**APPENDIX VI**

# COTTON WEED CONTROL

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE: AMOUNT OF FORMULATION | BROADCAST RATE/ACRE: POUNDS ACTIVE (AI or AE) | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| **EARLY PREPLANT BURNDOWN** | | | | |
| Burndown of emerged annual weeds but does not control primrose, geranium, large radish or glyphosate-resistant horseweed. | glyphosate<br>4.0 SL (3 lb a.e.)<br>5.4 SL (4 lb a.e.)<br>5.0 SL (4.17 lb a.e.)<br>5.5 SL (4.5 lb a.e.)<br>6.0 SL (5.0 lb a.e.)<br><br>MOA 9 | <br>16 to 48 fl oz<br>12 to 36 fl oz<br>12 to 34 fl oz<br>11 to 32 fl oz<br>10 to 29 fl oz | 0.38 to 1.13 (lb a.e.) | Apply anytime prior to planting to control emerged weeds. See the Glyphosate Formulation Table just prior to the cotton section for product & rate guidance. Some formulations require additional adjuvant.<br><br>Control of cover crops:<br>Wheat < 12 in.: 0.56 lb a.e.<br>Wheat > 12 in.: 0.75 lb a.e.<br>Rye < 18 in.: 0.56 lb a.e.<br>Rye >18 in.: 0.75 lb a.e. |
| Emerged primrose, wild radish, horseweed, small glyphosate-resistant Palmer amaranth, and other broadleaves | 2,4-D amine or ester (numerous brands)<br>4 L<br>4.7 L<br>5 L<br><br>MOA 4 | <br>12 to 24 fl oz<br>10 to 20 fl oz<br>9 to 18 fl oz | 0.37 to 0.75 | The MOST CONSISTENT and effective burndown program for winter weeds in Georgia is a 2,4-D application in February when weeds are small and herbicide coverage is adequate followed by glyphosate or paraquat at or near planting.<br><br>PRIMROSE: Apply 0.37 lb ai/A<br>RADISH: Apply 0.5 to 0.75 lb ai/A<br>HORSEWEED: Apply 0.75+ lb ai/A<br><br>See specific product used for cotton plant back interval. |
| Burndown of emerged weeds including primrose, radish, tropical spiderwort, glyphosate-resistant Palmer amaranth, glyphosate-resistant horseweed and most other weeds | glyphosate (numerous brands)<br>+<br>2 ,4-D ester<br>(Barrage HF) 4.7 L<br>(Salvo) 5 L<br><br>MOA 9 + 4 | see glyphosate<br>+<br><br>6 to 13 fl oz<br>6 to 12 fl oz | 0.38 to 1.13 (lb a.e.)<br>+<br><br>0.22 to 0.48<br>0.23 to 0.47 | See comments for glyphosate applied alone. Barrage HF or Salvo must be applied at least 30 days ahead of cotton planting. 2,4-D is the most effective option available for burndown of cutleaf eveningprimrose and 6 ounces of Barrage or Salvo will control primrose. Glyphosate plus 2,4-D may not adequately control Carolina geranium.<br><br>Research has shown no differences between amine and ester formulations of 2,4-D when mixed with glyphosate; thus one should use an amine formulation. |
| Aim improves control of emerged morningglory, tropical spiderwort, and small glyphosate-resistant Palmer amaranth | glyphosate (numerous brands)<br>+<br><br>carfentrazone<br>(Aim) 2 EC<br><br>MOA 9 + 14 | see glyphosate<br>+<br><br>0.5 to 1.0 fl oz | 0.38 to 1.13 (lb a.e.)<br>+<br><br>0.008 to 0.016 | See comments for glyphosate applied alone.<br><br>May be applied as a burndown treatment prior to planting.<br><br>Aim does not provide residual weed control. |
| Dicamba improves horseweed, primrose, morningglory, and small glyphosate-resistant Palmer amaranth, glyphosate-resistant horseweed control. Suppresses geranium and curly dock. | glyphosate (numerous brands)<br>+<br>dicamba<br>(Clarity) 4 SL<br><br>MOA 9 + 4 | see glyphosate<br>+<br><br>8 fl oz | 0.38 to 1.13 (lb a.e.)<br>+<br><br>0.25 | See comments for glyphosate applied alone.<br><br>Following application of dicamba AND a minimum of 1 in. of rainfall, a waiting period of at least 21 days is required before planting. Dicamba can be applied alone with little to no effect on the small grain cover crop.<br><br>Dicamba is less effective than 2,4-D on primrose. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE: AMOUNT OF FORMULATION | BROADCAST RATE/ACRE: POUNDS ACTIVE (AI or AE) | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| **EARLY PREPLANT BURNDOWN (continued)** | | | | |
| Valor improves primrose and radish control. Valor at 2 oz/A provides residual control of pigweed, pusley, smallflower morningglory and other sensitive weeds for up to 6 to 8 weeks if it reaches the soil and is activated. | glyphosate (numerous brands)<br>+<br>flumioxazin (Valor SX) 51 WDG<br>MOA 9 + 14 | see glyphosate<br>+<br>1 to 2 oz | 0.38 to 1.13 (lb a.e.)<br>+<br>0.032 to 0.063 | See comments for glyphosate applied alone. In strip tillage cotton, a minimum of 14 days and a 1-in rainfall must occur between Valor SX application and cotton planting when Valor SX is applied at 1.0 oz/acre; 21 days must pass when applied at 1.5 to 2.0 oz/A. In no-tillage production, allow at least 30 days and 1 inch of rain prior to planting.<br>Valor SX is less effective than 2,4-D on primrose. 2,4-D or Clarity can be added to this mixture. Application to cover crop or dense stand of winter weeds will reduce residual control. Regardless of glyphosate formulation used, add an non ionic surfactant or crop oil concentrate (preferred).<br>**CAREFULLY follow label directions for cleaning out the sprayer after each days use!** |
| Tank mix does not improve control of emerged weeds but does offer residual control of annual grasses and small seeded broadleaves (pigweed, pusley, etc) if it reaches the soil and is activated. | glyphosate (numerous brands)<br>+<br>pendimethalin<br>(Prowl) 3.3 EC<br>(Pendimax) 3.3 EC<br>(Prowl H20) 3.8 AS<br>MOA 9 + 3 | see glyphosate<br>+<br><br>1.8 to 3.6 pt<br>1.8 to 3.6 pt<br>2 to 3 pt | 0.38 to 1.13 (lb a.e.)<br>+<br><br>0.75 to 1.5<br>0.75 to 1.5<br>0.95 to 1.4 | See comments for glyphosate and pendimethalin alone.<br>Apply pendimethalin up to 15 days before planting.<br>Pendimethalin must be activated by rainfall or irrigation, preferably within 2 days.<br>Application to cover crops or dense stand of winter weeds reduces residual weed control. |
| ET improves control of emerged morningglory and glyphosate-resistant Palmer amaranth | glyphosate (numerous brands)<br>+<br>pyraflufen ethyl<br>(ET) 0.208 EC<br>MOA 9 + 14 | see glyphosate<br>+<br>0.5 to 2.0 fl oz | 0.38 to 1.13 (lb a.e.)<br>+<br>0.0016 to 0.003 | See comments for glyphosate applied alone.<br>May be applied as a burndown treatment prior to planting.<br>ET does not provide residual weed control. |
| Harmony Extra or Express mixed with glyphosate improves control of henbit, chickweed, and wild radish. Use Harmony Extra to improve control of curly dock.<br>Mixtures do not improve control of primrose. | glyphosate (numerous brands)<br>+<br>thifensulfuron<br>+<br>tribenuron<br>(Harmony Extra)75WDG<br>MOA 9 + 2 + 2 | see glyphosate<br>+<br><br><br>0.5 oz | 0.38 to 1.13<br>(lb a.e.)<br>+<br>0.0156<br>+<br>0.0078 | See comments for glyphosate applied alone.<br>Harmony Extra or Express should be applied at least 14 days prior to planting.<br>Add nonionic surfactant according to labels. |
| | glyphosate (numerous brands)<br>+<br>tribenuron<br>(Express) 75 WDG<br>MOA 9 + 2 | see glyphosate<br>+<br>0.2 oz | 0.38 to 1.13<br>(lb a.e.)<br>+<br>0.009 | |

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|---|---|---|---|---|
| **EARLY PREPLANT BURNDOWN (continued)** | | | | |
| Burndown of emerged annual weeds. Does not control immature eveningprimrose, large horseweed, curly dock, swinecress, immature radish, or large grasses. | paraquat<br>(Gramoxone Inteon) 2SL<br>(Firestorm, Parazone) 3SL<br><br>MOA 22 | <br>2.5 to 4.0 pt<br>1.7 to 2.7 pt | 0.63 to 1.0 | Apply any time prior to planting to control emerged weeds. Add nonionic surfactant at 1 to 2 pt per 100 gal of spray mix or crop oil concentrate at 1 gal per 100 gal spray mix. The addition of diuron is encouraged. Follow directions and precautions on label.<br><br>Apply 0.63 lb ai for wheat and 0.5 lb ai for rye cover crop. Cover crops must be mature (seedheads present) for adequate control. |
| Burndown of emerged annual weeds and provides residual control if diuron reaches the soil and is activated. Effective on mature primrose and wild radish. | paraquat<br>(Gramoxone Inteon) 2SL<br>(Firestorm, Parazone) 3SL<br>+<br>diuron<br>(Direx) 4 F<br><br>MOA 22 + 7 | <br>2.5 to 4.0 pt<br>1.7 to 2.7 pt<br>+<br><br>1.5 to 2.0 pt | 0.63 to 1.0<br><br>+<br>0.75 to 1.0 | See comments for paraquat alone. Apply diuron 15 to 45 days ahead of planting. Do not apply on sand or loamy sand soil. Do not apply Di-Syston or Thimet in the cotton seed furrow. Higher rates of diuron may be used on heavier soils, see labels. If Caparol, Cotoran, or diuron are applied preemergence, reduce rate to account for residual activity of diuron applied at burndown.<br><br>When mixed with crop oil concentrate and applied in May when weeds are mature, mixture has given good control of common weeds, including cutleaf eveningprimrose. |
