



SUGARCANE WEED CONTROL

This weed control guide is prepared as a joint effort between Dr. Jim Griffin, Department of Agronomy and Environmental Management, LSU AgCenter, Baton Rouge, LA, and Drs. Ed Richard and Caleb Dalley, USDA-ARS SRRC, Sugarcane Research Unit, Houma, LA. Herbicide rates provided in this weed control guide are expressed on a broadcast basis. To calculate band rate use the formula provided below. Soil texture, rainfall, temperature, and herbicide rate can affect the level and duration of weed control obtained. On average, herbicide applied to the soil at the higher end of the rate range will provide residual weed control for about 60 days. When weeds are present and postemergence herbicides are used, a high quality nonionic surfactant with a minimum of 80% active ingredient or a crop oil concentrate containing 15 to 20% emulsifier should in most cases be added to the finished spray solution. The amount of surfactant and crop oil concentrate needed can vary depending on herbicide and is specified in each section of this guide.

Tables showing weed control estimates for herbicides used in sugarcane are provided at the end of this weed control guide. Values are based on research and field experience and represent what can be expected around 35 days after application of preemergence herbicides and 21 days after application of postemergence herbicides at the high end of the rate range. Additional information related to weed management for sugarcane and other crops grown in Louisiana can be viewed at www.agronomy.lsu.edu/weedscience/index.asp.

Conversion of Broadcast Rate to Band Rate

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

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

AT PLANTING PREEMERGENCE WEED CONTROL

Sugarcane is planted following the spring/summer fallow using whole stalks or cut stalks (billets). Weeds not controlled at planting 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. Herbicide may be applied at planting on a band to the top of the row or broadcast. A broadcast application will help to reduce encroachment of weeds from the row middles. Herbicide should be applied immediately after the row has been rolled or packed. **A follow up application of herbicide will be needed when preemergence herbicides are applied in July and August to prevent reestablishment of summer weeds and to control winter weeds. See "Single Application vs. Split Application Programs" and "Postemergence Weed Control (September-October)" at the end of this section.**

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see "Weed Control with Sugarcane Herbicides" section)	Remarks
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAtrex Nine-O, Atrazine 90DF, 90WDG 2.22 – 4.44 lb	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.

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 or Sencor/Metri DF can provide broadleaf weed control and bermudagrass suppression when applied prior to bermudagrass emergence and following a good fallow program.
Direx 4L 2.4 – 3.0 qt OR Direx 80DF, Karmex 80DF 3.0 – 3.75 lb	diuron 2.4 – 3.0 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.
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 or other pendimethalin product to improve itchgrass control. Velpar 2L at 1 qt/A and Direx 4L at 1.8 qt/A can be combined to closely represent the equivalent rate of 4 lb/A of DuPont K4. Within the next year a new formulation K-4 Max 80DG will be available. A 3 lb/A rate of K-4 Max is equivalent to a 4 lb/A rate of the original K-4 60 DG formulation.
Prowl, Pendimax, Stealth, Pendimethalin, Pendant, Acumen (3.3EC formulations) 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, when sugarcane is planted in July or August, or when itchgrass is a problem. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor/Metri DF, or Spartan may be applied to the soil surface with Prowl or other pendimethalin product for additional weed control.
Sencor 75DF, Metri 75DF 2.0 - 4.0 lb	metribuzin 1.5 – 3.0 lb/A	Seedling johnsongrass and other summer and winter grasses and broadleaf weeds	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 or other pendimethalin product will improve 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 grasses and broadleaf weeds	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 or other pendimethalin product can increase control of browntop panicum and itchgrass.
Spartan 4F 10.0 – 12.0 oz	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. Spartan may be applied more than once during the growing season but total usage per twelve-month period can not exceed 12 oz/A.
Treflan, Trifluralin, Trilin, Tri-4, Trific, Treflan HFP (4EC formulations) 2.0 qt	trifluralin 2.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual warm and cool season grasses	Roll or pack rows and incorporate herbicide within 24 hours after application. 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 SX 51WG 6.0 – 8.0 oz	flumioxazin 0.188 – 0.25 lb/A	Annual summer and winter grasses 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.

