



SUGARCANE WEED CONTROL

This document was prepared as a joint effort between Dr. Jim Griffin, Department of Agronomy and Environmental Management, LSU AgCenter, Baton Rouge, LA and Dr. Ed Richard, USDA-ARS SRRC, Sugarcane Research Unit, Houma, LA. This weed control guide along with other information related to weed management can be viewed at www.lsuagcenter.com/weedscience under "Related Publications".

AT PLANTING PREEMERGENCE WEED CONTROL

Sugarcane is planted following the spring/summer fallow using whole stalks or cut stalks (billets). This phase is critical because uncontrolled weeds have enough time before the first killing frost to reestablish and produce rhizomes or seed. If this occurs, efforts to reduce weed populations during the fallow period are nullified. Herbicides may be applied at planting on a band to the top of the row or broadcast. A broadcast application will help to avoid encroachment of weeds from the row middles. Herbicides should be applied immediately after the row has been rolled or packed or incorporated within 24 hours after application. Many factors such as herbicide rate, soil texture, rainfall, and temperature can affect the level and duration of weed control obtained. On average, herbicides applied at planting during August at the specified rates will provide residual weed control into October (about 60 days of control). A follow up application of herbicide may be needed to prevent reestablishment of summer weeds and to control winter weeds. **Rates of herbicides are expressed on a broadcast basis. To calculate band rates for the herbicides use the formula provided at the end of this section.**

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see table "Weed Control with Sugarcane Herbicides" for specific weed control estimates)	Remarks
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR	atrazine 2.0 – 4.0 lb/A	Annual summer broadleaf weeds and winter grass and broadleaf weeds	Use higher rate on heavy soils or when sugarcane is planted in July or August.
AAtrex Nine-O, Atrazine 90DF, 90WDG 2.22 – 4.44 lb			
Command 3ME 2.66 – 3.33 pt	clomazone 1.0 – 1.25 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual summer grasses	Use higher rate on heavy soils or when sugarcane is planted in July or August. Addition of Direx/Karmex (2.0 qt of 4L or 2.5 lb of 80DF) can provide broadleaf weed control and bermudagrass suppression/control when applied prior to bermudagrass emergence and following a good fallow program.
Direx 4L 2.4 – 3.0 qt OR	diuron 2.4 – 3.0 lb/A	Annual summer and winter weeds	Provides fair control of seedling johnsongrass and browntop panicum. Use higher rate on heavy soils or when sugarcane is planted in July or August.
Direx 80DF, Karmex 80DF 3.0 – 3.75 lb			
DuPont K-4 60DG 3.75 – 4.0 lb	hexazinone 0.50 – 0.53 lb/A plus diuron 1.75 – 1.87 lb/A	Seedling johnsongrass, browntop panicum, and other annual summer and winter grass and broadleaf weeds	Use of the higher rate can provide bermudagrass suppression when applied prior to bermudagrass emergence and following a good fallow program. Can be applied with Prowl/Pendimax to improve itchgrass control.

Prowl 3.3EC, Pendimax 3.3EC 2.4 – 3.6 qt OR Prowl H ₂ O 3.8CS 2.1 – 3.1 qt	pendimethalin 2.0 – 3.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual summer grasses	May be applied to soil surface or incorporated. Use higher rate on heavy soils, if surface applied, planting in July or August, or if itchgrass is a problem. Other herbicides should be applied to the soil surface for broadleaf weed control. Addition of Sencor or DuPont K-4 can enhance control of grass and broadleaf weeds. Prowl H ₂ O is a capsule suspension (micro-encapsulated) formulation with less staining and odor compared with the EC formulation. Prowl H ₂ O does not have to be incorporated if rainfall is not received within 7 days after application.
Sencor 75DF 2.0 - 4.0 lb	metribuzin 1.5 – 3.0 lb/A	Seedling johnsongrass and other summer and winter grass and broadleaf weeds	Provides fair to good control of browntop panicum but poor control of itchgrass. This product is safe to use on all soils and varieties of sugarcane. Use higher rate on heavy soils or when sugarcane is planted in July or August. Can provide suppression of bermudagrass at higher rates when applied prior to bermudagrass emergence and following a good fallow program. Addition of Prowl/ Pendimax can increase control of browntop panicum and itchgrass.
Sinbar 80WP 1.0 – 1.5 lb <u>except</u> 1.0 lb on very sandy soils	terbacil 0.8 – 1.2 lb/A	Seedling johnsongrass and other summer grass and broadleaf weeds	Provides poor control of browntop panicum and itchgrass. Use higher rate on heavy soils or when sugarcane is planted in July or August. Can provide suppression of bermudagrass at higher rates when applied prior to bermudagrass emergence and following a good fallow program. Addition of Prowl/ Pendimax can increase control of browntop panicum and itchgrass.
Spartan 75DF 6.7 - 8.0 oz/A OR Spartan 4L 0.63 – 0.75 pt	sulfentrazone 0.313 – 0.375 lb/A	Annual summer and winter broadleaf weeds	Use higher rate on heavy soils and when sugarcane is planted in July or August. Can provide suppression of purple and yellow nutsedge when applied at the higher rate.
Treflan, Trifluralin, Trilin, Tri-4, Trific, Treflan HFP (4 EC formulations) 2.0 qt OR Trilin 5 (5 EC formulation) 1.6 qt	trifluralin 2.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual warm and cool season grasses	Incorporate as soon as possible after application, but within 24 hours. Avoid incorporation at a depth that will damage seed pieces. After incorporation, other herbicides should be applied to soil surface for broadleaf weed control.
Valor 50DF 6.0 – 8.0 oz/A	flumioxazin 0.188 – 0.25 lb/A	Annual summer and winter grass and broadleaf weeds	Must be applied prior to sugarcane emergence to avoid significant injury. Use higher rate on heavy soils or when sugarcane is planted in July or August. The duration of residual control with this herbicide when applied alone has not been fully established.

NOTE: If johnsongrass and itchgrass are not controlled with at planting treatments, Asulox/Asulam applied alone or in combination with Envoke can be applied postemergence in the fall. If purple or yellow nutsedge is not controlled with at planting treatments, Permit/Sempra or Envoke can be applied postemergence in the fall. See section on "Postemergence Control of Johnsongrass and Other Weeds" for rates. If broadleaf weeds are not controlled at planting 2,4-D, Clarity, Weedmaster/Brash/Kambamaster, or Valor can be used as a late summer/fall application (see section on "Winter Weed Control" for rates and restrictions). To avoid significant injury application of Valor must be directed under sugarcane that is at least 24 inches tall and jointing.

Herbicides rates represent the amount of formulated material needed for one acre on a broadcast basis.

