

# Cotton

**Table 1. Weed response ratings for selected cotton herbicides applied preemergence.**

**Table Legend**

| Rating         | Score |
|----------------|-------|
| None to Slight | 0-3   |
| Fair           | 4-6   |
| Good           | 7-8   |
| Excellent      | 9-10  |

|  | hophornbeam copperleaf | smellmelon | bermudagrass | rhizome johnsongrass | seedling johnsongrass | annual grasses | yellow nutsedge | prickly sida | pigweed | morninglory | hemp sesbania | sicklepod |
|--|------------------------|------------|--------------|----------------------|-----------------------|----------------|-----------------|--------------|---------|-------------|---------------|-----------|
| Command 3ME                                  | 6                      | 6          | 3            | 9                    | 8                     | 9              | 0               | 8            | 4       | 6           | 1             | 2         |
| Cotoran, Meturon or Fluometuron              | 9                      | 9          | 0            | 7                    | 7                     | 8              | 0               | 8            | 9       | 8           | 8             | 7         |
| S-metolachlor/metolachlor (all formulations) | 1                      | 1          | 0            | 7                    | 6                     | 8              | 8               | 4            | 8       | 4           | 3             | 2         |
| Diuron                                       | 7                      | 7          | 0            | 7                    | 6                     | 7              | 0               | 7            | 9       | 6           | 7             | 8         |
| Treflan or Prowl                             | 1                      | 1          | 2            | 9                    | 8                     | 9              | 0               | 2            | 8       | 4           | 1             | 2         |
| Solicam DF                                   | 7                      | 8          | 3            | 7                    | 6                     | 8              | 4               | 8            | 8       | 6           | 5             | -         |
| Treflan or Prowl + Cotoran,                  | 9                      | 9          | 0            | 9                    | 9                     | 9              | 0               | 8            | 9       | 9           | 8             | 7         |
| Treflan, or Prowl + Diuron                   | 8                      | 8          | 0            | 9                    | 9                     | 9              | 0               | 7            | 9       | 8           | 8             | 8         |
| Staple LX + Cotoran                          | 9                      | 9          | 0            | 9                    | 7                     | 8              | 3               | 9            | 9       | 8           | 8             | 8         |

Control expected under optimum conditions. LSU AgCenter does not guarantee these estimates since many factors influence herbicide performance. Resistance to recommended use rates of some herbicides has been identified in certain weed species in Louisiana.

**Table 2. Weed response ratings for selected cotton herbicides applied postemergence.**

**Table Legend**

| Rating         | Score |
|----------------|-------|
| None to Slight | 0-3   |
| Fair           | 4-6   |
| Good           | 7-8   |
| Excellent      | 9-10  |

Control expected under optimum conditions. LSU AgCenter does not guarantee these estimates since many factors influence herbicide performance.

Resistance to recommended use rates of some herbicides has been identified in certain weed species in Louisiana.