Single Application vs. Split Application Programs:

Herbicides applied at planting in July through early September will likely break by mid-October and weeds will begin to emerge. A common practice is to reapply a broad spectrum preemergence herbicide in late October for residual control of winter weeds. When bermudagrass, johnsongrass, and itchgrass problems are expected, a split

application program with herbicide applied at planting and around 60 days later will be more effective than a single application. In some cases where split application programs are used, beds in the spring are essentially free of winter weeds. Programs that can be successful in controlling bermudagrass include split applications 60 days apart of Command 3ME at 3.3 pt/A or DuPont K-4 at 4 lb/A followed by Sencor/Metri DF at 1.5 lb/A, Sencor/Metri DF at 2 lb/A followed 60 days later with Sencor/Metri DF at 1.5 lb/A, and Treflan or other trifluralin product at 2 qt/A banded and incorporated followed by Sencor/Metri DF at 1.5 lb/A. Another option would be to apply herbicide at planting on a band and sink middles prior to the follow up application. This program will reduce cost up front but will require an additional tillage operation and cooperating weather conditions. If tillage can not be performed encroachment of bermudagrass from the row middles can result in a severe weed problem the following spring.

Postemergence Weed Control (September-October):

Johnsongrass and Itchgrass - In early planted sugarcane, johnsongrass may reinfest fields prior to the winter dormancy period. When applied in September or October to actively growing johnsongrass 12 to 18 inches tall and above the crop canopy, Asulox/Asulox XP/Asulam at 3 qt/A or Envoke at 0.2 oz/A plus Asulox/Asulox XP/Asulam at 2 qt/A plus nonionic surfactant at 1 to 2 qt/100 gal of water or crop oil concentrate at 4 qt/100 gal of water has controlled johnsongrass and reduced reinfestation the following spring. Asulox/Asulox XP/Asulam alone and with Envoke also controls large itchgrass (more than 6 inches). For additional information on Asulox/Asulox XP/Asulam and Envoke see the "Postemergence Control Programs for Johnsongrass and Other Weeds" section.

Purple and Yellow Nutsedge - To control nutsedge in early planted sugarcane apply Permit at 1.0 to 1.33 oz/A or Envoke at 0.2 oz/A with nonionic surfactant at 1 to 2 qt/100 gal of water or crop oil concentrate at 4 qt/100 gal of water. Activity for both herbicides is slow and four weeks may be needed to maximize control. Sugarcane is very tolerant to overtop application of Permit. No more than three applications of Permit can be made per year and no more than 2.33 oz should be applied per acre per year. Envoke can cause some yellowing and white banding on sugarcane leaves as well as slight stunting but no negative effect on sugarcane growth and emergence in spring has been observed. Envoke will also provide some residual control of winter weeds. Other herbicides may be applied with Permit or Envoke for additional weed control. Yukon, a 67.5% DG premix of halosulfuron (the active ingredient in Permit) and dicamba (the active ingredient in Clarity/Vision) can provide control of both nutsedge and broadleaf weeds. A 4 oz/A rate of Yukon is equivalent to a 0.67 oz/A rate of Permit and a 4 oz/A rate of Clarity/Vision. For additional information on Permit and Envoke see the "Postemergence Control Programs for Johnsongrass and Other Weeds" section.

Broadleaf Weeds - To control emerged broadleaf weeds apply Weedmaster/Brash/Kambamaster at 0.5 to 1.0 qt/A, 2,4-D (3.8L formulation) at 0.5 to 1.5 qt/A, or Clarity/Vision at 0.5 to 1.0 pt/A when air temperature is above 65° F. Information related to these herbicides and 2,4-D formulations is provided in the "Postemergence Weed Control After Layby" section.

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 and to minimize the chance of sugarcane injury.

Use of Shielded or Hooded Sprayers:

Shielded application of glyphosate herbicide to row middles after planting or fall harvest has provided good to excellent control of emerged bermudagrass. Apply 2 to 3 qt/A of the 4.0 lb ai/gallon formulation or equivalent rate based on active ingredient for other formulations in 5 to 20 gal of water per acre as a shielded application to the row middles. Information on glyphosate formulations can be found in the "Fallow Weed Control" section. Severe injury will occur if glyphosate comes in contact with green sugarcane foliage.

WINTER WEED CONTROL

Preemergence (October-November):

Apply Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor/Metri DF, or Sinbar to early-harvested sugarcane or reapply to newly planted cane for preemergence control of winter grass and broadleaf weeds. Herbicide rates specified in the "At Planting Preemergence Weed Control" section can be reduced by 25% for the later applications. **If weeds are present nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal should be added to the spray solution.**

Postemergence (January-March):

Apply Weedmaster/Brash/Kambamaster at 0.5 to 1.0 qt/A, 2,4-D (3.8L formulation) at 0.5 to 1.5 qt/A, or Clarity/Vision at 0.5 to 1.0 pt/A after broadleaf weeds have emerged and when air temperature is above 65° F. The higher rate should be used when broadleaf weeds are large and clover or vetch is present. Information related to these

herbicides and 2,4-D formulations is provided in the “Postemergence Weed Control After Layby” section. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor/Metri DF, or Valor (winter killed sugarcane only) may be added to improve postemergence weed control and to provide soil residual activity.