| **EARLY PREPLANT BURNDOWN OF GLYPHOSATE-RESISTANT HORSEWEED** | | | | |
| Glyphosate-resistant horseweed | glyphosate<br>(numerous brands)<br>+<br>2 ,4-D ester<br>(Barrage HF) 4.7 L<br>(Salvo) 5 L<br>+<br>flumioxazin<br>(Valor SX) 51 WDG<br><br>MOA 9 + 4 + 14 | see glyphosate<br><br>+<br><br>1.3 to 1.7 pt<br>1.2 to 1.6 pt<br>+<br><br>1 to 2 oz | 0.38 to 1.13 (lb a.e.)<br><br>+<br><br>0.75 to 1.0<br><br>+<br>0.031 to 0.063 | Glyphosate-resistant horseweed infest neighboring states and is likely present in GA.<br><br>Glyphosate plus 2,4-D plus Valor SX or glyphosate plus dicamba plus Valor are the preferred treatments. See previous comments concerning waiting intervals after applying each product. The 2,4-D or dicamba is needed in the mixture to control emerged resistant horseweed while the Valor provides residual control that may germinate after the application.<br><br>Gramoxone plus Direx must be applied 15 to 45 days ahead of planting cotton. Adjust Direx rate according to soil type. Spray when daytime temps exceed 70 F. Add 1 gal of crop oil concentrate per 100 gal. of spray solution. May add 2,4-D or Clarity to this mixture.<br><br>Ignite is recommended for fields where growers have failed to control glyphosate-resistant horseweed and cotton will be planted in less than 15 days after an application. Best results will be obtained if sprayed when daytime temperatures exceed 75 F. |
| | glyphosate<br>(numerous brands)<br>+<br>dicamba<br>(Clarity) 4 SL<br>+<br>flumioxazin<br>(Valor SX) 51 WDG<br><br>MOA 9 + 4 + 14 | see glyphosate<br><br>+<br><br>8 fl oz<br>+<br><br>1 to 2 oz | 0.38 to 1.13<br>(lb a.e.)<br>+<br><br>0.25<br><br>+<br>0.031 to 0.063 | |
| | paraquat<br>(Gramoxone Inteon) 2SL<br>(Firestorm, Parazone) 3SL<br>+<br>diuron<br>(Direx) 4 F<br><br>MOA 22 + 7 | <br>4.0 pt<br>2.7 pt<br>+<br><br>1.5 to 2.0 pt | 1.0<br><br>+<br>0.75 to 1.0 | |
| | glufosinate<br>(Ignite 280 SL) 2.34 L<br>MOA 10 | <br>29 lf oz | 0.53 | |

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|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **PREPLANT: AT OR JUST PRIOR TO PLANTING** | | | | |
| Burndown of emerged annual weeds and cover crops. Inadequate control of primrose, radish, and geranium often noted. | glyphosate<br>4.0 SL (3 lb a.e.)<br>5.4 SL (4 lb a.e.)<br>5.0 SL (4.17 lb a.e.)<br>5.5 SL (4.5 lb a.e.)<br>6.0 SL (5.0 lb a.e.)<br><br>MOA 9 | <br>16 to 48 fl oz<br>12 to 36 fl oz<br>12 to 34 fl oz<br>11 to 32 fl oz<br>10 to 29 fl oz | 0.38 to 1.13 (lb a.e.) | If an early burndown treatment was applied, apply glyphosate or paraquat in combination with desired residual herbicides at planting. Glyphosate or paraquat may be tank mixed with registered preemergence herbicides applied after planting but before cotton emerges. See suggested rates and precautions on labels of tank-mix partners.<br><br>If an early burndown treatment was not used, apply glyphosate or paraquat 7 to 21 days ahead of planting. If weeds are emerged at planting, make a second application with the desired residual herbicide.<br><br>Glyphosate or paraquat rates depend upon weed species and size; see labels for recommended rates. Add nonionic surfactant at 1 to 2 pt per 100 gal or crop oil concentrate at 1 gal per 100 gal spray mix to Gramoxone. Need for adjuvants with glyphosate depend upon brand used. |
| Burndown of emerged annual weeds. Does not control immature eveningprimrose, large horseweed, curly dock, swinecress, immature radish, or large grasses. | paraquat<br>(Gramoxone Inteon) 2SL<br>(Firestorm, Parazone) 3SL<br><br>MOA 22 | <br>2.5 to 4.0 pt<br>1.7 to 2.7 pt | 0.63 to 1 | Control of cover crops:<br>Wheat < 12 in.: glyphosate 0.56 lb a.e. or paraquat 0.63 lb<br>Wheat > 12 in.: glyphosate 0.75 lb a.e. or paraquat 0.63 lb<br>Rye < 18 in.: glyphosate 0.56 lb a.e. or paraquat 0.5 lb<br>Rye > 18 in: glyphosate 0.75 lb a.e. or paraquat 0.5 lb<br><br>Paraquat controls mature cover crops (visible seedheads) much more effectively than immature ones. |
| Burndown of mature primrose and morningglory. Inadequate control of immature radish or grain cover crops. | glufosinate-ammonium<br>(Ignite 280 SL) 2.34 L<br><br>MOA 10 | <br>23 to 29 fl oz | 0.4 to 0.53 | Applications may be made in fallow fields, post harvest, prior to planting or emergence of cotton. Mix with ammonium sulfate when applied for burndown. |
| **PREPLANT INCORPORATED** | | | | |
| Annual grasses, pigweeds, and Florida pusley.<br><br>Controls glyphosate-resistant Palmer amaranth. | pendimethalin<br>(Prowl) 3.3 EC<br>(Pendimax) 3.3 EC<br>(Prowl H20) 3.8 AS<br><br>MOA 3 | <br>1.2 to 2.4 pt<br>1.2 to 2.4 pt<br>2 pt | <br>0.5 to 1<br>0.5 to 1<br>0.95 | Soil incorporate 2 to 3 inches deep within 24 hours of application. Application within a week of planting is preferred. |
| | trifluralin<br>(Treflan, others)<br>4.0 EC<br><br>MOA 3 | <br>1 to 2 pt | 0.5 to 1 | Soil incorporate 2 to 3 inches deep within 24 hours of application. In most situations, rate should not exceed 1.5 pt per acre. Application within a week of planting is preferred. |

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|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **PREEMERGENCE-BROADLEAF AND GRASS CONTROL** | | | | |
| Most annual grasses (suppresses Texas panicum) and many troublesome annual broadleaf weeds such as prickly sida, tropic croton, Pennsylvania smartweed and common ragweed. | clomazone<br>(Command 3 ME)<br><br>MOA 13 | 1.3 to 3.3 pt | 0.5 to 1.25 | To avoid serious crop injury, the insecticides Di-Syston, Phorate, or Thimet must be placed directly in the furrow with the seed. Off-site movement can cause visible injury (bleaching) to non-target plants. Consult the label for numerous precautions and concerns for off target movement and rotational restrictions.<br><br>For improved control of Texas panicum, morningglory, and pigweed, Command should be used in a program with pendimethalin or trifluralin. |
| Annual broadleaf weeds and suppression of annual grasses. | diuron<br>(Direx, diuron) 80 DF<br>(Direx, diuron) 4 L<br><br>MOA 7 | 0.63 to 1.25 lb<br>1.0 to 2.0 pt | 0.5 to 1 | Apply to soil surface after planting but before crop and weeds emerge. Do not use on sands or soils containing less than 1% organic matter; see label. Do not apply Di-Syston or Thimet in the cotton seed furrow. See label for use rates on your soil. May mix with pendimethalin, Reflex, or Staple. See rotational restrictions and maximum use rates on labels.<br><br>Rainfall needed within 7 days of application. However, heavy rains immediately following planting and diuron application can cause significant stunting and chlorosis. |
| Annual broadleaf weeds and suppression of annual grasses. The most effective single preemergence material for sicklepod, cocklebur, and morningglory control. | fluometuron<br>(Cotoran) 4 F<br><br>MOA 7 | 2 to 3 pt | 1 to 1.5 | Apply to soil surface after planting but before crop and weeds emerge. Do not use high rates on light silt or sandy soils; see label. May mix with pendimethalin, Reflex, or Staple. See rotational restrictions and maximum use rates on labels.<br><br>Rainfall needed within 7 days of application. However, heavy rains immediately following planting and Cotoran application can cause significant stunting and chlorosis. |
| Pigweeds including glyphosate-resistant Palmer amaranth. Good control of yellow nutsedge and wild poinsettia. | fomesafen<br>(Reflex) 2 L<br><br>MOA 14 | 1 pt | 0.25 | Suggested in fields infested with glyphosate-resistant Palmer amaranth. Application only to coarse-textured soils. May be tank mixed with pendimethalin, diuron, fluometuron, or Staple. Injury may occur in treated fields especially if heavy rains occur as cotton is emerging. |
| Annual grasses, pigweeds, and Florida pusley. | pendimethalin<br>(Prowl) 3.3 EC<br>(Pendimax) 3.3 EC<br>(Prowl H20) 3.8 AS<br><br>MOA 3 | 1.8 to 3.6 pt<br>1.8 to 3.6 pt<br>2 to 3 pt | 0.75 to 1.5<br>0.75 to 1.5<br>0.95 to 1.42 | Preemergence applications provide less consistent results than incorporated treatments. May mix with Cotoran, Reflex or Staple. If possible, immediate irrigation suggested.<br><br>When in conservation tillage, suggest at least 2.5 pt/A.<br><br>Apply within 24 hours of planting. |
| Controls pigweeds, lambsquarters, prickly sida, spurge, and smartweed. Suppresses morningglory, except tall. | pyrithiobac<br>(Staple LX) 3.2 SL<br><br>MOA 2 | 1.7 to 2.1 fl oz | 0.0425 to 0.053 | Do not apply on soils with less than 0.5% organic matter. Can tank mix with diuron, fluometuron, pendimethalin, or Reflex. Palmer amaranth biotypes resistant to Staple are present in Georgia.<br><br>**For ALS-resistance management, make only application of Staple or Envoke in one season.** |