To calculate the band rate per traveled acre for a liquid or dry formulation, use the following formula:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast RATE per acre} = \text{Band RATE per traveled acre}$$

SUCCESSION PLANTING:

Herbicides listed in the "At Planting Preemergence Weed Control" section may also be used when sugarcane is succession planted. Rates may be reduced slightly (25%) due to later planting date.

USE OF SHIELDED OR HOODED SPRAYERS:

Shielded application of glyphosate herbicide to row middles after planting, after fall harvest, or in the spring has provided good to excellent control of emerged bermudagrass. Apply 2.0 to 3.0 qt/A of the 4.0 lb ai/gallon formulations in 5 to 20 gallons of water per acre as a shielded application to the row middles. Various glyphosate formulations can be used and corresponding rate conversions can be found in the "Fallow Weed Control" section. Severe injury will occur if herbicide comes in contact with green sugarcane foliage.

WINTER WEED CONTROL

PREEMERGENCE (October-November):

Apply Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor, Sinbar, or Valor to early-harvested sugarcane or reapply to newly planted cane for preemergence control of winter grass and broadleaf weeds. Rates specified in the "At Planting Preemergence Weed Control" section for Sencor and Sinbar can be reduced slightly (25%) for the later applications. Add nonionic surfactant or crop oil concentrate if weeds are emerged at application. See table "Weed Control With Sugarcane Herbicides" for specific weed control estimates. To avoid significant injury application of Valor must be directed under sugarcane that is at least 24 inches tall and jointing.

POSTEMERGENCE (January-March):

Apply Weedmaster/Brash/Kambamaster at 1.0 qt/A, 2,4-D amine at 2.0 qt/A, or Clarity at 1.0 pt/A after broadleaf weeds have emerged and when air temperature is above 65° F. Weedmaster/Brash/Kambamaster and 2,4-D are classified as phenoxy herbicides and their use is restricted in some parishes. Check local restrictions before application. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor, Spartan, or Valor (winter killed sugarcane only) may be added to improve postemergence weed control and provide soil residual activity. See table "Weed Control With Sugarcane Herbicides" for specific weed control estimates.

Apply Gramoxone Max (3.0 lb ai paraquat/gallon) at 1.3 to 2.5 pt/A plus nonionic surfactant or crop oil concentrate prior to sugarcane emergence or when sugarcane has no more than 4 leaves. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor, or Spartan may be added to improve burndown and provide soil residual activity. See table "Weed Control With Sugarcane Herbicides" for specific weed control estimates.

NOTE: Atrazine in surface water is currently being monitored in the Upper Terrebonne Basin area. If excessive levels are detected it is possible that atrazine use in the area will be banned.

SPRING PREEMERGENCE WEED CONTROL

The preemergence herbicide programs described below should be implemented in late winter (February or early March) before weeds emerge. If small weeds are present at application a nonionic surfactant or crop oil concentrate should be added to herbicides with postemergence activity. If heavy winter weed cover or a sugarcane residue blanket is present, remove the residue or apply the higher end of the herbicide rate range. Many factors such as herbicide rate, soil texture, rainfall, and temperature can affect the level of weed control obtained. On average, herbicides applied in late winter or early spring at the specified rates will provide residual weed control for about 60 days. Herbicides may be applied broadcast, but in most cases are banded on the top of the row when some cultivation of the row middles is planned. **Herbicide rates are expressed on a broadcast basis. To calculate band rates for the herbicides use the formula provided at the end of the “At Planting Preemergence Weed Control” section.** If scattered infestations of winter broadleaf weeds are present Weedmaster/Brash/ Kambamaster at 1.0 qt/A, 2,4-D amine at 2.0 qt/A, or Clarity at 1.0 pt/A can be added. Weedmaster/Brash/Kambamaster and 2,4-D are classified as phenoxy herbicides and their use is restricted in some parishes. Check local restrictions before application.

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see table “Weed Control with Sugarcane Herbicides” for specific weed control estimates)	Remarks
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAtrex Nine-O, Atrazine 90 DF, 90 WDG 2.22 – 4.44 lb	atrazine 2.0 – 4.0 lb/A	Broadleaf weeds	Use higher rate on heavy soils. Addition of nonionic surfactant or crop oil concentrate will improve control of small broadleaf and grass weeds. Atrazine in surface water is currently being monitored in the Upper Terrebonne Basin area. If excessive levels are detected it is possible that atrazine use in this area will be banned.
Command 3ME 2.66 – 3.33 pt	clomazone 1.0 – 1.25 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual grasses	Can be applied with Aatrex/Atrazine, Direx/Karmex, or Spartan to control broadleaf weeds. Significant bleaching/whitening of sugarcane foliage can occur if crop is emerged at application. Can provide suppression of bermudagrass at higher rates if applied with Direx/Karmex prior to bermudagrass emergence from the winter dormant period. If used at planting, Command should not be reapplied in spring.
Direx 4L 2.4 – 3.0 qt OR Karmex 80DF, Direx 80DF 3.0 – 3.75 lb	diuron 2.4 – 3.0 lb/A	Broadleaf weeds	Provides fair control of seedling johnsongrass and itchgrass. Use higher rate on heavy soils. To control emerged weeds nonionic surfactant or crop oil concentrate should be added.
DuPont K-4 60DG 3.75 – 4.0 lb	hexazinone 0.5 – 0.53 lb/A plus diuron 1.75 – 1.87 lb/A	Seedling johnsongrass, browntop panicum, and other annual grass and broadleaf weeds	Can provide suppression of bermudagrass at the higher rate if applied prior to bermudagrass emergence from the winter dormant period. Can be applied overtop of sugarcane until daily maximum temperatures for the week preceding application average 80 degrees F or greater. Can be applied with Prowl/Pendimax to improve itchgrass control.