To control ryegrass and other winter annual grasses as well as some broadleaf weeds apply Gramoxone Max (3.0 lb ai paraquat/gal) at 2 pt/A or Gramoxone Inteon (2.0 lb ai paraquat/gal) at 3 pt/A plus nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal prior to sugarcane emergence or when sugarcane has no more than 4 leaves. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor/Metri DF, or Valor (if sugarcane has not emerged) may be added to improve burndown and provide soil residual activity.

NOTE: Atrazine in surface water is currently being monitored in the Upper and Lower 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 weeds are present nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal should be added to the spray solution.** 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. If scattered infestations of winter broadleaf weeds are present Weedmaster/Brash/ Kambamaster at 0.5 to 1.0 qt/A, 2,4-D (3.8L formulation) at 0.5 to 1.5 qt/A, or Clarity/Vision at 0.5 to 1.0 pt/A can be added. The higher rate should be used when broadleaf weeds are large and clover or vetch is present. Information related to these herbicides and 2,4-D formulations is provided in the “Postemergence Weed Control After Layby” section.

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see “Weed Control with Sugarcane Herbicides” section)	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	Seedling broadleaf weeds and some annual grasses	Use higher rate on heavy soils. Other herbicides should be applied for grass control. Atrazine in surface water is currently being monitored in the Upper and Lower 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	Bleaching/whitening of sugarcane foliage can occur if crop is emerged at application. Can suppress bermudagrass regrowth 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 Direx 80DF, Karmex 80DF 3.0 – 3.75 lb	diuron 2.4 – 3.0 lb/A	Seedling broadleaf weeds and some annual grasses	Use higher rate on heavy soils. Other herbicides should be applied for grass control.
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	For bermudagrass suppression apply at the higher rate prior to emergence from the winter dormant period. Can be applied otop of sugarcane until daily maximum temperatures for the week preceding application average 80 degrees F or greater. Addition of Prowl or other pendimethalin product can improve itchgrass control. Velpar 2L at 1 qt/A and Direx 4L at 1.8 qt/A can be combined to closely represent the equivalent rate of 4 lb/A of DuPont K4. Within the next year a new formulation K-4 Max 80DG will be available. A 3 lb/A rate of K-4 Max is equivalent to a 4 lb/A rate of the original K-4 60 DG formulation.

Prowl, Pendimax, Stealth, Pendimethalin, Pendant, Acumen (3.3EC formulations) 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, or Sencor/Metri DF may be applied to the soil surface with Prowl or other pendimethalin product for additional weed control.
Sencor 75DF, Metri 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. Addition of Prowl or other pendimethalin product can improve control of browntop panicum and itchgrass. For bermudagrass suppression apply at the higher rate prior to emergence from the winter dormant period.
Treflan, Trifluralin, Trilin, Tri-4, Trific, Treflan HFP (4EC formulations) 2.0 qt	trifluralin 2.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual grasses	Incorporate within 24 hours after application. Can provide suppression of bermudagrass at higher rates. Aatrex/Atrazine, Direx/Karmex, or Sencor/Metri DF may be applied to the soil surface for broadleaf weed control.
Valor SX 51WG 4.0 – 8.0 oz	flumioxazin 0.127 – 0.255 lb/A	Annual summer and winter grass and broadleaf weeds	Must be applied prior to sugarcane emergence to avoid significant injury. Can provide residual control when applied at 6 to 8 oz/A.

POSTEMERGENCE CONTROL PROGRAMS FOR JOHNSONGRASS AND OTHER WEEDS

Asulox/Asulox XP/Asulam Programs for Control of Johnsongrass and Other Grasses:

Asulox/Asulox XP/Asulam can be applied broadcast, banded, or as a spot treatment. **Nonionic surfactant at 1 to 2 qt/100 gal of water or crop oil concentrate at 1 gal/100 gal of water should be added to the spray solution.** If water pH is above 9.0, addition of a buffer may be beneficial. 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/Asulox XP/Asulam application. With some variation caused by weather conditions, johnsongrass will be at the recommended treatment size in late March or early April. A 20-hour rain-free period following Asulox/Asulox XP/Asulam application may be needed to maximize control.