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|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE OVER-THE-TOP BROADLEAF AND GRASS CONTROL FOR ANY CULTIVAR**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Cocklebur and small annual grasses | MSMA<br>(Various brands) 6 SL<br><br>MOA 17 | 1 to 1.25 pt | 0.75 to 1.0 | Apply to cotton that is 3 to 6 inches tall, but before first square stage. Directed applications are preferred; overtop applications may injure cotton, delay maturity, and reduce yield. Use brand with Special Local Need labeling that covers this use in Georgia. Add nonionic surfactant if the label of the brand used specifies a surfactant. |
| Annual broadleaf weeds. Poor control of Palmer amaranth larger than 3 inch. | fluometuron<br>(Cotoran) 4 F<br><br>MOA 7 | 2 to 2.5 pt | 1 to 1.25 | Apply overtop of cotton 3 to 6 in. tall. Add surfactant at 1 qt per 100 gal. **Salvage treatment**. Cotton usually injured, maturity delayed, and yield reduced. Rates greater than 1 lb a.i. per acre not advised. |
| Pigweed, morningglory (excluding tall mg), coffee senna, and redweed. Only suppresses sicklepod.<br><br>Appropriate weed sizes (less than 3 inches) and favorable growing conditions are essential.<br><br>Also provides residual control of sensitive species if contacts soil and is activated. | pyrithiobac<br>(Staple LX) 3.2 SL<br><br>MOA 2 | 2.6 to 3.8 fl oz | 0.06 to 0.09 | Apply overtop of cotton from cotyledonary stage up to 60 days of harvest. Avoid applying shortly before or after cool weather. Include nonionic surfactant at 0.25% by volume (1 qt per 100 gal spray mix). Don't add crop oil. May make two applications per year, not exceeding a total of 5.1 fl oz. May mix with 1 pt/A of MSMA when cotton is 3 to 6 inches to improve sicklepod control; however, this mixture may reduce pigweed control by Staple.<br><br>Suggest not mixing with grass control herbicides. May tank mix with most insecticides, but do not tank mix with any product containing malathion. **Do not mix with any Dual product.** Separate Staple and Dual applications by 5 or more days. See label for rotational restrictions.<br><br>**Palmer amaranth biotypes resistant to ALS inhibitors including Staple and Envoke are present in Georgia. Over dependence and poor application procedures when using these herbicides will quickly exacerbate this resistance issue. Make only one TIMELY application of Staple and/or Envoke per season .** |
| Annual broadleaf weeds including sicklepod, *Ipomoea* morningglory, and nutsedge.<br><br>Will not control smallflower morningglory.<br><br>Also provides residual control of sensitive species if contacts soil and is activated. | trifloxysulfuron<br>(Envoke) 75 WDG<br><br>MOA 2 | 0.1 oz | 0.0047 | Apply overtop after cotton has at least five true leaves up until 60 days of harvest. Direct application on larger cotton for improved weed coverage. Add nonionic surfactant at 1 qt per 100 gal; do not use other types of adjuvants. May mix with Centric, Karate Z, Denim or Staple, see label. Do not mix with other pesticides including plant growth regulators.<br><br>To avoid the potential for severe injury, do not apply to cotton under stress, such as very dry or very wet conditions. Envoke may be directed to cotton 6 in. or larger at rates of 0.1 to 0.25 oz/A. See label for details and rotational restrictions.<br><br>**Palmer amaranth biotypes resistant to ALS inhibitors including Envoke and Staple are present in Georgia. Over dependence and poor application procedures when using these herbicides will quickly exacerbate this resistance issue. Only one TIMELY application of Staple and/or Envoke per season is strongly suggested.** |
| Most broadleaf weeds. Poor control of tropic croton and copperleaf.<br><br>Provides broadleaf residual control of sensitive species if products contact the soil and are activated. | trifloxysulfuron<br>(Envoke) 75 WDG<br>+<br>pyrithiobac<br>(Staple LX) 3.2 SL<br><br>MOA 2 + 2 | 0.1 oz<br>+<br>1.3 to 1.9 fl oz | 0.0047<br>+<br>0.03 to 0.05 | Apply overtop or directed after cotton has at least 5 true leaves up until 60 days of harvest. Add in 0.25% (1 qt per 100 gal. spray mix) non-ionic surfactant. See comments and restrictions for each product applied alone.<br><br>**Palmer amaranth biotypes resistant to ALS inhibitors including Staple and Envoke are present in Georgia. Over dependence and poor application procedures when using these herbicides will quickly exacerbate this resistance issue. Make only one TIMELY application of Staple and/or Envoke per season.** |

| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE OVER-THE-TOP BROADLEAF AND GRASS CONTROL FOR LIBERTY LINK COTTON ONLY**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Timing for pigweed and grasses are critical. Control of pusley and goosegrass is not consistent.<br><br>In general, broadleaf weeds should be 3 inches or less and grasses no larger than 2 inch.<br><br>Excellent control of morningglory including moonflower morningglory. | glufosinate-ammonium (Ignite 280 SL) 2.34 L<br><br>MOA 10 | 23 to 43 fl oz | 0.42 to 0.79 | **APPLY ONLY TO LIBERTY LINK CULTIVARS.**<br><br>Can be applied overtop or directed from cotton emergence up to early bloom. On larger cotton, directed application may give better spray coverage on weeds. Apply in a minimum of **15 GPA** using only flat fan nozzles at 30 to 60 PSI. Do not exceed 43 fl oz/A per application and do not exceed 87 fl oz per acre per season. See label for recommended weed size for treatment, application directions, and precautions.<br><br>Adjuvant not needed, but ammonium sulfate may increase control in certain situations. Do not apply within 2 hours of sunset. Rainfast in 4 hours.<br><br>Use of residual herbicide(s) to assist in control of grasses, pusley, and pigweeds is recommended.<br><br>Postemergence grass control herbicides, such as Poast or Select, should not be mixed with Ignite. |
| Staple improves pigweed control and provides residual activity on sensitive weeds if spray contacts soil and is activated. | glufosinate-ammonium (Ignite 280 SL) 2.34 L<br>+<br>pyrithiobac (Staple LX) 3.2 LX<br>MOA 10 + 2 | 23 to 29 fl oz<br>+<br>1.3 to 1.9 fl oz | 0.42 to 0.53<br>+<br>0.03 to 0.05 | **APPLY ONLY TO LIBERTY LINK CULTIVARS.**<br><br>Some leaf speckling/burn/chlorosis will likely occur. Cotton should recover quickly.<br><br>Do not mix with Dual or any other metolachlor product.<br><br>**Make only one TIMELY application of Staple or Envoke per season .** |
| Tank mix will provide residual control of grasses and pigweeds if spray contacts soil and is activated. | glufosinate-ammonium (Ignite 280 SL) 2.34 L<br>+<br>S-metolachlor (Dual Magnum)<br>MOA 10 + 15 | 23 to 29 fl oz<br>+<br>1 to 1.33 pt | 0.42 to 0.53<br>+<br>0.95 to 1.27 | **APPLY ONLY TO LIBERTY LINK CULTIVARS.**<br><br>Some leaf speckling/burn will likely occur. Cotton should recover quickly.<br><br>Do not mix with Staple. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE OVER-THE-TOP BROADLEAF AND GRASS CONTROL FOR ROUNDUP READY COTTON ONLY**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Controls most annual weeds; exceptions include glyphosate-resistant Palmer amaranth, dayflower, Florida pusley, tropical spiderwort, doveweed, and hemp sesbania. Timely applications critical for purslane and morningglory.<br><br>Multiple applications needed for nutsedge and bermudagrass. | glyphosate<br>4.0 SL (3 lb a.e.)<br>5.4 SL (4 lb a.e.)<br>5.0 SL (4.17 lb a.e.)<br>5.5 SL (4.5 lb a.e.)<br>6.0 SL (5.0 lb a.e.)<br><br>MOA 9 | <br>27 to 32 fl oz<br>20 to 24 fl oz<br>19 to 23 fl oz<br>18 to 22 fl oz<br>16 to 19 fl oz | 0.63 to 0.75 (lb a.e.) | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Glyphosate will kill or severely injure non-Roundup Ready cultivars. See the Glyphosate Formulation Table just prior to the cotton section for product & rate guidance. Use only brands registered for this application.<br><br>Apply overtop from emergence through the 4th leaf stage. May be applied overtop twice; applications must be separated by 10 days and two nodes of new growth. Can be PRECISION directed after the 4-leaf stage.<br><br>Adjuvant recommendations vary according to specific glyphosate brand used; see label.<br><br>**Glyphosate-resistant Palmer amaranth is spreading rapidly throughout GA. Continued reliance on herbicide programs based predominately on glyphosate will enhance selection and spread of resistant biotypes. Other chemistry, including preemergence herbicides, tank mixes with glyphosate, and layby herbicides in addition to glyphosate must be utilized.** |