Prowl 3.3EC, Pendimax 3.3EC 2.4 – 3.6 qt OR Prowl H ₂ O 3.8CS 2.1 – 3.1 qt	pendimethalin 2.0 – 3.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual grasses	May be surface applied or soil incorporated. Use higher rate on heavy soils if surface applied or if itchgrass is a problem. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor, or Spartan may be applied to the soil surface with Prowl/Pendimax for broadleaf weed control. Nonionic surfactant or crop oil concentrate should be added to control emerged weeds. Prowl H ₂ O is a capsule suspension (micro-encapsulated) formulation with less staining and odor compared with the EC formulation. Prowl H ₂ O does not have to be incorporated if rainfall is not received within 7 days after application.
Sencor 75DF 2.0 - 4.0 lb	metribuzin 1.5 – 3.0 lb/A	Seedling johnsongrass and other annual grass and broadleaf weeds	Safe to sugarcane on all soil types. Provides fair to good control of browntop panicum but poor control of itchgrass. Addition of Prowl/Pendimax can increase control of these weeds. For bermudagrass suppression apply at higher rate prior to bermudagrass emergence from the winter dormant period.
Sinbar 80WP 1.0 – 1.5 lb <u>except</u> 1.0 lb on very sandy soils	terbacil 0.8 – 1.2 lb/A	Seedling johnsongrass and other annual grasses	Provides poor control of browntop panicum and itchgrass. Addition of Prowl/Pendimax can increase control of these weeds. For bermudagrass suppression apply at higher rate prior to bermudagrass emergence from the winter dormant period. Stubble crops appear to be more tolerant.
Spartan 75DF 6.7 - 8 oz/A OR Spartan 4L 0.63 – 0.75 pt	sulfentrazone 0.313 – 0.375 lb/A	Broadleaf weeds	Addition of nonionic surfactant or crop oil concentrate will improve control of emerged weeds. Can provide suppression of purple and yellow nutsedge when applied at the higher rate. Apply with Prowl/Pendimax, Sencor, DuPont K-4, or Command to control grasses. Spartan can only be applied once during the growing season at a maximum rate of 8 oz/A per crop year.
Treflan, Trifluralin, Trilin, Tri-4, Triflc, Treflan HFP (4 EC formulations) 2.0 qt OR Trilin 5 (5 EC formulation) 1.6 qt	trifluralin 2.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual grasses	Incorporate as soon as possible after application, but within 24 hours. Winter killed sugarcane and weed residue should be removed prior to application by shaving or mowing. Can provide suppression of bermudagrass at higher rates. Aatrex/Atrazine, Direx/Karmex, Sencor, or Spartan should be applied to the soil surface for broadleaf weed control.
Valor 50DF 6.0 – 8.0 oz/A	flumioxazin 0.188 – 0.25 lb/A	Annual summer and winter grass and broadleaf weeds	Must be applied prior to sugarcane emergence to avoid significant injury. Use higher rate on heavy soils. The duration of residual control with this herbicide when applied alone has not been fully established.

POSTEMERGENCE CONTROL OF JOHNSONGRASS AND OTHER WEEDS ASULOX/ASULAM, ENVOKE, AND PERMIT/SEMPRA PROGRAMS

ASULOX/ASULAM PROGRAMS FOR CONTROL OF JOHNSONGRASS AND OTHER GRASSES:

Asulox/Asulam can be applied broadcast, banded, or as a spot treatment when johnsongrass is scattered. The most accurate and economical method of spot treating is to use a calibrated sprayer at a constant speed with the operator turning the spray nozzles on and off as needed. If a high-volume "cattle gun" nozzle is used for spot treatment, apply a 2% solution of Asulox/Asulam (2 gallons of herbicide plus 98 gallons of water) plus nonionic surfactant at 0.25 to 0.50% volume/volume (1 to 2 qt/100 gallons of water) or crop oil concentrate at 1.0% volume/volume (1 gallon/100 gallons of water). If water pH is above 9.0, addition of a buffer may be beneficial. **When using a high volume "cattle gun" nozzle, spray to wet foliage but do not drench as sugarcane injury can be greater compared with spot treating using a calibrated sprayer.**

First application - Apply 4.0 qt/A Asulox/Asulam **broadcast** (or the correct proportion if applying on a band) plus nonionic surfactant at 0.25 to 0.50% volume/volume basis or crop oil concentrate at 1.0% volume/volume in 15 to 30 gallons of water per acre. **To calculate band rates use the formula provided at the end of this section.**

Application of Asulox/Asulam on a band will reduce herbicide cost per acre. To enhance coverage of johnsongrass foliage, nozzles mounted on drops should be used. At application, average air temperature should be at least 60°F with johnsongrass 12 to 18 inches tall and actively growing. DO NOT cultivate, fertilize or otherwise disturb the johnsongrass root system 7 days before or after Asulox/Asulam application. With some variation caused by weather conditions, johnsongrass will be at the recommended treatment size in late March or early April. Research has shown that a 20-hour rain-free period following Asulox/Asulam application may be needed to maximize control.

Asulox/Asulam applied at 3.0 to 4.0 qt/A broadcast also controls browntop panicum, foxtails, goosegrass, and barnyardgrass/junglerice when 6 to 8 inches tall. Itchgrass less than 8 inches tall may be controlled with 4.0 qt/A. Vaseygrass that is less than 8 inches tall can be partially controlled with Asulox/Asulam at 4.0 qt/A, but activity is very slow.

Second application - A second application of Asulox/Asulam at 3.0 to 4.0 qt/A broadcast can increase johnsongrass control, but may not increase yields over that obtained with a single Asulox/Asulam application in March/April. This may be beneficial in the plant cane or first stubble crop to reduce infestations in subsequent crops. The second application of Asulox/Asulam should be made to johnsongrass regrowth, usually about eight weeks after the first application. Sugarcane injury is more likely when Asulox/Asulam is applied to sugarcane stressed from drought, excessive temperature or flooded soils, especially after June 1. Therefore, the first application should be made as early as possible.

Aerial application - Asulox/Asulam may also be applied by air using the same rates specified above. Spray volume should be a minimum of 5 gallons per acre. After calculating the actual sugarcane acreage to be treated, acreage should be increased to account for ditchbanks and headlands also receiving application.

Fall Asulox/Asulam Application - In early planted or early harvested sugarcane, johnsongrass may reinfest fields prior to the winter dormancy period. When applied in the early fall (September/October) Asulox/Asulam at 3.0 qt/A broadcast plus nonionic surfactant at 0.25 to 0.50% volume/volume or crop oil concentrate at 1.0% volume/volume has provided johnsongrass control and reduced johnsongrass infestation the following spring.

ENVOKE PROGRAMS FOR CONTROL OF JOHNSONGRASS, ITCHGRASS, TIE-VINE, AND NUTSEDGE:

Envoke 75DF (common name trifloxyulfuron-sodium) can be applied postemergence overtop to plant or ratoon cane up to 24 inches tall at a broadcast rate of 0.3 oz product/A (0.014 lb ai/A) or as a directed application at 0.3 to 0.6 oz product/A (0.014 to 0.028 lb ai/A) to sugarcane 18 inches tall up through layby. As a directed application spray should be directed away from the upper plant parts (whorl) so as to minimize contact with the crop, yet to maximize contact with the target weeds.