First Application - Apply 4 qt/A Asulox/Asulox XP/Asulam broadcast (or the correct proportion if applying on a band) in 15 to 30 gal of water per acre. If applying on a band, outside nozzles should be mounted on drops and band width should be wide enough to ensure thorough wetting of foliage. Asulox/Asulox XP/Asulam applied at 3 to 4 qt/A 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 qt/A. Vaseygrass that is less than 8 inches tall can be partially controlled with Asulox/Asulox XP/Asulam at 4 qt/A, but activity is very slow.

Second Application - A second application of Asulox/Asulox XP/Asulam at 3 to 4 qt/A plus nonionic surfactant or crop oil concentrate can increase johnsongrass control, but may not increase yield over that obtained with a single Asulox/Asulox XP/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/Asulox XP/Asulam should be made to johnsongrass regrowth, usually about eight weeks after the first application. Sugarcane injury is more likely when Asulox/Asulox XP/Asulam is applied at 4 qt/A 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.

Spot Application - 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/Asulox XP/Asulam (2 gal of herbicide plus 98 gal of water). 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.

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

Envoke Programs for Control of Johnsongrass and Itchgrass:

First Application - Envoke 75DF can be applied postemergence otop to plant or ratoon cane up to 24 inches tall at 0.3 oz/A broadcast (or the correct proportion if applying on a band) or as a directed application at 0.3 to 0.6 oz/A to sugarcane 18 inches tall at layby. As a directed application spray should be directed away from the upper plant parts (whorl) to minimize contact with the crop and to maximize contact with the target weeds.

Envoke alone at 0.3 oz/A will suppress but not control of rhizome johnsongrass or large itchgrass. Combinations of Envoke with Asulox/Asulox XP/Asulam provide complementary broadleaf and grass weed control. Envoke at 0.3 oz/A applied with Asulox/Asulox XP/Asulam at 2 qt/A (half rate) **plus nonionic surfactant or crop oil concentrate** controls large rhizome johnsongrass (more than 18 inches) equal to or better than Asulox/Asulox XP/Asulam applied alone at 4 qt/A (full rate). Envoke at 0.2 oz/A applied with Asulox/Asulox XP/Asulam at 2 qt/A has provided control of large itchgrass (more than 6 inches) better than Asulox/Asulox XP/Asulam applied alone at 4 qt/A.

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. For ground application use a minimum of 10 gal of water per acre (broadcast basis). Higher spray volume of at least 20 gal per acre should be used for heavy 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, or low soil fertility. As specified for Asulox/Asulox XP/Asulam, DO NOT cultivate, fertilize or otherwise disturb the johnsongrass root system 7 days before or after Envoke application.

Nutsedge Control Programs:

Permit 75DF (halosulfuron) 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. 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 at 1.0 to 1.33 oz/A with nonionic surfactant at 1 to 2 qt/100 gal of water or crop oil concentrate at 1 gal/100 gal of water. Activity of Permit is slow and four weeks may be needed to maximize control. Other herbicides may be applied with Permit for additional weed control. Yukon, a 67.5% DG premix of halosulfuron (the active ingredient in Permit) and dicamba (the active ingredient in Clarity/Vision) can provide control of both nutsedge and broadleaf weeds. A 4 oz/A rate of Yukon is equivalent to 0.67 oz/A rate of Permit and a 4 oz/A rate of Clarity/Vision.

Envoke at 0.2 oz/A with nonionic surfactant at 1 to 2 qt/100 gal of water or crop oil concentrate at 4 qt/100 gal of water also provides some control of nutsedge. Application over the top of the crop may not ensure adequate coverage of nutsedge growing under the crop canopy and can result in poor control.

LAYBY PREEMERGENCE WEED CONTROL

Herbicides at layby should be 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. **If small weeds are present nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal should be added to the spray solution when using herbicides with postemergence activity.** For morningglory (tie-vine) control, delaying herbicide application until after the layby cultivation can extend the period of residual weed control and 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 "Weed Control with Sugarcane Herbicides" section)	Remarks
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAtrex Nine-O, Atrazine 90DF, Atrazine 90WDG 2.22 – 4.44 lb	atrazine 2.0 – 4.0 lb/A	Seedling 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. Can provide residual morningglory control later into the growing season when application is delayed until late May or early June. Other herbicides should be applied for grass control.
Direx 4L 2.4 – 3.0 qt OR Direx 80DF, Karmex 80DF 3.0 – 3.75 lb	diuron 2.4 – 3.0 lb/A	Seedling 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. Other herbicides should be applied for grass control.