| Staple improves control of hemp sesbania, morningglory, tropical spiderwort, and glyphosate-resistant Palmer amaranth.<br><br>Staple may also provide residual control of pigweeds, prickly sida, smartweed, spurred anoda, and velvetleaf if it contacts the soil and is activated. | glyphosate<br>(numerous brands)<br>+<br><br>pyrithiobac sodium<br>(Staple 3.2 LX) SL<br><br>MOA 9 + 2 | see above or label<br><br>+<br><br>1.3 to 3.8 fl oz | 0.63 to 0.75 (lb a.e.)<br>+<br><br>0.03 to 0.09 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br><br>Apply overtop from cotyledonary stage to four-leaf stage cotton. Do not apply after the fourth-leaf stage except as salvage treatment. Do NOT mix with Dual or any other metolachlor product.<br><br>Avoid applying during periods of cool, wet weather. Add nonionic surfactant according to Staple label. Occasional injury has been noted with this mixture. Injury seems to be related to high humidity and dew on plants at time of application. Cotton usually recovers quickly.<br><br>**In fields infested with glyphosate-resistant Palmer amaranth, apply Staple at 2.6 to 3.8 fl oz when Palmer is 3 inches or less. Crop tolerance has not been fully tested with rates greater than 2.6 fl oz of Staple in mixture with glyphosate.**<br><br>**Glyphosate-resistant and ALS-resistant (Staple) Palmer amaranth biotypes have been confirmed in Georgia. A biotype resistant to both glyphosate and ALS chemistry is being confirmed. This mixture will not control Palmer amaranth if it is resistant to both glyphosate and ALS-herbicide chemistry.**<br><br>**Make only one TIMELY application of Staple or Envoke per season.** |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE: AMOUNT OF FORMULATION | BROADCAST RATE/ACRE: POUNDS ACTIVE (AI or AE) | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| **POSTEMERGENCE OVER-THE-TOP BROADLEAF AND GRASS CONTROL FOR ROUNDUP READY COTTON (continued)**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Compared to glyphosate alone, tank mix provides residual control of annual grasses, pigweeds including glyphosate-resistant Palmer amaranth, doveweed, Florida pusley, and tropical spiderwort and suppression of yellow nutsedge if the metolachlor contacts the soil and is activated. | glyphosate<br>(numerous brands)<br>+<br>S-metolachlor<br>(Dual Magnum) 7.62 EC<br>(Brawl) 7.62 EC<br>(Medal) 7.62 EC<br>MOA 9 + 15 | see above or label<br>+<br>1.0 to 1.33 pt<br>1.0 to 1.33 pt<br>1.0 to 1.33 pt | 0.63 to 0.75 (lb a.e.)<br>+<br>0.95 to 1.27 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Apply to cotton at least 3 inches tall but before cotton reaches the 5-leaf stage of growth. Do not include surfactant, ammonium sulfate, or any other adjuvants.<br>Leaf speckling will occur after this application. Avoid dew on cotton plant and extreme hot, humid conditions. Speckling is usually no longer noticeable after 10 days. Do not apply Dual and Staple or Envoke together or within 5 days. |
| | glyphosate<br>(numerous brands)<br>+<br>metolachlor<br>(Me-Too-Lachlor) 8 EC<br>(Parallel PCS) 8 EC<br>(Stalwart) 8 EC<br>MOA 9 + 15 | see above or label<br>+<br>1.0 to 1.33 pt<br>1.0 to 1.33 pt<br>1.0 to 1.33 pt | 0.63 to 0.75 (lb a.e.)<br>+<br>1.0 to 1.33 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>See above comments for glyphosate plus s-metolachlor. Products containing s-metolachlor are more active on weeds per unit of formulated product than those containing metolachlor, especially 30 or more days after application . This is particularly apparent on more difficult to control weeds, such as Palmer amaranth or tropical spiderwort. In general, it takes 1.5 pt of a metolachlor product to get the activity one would get from 1 pt of an s-metolachlor product. |
| | glyphosate<br>+<br>S-metolachlor<br>(Sequence) 5.25 L<br>MOA 9 + 15 | 2.5 pt | 0.70 (lb a.e.)<br>+<br>0.94 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Apply to cotton at least 3 inches tall but before cotton reaches the 5-leaf stage of growth. Do not add adjuvants and do not mix with other pesticides. Avoid dew on cotton plant and extreme, hot humid conditions. |
| Volunteer Roundup Ready corn in Roundup Ready cotton | glyphosate<br>(numerous brands)<br>+<br>clethodim<br>(Select) 2 EC<br>(Select Max) 0.97 EC<br>MOA 9 + 1 | see above or label<br>+<br>4 to 8 fl oz<br>6 to 12 fl oz | 0.63 to 0.75 (lb a.e.)<br>+<br>0.06 to 0.12<br>0.05 to 0.11 | See comments for glyphosate alone. For corn up to 12 in. tall, apply 4 to 6 oz of Select or 6 oz of Select Max; for corn up to 24 in. tall, apply 6 to 8 oz of Select or 9 oz of Select Max; for corn up to 36 in. tall, apply 12 oz of Select Max. Add 2.5 lb per acre ammonium sulfate or equivalent.<br>If brand of glyphosate used does not contain surfactant, add nonionic surfactant at 0.25 to 0.5% by volume. If applying Select or Select Max alone, see labels for adjuvant recommendations. |
| | glyphosate<br>(numerous brands)<br>+<br>fluazifop-p-butyl<br>(Fusilade DX) 2 EC<br>MOA 9 + 1 | see above or label<br>+<br>4 to 6 fl oz | 0.63 to 0.75 (lb a.e.)<br>+<br>0.06 to 0.09 | See comments for glyphosate alone. Apply 4 oz Fusilade for corn less than 12 in. Increase rate to 6 oz for corn up to 24 in. Add 0.25% by volume of crop oil concentrate.<br>If applying Fusilade alone, see label for adjuvant recommendations. |
| | glyphosate<br>(numerous brands)<br>+<br>quizalofop-p-ethyl<br>(Assure II) 0.88 EC<br>MOA 9 + 1 | see above or label<br>+<br>5 to 8 fl oz | 0.63 to 0.75 (lb a.e.)<br>+<br>0.03 to 0.05 | See comments for glyphosate alone. Apply Assure at 4 oz to corn up to 12 in., 5 oz for corn up to 18 in., and 8 oz to corn up to 30 in. Add 0.125% nonionic surfactant by volume.<br>If a brand of glyphosate used does not contain an adjuvant, add surfactant according to the glyphosate label. If applying Assure alone, see label for adjuvant recommendations. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE OVER-THE-TOP BROADLEAF AND GRASS CONTROL FOR ROUNDUP READY FLEX COTTON**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Controls most annual weeds; exceptions include glyphosate-resistant Palmer amaranth, dayflower, Florida pusley, tropical spiderwort, doveweed and hemp sesbania. Timely applications critical for purslane and morningglory.<br><br>Conventional directed herbicide options should be used even in a Roundup Ready Flex program. | glyphosate<br>(Roundup WEATHERMAX)<br>(Roundup OriginalMAX)<br>5.5 SL (4.5 lb a.e.)<br><br>MOA 9 | 18 to 32 fl oz | 0.63 to 1.12 | **ROUNDUP READY FLEX CULTIVARS ONLY**<br><br>Do not follow the suggested uses on Roundup Ready cotton not designated as Flex. Use only glyphosate products, such as OriginalMax or WeatherMax, whose labels specify "specially formulated for use on Roundup Ready Flex cotton."<br><br>May be applied overtop or directed to Flex cotton anytime from cotton emergence until 7 days prior to harvest. The maximum rate for any single application between emergence and 60% open bolls is 32 fl oz (1.12 lb a.e.). Do not exceed a total of 128 fl oz (4.5 lb a.e.) applied from emergence through 60% open bolls. Do not exceed a maximum of 44 fl oz (1.55 lb a.e.) applied between layby and 60% open bolls. Do not exceed a maximum of 44 fl oz between 60% open bolls and harvest.<br><br>Directed applications may be more effective in larger cotton to allow better coverage of weeds under canopy or to allow for tank mixes with other herbicides.<br><br>**Glyphosate-resistant Palmer amaranth is spreading rapidly. Continued reliance on herbicide programs based predominately on glyphosate will enhance selection and spread of resistant biotypes. Other chemistry, including preemergence herbicides, tank mixes with glyphosate, and layby herbicides in addition to glyphosate must be utilized.** |
| Staple improves control of hemp sesbania, morningglory, tropical spiderwort, and glyphosate-resistant Palmer amaranth.<br><br>Staple may also provide residual control of pigweeds, prickly sida, smartweed, spurred anoda, and velvetleaf if it contacts the soil and is activated. | glyphosate<br>(Roundup WEATHERMAX)<br>(Roundup OriginalMAX)<br>5.5 SL (4.5 lb a.e.)<br>+<br>pyrithiobac<br>(Staple LX) 3.2 SL<br><br>MOA 9 + 2 | 18 to 32 fl oz<br>+<br>1.3 to 3.8 fl oz | 0.63 to 1.12<br>+<br>0.03 to 0.09 | **ROUNDUP READY FLEX CULTIVARS ONLY**<br><br>See comments for glyphosate and Staple alone, especially comments on resistance. Can apply overtop from cotton cotyledonary stage until 60 days prior to harvest. See Staple label concerning adjuvant usage.<br><br>Do not mix with any Dual or metolachlor product.<br><br>**In fields infested with glyphosate-resistant Palmer amaranth, apply Staple at 2.6 to 3.8 fl oz when Palmer is 3 inches or less. Crop tolerance has not been fully tested with rates greater than 2.6 fl oz of Staple in mixture with glyphosate.**<br><br>**<u>Make only one TIMELY application of Staple or Envoke per season.</u>** |