|   | hophornbeam<br>copperleaf | smellmelon | bermudagrass | rhizome<br>johnsongrass | seedling<br>johnsongrass | annual grasses | yellow<br>nutsedge | prickly sida | pigweed | morningglory | hemp sesbania | sicklepod |
|---|---------------------------|------------|--------------|-------------------------|--------------------------|----------------|--------------------|--------------|---------|--------------|---------------|-----------|
| Aim/ET                                  | -                         | 8          | 0            | 0                       | 0                        | 0              | 0                  | 0            | 8       | 9            | 9             | 6         |
| Aim/ET + MSMA                           | 5                         | 5          | 0            | 4                       | 8                        | 8              | 8                  | 7            | 8       | 9            | 9             | 8         |
| Aim/ET + glyphosate                     | 9                         | 9          | 7            | 8                       | 9                        | 9              | 7                  | 8            | 9       | 9            | 9             | 9         |
| Assure II                               | 0                         | 0          | 8            | 8                       | 9                        | 9              | 0                  | 0            | 0       | 0            | 0             | 0         |
| Cobra + MSMA                            | 9                         | 9          | 0            | 6                       | 9                        | 7              | 6                  | 8            | 9       | 9            | 8             | 6         |
| Cotoran, Meturon or Fluometuron         | 8                         | 8          | 0            | 4                       | 7                        | 6              | 3                  | 6            | 7       | 5            | 5             | 6         |
| Caparol or Cotton-Pro                   | 8                         | 8          | 0            | 4                       | 8                        | 7              | 5                  | 7            | 8       | 8            | 6             | 7         |
| Caparol or Cotton-Pro + MSMA            | 9                         | 9          | 0            | 4                       | 9                        | 8              | 7                  | 8            | 9       | 9            | 7             | 8         |
| Cotoran + MSMA                          | 9                         | 9          | 0            | 4                       | 8                        | 8              | 6                  | 7            | 9       | 8            | 6             | 8         |
| Envoke                                  | 8                         | 9          | 0            | 6                       | 6                        | 5              | 8                  | 3            | 9       | 8            | 8             | 8         |
| Fusilade DX                             | 0                         | 0          | 8            | 8                       | 9                        | 9              | 0                  | 0            | 0       | 0            | 0             | 0         |
| glyphosate                              | 9                         | 9          | 7            | 8                       | 9                        | 9              | 7                  | 8            | 9       | 8            | 8             | 8         |
| glyphosate+ Warrant                     | 9                         | 9          | 7            | 8                       | 9                        | 9              | 7                  | 8            | 9       | 8            | 8             | 8         |
| Goal + MSMA                             | 9                         | 9          | 0            | 5                       | 9                        | 8              | 7                  | 7            | 8       | 9            | 7             | 8         |
| Liberty 280 SL                          | 10                        | 10         | 6            | 8                       | 9                        | 9              | 4                  | 9            | 9       | 10           | 9             | 9         |
| Liberty 280 SL + Dual Magnum            | 10                        | 10         | 6            | 8                       | 9                        | 9              | 4                  | 9            | 9       | 10           | 9             | 9         |
| Liberty 280 SL + Staple LX              | 10                        | 10         | 6            | 8                       | 9                        | 9              | 4                  | 9            | 9       | 10           | 9             | 9         |
| diuron                                  | 7                         | 7          | 0            | 4                       | 8                        | 6              | 0                  | 7            | 8       | 7            | 6             | 8         |
| diuron + MSMA                           | 8                         | 8          | 0            | 4                       | 9                        | 9              | 7                  | 8            | 9       | 8            | 6             | 8         |
| Linex + MSMA                            | 9                         | 9          | 0            | 4                       | 9                        | 8              | 6                  | 8            | 9       | 9            | 7             | 8         |
| Poast Plus                              | 0                         | 0          | 8            | 8                       | 9                        | 9              | 0                  | 0            | 0       | 0            | 0             | 0         |
| Select Max/other clethodim formulations | 0                         | 0          | 8            | 8                       | 9                        | 9              | 0                  | 0            | 0       | 0            | 0             | 0         |
| Sequence                                | 9                         | 9          | 7            | 8                       | 9                        | 9              | 7                  | 8            | 9       | 8            | 8             | 8         |
| Staple LX                               | 2                         | 4          | 0            | 4                       | 6                        | 5              | 5                  | 8            | 9       | 8            | 8             | 6         |
| Staple LX + glyphosate                  | 9                         | 9          | 7            | 8                       | 9                        | 9              | 7                  | 9            | 9       | 9            | 9             | 8         |
| Suprend                                 | 8                         | 9          | 0            | 4                       | 8                        | 7              | 8                  | 7            | 9       | 8            | 8             | 8         |
| Valor                                   | 9                         | 9          | 0            | 0                       | 0                        | 0              | 3                  | 8            | 9       | 9            | 9             | 8         |