DuPont K-4 60DG 2.0 – 3.0 lb	hexazinone 0.27 – 0.4 lb/A plus diuron 0.94 – 1.4 lb/A	Seedling 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 or other pendimethalin product can improve itchgrass control. Velpar 2L at 0.8 qt/A and Direx 4L at 1.4 qt/A can be combined to closely represent the equivalent rate of 3 lb/A of DuPont K4. Within the next year a new formulation K-4 Max 80DG will be available. A 3 lb/A rate of K-4 Max is equivalent to a 4 lb/A rate of the original K-4 60 DG formulation.
Prowl, Pendimax, Stealth, Pendimethalin, Pendant, Acumen (3.3EC formulations) 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/Metri DF, or Spartan may be applied with Prowl or other pendimethalin product for additional weed control. Application of these herbicides could be delayed to extend the period of residual weed control.
Sencor 75DF, Metri 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. Addition of Prowl or other pendimethalin product can improve control of browntop panicum and itchgrass.
Spartan 4F 10.0 – 12.0 oz	sulfentrazone 0.313 – 0.375 lb/A	Broadleaf weeds	Use high rate on heavy soils and where morningglory (tie-vine) control in excess of 45 days is needed. Injury can occur if herbicide contacts newly emerging sugarcane leaves. Other herbicides should be applied for grass control. Spartan can be applied more than once during the growing season but total usage per twelve-month period can not exceed 12 oz/A.
Treflan, Trifluralin, Trilin, Tri-4, Trific, Treflan HFP (4EC formulations) 2.0 qt	trifluralin 2.0 lb/A	Seedling johnsongrass, itchgrass, browntop panicum, and other annual grasses	Incorporate within 24 hours after application. Aatrex/Atrazine, Direx/Karmex, DuPont K-4, Sencor/Metri DF, 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.
Valor SX 51WG 3.0 – 8.0 oz	flumioxazin 0.096 – 0.255 lb/A	Broadleaf weeds	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. At the 3 to 4 oz/A rate good control of emerged morningglory can be obtained. If long term control is desired 6 to 8 oz/A should be applied. Other herbicides should be applied for grass control. 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 of 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 underneath the crop canopy using a high clearance sprayer. When crop injury from the herbicide is not of concern, coverage of the entire morningglory plant with spray solution will provide more consistent control. **Nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal should be added to the spray solution.**

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, Clarity, Vision, Weedmaster, Brash, or Kambamaster 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 "Weed Control with Sugarcane Herbicides" section)	Remarks
2,4-D products 3.8L 1.0 – 1.5 qt (see information below on 2,4-D formulations)	2,4-D 0.47 – 1.42 lb/A	Morningglory (tie-vine) and other broadleaf weeds	Apply higher rate if vines are climbing sugarcane plants. Complete control may take in excess of 5 weeks. Surfactant can be added but is not required. Note restrictions on use in some parishes and on sugarcane used for seed.
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAtrex Nine-O, Atrazine 90DF, Atrazine 90WDG 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 row closure occurs. Use higher rate if vines are climbing sugarcane plants.
Clarity 4L 16.0 – 24.0 oz OR Vision 3.8L 17.0 to 25.0 oz	dicamba 0.5 – 0.75 lb/A	Morningglory (tie-vine) and other broadleaf weeds	Apply higher rate if vines are climbing sugarcane plants. Complete control may take in excess of 5 weeks. Surfactant can be added but is not required. Note restriction on sugarcane used for seed. Can be used in parishes where 2,4-D use is restricted.
Envoke 75DF 0.3 oz – 0.6 oz	trifloxysulfuron-sodium 0.014 – 0.028 lb/A	Morningglory (tie-vine) and other broadleaf weeds, itchgrass and other annual grasses, and purple and yellow nutsedge	Apply as a directed treatment.
Permit 75DF 0.67 – 1.33 oz	halosulfuron 0.031 – 0.062 lb/A	Purple and yellow nutsedge	Apply until row closure occurs. The higher rate is needed for control. Can be applied with other herbicides.
Spartan 4F 10.0 – 12.0 oz	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. Spartan can be applied more than once during the growing season but total usage per twelve-month period can not exceed 12 oz/A. 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 SX 51WG 3.0 – 8.0 oz	flumioxazin 0.096 – 0.255 lb/A	Morningglory (tie-vine) and other broadleaf weeds and some annual grasses	Apply only as a directed treatment after sugarcane has begun to joint. Spray solution should contact no more than the lower six inches of sugarcane plants. At the 3 to 4 oz/A rate good control of emerged morningglory can be obtained. If long term control is desired 6 to 8 oz/A should be applied. Valor can be applied at a maximum rate of 12 oz/A per crop year. Treatment to harvest interval should be at least 90 days.
Weedmaster/Brash/Kambamaster 3.87L 0.5 – 1.0 qt	2,4-D plus dicamba 0.72 + 0.25 lb/A	Morningglory (tie-vine) and other annual broadleaf weeds	Apply higher rate if vines are climbing sugarcane plants. Complete control may take in excess of 5 weeks. Surfactant can be added but is not required. Note restrictions on use in some parishes and on sugarcane used for seed.
Gramoxone Max 3L 1.33 – 2.7 pt OR Gramoxone Inteon 2L 2.0 – 4.0 pt	paraquat 0.50 – 1.0 lb/A	Bermudagrass and small grass and broadleaf weeds	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.