| Compared to glyphosate alone, tank mix provides residual control of annual grasses, pigweeds including glyphosate-resistant Palmer amaranth, doveweed, Florida pusley, and tropical spiderwort and suppression of yellow nutsedge if the metolachlor contacts the soil and is activated. | glyphosate<br>(Roundup WEATHERMAX)<br>(Roundup OriginalMAX)<br>5.5 SL (4.5 lb a.e.)<br>+<br>S-metolachlor<br>(Dual Magnum) 7.62 EC<br>(Brawl) 7.62 EC<br><br>9 + 15 | 18 to 32 fl oz<br>+<br>1 to 1.33 pt<br>1 to 1.33 pt | 0.63 to 1.12<br>+<br>0.95 to 1.27 | **ROUNDUP READY FLEX CULTIVARS ONLY**<br><br>See comments for glyphosate plus Dual Magnum alone, especially comments on resistance. Can apply overtop of cotton from 3 in. tall until 100 days before harvest. Can direct to cotton from 3 in. tall until 80 days before harvest.<br><br>Do not mix with Staple. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE OVER-THE-TOP BROADLEAF AND GRASS CONTROL FOR ROUNDUP READY FLEX COTTON (continued)**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Envoke will improve control of *Ipomoea* morningglory and nutsedge | glyphosate<br>(Roundup WEATHERMAX)<br>(Roundup OriginalMAX)<br>5.5 SL (4.5 lb a.e.)<br>+<br>trifloxysulfuron<br>(Envoke) 75 WDG<br>MOA 9 + 2 | 18 to 32 fl oz<br>+<br>0.1 oz | 0.63 to 1.12<br>+<br>0.047 | **ROUNDUP READY FLEX CULTIVARS ONLY**<br>See comments for glyphosate and Envoke applied alone, especially comments on resistance. Tank mix can be applied from 5 to 12-leaf cotton stage until 60 days of harvest. For better crop safety, cotton should have at least 8 leaves at time of treatment.<br>Try this mixture on limited acreage only.<br>**Make only one TIMELY application of Staple or Envoke per season.** |
| Volunteer Roundup Ready corn in Roundup Ready Flex cotton | glyphosate<br>(Roundup WEATHERMAX)<br>(Roundup OriginalMAX)<br>5.5 SL (4.5 lb a.e.)<br>+<br>clethodim<br>(Select) 2 EC<br>(Select Max) 0.97 EC<br>MOA 9 + 1 | 18 to 32 fl oz<br>+<br>4 to 8 fl oz<br>6 to 12 fl oz | 0.63 to 1.12<br>+<br>0.06 to 0.12<br>0.05 to 0.11 | See comments for glyphosate alone. For corn up to 12 in. tall, apply 4 to 6 oz of Select or 6 oz of Select Max; for corn up to 24 in. tall, apply 6 to 8 oz of Select or 9 oz of Select Max; for corn up to 36 in. tall, apply 12 oz of Select Max. Add 2.5 lb per acre ammonium sulfate or equivalent. |
| | glyphosate<br>(Roundup WEATHERMAX)<br>(Roundup OriginalMAX)<br>5.5 SL (4.5 lb a.e.)<br>+<br>fluazifop-p-butyl<br>(Fusilade DX) 2 EC<br>MOA 9 + 1 | 18 to 32 fl oz<br>+<br>4 to 6 fl oz | 0.63 to 1.12<br>+<br>0.06 to 0.09 | See comments for glyphosate alone. Apply 4 oz Fusilade for corn less than 12 in. Increase rate to 6 oz for corn up to 24 in. Add 0.25% by volume of crop oil concentrate. |
| | glyphosate<br>(Roundup WEATHERMAX)<br>(Roundup OriginalMAX)<br>5.5 SL (4.5 lb a.e.)<br>+<br>quizalofop-p-ethyl<br>(Assure II) 0.88 EC<br>MOA 9 + 1 | 18 to 32 fl oz<br>+<br>5 to 8 fl oz | 0.63 to 1.12<br>+<br>0.03 to 0.05 | See comments for glyphosate alone. Apply Assure at 4 oz to corn up to 12 in., 5 oz for corn up to 18 in., and 8 oz to corn up to 30 in. Add 0.125% nonionic surfactant by volume. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE OVER-THE-TOP GRASS CONTROL**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Annual grasses | clethodim<br>(Select) 2 EC<br>(Select Max) 0.97 EC<br><br>MOA 1 | <br>6 to 8 fl oz<br>9 to 16 fl oz | <br>0.09 to 0.13<br>0.07 to 0.12 | Apply to actively growing grasses not under drought stress. Suggested use rate varies by weed species and size; see label. Under favorable conditions, large Texas panicum can be controlled. Add crop oil concentrate at 1 qt per acre. To Select Max, add nonionic surfactant at 0.25% by volume, crop oil concentrate at 1% by volume, or methylated seed oil at 1% by volume. Mixtures with other herbicides may reduce grass control. Do not cultivate within 7 days before or after application. A second application may be made if needed. Generic brands of clethodim are available. |
| | fluazifop p-butyl<br>(Fusilade DX) 2 EC<br><br>MOA 1 | 8 to 12 fl oz | 0.125 to 0.188 | Apply to actively growing grasses not under drought stress. Suggested use rate varies by weed species and size; see label. Apply with crop oil concentrate (preferred) at 1% by volume (1 gal per 100 gal solution) or surfactant at 0.25% by volume (1 qt per 100 gal solution). Mixtures with other herbicides may reduce grass control. Provides occasional control/suppression of bristly starbur. Do not cultivate within 7 days before or after application. A second application may be made. |
| | fluazifop p-butyl<br>+<br>fenoxaprop-p-ethyl<br>(Fusion) 2.56 EC<br><br>MOA 1 + 1 | 8 to 12 fl oz | 0.125 to 0.188<br>+<br>0.035 to 0.053 | Apply to actively growing grasses not under drought stress. Suggested use rate varies by weed species and size; see label. Apply with crop oil concentrate (preferred) at 1% by volume (1 gal per 100 gal solution) or surfactant at 0.25% by volume (1 qt per 100 gal solution). Tank mixtures with other herbicides may reduce grass control. Do not cultivate within 7 days of application. A second application may be made. |
| | quizalofop p-ethyl<br>(Assure II) 0.88 EC<br><br>MOA 1 | 7 to 8 fl oz | 0.05 to 0.06 | Apply to actively growing grasses not under drought stress. Suggested use rate varies by weed species and size; see label. Apply with crop oil concentrate (preferred) at 1% by volume (1 gal per 100 gal solution) or surfactant at 0.25% by volume (1 qt per 100 gal solution). Tank mixtures with other herbicides may reduce grass control. Do not cultivate within 7 days of application. A second application may be made. |
| | sethoxydim<br>(Poast) 1.53 EC<br>(Poast Plus) 1.0 EC<br><br>MOA 1 | <br>16 fl oz<br>24 fl oz | 0.19 | Apply to actively growing grasses not under drought stress. Suggested use rate varies by weed species and size; see label. Apply in 5 to 20 GPA at 40 to 60 psi. Add crop oil concentrate at 1 qt per acre. Tank mixtures with other herbicides may reduce grass control. Do not cultivate within 7 days of application. A second application may be made. |
| Perennial grasses | clethodim<br>(Select) 2 EC<br>(Select Max) 0.97 EC<br><br>MOA 1 | <br>8 to 16 fl oz<br>12 to 32 fl oz | <br>0.13 to 0.25<br>0.09 to 0.24 | Apply to actively growing johnsongrass 12 to 24 in. tall or to bermudagrass with runners up to 6 in. A second application of 8 to 16 oz of Select or 12 to 32 oz of Select Max may be applied to bermudagrass when regrowth is up to 6 in. For johnsongrass, a second application of 6 to 8 oz of Select or 9 to 24 oz of Select Max may be applied when regrowth is 6 to 18 in. Add crop oil concentrate at 1 qt per acre to Select. To Select Max, add nonionic surfactant at 0.25% by volume, crop oil concentrate at 1% by volume, or methylated seed oil at 1% by volume. Do not mix with other herbicides. Do not cultivate within 7 days before or after application. Generic brands of clethodim are available. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE: AMOUNT OF FORMULATION | BROADCAST RATE/ACRE: POUNDS ACTIVE (AI or AE) | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| **POSTEMERGENCE OVER-THE-TOP GRASS CONTROL (continued)**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Perennial grasses (cont.) | fluazifop p-butyl (Fusilade DX) 2 EC<br>MOA 1 | 10 to 12 fl oz | 0.156 to 0.188 | Apply when johnsongrass is 8 to 18 inches or when bermudagrass runners are 4 to 8 inches. If needed, make a second application of 8 fl oz/A when johnsongrass regrowth or new plants are 6 to 12 inches or when bermudagrass stolon (runner) regrowth or new plants are 3 to 6 inches. Apply with crop oil concentrate (preferred) at 1% by volume (1 gal per 100 gal solution) or surfactant at 0.25% by volume (1 qt per 100 gal solution). Provides occasional control/suppression of bristly starbur. Do not mix with other herbicides. Do not cultivate within 7 days of application. |
| | fluazifop p-butyl + fenoxaprop-p-ethyl (Fusion) 2.56 EC<br>MOA 1 + 1 | 10 to 12 fl oz | 0.156 to 0.188 + 0.035 to 0.053 | Apply 10 fl oz per acre to actively growing johnsongrass up to 10 inches and 12 fl oz per acre to johnsongrass up to 18 inches. Apply 12 fl oz per acre when actively growing bermudagrass runners are 4 to 8 inches. A second application of 8 fl oz per acre may be made when either johnsongrass regrowth or new plants are 6 to 8 inches or bermudagrass regrowth or new plants are 4 to 8 inches. Apply with crop oil concentrate (preferred) at 1% by volume (1 gal per 100 gal solution) or surfactant at 0.25% by volume (1 qt per 100 gal solution). Do not mix with other herbicides. Do not cultivate within 7 days of application. |