**Table 3. Preplant and preplant-incorporated herbicides.**

| Active Ingredient and Rate     | Formulated Product and Rate   | Weeds Controlled  | Remarks and Precautions   |
|--------------------------------|---|---|---|
| diuron - 0.5-1.6 lb/A          | Diuron 4L - 0.5-1.6 qt/A  | Good residual control of morningglory, pigweed, and small-seeded annual grasses.  | Apply 15 to 45 days prior to planting. Avoid tillage or “dragging” of beds after application to prevent cotton injury and/or maximize weed control. Rainfall or irrigation amounts of 0.5 inch or greater between application and planting lessen likelihood of crop injury. Mix with other herbicides such as glyphosate or paraquat to completely burndown existing vegetation.   |
| flumioxazin - 0.032-0.064 lb/A | Valor SX WDG - 1-2 oz/A   | Good residual control of pigweed, morningglory, hemp sesbania, prickly sida, and hophornbeam copperleaf. Some annual grass suppression. | Plant at least 30 days after application AND at least 1 inch of rainfall or overhead irrigation has been received. Mix with other herbicides such as glyphosate or paraquat to completely burndown existing vegetation.; Excellent residual control of glyphosate-resistant horseweed (mare’s-tail) and small-seeded annual winter weeds when applied from late October to mid-November.  |
| fomesafen - 0.25 lb/A          | Reflex - 1 pt/A   | Good residual control of pigweed, morningglory and other broadleaf weeds. Some suppression of yellow nutsedge and annual grasses.       | Plant at least 21 days after application on medium or fine textured soils AND at least 0.5 inch of rainfall or overhead irrigation has been received. Do not disturb or rework seedbed after application. Plant at least 0.75 inches deep. Cotton plants may exhibit some crinkling or spotting on foliage or stunting, but plants normally outgrow these effects. Mix with other herbicides such as glyphosate or paraquat to completely burndown existing vegetation. |
| pendimethalin - 0.5-1.5 lb/A   | Prowl 3.3 EC - 1.2-1.8 pt/A on coarse soil; 1.8-2.4 pt/A on medium soil; 2.4-3.6 pt/A on heavy soil; Prowl H2O - 1-2 pt/A on coarse soil; 2 pt/A on medium soil; 3 pt/A on heavy soil | Most annual grasses, seedling johnsongrass, pigweed and suppression of morningglory.  | Apply up to 60 days before planting and incorporate in the top 2 inches within seven days of planting within seven days prior to planting.  |
| trifluralin - 0.5-1.5 lb/A     | Treflan, Trifluralin, and other 4L formulations - 1-1.5 pt/A on coarse soil; 1.5- 2 pt/A on medium soil; 3 pt/A on heavy soil   | Most annual grasses, seedling johnsongrass, pigweed, and suppression of morningglory.   | Apply prior to planting (immediately preferred) and incorporate in the top 2 to 3 inches of the final seedbed within 24 hours of application.   |

**Table 4. Preemergence herbicides.**

| Active Ingredient and Rate  | Formulated Product and Rate  | Weeds Controlled  | Remarks and Precautions  |
|-----------------------------|--|---|--|
| acetochlor - 0.94-1.5 lb/A  | Warrant - 1.25-2 qt/A  | Good pigweed control and good to fair control of most annual grasses and small-seeded broadleaves.  | Consult label for rate range considering soil type and O.M. content. Emerged weeds are not controlled and require addition of a labeled postemergence herbicide such as glyphosate or glufosinate. Please see label for appropriate tank mix partners and related information.   |
| clomazone - 0.5-1.25 lb/A   | Command 3 ME - 1.3-3.3 pt/A  | Most annual grasses, rhizome and seedling johnsongrass, prickly sida, wild poinsettia, spurred anoda, velvetleaf and itchgrass. Fair to poor control of entireleaf morningglory, hemp sesbania, pigweed, smellmelon and hophornbeam copperleaf. | Apply before or after planting prior to cotton emergence. Requires the use of disulfoton or phorate insecticides at a minimum of 0.75 lb ai/A applied in furrow to protect cotton from injury. Read and follow label instructions concerning application conditions and buffer zones to reduce nontarget drift injury.         |
| fluometuron - 0.8-2.0 lb/A  | Cotoran 80WP, Meturon 80DF, Fluometuron 80DF - 1.0 lb/A on light soil; 1.5 lb/A on medium soil; 2.5 lb/A on heavy soil; Cotoran, Meturon 4L - 0.8 qt/A on coarse soil; 1.2 qt/A on medium soil; 2.0 qt/A on heavy soil | Most small-seeded annual grasses and broadleaf weeds. Fair control of pigweed and nutsedge.   | Apply at/after planting before weeds and cotton emerge. Wheat can be planted three months after application. Temporary chlorosis can occur under cool, wet environmental conditions after planting.  |
| fluridone - 0.15-0.3 lb/A   | Brake - 16-32 oz/A   | Annual grasses, pigweed and other small-seeded broadleaves. Some suppression of nutsedge.   | Apply at/after planting before weeds and crop emerge. Can be applied up to 14 days prior to planting. Provides very long residual control when receiving adequate rainfall/irrigation for activation. Excellent pigweed material. Addition of Cotoran or Reflex can benefit broadleaf weed control, especially at lower rates. |
| metolachlor - 0.49-1.3 lb/A | Parallel 7.8EC/others - 0.5-1.0 pt/A on coarse soil; 0.67-1.33 pt/A on medium soil; 1.0-1.33 pt/A on heavy soil  | Most annual grasses and pigweed. Suppression of yellow nutsedge, morningglory and hophornbeam copperleaf.   | Apply at/after planting before weeds emerge.   |
| norflurazon - 1.0-2.0 lb/A  | Solicam DF - 1.25 lb/A on light soil; 1.9 lb/A on medium soil; 2.5 lb/A on heavy soil  | Most small-seeded annual grasses and broadleaf weeds. Fair control of pigweed and nutsedge.   | Apply at/after planting before weeds and crop emerge. Can be applied up to 30 days before planting.  |