2,4-D Formulations:

Formulations of 2,4-D on the market include acid, amine salts, and esters. Since only the acid form of 2,4-D is active in controlling weeds, the herbicide concentration on the label is provided in lb ae (acid equivalent)/gal instead of lb ai (active ingredient)/gal, as is the case with most other herbicides. Formulations of 2,4-D range from 1.74 to 5.6 lb ae/gal. These numbers are important in determining the amount of formulated product to apply per acre. The lower the lb ae/gal the more formulated product required. For example, a 32 fluid oz rate (1 qt/A) of a 3.8L formulation would correspond to 21.7 oz for a 5.6L formulation and 70 oz for a 1.74L formulation. Unison is an acid formulation of 2,4-D and contains 1.74 lb ae/gal. Although this formulation of 2,4-D is not volatile (susceptible to converting to a gas and moving off-target) it would still be susceptible to physical drift as a liquid. Caution should be used anytime 2,4-D is applied near sensitive plants regardless of formulation.

FALLOW WEED CONTROL

The fallow year provides the opportunity to reduce weed problems by destroying rhizomes and decreasing 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. **If small weeds are present at application nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal should be added to the spray solution when using herbicides that have postemergence activity.**

Fallow Preemergence:

After bedding and at least 60 days prior to the 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 "Weed Control with Sugarcane Herbicides" section)	Remarks
AAtrex 4L, Atrazine 4L 2.0 – 4.0 qt OR AAtrex Nine-O, Atrazine 90DF, Atrazine 90WDG 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 control in excess of 45 days is needed.
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	Use higher rate on heavy soils and where control in excess of 45 days is needed.
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. Velpar 2L at 1 qt/A and Direx 4L at 1.8 qt/A can be combined to closely represent the equivalent rate of 4 lb/A of DuPont K4. Within the next year a new formulation K-4 Max 80DG will be available. A 3 lb/A rate of K-4 Max is equivalent to a 4 lb/A rate of the original K-4 60 DG formulation.
Prowl 3.3EC 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.

Fallow Postemergence (Glyphosate and Glyphosate Mixtures):

Postemergence herbicides should be applied to actively growing weeds. Several formulations of glyphosate are on the market with the most common being 4L and 5.5L formulations. The lower the active ingredient the more formulated product required. A 32 oz rate (1 qt/A) of a 4L formulation would correspond to 25.6 oz for a 5L formulation and 23.3 oz for a 5.5L formulation. Some glyphosate formulations contain surfactant but others do not. The herbicide label should be consulted concerning the need for surfactant. Apply glyphosate in 10 to 20 gal of water per acre for ground application and 3 to 5 gal of water per acre for aerial application.

Johnsongrass and Other Weeds - For most applications, rates of 1 to 2 qt /A of the 4L glyphosate formulation is sufficient. Do not cultivate for 7 days after application to allow 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. When applying 2,4-D in combination with glyphosate for additional broadleaf weed control use the high end of the glyphosate rate to avoid a possible reduction in grass control (antagonism).