Envoke at 0.3 oz/A broadcast will not provide complete control of rhizome johnsongrass or itchgrass but will control morningglory (tie-vines) up to 4 to 5 inches, and purple and yellow nutsedge up to 6 inches. Weeds treated with Envoke will turn yellow, red, or purple after several days and weed death generally occurs 1 to 3 weeks after application depending on species and growing conditions. Envoke applied overtop of sugarcane can cause some yellowing and white banding on leaves present in the whorl at application as well as slight stunting but recovery is rapid and no negative effect on sugarcane yield has been observed.

Combinations of Envoke with Asulox/Asulam provide complementary broadleaf and grass weed control. Specifically, Envoke at 0.3 oz/A broadcast applied with Asulox/Asulam at 2 qt/A (half broadcast rate) has provided control of large rhizome johnsongrass (more than 18 inches) equal to or better than Asulox/Asulam applied alone at 4 qt/A (full broadcast rate). Envoke at 0.2 oz/A broadcast applied with Asulox/Asulam at 2 qt/A (half broadcast rate) has provided control of large itchgrass (more than 6 inches) better than Asulox/Asulam applied alone at 4 qt/A (full broadcast rate). Add to the finished spray solution a high quality nonionic surfactant with a minimum of 80% surface-

active agent at 0.25% volume/volume (1 qt/100 gallons) if applied overtop of cane and either a nonionic surfactant or a nonphytotoxic crop oil concentrate containing 15 to 20% approved emulsifier at 0.5 to 1.0% volume/volume (2 to 4 qt/100 gallons) if directed underneath the crop.

For ground application use a minimum of 10 gallons of water per acre (broadcast basis). Higher volumes (at least 20 gallons per acre) should be used for severe weed infestations to ensure adequate spray coverage. **Envoke can not be applied aerially.** Do not apply Envoke to sugarcane under stress due to drought, standing water, heavy insect and/or disease pressure, low soil fertility, etc. As specified for Asulox/Asulam, DO NOT cultivate, fertilize or otherwise disturb the johnsongrass root system 7 days before or after Envoke application.

PERMIT/SEMPRA PROGRAMS FOR CONTROL OF NUTSEDGE:

Permit/Sempra 75DF can be applied postemergence prior to planting or after crop emergence anytime during the growing season until row closure. Sugarcane is very tolerant to overtop applications of Permit/Sempra. No more than three applications can be made per year and no more than 2.33 oz should be applied per acre per year. Apply Permit/Sempra at 0.67 to 1.33 oz/A with nonionic surfactant at 0.25 to 0.50% volume/volume or crop oil concentrate at 1.0% volume/volume. The higher rate is needed for control of purple and yellow nutsedge. Other herbicides may be applied with Permit/Sempra to control grass and broadleaf weeds.

Herbicides rates represent the amount of formulated material needed for one acre on a broadcast basis.

To calculate the band rate per traveled acre for a liquid or dry formulation, use the following formula:

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast RATE per acre} = \text{Band RATE per traveled acre}$$

LAYBY PREEMERGENCE WEED CONTROL

Herbicides at layby are applied broadcast and directed underneath the sugarcane canopy usually following the last cultivation and prior to weed emergence. Spray coverage of row tops and middles is critical to provide weed control until harvest. Directed application is necessary to increase herbicide coverage of smaller emerged weeds not destroyed by tillage and to avoid contact of newly emerging sugarcane leaves that can result in injury with some herbicides. Delaying herbicide application after the layby cultivation until a rain has settled the soil can enhance the activity of herbicides and extend the period of residual weed control. Delaying application until the crop is larger will decrease the potential for crop injury with certain herbicides.

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see table "Weed Control with Sugarcane Herbicides" for specific weed control estimates)	Remarks
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAtrex Nine-O, Atrazine 90 DF, Atrazine 90 WDG 2.22 – 4.44 lb	atrazine 2.0 – 4.0 lb/A	Broadleaf weeds and some annual grasses	Use higher rate on heavy soils and where morningglory (tie-vine) control in excess of 45 days is needed. Since morningglory can germinate and grow under the sugarcane canopy, atrazine can be very effective when applied in late May or early June following an earlier application of Prowl/ Pendimax or a trifluralin product to control grasses. Add nonionic surfactant or crop oil concentrate if weeds are present.

Direx 4L 2.4 – 3.0 qt OR Direx 80DF/ Karmex 80WP 3.0 – 3.75 lb	diuron 2.4 – 3.0 lb/A	Broadleaf weeds and some annual grasses	Apply as a directed treatment when sugarcane is 30 inches or taller. Injury can occur if herbicide contacts newly emerging sugarcane leaves. Provides fair control of seedling johnsongrass and browntop panicum. Use higher rate on heavy soils. Emerged broadleaf weeds and 1 to 3 leaf itchgrass can be controlled with the addition of nonionic surfactant or crop oil concentrate.
DuPont K-4 60DG 2.0 – 3.0 lb	hexazinone 0.27 – 0.4 lb/A plus diuron 0.94 – 1.4 lb/A	Broadleaf weeds and some annual grasses	Apply as a directed treatment when sugarcane is 30 inches or taller. Injury can occur if herbicide contacts newly emerging sugarcane leaves. If DuPont K-4 was applied in the spring do not apply more than 2 lb/A at layby. Allow 8 weeks between spring and layby applications. Addition of Prowl/Pendimax or Sencor will improve weed control. Add nonionic surfactant or crop oil concentrate if weeds are present.
Prowl 3.3EC, Pendimax 3.3EC 2.4 – 3.6 qt OR Prowl H ₂ O 3.8CS 2.1 – 3.1 qt	pendimethalin 2.0 – 3.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual grasses	May be surface applied or soil incorporated. Use higher rate if surface applied or if itchgrass is a problem. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor, or Spartan may be applied to the soil surface for broadleaf weed control. Application of these herbicides could be delayed to extend the period of residual weed control. Add nonionic surfactant or crop oil concentrate if weeds are present. Prowl H ₂ O is a capsule suspension (micro-encapsulated) formulation with less staining and odor compared with the EC formulation. Prowl H ₂ O does not have to be incorporated if rainfall is not received within 7 days after application.
Sencor 75DF 2.0 – 4.0 lb	metribuzin 1.5 – 3.0 lb/A	Seedling johnsongrass and other seedling grass and broadleaf weeds	Safe to use on all soils and varieties of sugarcane. Provides fair to good control of browntop panicum and poor control of itchgrass. Addition of Prowl/Pendimax can increase control of these weeds. Add nonionic surfactant or crop oil concentrate if weeds are present.
Sinbar 80WP 0.50 lb (medium and heavy soils)	terbacil 0.4 lb/A	Seedling johnsongrass and other annual grasses	Provides poor control of browntop panicum and itchgrass. Addition of Prowl/Pendimax can increase control of these weeds. Add nonionic surfactant or crop oil concentrate if weeds are present. Stubble crops appear to be more tolerant. Use on light soils only if previous use has indicated no problem with injury.
Spartan 75DF 6.7 – 8.0 oz/A OR Spartan 4L 0.63 – 0.75 pt	sulfentrazone 0.313 – 0.375 lb/A	Broadleaf weeds	Use high rate on heavy soils, where morningglory (tie-vine) control in excess of 45 days is needed. Since morningglory can germinate and grow under the sugarcane canopy, Spartan can be very effective when applied in late May or early June following an earlier application of Prowl/ Pendimax or a trifluralin product to control grasses. Can provide suppression of purple and yellow nutsedge when applied at the higher rate. Add nonionic surfactant or crop oil concentrate if weeds are present. Injury can occur if herbicide contacts newly emerging sugarcane leaves. Spartan can only be applied once during the growing season at a maximum rate of 8 oz/A per crop year. If applied in the spring do not reapply.