| Active Ingredient and Rate                               | Formulated Product and Rate   | Weeds Controlled   | Remarks and Precautions                                 |
|--|---|--|---|
| pendimethalin - 0.5-1.5 lb/A                             | Prowl 3.3 EC - 1.2-1.8 pt/A on coarse soil; 1.8-2.4 pt/A on medium soil; 2.4-3.6 pt/A on heavy soil; Prowl H2O - 1-2 pt/A on coarse soil; 2 pt/A on medium soil; 3 pt/A on heavy soil | Most annual grasses, seedling johnsongrass, pigweed and suppression of morningglory.                     | Apply at/after planting before weeds and cotton emerge. |
| pyrithiobac - 0.03-0.053 oz/A + fluometuron - 0.8-2 lb/A | Staple LX - 1.3-2.1 fl. oz./A + Cotoran et al as above  | Weeds listed under fluometuron with improved yellow nutsedge activity                                    | Apply at/after planting before weeds and cotton emerge. |
| S-metolachlor - 1.5-2.0 lb/A                             | Dual Magnum, Dual II Magnum - 1.0-1.33 pt/A on medium soil; 1.33 pt/A on heavy soil   | Most annual grasses and pigweed. Suppression of yellow nutsedge, morningglory and hophornbeam copperleaf | Apply at/after planting before weeds emerge.            |

**Table 5. Postemergence herbicides.**

| Active Ingredient and Rate                                  | Formulated Product and Rate   | Weeds Controlled   | Remarks and Precautions  |
|---|---|--|--|
| 2,4-D choline - 0.7-0.95 lb/A                               | Enlist One - 24-32 oz/A   | Most small broadleaf weeds. Fair control of glyphosate-resistant horseweed (mare's-tail).  | <b>For use in Enlist varieties only.</b> Only labeled for use in Enlist cotton. Apply no later than mid-bloom. Federal and state labels contain numerous restrictions for use. See label/website for further information including training requirements prior to purchase and use.  |
| 2,4-D choline - 0.7-0.95 lb/A + glufosinate - 0.4-0.53 lb/A | Enlist One - 24-32 oz/A + glufosinate 2.34 formulations (Liberty 280 SL, Cheetah etc.) - 22-29 oz/A | See comments in 2,4-D choline and glufosinate sections.  | <b>For use in Enlist varieties only.</b> Only labeled for use in Enlist cotton. Apply no later than mid-bloom. Federal and state labels contain numerous restrictions. See label/website for further information including training requirements prior to purchase and use.  |
| 2,4-D choline - 0.75-1.0 lb/A + glyphosate - 0.7-0.94 lb/A  | Enlist Duo - 56-75 oz/A   | See comments in 2,4-D choline and glyphosate sections.   | <b>For use in Enlist varieties only.</b> Only labeled for use in Enlist cotton. Apply no later than mid-bloom. Federal and state labels contain numerous restrictions. See label/website for further information including training requirements prior to purchase and use. Enlist Duo can be tank-mixed with other herbicides to broaden the weed spectrum. Please see company website for list of products that can be legally tank-mixed.   |
| clethodim - 0.08-0.25 lb/A                                  | Select Max - 10-32 oz./A; 2 lb formulations - 6-16 oz/A   | Annual and perennial grasses and susceptible volunteer corn.   | Apply before grasses exceed height for treatment stated on label. Use 8-12 oz/A on small annual grasses/volunteer corn and 12-16 oz/A on perennial and larger annual grasses. Apply with NIS - 1 qt/100 gal or COC - 1 gal/100 gal. Tank mixtures with other herbicides may reduce activity.   |
| dicamba - 0.5 lb/A  | Engenia - 12.5 oz/A <b>OR</b> XtendiMax - 22 oz/A   | Most small broadleaf weeds including glyphosate-resistant horseweed (mare's-tail) and redvine. Expect poor control of hophornbeam copperleaf and prickly sida. | <b>For use in XtendFlex varieties only.</b> Federal and state labels contain numerous restrictions for use including cutoff application dates. See labels/websites for further information including training requirements prior to purchase and use. Please see company websites for list of products that can be legally tank-mixed and corresponding comments above. Can only be co-applied with potassium salts of glyphosate and must include a label approved volatility reduction agent (VRA). A limited amount of residual activity on broadleaves can be achieved with adequate rainfall or irrigation after application. |