Aatrex/Atrazine at 1 to 2 qt/A, Aim 2EC at 1 to 2 oz/A, and Valor at 3 to 4 oz/A can be applied to control broadleaf weeds and in particular morningglory (tie-vine). The higher rates should be applied to control large vining weeds. Aatrex/Atrazine and Aim can be applied any time during the fallow period. Valor can be applied from 2 weeks prior to planting to before sugarcane emerges. Some residual weed control can be expected with Aatrex/Atrazine and Valor, but Aim has no soil residual activity. Nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal should be added to the spray solution. If Aim or Valor is applied with glyphosate and surfactant is already present in the glyphosate formulation additional surfactant is not needed.

Bermudagrass - In fields where bermudagrass population is high, tillage in combination with glyphosate is most effective. Apply 2 to 3 qt/A of the 4L glyphosate formulation for control of bermudagrass with less than 8 inch runners. Retreatment with 2 to 3 qt/A may be necessary to maintain control. Do not cultivate for 7 days after application to allow 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.

Purple and Yellow Nutsedge - Permit at 1.0 to 1.33 oz/A and Envoke at 0.15 to 0.2 oz/A applied with nonionic surfactant at 1 to 2 qt/100 gal of water or crop oil concentrate at 4 qt/100 gal of water will provide some control of nutsedge. The higher rate is needed when nutsedge is large and the population is dense. For best results herbicide application should be made when nutsedge is around 6 inches tall. If application is delayed until nutsedge forms a dense mat on the soil surface a sizeable tuber population will have developed underground and control will be reduced. Permit and Envoke can be applied with glyphosate products without negatively affecting grass control and additional surfactant is not needed if surfactant is already present in the glyphosate formulation. If two applications of glyphosate are planned, Permit or Envoke should be applied with glyphosate in the first application. The follow up application of glyphosate alone should be effective on nutsedge regrowth. Both Permit and Envoke have some soil residual activity but are more effective when applied postemergence. Yukon, a 67.5% DG premix of halosulfuron (the active ingredient in Permit) and dicamba (the active ingredient in Clarity/Vision) can provide control of both nutsedge and broadleaf weeds. A 4 oz/A rate of Yukon is equivalent to 0.67 oz/A rate of Permit and a 4 oz/A rate of Clarity/Vision. As also noted for glyphosate, do not cultivate for 7 days after application of Permit or Envoke to allow adequate time for movement of herbicide to underground nutsedge tubers.

In situations where nutsedge and others weeds may interfere with row opening at planting, Gramoxone Max at 2 pt/A or Gramoxone Inteon at 3 pt/A plus nonionic surfactant at 1 to 2 qt/100 gal or crop oil concentrate at 2 to 4 qt/100 gal can be applied 1 to 2 weeks before planting to desiccate above ground plant material. Because herbicide does not move to underground nutsedge tubers rapid reestablishment should be expected and Permit or Envoke application in September or October should be considered. See "Postemergence Weed Control (September-October)" in the "At Planting Preemergence Weed Control" section.

Doveweed - Doveweed as well as many other members of the dayflower family are poorly controlled with glyphosate. In fallow programs where glyphosate is the only herbicide used for weed control, doveweed can form a dense mat across the row and can interfere with row opening at planting. Effective control of doveweed has been obtained with Gramoxone Inteon (3 pt/A), Valor (3 oz/A), and atrazine (3 to 4 qt/A) applied 1 to 2 weeks before planting. Gramoxone Inteon (2 pt/A) or Valor (2 oz/A) applied with atrazine (2 qt/A) is also effective.

No-Till Fallow Program - Glyphosate at 1.5 to 2.5 qt/A of the 4L 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 be made by the end of April to allow for sugarcane to completely decompose before rows are worked at planting. In fields where bermudagrass population is high, a no-till program where only glyphosate is used for weed control would not be as effective as glyphosate in combination with tillage.

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.

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 specifically allowed based on the herbicide label. Herbicides should be applied in a minimum of 20 gal of water per acre spray volume.

Rate of Formulated Material for 1 Acre Broadcast	Rate/Acre Active Ingredient	Weeds Controlled (see "Weed Control with Sugarcane Herbicides" section)	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 1 qt/100 gal 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 gal/100 gal of water and add nonionic surfactant at 1 qt/100 gal of water. Apply in a spray volume of 40 to 60 gal per acre to thoroughly soak all stems and plant crowns at the soil line. This product contains 2,4-D and 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 at 1 to 2 qt/100 gal of water will increase contact activity on small, emerged weeds no more than 3 in 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 gal per acre to thoroughly cover the soil and foliage and soak all stems and plant crowns at the soil line. Nonionic surfactant at 1 qt/100 gal of water or crop oil concentrate at 1 gallon/100 gal of water should be added. Hexazinone (Velpar) is extremely water-soluble and may move down the ditch. Within the next year a new formulation K-4 Max 80DG will be available. A 3 lb/A rate of K-4 Max is equivalent to a 4 lb/A rate of the original K-4 60 DG formulation.
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	Control is greater 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 formulation or 2 pt/A of 3A formulation plus nonionic surfactant at 1 to 2 qt/100 gal of water. Apply in a spray volume of 40 to 60 gal 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 gal per acre spray volume prior to weed emergence; will NOT control emerged weeds. May apply with other labeled herbicides to provide residual activity.