Treflan, Trifluralin, Trilin, Tri-4, Trific, Treflan HFP (4 EC formulations) 2.0 qt OR Trilin 5 (5 EC formulation) 1.6 qt	trifluralin 2.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual grasses	Incorporate as soon as possible after application, but within 24 hours. After incorporation, Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor, or Spartan may be applied to the soil surface for broadleaf weed control. Application of these herbicides could be delayed to extend the period of residual weed control. Add nonionic surfactant or crop oil concentrate if weeds are present.
Valor 50DF 6.0 – 8.0 oz/A	flumioxazin 0.188 – 0.25 lb/A	Broadleaf weeds and some annual grasses	Use higher rate on heavy soils and where morningglory (tie-vine) control in excess of 45 days is needed. Add nonionic surfactant or crop oil concentrate if weeds are present. Because of injury concerns apply only as a directed treatment after sugarcane is at least 24 inches in height and has begun to joint. Spray solution should contact no more than the lower six inches of sugarcane plants. Valor can be applied at a maximum rate of 12 oz/A per crop year.

POSTEMERGENCE WEED CONTROL AFTER LAYBY

Rainfall combined with high soil temperature contributes to rapid degradation and loss in weed control from herbicides applied at layby. Grass weeds emerging after layby generally do not reduce sugarcane yield or interfere with harvest. However, morningglory or tie-vines can cause significant problems at harvest particularly when the chopper harvester is used. To control morningglory and other broadleaf weeds, herbicides can be applied over the crop canopy by air or by ground sprayer, or herbicides can be directed beneath the crop canopy using a high clearance sprayer. When using a high clearance sprayer and the potential for crop injury from the herbicide is not of concern, coverage of the entire morningglory plant with spray solution will provide more consistent control. 2,4-D is commonly applied at this time of the year, however, its use is restricted in some parishes. Check local restrictions before application. To avoid potential stand and yield loss in the subsequent plant cane crop, 2,4-D, Weedmaster, Brash, Kambamaster, or Clarity should not be applied to seed cane sources closer than 7 weeks prior to harvest and planting.

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see table "Weed Control with Sugarcane Herbicides" for specific weed control estimates)	Remarks
2,4-D products 3.8L 0.5 – 1.5 qt/A	2,4-D 0.47 – 1.42 lb/A	Morningglory (tie-vine) and other broadleaf weeds	Apply 1 pt/A to control 2 to 3 leaf weeds and 1.5 qt/A if vines are climbing sugarcane plants. Complete control may take in excess of 5 weeks. Allow 7 weeks between application and harvest if sugarcane is used for seed. Use of this product is restricted in some areas of the state.
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAtrex Nine-O, Atrazine 90 DF, Atrazine 90 WDG 2.22 – 4.44 lb	atrazine 2.0 – 4.0 lb/A	Morningglory (tie-vine) and other broadleaf weeds	Can be applied overtop or directed before crop close in. Use higher rate if vines are climbing sugarcane plants. Add nonionic surfactant or crop oil concentrate. Can be used in areas where 2,4-D use is restricted.
Clarity 4L 16 – 24 oz/A	dicamba 0.5 – 0.75 lb/A	Morningglory (tie-vine) and other broadleaf weeds	Complete control may take in excess of 5 weeks. Allow 7 weeks between application and harvest if sugarcane is used for seed. Can be used in areas where 2,4-D use is restricted.

Envoke 75DF 0.3 oz/A	trifloxyulfuron-sodium 0.014 lb/A	Morningglory (tie-vine) and other broadleaf weeds, itchgrass and other annual grasses, and purple and yellow nutsedge	Apply as a directed treatment. Add nonionic surfactant or crop oil concentrate.
Permit 75DF, Sempra 75DF 0.67 – 1.33 oz	halosulfuron 0.031 – 0.062 lb/A	Purple and yellow nutsedge	Apply with a nonionic surfactant or crop oil concentrate to emerged weeds until row closure occurs. The higher rate is needed for control. Can be applied with other herbicides.
Spartan 75DF 6.7 – 8.0 oz/A OR Spartan 4L 0.63 – 0.75 pt	sulfentrazone 0.313 – 0.375 lb/A	Morningglory (tie-vine) and other broadleaf weeds	Apply as a directed treatment and use higher rate if vines are climbing sugarcane plants. Add nonionic surfactant or crop oil concentrate. Spartan can only be applied once during the growing season at a maximum rate of 8 oz/A per crop year. If applied in the spring or at layby do not reapply. An interval of at least 120 days between application and harvest is specified.
Valor 50DF 6.0 – 8.0 oz/A	flumioxazin 0.188 – 0.25 lb/A	Morningglory (tie-vine) and other broadleaf weeds and some annual grasses	Because of injury concerns apply only as a directed treatment after sugarcane is at least 24 inches in height and has begun to joint. Spray solution should contact no more than the lower six inches of sugarcane plants. Use higher rate if vines are climbing sugarcane plants and add nonionic surfactant or crop oil concentrate. Treatment to harvest interval should be at least 90 days. Valor can be applied at a maximum rate of 12 oz/A per crop year.
Weedmaster/Brash/ Kambamaster 3.87L 1 qt/A	2,4-D plus dicamba 0.72 + 0.25 lb/A	Morningglory (tie-vine) and other annual broadleaf weeds	Complete control may take in excess of 5 weeks. This product contains 2,4-D and use is restricted in some areas of the state. Allow 7 weeks between application and harvest if sugarcane is used for seed.
Gramoxone Max 3L 1.3 – 2.5 pt/A	paraquat 0.47 - 0.93 lb/A	Bermudagrass and small grass and broadleaf weeds	Apply as a directed treatment and add nonionic surfactant. Application to the row middles in late June desiccates bermudagrass, and combined with shading from the crop canopy can reduce bermudagrass regrowth. Herbicide contact to young sugarcane tillers can cause significant injury. Application can reduce the amount of bermudagrass transported with seed cane.