| Active Ingredient and Rate                          | Formulated Product and Rate  | Weeds Controlled  | Remarks and Precautions   |
|---|--|---|---|
| dicamba - 0.5 lb/A + s-metolachlor - 1 lb/A)        | Tavium - 3.53 pt/A   | See dicamba and s-metolachlor sections above.   | <b>For use in XtendFlex varieties only.</b> Federal and state labels contain numerous restrictions for use including cutoff application dates. See labels/websites for further information including training requirements prior to purchase and use. Please see company websites for list of products that can be legally tank-mixed and corresponding comments above. Apply through six-leaf stage or 60 days before harvest, whichever comes first. Can only be co-applied with potassium salts of glyphosate and must include a label approved volatility reduction agent (VRA). A limited amount of residual activity on broadleaves can be achieved with adequate rainfall or irrigation after application. |
| fenoxaprop-ethyl + fluazifop - 0.08-0.24 lb/A       | Fusion - 4-12 oz/A.  | Same as above for fluazifop.  | Same as above for fluazifop.  |
| fluazifop - 0.093-0.188 lb/A                        | Fusilade DX - 6-12 oz/A  | Annual and perennial grasses and susceptible volunteer corn.  | Apply before grasses exceed height for treatment stated on label. Use 6-8 oz/A on small annual grasses/volunteer corn and 10-12 oz/A on perennial and larger annual grasses. Apply with NIS - 1 qt/100 gal or COC - 1 gal/100 gal. Tank mixtures with other herbicides may reduce activity.   |
| glufosinate - 0.4-0.53 lb/A + glyphosate - 1.0 lb/A | glufosinate 2.34 formulations (Liberty 280 SL, Cheetah etc.) - 22-29 oz/A + glyphosate (4 or 5 L formulations) - 32 or 22 oz/A | See comments in glufosinate and glyphosate sections.  | <b>Liberty-Link, Glytol/Liberty-Link, Enlist, AND XtendFlex varieties only:</b> See other cautions above. Improved control of larger (>3 - 4 inches) grasses, sedges, and pigweeds as compared to glufosinate alone. See labels for approved residual herbicide tank mixes and corresponding comments above.  |
| glufosinate - 0.4-0.59 lb/A                         | glufosinate 2.34 formulations (Liberty 280 SL, Cheetah etc.) - 22-32 oz/A  | Most small annual broadleaves including glyphosate-resistant horseweed (mare's-tail) and annual grasses and seedling johnsongrass. Fair to poor control of large (>3 - 4 inches) pigweed, goosegrass, broadleaf signalgrass and nutsedge. | <b>Liberty-Link, Glytol/Liberty-Link, Enlist, AND XtendFlex varieties only:</b> Apply from cotton emergence to early bloom. Time applications to weed size stated on label, not crop stage. Use lower rates on small actively growing weeds. Optimum results have been obtained when applied under warm, high humidity conditions with bright sunlight between sunrise and two hours before sunset. Do not use air induction spray tips due to potential coverage issues. Apply in a minimum of 15 GPA. Consult labels for maximum application rates and approved formulations/tank mixes/additives.  |