| | quizalofop p-ethyl (Assure II) 0.88 EC<br>MOA 1 | 10 fl oz | 0.07 | Apply when johnsongrass is 10 to 24 inches or bermudagrass runners are 3 to 6 inches. A second application for treating regrowth or new plants can be made with 7 fl oz per acre when johnsongrass reaches 6 to 10 inches or bermudagrass reaches 3 to 6 inches. Apply with crop oil concentrate (preferred) at 1% by volume (1 gal per 100 gal solution) or surfactant at 0.25% by volume (1 qt per 100 gal solution). Do not mix with other herbicides. Do not cultivate within 7 days of application. |
| | sethoxydim<br>(Poast) 1.53 EC<br>(Poast Plus) 1.0 EC<br>MOA 1 | <br>24 fl oz<br>36 fl oz | 0.28 | Apply to johnsongrass up to 25 inches and before bermudagrass runners exceed 6 inches. If regrowth occurs or new plants emerge, make a second application of 16 fl oz per acre of Poast when johnsongrass reaches 6 to 10 inches and bermudagrass reaches 3 to 6 inches. Add 1 qt of crop oil concentrate per acre. Do not tank mix with other herbicides. Do not cultivate within 7 days of application. |
| **POSTEMERGENCE DIRECTED- ANY COTTON CULTIVAR**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Cocklebur, very small annual grasses, and yellow nutsedge.<br><br>Nutsedge usually requires two applications. | DSMA (several brands)<br>3.6 lb/gal<br>7.2 lb/gal<br>MOA 17 | <br>1.0 gal<br>0.5 gal | 3.6 | <u>Apply as directed spray when cotton is 3 inches tall until first bloom</u>.<br><br>DO NOT apply after first bloom. Apply with surfactant if not formulated in the product. Apply no more than 4 lb ai/A MSMA or 7.2 lb ai/A DSMA per season. |
| | MSMA (several brands)<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 17 | <br>2.67 pt<br>2.5 pt | 2 | |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE: AMOUNT OF FORMULATION | BROADCAST RATE/ACRE: POUNDS ACTIVE (AI or AE) | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| **POSTEMERGENCE DIRECTED- ANY COTTON CULTIVAR (continued)**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Effective control of many broadleaf weeds, yellow nutsedge, and small annual grasses. Also provides residual control of many weeds.<br><br>Diuron is more effective in controlling emerged pigweed than is Cotoran.<br><br>These options are the most effective options for the control of glyphosate-resistant Palmer amaranth at layby. | diuron<br>(Direx, Diuron, other)4L<br>+<br>MSMA (several brands)<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 7 + 17 | <br>1.6 to 2.4 pt<br>+<br><br>2.67 pt<br>2.5 pt | 0.8 to 1.2<br>+<br>2.0 | Apply as directed spray to cotton at least 12 inches tall. Add nonionic surfactant at 1 to 2 qt per 100 gal mix. Label prohibits use on sand or loamy sand soils, or any soils with less than 1% organic matter.<br><br>Follow label directions for weed size and rotational concerns. Do not apply MSMA or DSMA after 1st bloom. Higher rates of diuron provide greater residual weed control but extended rotational concerns.<br><br>Aim 2 EC or ET at 0.5 to 1.0 fl oz may be added to this combination to improve control of larger morningglory and tropical spiderwort (use Aim for spiderwort). Suggest cotton be at least 18 in. tall with 3 in of bark for Aim or ET application. Do not allow combinations with Aim or ET to contact the green portion of cotton stems.<br><br>The addition of S-metolachlor is recommended for managing tropical spiderwort. See label of S-metolachlor product used for application restrictions. |
| | diuron<br>+<br>linuron<br>(Layby Pro) 4 L<br>+<br>MSMA (several brands)<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 7 + 7 + 17 | <br><br>2 pt<br>+<br><br>2.67 pt<br>2.5 pt | 0.5<br>+<br>0.5<br>+<br>2 | Apply as a directed spray to cotton at least 16 in. tall. Add crop oil concentrate at 1 gal per 100 gal spray mix. Label prohibits use on sand or loamy sand soils, or on any soil with less than 1% organic matter.<br><br>Do not apply MSMA after first bloom.<br><br>Aim 2 EC at 0.5 to 1.0 fl oz/acre may be added to improve control of larger morningglory. Suggest cotton have at least 3 in of bark for Aim application. Do not allow spray to contact green stem of cotton. |
| | flumioxazin<br>(Valor SX) 51 WDG<br>+<br>MSMA (several brands)<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 14 + 17 | <br>2 oz<br>+<br><br>2.67 pt<br>2.5 pt | 0.064<br>+<br>2 | Apply as a directed spray to cotton at least 16 in tall with a minimum of 3 in. of bark. Direct spray to the lower 2 inches of the cotton stem and do not contact the green portion of the cotton stem. May apply to 6 inch cotton under a hood.<br><br>Add nonionic surfactant at 1 qt per 100 gal spray mix. DO NOT use crop oil concentrate, methylated seed oil, organo-silicone adjuvant, or any adjuvant containing any of these. Do not apply MSMA after bloom.<br><br>IN HOODED APPLICATIONS WHEN NO CONTACT OF THE COTTON STEM OCCURS: The addition of S-metolachlor is recommended for managing tropical spiderwort. See label of S-metolachlor product used for application restrictions. |
| Effective control of many broadleaf weeds, yellow nutsedge, and small annual grasses. Also provides residual control of many weeds. | fluometuron<br>(Cotoran) 4 F<br>+<br>MSMA (several brands)<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 7 + 17 | <br>2.0 to 3.2 pt<br>+<br><br>2.67 pt<br>2.5 pt | 1 to 1.6<br>+<br>2 | <u>Apply as a directed spray to cotton at least 3 in. tall.</u><br>Acceptable control of nutsedge will usually require a follow-up application with MSMA or DSMA.<br><br>Do not apply after first bloom.<br><br>The addition of S-metolachlor is recommended for managing tropical spiderwort. See label of S-metolachlor product used for application restrictions. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE DIRECTED- ANY COTTON CULTIVAR (continued)**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Emerged broadleaf weeds, yellow nutsedge, and very small annual grasses. | lactofen<br>(Cobra) 2 EC<br>+<br>MSMA (several brands)<br>6.6 lb/gal<br>MOA 14 + 17 | <br>6 to 12.5 fl oz<br>+<br><br>2.5 pt | 0.092 to<br>0.2<br>+<br><br>2.0 | Apply as directed spray or with hoods after cotton is at least 8 in. tall, preferably larger.<br><br>Contact only lower woody portion of cotton stem. Add crop oil or nonionic surfactant according to labels. Do not apply MSMA after 1st bloom. Do not apply lactofen within 70 days of harvest. |
| Effective control of many broadleaf weeds, yellow nutsedge, and small annual grasses.<br><br>Limited residual control. | linuron<br>(Linex) 4 L<br>+<br>MSMA<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 7 + 17 | <br>2 pt<br>+<br><br>2.67<br>2.5 | <br>1<br>+<br><br>2 | Apply as directed spray to cotton that is at least 20 inches tall. See precautions on label. Add 2 qt nonionic surfactant per 100 gal spray solution.<br><br>Do not apply MSMA after the first bloom.<br><br>**No rotational restrictions.** |
| Effective control of many broadleaf weeds, yellow nutsedge, and small annual grasses.<br><br>Limited residual control. | prometryn<br>(Caparol) 4 F<br>+<br>MSMA (several brands)<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 5 + 17 | <br>1.3 to 2.4 pt<br>+<br><br>2.67 pt<br>2.5 pt | 0.65 to 1.2<br><br>+<br><br>2 | Apply as directed spray. Use 1.3 pt/A Caparol in 8 to 12 in. cotton and up to 2.4 pt/A in cotton at least 12 in. Add nonionic surfactant at 2 qt per 100 gal spray solution. See label for rotational restrictions.<br><br>Do not apply after 1st bloom.<br><br>Aim 2 EC at 0.5 to 1.0 fl oz or Cobra at 6 to 8 fl oz per acre may be added to this combination to improve control of large morningglory. Cotton should be at least 16 in. tall for Aim application. DO NOT allow combinations with Aim to contact the green portion of the cotton stems.<br><br>The addition of S-metolachlor with prometryn plus MSMA is recommended for managing tropical spiderwort. See label of S-metolachlor product used for application restrictions. |
| Effective control of many broadleaf weeds, yellow nutsedge, and small annual grasses.<br><br>Excellent residual control of sensitive species. | prometryn<br>+<br>trifloxysulfuron<br>(Suprend) 80 WDG<br>+<br>MSMA (several brands)<br>6.0 lb/gal<br>6.6 lb/gal<br>MOA 5 + 2+ 17 | <br><br>1 to 1.25 lb<br>+<br><br>2.67 pt<br>2.5 pt | 0.8 to 1<br>+<br>0.007 to<br>0.009<br>+<br><br>2 | Apply as directed spray in cotton at least 8 in tall. Add nonionic surfactant at 1 qt per 100 gal spray mix. See rotation restrictions on label.<br><br>Do not apply MSMA after first bloom. Do not exceed 0.0188 lb a.i./acre per year of trifloxysulfuron from the combined use of Envoke and Suprend. Suprend is formulated as 79.3% prometryn plus 0.7% trifloxysulfuron. |