FALLOW WEED CONTROL

The fallow year provides the opportunity to reduce weed problems by destroying rhizomes and reducing weed seed reserves in the soil. Weed control programs during the fallow period can include use of tillage (plowing/disking) and herbicides. Frequent and timely cultivation, where weeds are destroyed and prevented from reestablishing can be an effective management tool if weather permits. Tillage, especially tillage just prior to planting, can reduce soil moisture in the seedbed, which in dry years can hinder plant cane emergence and growth. Another option in fallow fields would be a no-till program where seedbeds are not disturbed until planting and where glyphosate herbicide is used to kill both the sugarcane and weeds. Several herbicides are labeled for use in fallowed sugarcane fields and can be used in no-till and conventional programs in conjunction with or as a substitute for fallow plowing.

FALLOW PREEMERGENCE:

After bedding and at least 60 days prior to anticipated planting date, apply preemergence herbicides to a weed and clod-free bed. Packing of the row top prior to application may improve weed control.

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see table "Weed Control with Sugarcane Herbicides" for specific weed control estimates)	Remarks
AAatrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAatrex Nine-O, Atrazine 90 DF, Atrazine 90 WDG 2.22 – 4.44 lb	atrazine 2.0 – 4.0 lb/A	Broadleaf weeds	Use higher rate on heavy soils and where control in excess of 45 days is needed. Add nonionic surfactant or crop oil concentrate if weeds are present.
Direx 4L 2.4 – 3.0 qt OR Direx 80 DF Karmex 80 DF 3.0 – 3.75 lb	diuron 2.4 – 3.0 lb/A	Broadleaf weeds	Provides fair control of seedling johnsongrass and browntop panicum. Use higher rate on heavy soils and where control in excess of 45 days is needed. Add nonionic surfactant or crop oil concentrate if weeds are present.
DuPont K-4 60DG 3.75 – 4.0 lb	hexazinone 0.50 – 0.53 lb/A plus diuron 1.75 – 1.87 lb/A	Seedling johnsongrass, browntop panicum, and other annual grass and broadleaf weeds	Can provide suppression of bermudagrass. Apply to a clean seedbed at least 60 days prior to planting. Can be reapplied at planting but no more than 11.25 lbs can be applied per acre per year.
Prowl 3.3 EC 3.0 qt OR Prowl H ₂ O 3.8CS 2.6 qt	pendimethalin 2.5 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, other annual grasses	Apply to clean seedbed at least 60 days prior to planting. Deep incorporation (4 inches) by plowing or rotary tiller will increase the control of rhizome johnsongrass and bermudagrass. Atrazine, Direx/Karmex, or DuPont K-4 may be applied preemergence for broadleaf weed control. Prowl H ₂ O is a capsule suspension (micro-encapsulated) formulation with less staining and odor compared with the EC formulation. Prowl H ₂ O does not have to be incorporated if rainfall is not received within 7 days after application.

FALLOW POSTEMERGENCE (GLYPHOSATE AND GLYPHOSATE MIXTURES):

Postemergence herbicides should be applied to actively growing weeds.

Johnsongrass and Other Weeds - Apply glyphosate (see table below for labeled glyphosate herbicides and rate conversions) in 3 to 20 gallons of water per acre. For most applications, rates of 1.0 to 2.0 qt/A of the 4L glyphosate formulation is sufficient. If only a single application of glyphosate is to be made, apply at least 7 days prior to disturbing the row at planting. This allows adequate time for the glyphosate to be taken into the plant and moved to underground rhizomes. Under heavy weed infestation, two to three weeks between glyphosate application and planting will allow time for johnsongrass to desiccate and will promote more efficient opening of rows and covering of planted sugarcane. If applying 2,4-D in combination with glyphosate for additional broadleaf weed control, do not apply 2,4-D at an active ingredient rate that is more than one-half the glyphosate active ingredient rate or reduced grass control may be observed. For example, if applying 2.0 qt/A of a 4.0 lb ai/gallon glyphosate formulation, do not add 2,4-D at a rate greater than 1.0 qt/A. Again, do not cultivate prior to 7 days after application. **In a no-till program** glyphosate rates of 1.5 to 2.5 qt/A of the 4L glyphosate formulation will control sugarcane up to 15 inches tall. Typically in a no-till program a second glyphosate application will be needed to control weeds and any sugarcane regrowth that might occur. It is important that the first glyphosate application in a no-till program be made by the end of April to allow for sugarcane to completely decompose before rows are worked at planting.

Bermudagrass - Apply 2.0 to 3.0 qt/A of the 4L glyphosate formulation (see table below for labeled glyphosate herbicides and rate conversions) for control in 3 to 20 gallons of water per acre. Retreatment may be necessary to maintain control. Do not cultivate for 7 days after application. This allows adequate time for the glyphosate to be taken into the plant and moved to underground rhizomes. Under heavy weed infestation, two to three weeks between glyphosate application and planting will allow time for bermudagrass to desiccate and will promote more efficient opening of rows and covering of planted sugarcane. Multiple applications of glyphosate are more effective in controlling bermudagrass than a single application. **In a no-till program** glyphosate rates of 1.5 to 2.5 qt/A of the

4L glyphosate formulation will control sugarcane up to 15 inches tall. Typically in a no-till program a second glyphosate application will be needed to control weeds and any sugarcane regrowth that might occur. It is important that the first glyphosate application in a no-till program be made by the end of April to allow for sugarcane to completely decompose before rows are worked at planting.

Nutsedge (purple, yellow, and annual sedges) – Apply Permit 75DF or Sempra 75DF at 0.67 to 1.33 oz with a nonionic surfactant or crop oil concentrate and use the higher rate for control. Permit and Sempra can be applied with other herbicides.

Note: Glyphosate herbicides can be applied by air, but extreme caution should be used due to problems with off-target movement and damage to sugarcane and other crops in areas adjacent to treated fields.