| Active Ingredient and Rate  | Formulated Product and Rate   | Weeds Controlled  | Remarks and Precautions  |
|---|---|---|--|
| glufosinate - 0.4-0.59 lb/A + S-metolachlor or metolachlor - 0.95-1.33 lb/A | glufosinate 2.34 formulations (Liberty 280 SL, Cheetah etc.) - 22-32 oz/A + Dual Magnum <b>or</b> label approved metolachlor formulations - 1-1.33 pt/A | See comments in glufosinate and s-metolachlor/metolachlor sections above.   | <b>Liberty-Link, Glytol/Liberty-Link, Enlist, AND XtendFlex varieties only:</b> Apply from cotton emergence to early bloom. Time applications to weed size stated on label, not crop stage. Use lower rates on small actively growing weeds. Can be applied in first or second overtop application to provide residual control. See other cautions above. Consult labels for maximum application rates and approved formulations/tank mixes/additives. |
| glufosinate - 0.4-0.59 lb/A + pyriithiobac - 0.0325-0.095 lb/A              | glufosinate 2.34 formulations (Liberty 280 SL, Cheetah etc.) - 22-32 oz/A + Staple LX - 1.3 -3.8 oz/A   | See comments in glufosinate and pyriithiobac sections above.  | <b>Liberty-Link, Glytol/Liberty-Link, Enlist, AND XtendFlex varieties only:</b> Apply from cotton emergence to early bloom. Time applications to weed size stated on label, not crop stage. Use lower rates on small actively growing weeds. Can be applied in first or second overtop application to provide residual control. See other cautions above. Consult labels for maximum application rates and approved formulations/tank mixes/additives. |
| glufosinate - 0.79 lb/A   | glufosinate 2.34 formulations (Liberty 280 SL, Cheetah etc.) - 43 oz/A  | Salvage situation for large broadleaf and grass weeds.  | <b>Liberty-Link, Glytol/Liberty-Link, Enlist, AND XtendFlex varieties only:</b> See other cautions above.  |
| glyphosate + pyriithiobac - 1.0 + 0.0325-0.095 lb/A                         | Glyphosate (4 or 5 L formulations) + Staple LX - 32 or 22 oz/A + 1.3-3.8 oz/A   | See comments in glyphosate and pyriithiobac sections above.   | <b>Use on Roundup Ready Flex, Glytol/Liberty-Link, Enlist, and XtendFlex varieties only:</b> No restriction on cotton size. See other cautions above. DO NOT mix with ANY metolachlor formulations. Can be applied in first or second overtop application to provide residual control. Consult labels for maximum application rates and approved formulations/tank-mixes/additives.  |
| glyphosate - 1.0 lb/A   | 5 L formulations - 22 oz/A; 4L formulations - 32 oz/A   | Most small broadleaf weeds and grasses and yellow nutsedge. Good to fair activity on larger mornnglory, yellow nutsedge, prickly sida and hemp sesbania. Suppression of purple nutsedge, smartweed and redvine. | <b>Use on Roundup Ready Flex, Glytol/Liberty-Link, Enlist, and XtendFlex varieties only:</b> No restriction on cotton size. Larger cotton may interfere with spray coverage, resulting in reduced weed control. Can be mixed with insecticides and PGRs. Air induction nozzles may reduce insecticide efficacy. Consult labels for maximum application rates and approved formulations/tank-mixes/additives.   |



| Active Ingredient and Rate  | Formulated Product and Rate   | Weeds Controlled  | Remarks and Precautions  |
|---|---|---|--|
| glyphosate - 1.0 lb/A + S-metolachlor or metolachlor - 0.95-1.33 lb/A | 5 L formulations - 22 oz/A; 4 L formulations - 32 oz/A + Dual Magnum <b>or</b> label approved metolachlor formulations - 1-1.33 pt/A <b>or</b> Sequence 5.25 L - 2.5-4.0 pt/A | See comments in glyphosate and s-metolachlor/metolachlor sections above.  | <b>Use on Roundup Ready Flex, Glytol/Liberty-Link, Enlist, and XtendFlex varieties only:</b> No restriction on cotton size. See other cautions above. DO NOT mix with Staple LX. Can be applied in first or second overtop application to provide residual control. Consult labels for maximum application rates and approved formulations/tank mixes/additives. |
| pyrithiobac - 0.065-0.095 lb/A  | Staple LX - 2.6-3.8 fl. oz/A  | Pigweed, cocklebur, morningglory, hemp sesbania and other broadleaf weeds. Suppression of sicklepod, glyphosate-resistant horseweed (mare's-tail), small volunteer soybean, prickly sida, yellow nutsedge and seedling johnsongrass.        | Apply when weeds are small and actively growing. Temporary cotton injury seen as chlorosis (yellowing) may occur following application. Consult label for approved tank-mixes. Do not tank-mix with grass herbicides as grass control can be reduced. Apply with NIS - 1 qt/100 gal.   |
| quizalofop P-ethyl - 0.034-0.083 lb/A                                 | Assure II - 5-12 oz/A   | Annual and perennial grasses and susceptible volunteer corn.  | Apply before grasses exceed height for treatment stated on label. Use 5-8 oz/A on small annual grasses/volunteer corn and 10-12 oz/A on perennial and larger annual grasses. Apply with NIS - 1 qt/100 gal or COC - 1 gal/100 gal. Tank mixtures with other herbicides may reduce activity.  |
| sethoxydim - 0.188-0.28 lb/A  | Poast Plus - 1.5-2.25 pt/A  | Annual and perennial grasses and susceptible volunteer corn.  | Apply before grasses exceed height for treatment stated on label. Use 1.5 pt/A on small annual grasses/volunteer corn and 2.25 pt/A on perennial and larger annual grasses. Apply with Dash HC, Sundance HC, MSO, or COC at labeled rates. Tank mixtures with other herbicides may reduce activity.  |
| trifloxysulfuron-sodium - 0.0047-0.007 lb/A                           | Envoke - 0.1-0.15 oz/A.   | Sicklepod, morningglory, hemp sesbania, pigweed, yellow nutsedge and small volunteer soybean. Suppression of annual grasses, seedling johnsongrass, glyphosate-resistant horseweed (mare's-tail) and purple nutsedge. Weak on prickly sida. | Apply after cotton reaches the five-true-leaf stage. Do not apply to cotton that is stressed. Consult label for approved tank-mixes. Do not tank-mix with grass herbicides as grass control can be reduced. Apply with NIS - 1 qt/100 gal.   |