| Does NOT control emerged weeds. Provides residual control of annual grasses and several small seeded broadleaf weeds if contacts the soil and is activated. | pendimethalin<br>(Prowl) 3.3 EC<br>(Pendimax) 3.3 EC<br>(Prowl H20) 3.8 AS<br>MOA 3 | <br>1.8 to 2.4 pt<br>1.8 to 2.4 pt<br>2.0 pt | <br>0.75 to 1.0<br>0.75 to 1.0<br>0.95 | Do NOT spray overtop of cotton. Apply as a directed layby spray only.<br><br>Apply after controlling existing weeds. Alternatively, may mix with glyphosate in Roundup Ready cotton. All glyphosate brands not labeled for this use, see label.<br><br>Avoid contact of spray with the non-woody portion of cotton stems and with cotton foliage or serious crop injury can result. Apply at least 60 days prior to harvest. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE DIRECTED- ROUNDUP READY CULTIVARS ONLY**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Controls most annual weeds; exceptions include glyphosate-resistant Palmer amaranth, dayflower, doveweed, Florida pusley, tropical spiderwort, and hemp sesbania.<br><br>Timely application is critical for controlling morningglory and purslane.<br><br>Multiple applications needed for nutsedge and bermudagrass. | glyphosate<br>4.0 SL (3 lb a.e.)<br>5.4 SL (4 lb a.e.)<br>5.0 SL (4.17 lb a.e.)<br>5.5 SL (4.5 lb a.e.)<br>6.0 SL (5.0 lb a.e.)<br><br>MOA 9 | <br>27 to 32 fl oz<br>20 to 24 fl oz<br>19 to 23 fl oz<br>18 to 22 fl oz<br>16 to 19 fl oz | 0.63 to 0.75 (lb a.e.) | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Glyphosate will kill or severely injure non-Roundup Ready cultivars. Adjuvant recommendations vary according to product used, see label. See the Glyphosate Formulation Table just prior to the cotton section for product & rate guidance.<br><br>Apply as a PRECISION directed spray from fifth leaf stage of cotton through layby. Two applications may be made during this period, but the applications must be separated by at least 10 days and cotton must have at least two nodes of incremental growth between applications. Direct spray to base of the cotton plant as spray contact with cotton should be avoided as much as possible. Sloppy directed applications can lead to fruit abortion and yield loss. See precautions on labels concerning risk of boll loss, delayed maturity, and yield loss.<br><br>**Glyphosate resistant Palmer amaranth is spreading rapidly throughout GA. Continued reliance on herbicide programs based predominately on glyphosate will enhance selection and spread of resistant biotypes. Other chemistry, including preemergence herbicides, tank mixes with glyphosate, and layby herbicides in addition to glyphosate must be utilized.** |
| Mixture improves control of larger morningglory and tropical spiderwort.<br><br>Will provide no residual weed control. | glyphosate<br>(numerous brands)<br><br>+<br><br>carfentrazone<br>(Aim EC) 2 EC<br><br>MOA 9 + 14 | <br>see above or label<br><br>+<br><br>0.8 to 1.6 fl oz | 0.63 to 0.75 (lb a.e.)<br><br>+<br>0.013 to 0.025 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Cotton should be at least 16 in. tall. Extreme care should be exercised in application; see directions and precautions on the Aim label. Contact on green stem will lead to severe injury. Avoid contact of the spray with desirable vegetation.<br><br>See remarks for glyphosate applied alone. Use only brands registered for this application. |
| Mixture improves morningglory control and provides residual control of small-seeded broadleaf weeds, such as pigweed.<br><br>The tank mix may give less grass control than glyphosate alone. | glyphosate<br>(numerous brands)<br><br>+<br><br>diuron<br>(Direx, Diuron) 4 L<br><br>MOA 9 + 14 | <br>see above or label<br><br>+<br><br>1 to 1.5 pt | 0.63 to 0.75 (lb a.e.)<br><br>+<br><br>0.5 to 0.75 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Use 1 pt of diuron on cotton 8 to 12 inches and up to 1.5 pt of diuron on cotton greater than 12 inches.<br><br>Add surfactant according to the label of the glyphosate brand used.<br><br>DO NOT reduce the rate of glyphosate because of the potential for antagonism. See diuron rotational restrictions. |
| Mixture improves morningglory and tropical spiderwort control and provides residual control of broadleaf weeds including pigweeds and Florida pusley. | glyphosate<br>(numerous brands)<br><br>+<br><br>flumioxazin<br>(Valor SX) 51 WDG<br><br>MOA 9 + 14 | <br>see above or label<br><br>+<br><br>1 to 2 oz | 0.63 to 0.75 (lb a.e.)<br><br>+<br><br>0.031 to 0.063 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Cotton should be at least 16 inch with a minimum of 3 inch of bark on stem. Direct spray to the lower 1 to 2 inch of cotton stem; minimize cotton contact. Do not allow spray to contact green portion of stem.<br><br>Add nonionic surfactant at 1 qt per 100 gal spray mix if glyphosate brand requires adjuvant. DO NOT use crop oil concentrate, methylated seed oil, organo-silicone adjuvants, or any adjuvant product containing these.<br><br>See comments for glyphosate applied alone. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE DIRECTED- ROUNDUP READY CULTIVARS ONLY (continued)**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Mixture improves morningglory control and provides residual control of sensitive species.<br><br>The tank mix may give less grass control than glyphosate alone. | glyphosate (numerous brands)<br>+<br>prometryn (Caparol) 4 F<br>MOA 9 + 5 | see above or label<br>+<br>1 to 2 pt | 0.63 to 0.75 (lb a.e.)<br>+<br>0.5 to 1 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Cotton should be at least 8 inch for Caparol rate between 1 and 1.3 pt and at least 12 inch for Caparol rate above 1.3 pt. Add surfactant according to the label of the glyphosate brand used.<br><br>See comments for glyphosate applied alone.<br>DO NOT reduce the rate of glyphosate because of the potential for antagonism. |
| Mixture improves control of larger morningglory.<br><br>Will provide no residual weed control. | glyphosate (numerous brands)<br>+<br>pyraflufen ethyl (ET) 0.208 L<br>MOA 9 + 14 | see above or label<br>+<br>0.5 to1.0 fl oz | 0.63 to 0.75 (lb a.e.)<br>+<br>0.0008 to 0.0016 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br>Cotton should be at least 18 in. tall. Exercise extreme care with this application; see directions and precautions on the ET label. Contact on green stem will lead to severe injury. Avoid contact of the spray with desirable vegetation.<br><br>See remarks for glyphosate applied alone. Use only brands registered for this application. |
| S-metolachlor does not improve control of emerged weeds, but can give residual control of annual grasses, pigweed species including glyphosate-resistant Palmer amaranth, doveweed, tropical spiderwort and other dayflower species plus suppression of yellow nutsedge. | glyphosate (numerous brands)<br>+<br>S-metolachlor (Dual Magnum) 7.62EC<br>(Brawl) 7.62 EC<br>MOA 9 + 15 | see above or label<br>+<br>1 to 1.33 pt<br>1 to 1.33 pt | 0.63 to 0.75 (lb a.e.)<br>+<br>0.95 to 1.27 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br><br>Can be applied to cotton 3 in. tall through 80 days prior to harvest. Do not apply to sands or loamy sand soils. See comments for glyphosate applied alone. Use only brands registered for this application.<br><br>No generic formulation of metolachlor is currently labeled for this use. Metolachlor products may not provide the same length of control as similar rates of S-metolachlor products such as Dual Magnum. |
| | glyphosate<br>+<br>S-metolachlor (Sequence) 5.25 L<br>MOA 9 + 15 | 2.5 pt | 0.70 (lb a.e.)<br>+<br>0.94 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br><br>Direct to cotton up to 12 in. tall and minimize contact with the cotton stems and leaves. Do not add adjuvants or mix with any other product. |
| Mixing Envoke with glyphosate improves *Ipomoea* morningglory and nutsedge control and provides some residual control of sensitive species. | glyphosate (numerous brands)<br>+<br>trifloxysulfuron (Envoke) 75 DF | see above or label<br>+<br>0.1 to 0.2 oz | 0.63 to 0.75 (lb a.e.)<br>+<br>0.005 to 0.009 | **APPLY ONLY TO ROUNDUP READY CULTIVARS**<br><br>Direct to cotton from 6 in tall through layby and minimize contact with cotton stems and leaves. Add nonionic surfactant according to Envoke label.<br><br>See comments for glyphosate applied alone. Use only brands registered for this application.<br><br>At layby, consider using herbicide chemistry other than ALS herbicides such as Staple or Envoke. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE DIRECTED- ROUNDUP READY FLEX CULTIVARS ONLY (continued)**<br>Application of postemergence herbicide treatments to moisture stressed weeds usually results in poor control. | | | | |