Various Glyphosate Formulations

Herbicide Trade Name *	Manufacturer	Rate Equivalent to 1.0 qt/A Roundup Original 4L	Surfactant needed? *
Buccaneer 4L	Tenkoz, Inc.	32 fl oz	Yes
Buccaneer Plus 4L	Tenkoz, Inc.	32 fl oz	Yes
Clearout 41 4L	Chemical Product Technologies, LLC	32 fl oz	Yes
Clearout 41 Plus 4L	Chemical Product Technologies, LLC	32 fl oz	No
Cornerstone 4L	Agrilliance	32 fl oz	Yes
Cornerstone Plus 4L	Agrilliance	32 fl oz	No
Credit 4L	Nufarm	32 fl oz	Yes
Credit Duo 4L	Nufarm	32 fl oz	Yes
Credit Duo Extra 4L	Nufarm	32 fl oz	No
Credit Extra 4L	Nufarm	32 fl oz	No
Debit TMF 5.4L	Nufarm	24 fl oz	Yes
Gly-4 4L	Universal Crop Protection	32 fl oz	Yes
Gly-4 Plus 4L	Universal Crop Protection	32 fl oz	No
Gly Star 5 5.4L	Albaugh	24 fl oz	Yes
Gly Star Original 4L	Albaugh	32 fl oz	Yes
Gly Star Plus 4L	Albaugh	32 fl oz	No
Gly-Flo 4L	Micro-Flo	32 fl oz	Yes
Glyfos 4L	Cheminova	32 fl oz	Yes
Glyfos X-TRA 4L	Cheminova	32 fl oz	No
Glyphomax 4L	Dow Agro	32 fl oz	Yes
Glyphomax Plus 4L	Dow Agro	32 fl oz	No
Glyphosate 4 4L	FarmSaver	32 fl oz	Yes
Glyphosate Herbicide 4L	DuPont	32 fl oz	Yes
Honcho 4L	Monsanto	32 fl oz	Yes
Honcho Plus 4L	Monsanto	32 fl oz	No
Mirage 4L	UAP/Platte	32 fl oz	Yes
Mirage Plus 4L	UAP/Platte	32 fl oz	Yes
Rattler 4L	Helena	32 fl oz	Yes
Roundup Custom 4L	Monsanto	32 fl oz	Yes
Roundup D-Pak 6.42L	Monsanto	20 fl oz	Yes
Roundup Original 4L	Monsanto	32 fl oz	Yes
Roundup Original II 4L	Monsanto	32 fl oz	No
Roundup Original Max 5.5L	Monsanto	22 fl oz	No
Roundup UltraMax 5L	Monsanto	26 fl oz	No
Roundup UltraMax II 5.5L	Monsanto	22 fl oz	No
Roundup WeatherMax 5.5L	Monsanto	22 fl oz	No
Touchdown IQ 4L	Syngenta	32 fl oz	No
Touchdown Total 5.5L	Syngenta	22 fl oz	No

*This list may be incomplete due to label changes. Surfactant if needed is usually added at a 0.50% volume/volume (2 qt/100 gallons of water). Check labels concerning addition of surfactant.

DITCHBANK WEED CONTROL

Problem weeds such as johnsongrass, itchgrass, bermudagrass, poppingweed (*Equisetum*/horsetail), and *Rubus* species (briars) should be controlled on ditchbanks. This will aid in field drainage and prevent weed infestation into adjacent sugarcane fields. These recommendations are for non-irrigation, drainage ditch use only. **DO NOT** apply herbicides to a ditch when water is present unless explicitly permitted by the most-restrictive herbicide label. Herbicides should be applied in a minimum of 20 gallons of water per acre spray volume.

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see table "Weed Control with Sugarcane Herbicides" for specific weed control estimates)	Remarks
Various MSMA formulations, check labels for rate (if 6L material is used the rate is 2.68 qt)	MSMA 4.0 lb/A	Johnsongrass and itchgrass	Apply and repeat as necessary. If nonionic surfactant is not present in the formulation, add nonionic surfactant at 0.25% (1 qt/100 gallons of water). If the objective of ditchbank weed control is to encourage bermudagrass growth for ditchbank stabilization, application of MSMA alone would be an excellent choice. Mixing can be a problem when MSMA is applied with some broadleaf herbicides.
Crossbow 3L 4.0 qt	2,4-D plus triclopyr 2.0 plus 1.0 lb/A	Poppingweed, briars, and woody species	Best control obtained when applied to young poppingweed, less than 2 years old. For control of briars and smaller diameter woody species, apply at 1.0 to 1.5% (1 to 1.5 gallons /100 gallons of water) and add 0.25% nonionic surfactant (1 qt/100 gallons of water). Apply in a spray volume of 40 to 60 gallons per acre to thoroughly soak all stems and plant crowns at the soil line. This product contains 2,4-D, therefore its use may be restricted in some areas of the state.
Direx 4L 2.0 - 15.0 qt OR Direx 80DF, Karmex 80DF 2.5 - 18.75 lb	diuron 2.0 – 15.0 lb/A	Annual grass and broadleaf weeds	Provides residual control of many annual weeds. Addition of nonionic surfactant (1 to 2 qt/100 gallons of water) will increase contact activity on small, emerged weeds no more than 3 inches tall. Herbicide activity will be improved if soil in the ditch is moist at application. Do not allow herbicide to contact roots of desirable plants when applied at the higher rates.
DuPont K-4 60DG 3.75 – 4.0 lb	hexazinone 0.50 – 0.53 lb/A plus diuron 1.75 – 1.87 lb/A	Most ditchbank weeds including some control of poppingweed	Will not control rhizome johnsongrass or curly dock. Use only on split ditches. Do not use on out-flow ditches or ditches not directly between two cane fields. Very slow activity on poppingweed. Inclusion of 2 qt/A of a 4L glyphosate formulation OR 2.67 qt/A of a 6L MSMA formulation has increased rhizome johnsongrass and curly dock control. Apply in a spray volume of at least 40 gallons per acre to thoroughly cover the soil and foliage and soak all stems and plant crowns at the soil line. Nonionic surfactant at 0.25% (1 qt/100 gallons of water) or 1% crop oil concentrate (1 gallon/100 gallons of water) should be added. Hexazinone (Velpar) is extremely water-soluble and may move down the ditch.