The following herbicides in Tables 6 and 7 can be applied singly with a surfactant or in combination with MSMA where labeled as a directed spray for improved control of emerged grasses and nutsedge from 3-inch cotton to first bloom. MSMA use in cotton is limited to two applications per year, not to exceed 2 lbs/A each, with the second application being a salvage treatment. A 50-foot buffer zone is required around permanent water bodies or aquatic habitats. Glyphosate<sup>4</sup> and glufosinate can also be tank mixed with many of the following products according to label directions for improved control of emerged grass and broadleaves. Use glyphosate and glufosinate with the appropriate herbicide resistant cotton variety.

**Table 6. Directed postemergence herbicides.**

| Active Ingredient and Rate       | Formulated Product and Rate  | Weeds Controlled  | Remarks and Precautions  |
|----------------------------------|--|---|--|
| carfentrazone - 0.012-0.025 lb/A | Aim 2 EC - 0.75-1.6 oz/A.  | Morninglory, purslane, smartweed, hemp sesbania. Suppression of small prickly sida. | Application to cotton at the five to six node or less growth stage must be with hooded or shielded sprayer to avoid plant contact. Can be applied to 12" or greater cotton as a directed layby spray to the base of the plant to minimize contact to non-bark tissue. Does not control grasses nor provide residual control. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal.   |
| diuron - 0.2-0.4 lb/A            | Direx 4L/ 4 lb diruon formulations - 0.4-0.6 qt/A; Karmex DF - 8-12 oz/A.              | Annual seedling grasses and broadleaf weeds.  | Apply after cotton is 6 inches tall to layby and actively growing as a directed spray. Provides longer residual control in comparison to other post directed herbicides. Apply 12.8 oz/A of the liquid formulation or 8 oz/A of the dry formulation to 6-8 inch cotton. Apply 19.2 oz/A of the liquid formulation or 12 oz/A of the dry formulation to 8-12 inch cotton. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal. |
| flumioxazin - 0.063              | Valor - 2 oz/A   | See comments in flumioxazin section above.  | Apply when cotton is at least 6 inches as a directed spray through shielded or hooded spray equipment. Directed spray layby applications can be made once cotton reaches 16 inches in height. Apply with NIS - 1 qt/100gal or COC - 1 gal/100 gal. Fierce is a flumioxazin containing herbicide labeled for post directed application in cotton. Refer to the label for application information.                             |
| fluometuron - 1.0-2.0 lb/A       | Cotoran/Meturon, Fluometuron 80DF - 1.25-2.5 lb/A; Cotoran/Meturon 4L - 1.0 -2.0 qt/A. | Annual seedling grasses and broadleaf weeds.  | Apply after cotton is 3 inches tall to layby. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal.  |
| fomesafen - 0.25-0.375 lbs/A     | Reflex 2 EC - 1-1.5 pt/A   | Small annual broadleaf weeds.   | Apply after cotton is at least 6 inches tall through layby as a directed spray. Use shielded or hooded spray equipment for applications to 6-12 inch cotton. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal. Additional post directed herbicides labeled for cotton contain fomesafen in the formulation including Cheetah Max, Prefix, and Flexstar GT. Refer to these individual labels for application information.   |