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 are controlled at 1 to 2 qt/A of the 4L glyphosate formulation. Apply 2 to 3 qt/A for control of bermudagrass with less than 8 inch runners. Retreatment with 2 to 3 qt/A may be necessary to maintain bermudagrass control. Application with Direx or Karmex at 5.0 lb ai/A (see information on Direx/Karmex) or DuPont K-4 at 3.75 to 4 lb/A (see information on DuPont K-4) can increase initial control and provide extended control of many annual weeds. Do not allow herbicide to contact foliage of desirable plants.
Weedmaster, Brash, Kambamaster 3.87L 0.5 – 3.0 qt	2,4-D 0.36 - 0.73 lb/A plus dicamba 0.125 - 0.25 lb/A	Broadleaf weeds	Use 1 qt/A to control annual broadleaf weeds and 1.0 to 3 qt/A for suppression of perennial weeds. This product contains 2,4-D and its use may be restricted in some areas of the state.

WEED CONTROL WITH SUGARCANE HERBICIDES
Planted Fields – Preemergence Soil-Applied

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 the high end of the rate range. Weed control estimates for preemergence soil-applied herbicides are for 28 to 35 DAT (days after treatment). Weed control values 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 (Raouigrass)	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/others	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	9	2	8	5	9	9	8	9	3	8	8
Sencor/Metri DF											
Sencor/Metri DF	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 weed emergence and following a good fallow program or when applied in late winter prior to weed emergence from the winter dormant period.

**Includes ryegrass, rescuegrass, and timothy grass.

***Includes sowthistle, wild geranium, and clovers.

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

WEED CONTROL WITH SUGARCANE HERBICIDES

Planted Fields - Postemergence Foliar-Applied

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 the high end of the rate range. Weed control estimates for postemergence foliar-applied herbicides are for 14 to 21 DAT (days after treatment). Weed control values are on a scale from 0 to 10 with 0 = no control and 10 = complete or 100% control.

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

Herbicide	Seedling Johnsongrass	Rhizome Johnsongrass	Itchgrass (Raouigrass)	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	9	8	4	6	7
Clarity/Vision	0	0	0	0	0	0	8	9	3	0	9
Direx/Karmex	6	2	5	0	5	8	8	8	3	6	8
Envoke + Asulox/Asulam	8	7	9	2	8	9	6	8	7	7	7
Glyphosate herbicides (hooded application)	9	9	9	8	9	9	6	7	6	8	8
Gramoxone Max / Gramoxone Inteon	8	4	8	6	8	9	8	8	2	8	8
Permit	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	8	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.

WEED CONTROL WITH SUGARCANE HERBICIDES Fallowed Fields - Preemergence Soil-Applied and Postemergence Foliar-Applied
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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 the high end of the rate range. Weed control estimates for preemergence soil-applied herbicides are for 28 to 35 DAT (days after treatment) and weed control estimates for postemergence foliar-applied herbicides are for 14 to 21 DAT. Weed control values are on a scale from 0 to 10 with 0 = no control and 10 = complete or 100% control.

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

Herbicide	Seedling Johnsongrass	Rhizome Johnsongrass	Itchgrass (Raouigrass)	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/others	8	8*	8	6*	8	9	2	2	3*
<u>Postemergence</u>									
Aim	0	0	0	0	0	0	9	8	0
Atrazine	2	0	2	0	2	7	9	8	4
Envoke	7	4	8	1	7	9	6	8	7
Glyphosate herbicides	9	8	9	7	9	9	5	8	5
Gramoxone Max / Gramoxone Inteon	8	4	8	6	8	9	8	8	2
Permit	0	0	0	0	0	0	0	0	8
Valor	2	0	2	0	3	4	9	8	2
Weedmaster/Brash/Kambamaster/ 2,4-D/Clarity/Vision	0	0	0	0	0	0	9	9	3

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