Garlon 4L 2.0 – 3.0 qt OR Garlon 3A 2.7 – 4.0 qt	triclopyr 2.0 – 3.0 lb/A	Poppingweed, briars, and woody species	Best control obtained when applied to young poppingweed, less than 2 years old. For control of briars and smaller diameter woody species, apply at 1.5 pt/A of 4L or 2 pt/A of 3A plus nonionic surfactant at 0.25 to 0.50% (1 to 2 qt/100 gallons of water). Apply in a spray volume of 40 to 60 gallons per acre to thoroughly soak all stems and plant crowns at the soil line.
Prowl 3.3EC 3.0 – 4.0 qt OR Prowl H ₂ O 3.8CS 2.6 – 3.5 qt	pendimethalin 2.5 – 3.3 lb/A	Seedling johnsongrass, itchgrass, and other annual grasses	Apply in a minimum of 20 gallons per acre spray volume prior to weed emergence; will NOT control emerged weeds. May apply with other labeled herbicides to control emerged weeds or to enhance residual activity. Prowl H ₂ O is a capsule suspension (micro-encapsulated) formulation with less staining and odor compared with the EC formulation.
Roundup Original, Glyphomax Plus, Touchdown IQ, others (4L formulations) 1.0 to 5.0 qt OR Roundup UltraMAX, others (5L formulations) 0.8 to 4.0 qt OR Roundup Original Max, Roundup UltraMax II, Roundup WeatherMax , Touchdown Total, others (5.5L formulations) 0.7 to 3.6 qt	glyphosate 1.0 – 5.0 lb/A	Johnsongrass, itchgrass, and other weeds	Johnsongrass, itchgrass and most other weeds controlled at 1.0 to 2.0 qt/A. Bermudagrass and briars not controlled at 2.0 qt/A. Label states bermudagrass control at 3.0 to 5.0 qt/A of the glyphosate 4L formulation. Application with Direx or Karmex at 5.0 lb ai/A (see information on Direx/Karmex) can increase initial control and provide extended control of many annual weeds. Ensure spray solution covers foliage and reaches the soil. Residual effect will be improved if soil in the ditch is moist at application. Do not allow herbicide to contact foliage of desirable plants. See table "Various Glyphosate Formulations" for specific herbicides and rates.
Weedmaster, Brash, Kambamaster 3.87L 1 – 6 pt/A	2,4-D 0.36 - 0.73 lb/A plus dicamba 0.125 - 0.25 lb/A	Broadleaf weeds	This product contains 2,4-D and its use may be restricted in some areas of the state. Use 2 pt/A to control annual broadleaf weeds and 1 to 6 pts/A for suppression of perennial weeds.

WEED CONTROL WITH SUGARCANE HERBICIDES

The values listed in the tables below are estimates of weed control based on research and field experience and represent what can be expected with a specific herbicide or herbicide mixture at recommended rates. Estimates for preemergence soil-applied herbicides are for 28 to 35 DAT (days after treatment) and estimates for postemergence foliar-applied herbicides are for 14 to 21 DAT. Weed control evaluations are on a scale from 0 to 10 with 0 = no control and 10 = complete or 100% control.

PLANTED FIELDS – Preemergence Soil-Applied Herbicides (28 to 35 DAT)

Herbicide	Seedling Johnsongrass	Rhizome Johnsongrass	Itchgrass (Raouiggrass)	Bermudagrass*	Browntop Panicum	Annual Grasses	Morningglory (Tie-vines)	Other Broadleaf Weeds	Nutsedges	Winter Grasses**	Winter Broadleaf Weeds***
Atrazine	3	0	2	0	4	6	8	9	2	8	9
Command	8	2	8	6	8	8	3	3	2	7	2
Command plus Direx	9	2	8	8	9	9	6	8	2	7	8
Direx/Karmex	7	0	5	1	6	7	6	8	2	7	8
DuPont K-4	8	2	7	7	8	9	7	8	5	8	8
Prowl/Pendimax	8	5****	8	2	8	9	2	2	3	6	2
Prowl plus DuPont K-4	8	2	8	5	8	9	7	8	3	7	8
Prowl plus Sencor	9	2	8	5	9	9	8	9	3	8	8
Sencor	9	0	2	5	6	9	8	9	3	8	8
Sinbar	9	0	2	6	3	9	7	7	3	6	5
Spartan	4	0	2	0	3	4	9	8	7	4	8
Treflan/others****	9	5	9	6	9	9	2	2	5	8	2
Valor	3	0	2	0	3	4	8	9	2	8	9

*Control level expected when applied at planting prior to emergence and following a good fallow program or when applied in late winter prior to emergence from the winter dormant period.

**Includes ryegrass, rescuegrass, and timothy grass.

***Includes sowthistle and wild geranium.

****Herbicide must be incorporated to obtain this level of control.

WEED CONTROL WITH SUGARCANE HERBICIDES (continued)

PLANTED FIELDS – Postemergence Foliar-Applied Herbicides (14 to 21 DAT)

Herbicide	Seedling Johnsongrass	Rhizome Johnsongrass	Itchgrass (Raoulgrass)	Bermudagrass	Browntop Panicum	Annual Grasses	Morningglory (Tie-vines)	Other Broadleaf Weeds	Nutsedges	Winter Grasses*	Winter Broadleaf Weeds**
Asulox/Asulam	8	7	7	2	8	9	0	0	0	5	0
Atrazine	2	0	2	0	2	7	8	8	4	6	7
Clarity	0	0	0	0	0	0	9	9	3	0	9
Direx/Karmex	6	2	5	0	5	8	8	8	3	6	8
Envoke	8	7	9	2	8	9	8	8	8	7	7
Glyphosate herbicides (hooded application)	9	9	9	8	9	9	6	7	6	8	8
Gramoxone/Boa	8	4	8	6	8	9	8	8	2	8	8
Permit/Sempra	0	0	0	0	0	0	0	0	8	0	0
Spartan	2	0	2	0	2	4	9	8	7	3	8
Valor	2	0	2	0	3	4	9	9	2	3	9
Weedmaster/Brash/Kambamaster	0	0	0	0	0	0	9	9	3	0	9
2,4-D	0	0	0	0	0	0	9	9	3	0	9

*Includes ryegrass, rescuegrass, and timothy grass.

**Includes sowthistle and wild geranium.

FALLOWED FIELDS – Preemergence Soil-Applied (28 to 35 DAT) and Postemergence Foliar-Applied (14 to 21 DAT) Herbicides

Herbicide	Seedling Johnsongrass	Rhizome Johnsongrass	Itchgrass (Raoulgrass)	Bermudagrass	Browntop Panicum	Annual Grasses	Morningglory (Tie-vines)	Other Broadleaf Weeds	Nutsedges
<u>Preemergence</u>									
Atrazine	3	0	2	0	4	6	8	9	2
Direx/Karmex	7	0	5	1	6	7	6	7	2
DuPont K-4	8	2	7	7	8	9	7	8	5
Prowl/Pendimax	8	8*	8	6*	8	9	2	2	3*
<u>Postemergence</u>									
Glyphosate herbicides	9	8	9	7	9	9	7	8	6
Permit/Sempra	0	0	0	0	0	0	0	0	8
Weedmaster/Brash/Kambamaster/2,4-D/Clarity	0	0	0	0	0	0	9	9	3

*Herbicide must be incorporated to obtain this level of control.