	P	P	P	P	P	P	F
Florida beggarweed	E	P	F	G	P	P	P
goosegrass	E	P	P	P	E	E	P
groundcherry, cutleaf	F	F	F	-	P	P	F
horsenettle	P	P	F	P	P	P	P
indigo, hairy	F	P	F	F-G	P	P	P
johnsongrass (rhizome)	F	P	F-G	P	G-E	E	P
johnsongrass (seedling)	E	P	F	P	E	E	P
lambquarters, common	F	P	P	P	P	P	P
morningglory, bigroot	P	P	F	P-F	P	P	G
morningglory, cypressvine	G	G	G	F-G	P	P	F
morningglory, entireleaf	G	G	G	F-G	P	P	F
morningglory, ivyleaf	G	G	G	F-G	P	P	F
morningglory, palmleaf	G	G	G	F-G	P	P	F
morningglory, pitted	G	F	G	F-G	P	P	F
morningglory, purple	F	G	G	P	P	P	F
morningglory, red	G	G	G	F-G	P	P	F
morningglory, smallflower	P	G	G	F-G	P	P	F
morningglory, tall	F	G	G	F-G	P	P	F
nightshade, eastern black	F	F	-	F-G	P	P	P
nutsedge, purple	F	P	G-E	P	P	P	P
nutsedge, yellow	F	P	G-E	F	P	P	P
panicum, fall	E	P	F	P	E	E	P
panicum, Texas	E	P	F	P	G	E	P
passionflower, maypop	P	P	P-F	P	P	P	P
pigweed, redroot	G	F	E	F	P	P	F
pigweed, smooth	G	F	E	F	P	P	F
poinsettia, wild	F	P	E	P-F	P	P	F
purslane, common	G	G	P	P	P	P	P

Weed Name	Paraquat	2,4-DB	Cadre	Classic	Poast	Select	Storm
Time of Application	POT	POT	POT	POT	POT	POT	POT
pusley, Florida	P	P	P	P	P	P	P
radish, wild	P	P	E	P	P	P	F
ragweed, common	F	P-F	P	P	P	P	P
redweed	F	P-F	G-E	P-F	P	P	F
sandbur, field	F	P	G	P	G	E	P
senna, coffee	F	F-G	G	F	P	P	P
sesbania, hemp	F	F	P	F	P	P	E
sicklepod	E	F-G	G	P-F	P	P	-
sida, arrowleaf	P	F	G	F	P	P	P
sida, prickly	P	P	G	F	P	P	P
signalgrass, broadleaf	E	P	-	P	G	E	P
smartweed, Pennsylvania	G	P	G	F	P	P	F
spurge, spotted	P	P	P-F	-	P	P	P
starbur, bristly	P-F	P	F	F	P	P	F
tropical spiderwort	E	P	F	-	P	P	P-F

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Weed Control Symbols: E = 90-100% control; G = 80-90% control; F = 60-80% control; P = less than 60% control.

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