| Active Ingredient and Rate   | Formulated Product and Rate   | Weeds Controlled  | Remarks and Precautions   |
|--|---|---|---|
| lactofen - 0.195 lb/A  | Cobra - 12.5 oz/A.  | Morninglory, purslane, smartweed, hemp sesbania. Suppression of small prickly sida.                             | Apply after cotton is 6 inches tall as a directed spray no higher than 2-3 inches on the stem or after 12 inches tall as a layby treatment. Does not control grasses nor provide residual control. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal for post-directed applications and COC - 1 gal/100 gal for layby application.     |
| oxyfluorfen - 0.25-0.50 lb/A   | Goal 2XL - 1.0-2.0 pt/A   | Annual seedling grasses and broadleaf weeds.  | Apply after cotton is 6-8 inches tall as a directed spray. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal.  |
| prometryn - 0.5-0.65 lb/A  | Caparol 4L/Cotton Pro and other prometryn 4 lb formulations - 1.0-1.3 pt/A. | Annual seedling grasses and broadleaf weeds.  | Apply after cotton is 6 inches tall to layby with shielded or hooded spray equipment. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal.   |
| pyraflufen ethyl - 0.0008125-0.00325 lb/A                              | ET - 0.5 to 2 oz/A.   | Morninglory, purslane, smartweed, hemp sesbania. Suppression of small prickly sida.                             | Apply only with hooded spray equipment to plants with less than 3-inch stem bark. May be applied with post-directed equipment up to 1 oz/A to cotton 18 inches in height with at least 3 inches stem bark as a layby spray. Does not control grasses nor provide residual control. Apply with NIS - 1 qt/100gal or COC - 1 gal/100 gal. |
| pyroxasulfone - 0.04-0.114 lb/A  | Zidua 85 WG - 0.75-2.1 oz/A;<br>Zidua SC - 1.25-3.5 oz/A                    | Most annual grasses and pigweed. Suppression of yellow nutsedge, morninglory and hophornbeam copperleaf.        | Apply as a directed spray from the 5-leaf stage to beginning bloom. Apply with NIS - 1 qt/100gal or COC - 1 gal/100 gal. Additional post directed herbicides labeled for cotton contain pyroxasulfone in the formulation including Anthem Flex and Fierce. Refer to these individual labels for application information.                |
| trifloxysulfuron-sodium - 0.007-0.01 lb/A + prometryn - 0.79-1.18 lb/A | Suprend - 1-1.5 lb/A  | Annual seedling grasses and broadleaves. See comments in trifloxysulfuron-sodium and prometryne sections above. | Apply after cotton is at least 6 inches tall. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal.   |

**Table 7. Layby herbicides (one application).**

| Active Ingredient and Rate     | Formulated Product and Rate  | Weeds Controlled  | Remarks and Precautions  |
|--------------------------------|--|---|--|
| diuron - 0.8-1.2 lb/A          | Karmex DF - 1.0-1.5 lb/A; Direx 4L/4 lb diuron formulations - 1.6-2.4 pt/A   | See comments in diuron section above.   | Apply when cotton is at least 12 inches tall as a directed spray. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal.  |
| prometryn - 0.8-1.6 lb/A       | Caparol 80 WP - 1.5 lb/A on sandy soil; 1.75 lb/A on loam soil; 2.0 lb/A on clay soil; Caparol 4L, Cotton-Pro - 2.4 pt/A on sandy soil; 2.8 pt/A on loam soil; 3.2 pt/A on clay soil | See comments in prometryn section above.  | Apply to cotton at least 12 inches as a directed spray. Apply with NIS - 1qt/100 gal or COC - 1gal/100 gal.  |
| linuron - 0.5-1.5 lb/A         | Linex 4L - 1.0-3.0 pt/A  | Good morningglory, hophornbeam copperleaf and purslane control. Good to fair activity on annual grasses, pigweed and sicklepod. | Apply as a directed spray at 1 pt/A for cotton at least 12 inches and 1-1.5 pt/A for cotton at least 18 inches in height. Apply with surfactant at 1 pt per 25 gallons of spray mixture. Sequential treatments can be made 1 week apart. A single 2- 3 pt/A application can be made once cotton reaches 20 inches. |
| flumioxazin - 0.032-0.064 lb/A | Valor - 1-2 oz/A   | See comments in flumioxazin section above.  | Apply when cotton is at least 16 inches tall as a directed spray. Apply with NIS - 1qt/100gal.   |