| Controls most annual weeds; exceptions include glyphosate-resistant Palmer amaranth, dayflower, doveweed, Florida pusley, tropical spiderwort, and hemp sesbania. Timely application is critical for controlling morningglory and purslane. | glyphosate<br>Roundup WEATHERMAX<br>Roundup Original MAX<br>5.5 SL (4.5 lb a.e.)<br><br>MOA 9 | <br>18 to 32 fl oz<br>18 to 32 fl oz | 0.63 to 1.12 | **ROUNDUP READY FLEX CULTIVARS ONLY.**<br><br>Do not follow these suggested uses on Roundup Ready cotton not designated Flex.<br><br>Glyphosate alone can be directed to Flex cotton up to 7 days prior to harvest. When using glyphosate alone, contact with the Flex cotton plants is not of concern; the primary reason to direct is to obtain better coverage of weeds under the crop canopy.<br><br>Use of other herbicides, in addition to glyphosate, is recommended to aid in resistance management and to improve weed control. All of the glyphosate tank mixes labeled for Roundup Ready cotton can be directed to Flex cotton. Follow label directions of tank mix partner concerning cotton size for applications, application directions (including allowable contact with the cotton plant), and rotational restrictions.<br><br>Other brands of glyphosate may also be registered for use on Roundup Ready Flex cotton.<br><br>**Glyphosate resistant Palmer amaranth is spreading rapidly throughout GA. Continued reliance on herbicide programs based predominately on glyphosate will enhance selection and spread of resistant biotypes. Other chemistry, including preemergence herbicides, tank mixes with glyphosate, and layby herbicides in addition to glyphosate must be utilized.** |
| **POSTEMERGENCE-HOODED SPRAYER** | | | | |
| Controls most annual weeds; exceptions include glyphosate-resistant Palmer amaranth, dayflower, doveweed, Florida pusley, tropical spiderwort, and hemp sesbania. Timely application is critical for controlling morningglory and purslane. | glyphosate<br>4.0 SL (3 lb a.e.)<br>5.4 SL (4 lb a.e.)<br>5.0 SL (4.17 lb a.e.)<br>5.5 SL (4.5 lb a.e.)<br>6.0 SL (5.0 lb a.e.)<br><br>MOA 9 | <br>32 fl oz<br>24 fl oz<br>23 fl oz<br>22 fl oz<br>19 fl oz | 0.75 (lb a.e.) | For perennial weeds, increase rate according to label. In non-Roundup Ready cotton, hoods should be kept as close to the ground as possible. Do not allow the spray to contact stems or foliage of non-Roundup Ready cotton. Apply in 5 to 10 GPA at a maximum of 25 PSI. Do not exceed 5 MPH. Suggest that cotton be at least 8 inches tall. Glyphosate is especially effective for prostrate, running species such as citron, burgherkin, and annual grasses. See label of brand used for adjuvant recommendations and use of ammonium sulfate. SUGGEST NOT USING LIQUID NITROGEN AS ENTIRE CARRIER.<br><br>Other herbicides such as Aim, Caparol, diuron, ET, or Valor may be mixed with certain glyphosate formulations to improve burndown in larger cotton. Caparol, Valor or diuron will also offer residual weed control for several troublesome weeds. Grass control may be reduced with tank mixes of glyphosate plus Caparol or diuron.<br><br>**Glyphosate resistant Palmer amaranth is spreading rapidly throughout GA. Continued reliance on herbicide programs based predominately on glyphosate will enhance selection and spread of resistant biotypes. Other chemistry, including preemergence herbicides, tank mixes with glyphosate, and layby herbicides in addition to glyphosate must be utilized.** |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **POSTEMERGENCE-HOODED SPRAYER** (continued) | | | | |
| Annual grass and broadleaf weeds; suppression of nutsedge | paraquat (Gramoxone Inteon) | 19 to 38 fl oz | 0.3 to 0.6 | DO NOT CONTACT COTTON STEMS OR FOLIAGE. Apply in a minimum of 10 GPA at a maximum of 25 PSI. Do not exceed 5 MPH. Hoods should be kept as close to ground as possible. Cotton should be at least 8 inches. Add nonionic surfactant at 2 pt per 100 gal. of spray mix or crop oil concentrate at 1 gal. per 100 gal spray mix.<br><br>Caparol or diuron (Direx) may be mixed with paraquat. Tank mixes are usually more effective. |
| Timing for pigweed and grasses are critical. Control of pusley and goosegrass is not consistent.<br><br>In general, broadleaf weeds should be 3 inches or less and grasses no larger than 2 inch.<br><br>Excellent control of morningglory including moonflower morningglory. | glufosinate-ammonium (Ignite 280 SL) 2.34 L | 23 to 29 fl oz | 0.42 to 0.53 | DO NOT CONTACT COTTON STEMS OR FOLIAGE. Apply in a minimum of 15 GPA at a maximum of 25 PSI. Do not exceed 5 MPH. Hoods should be kept as close to ground as possible. Suggest cotton be at least 8 inches.<br><br>Adjuvant not needed, but ammonium sulfate may increase control in certain situations. Do not apply within 2 hours of sunset. Rainfast in 4 hours.<br><br>Use of residual herbicide(s) to assist in control of grasses, pusley, and pigweeds is recommended.<br><br>Postemergence grass control herbicides, such as Poast or Select, should not be mixed with Ignite. |
| **POSTEMERGENCE-ROPE WICK, WIPER APPLICATOR** | | | | |
| Certain weeds taller than crop, especially pigweeds and grasses.<br><br>Will not control glyphosate-resistant Palmer amaranth. | glyphosate (numerous brands and recommended rates) | Rope or Sponge Wick: solutions of 33 to 75% glyphosate plus 67 to 25% water may be used<br>Panel Applicators : solution ranging from 33 to 100% may be used | | Check specific labels for this use of glyphosate; all products are not labeled and may suggest specific directions. Do not operate in excess of 2 MPH. Best results occur with 2 passes, the second pass in the opposite direction. Consult product label for adjuvant recommendations. |

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| WEED | HERBICIDE, FORMULATION, and MODE OF ACTION CODE[1] | BROADCAST RATE/ACRE | | REMARKS AND PRECAUTIONS |
|---|---|---|---|---|
| | | AMOUNT OF FORMULATION | POUNDS ACTIVE (AI or AE) | |
| **HARVEST AID** | | | | |
| Mature morningglory | carfentrazone-ethyl (Aim) 2 EC | 0.75 to 1.5 fl oz | 0.012 to 0.024 | Apply as a harvest aid when 60 to 70% of the cotton bolls are open AND when the morningglory are mature (seedpods are visible). May be an additive with other defoliants – see label. See label for addition of adjuvant.<br><br>See cotton defoliation section. |
| Mature morningglory | pyraflufen ethyl (ET) 0.208 EC | 1.5 to 2.75 fl oz | 0.0024 to 0.0044 | Apply as a harvest aid when 60 to 70% of the cotton bolls are open AND when the morningglory are mature (seedpods are visible). May be an additive with other defoliants – see label. See label for addition of adjuvant.<br><br>See cotton defoliation section. |
| Dessication of most weeds.<br><br>Regrowth of many weeds occurs soon after application. | paraquat (Gramoxone Inteon) 2SL | 16 to 32 fl oz | 0.25 to 0.5 | Defoliate cotton as normal. After at least 75% of bolls are open, the remainder of bolls expected to harvest are mature, and most of the cotton leaves have dropped, apply paraquat in a minimum of 20 GPA. Add nonionic surfactant at 0.125% by volume (1 pt per 100 gal spray solution). Wait 3 to 5 days and pick the cotton as soon as possible. Expect additional trash.<br><br>An additional option is to add 2 to 6 oz of Inteon with standard defoliation mixtures. Be aware of potential pine tree injury with drift.<br><br>Generic brands of paraquat containing 3 lb active per gallon may be labeled. These products would be applied at 11 to 21 fl oz for 0.25 to 0.5 lb active equivalent.<br><br>See cotton defoliation section. |
| Annual grasses and broadleaf weeds | glyphosate<br>4.0 SL (3 lb a.e.)<br>5.4 SL (4 lb a.e.)<br>5.0 SL (4.17 lb a.e.)<br>5.5 SL (4.5 lb a.e.)<br>6.0 SL (5.0 lb a.e.) | <br>32 to 64 fl oz<br>24 to 48 fl oz<br>23 to 46 fl oz<br>22 to 44 fl oz<br>19 to 38 fl oz | 0.75 to 1.5 (lb a.e.) | Use only brand labeled for this use. Apply after at least 60% of bolls are open in non-Roundup Ready cotton. May be tank mixed with defoliants. See label and defoliant section. Include nonionic surfactant according to the label of glyphosate brand used.<br><br>In Roundup Ready cotton, may be applied after 20% of bolls are cracked or in Roundup Ready Flex cotton up to 7 days before harvest.<br><br>See cotton defoliation section. |

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