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## Crop Production Guide Series

### Early Postemergence Weed Control Options

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Herbicides applied early postemergence (EPOST) are essential when weeds are not controlled by preplant and preemergence herbicides. Herbicides applied EPOST are generally applied to both emerged crops and weeds; therefore, it is necessary to have some mechanism of selectivity between crops and weeds. Early season weed control is essential in order to avoid competition for water and nutrients between crops and weeds. Severe early season competition can cause crop stand and yield loss. In fact these early emerging weeds will have a much larger impact on yield than weeds that emerge later in the growing season.

In general, EPOST herbicides are most effective when applied to small, actively growing weeds. Control will generally be reduced when herbicides are applied to stressed weeds that exceed the size recommendation on the label. Weeds could be suffering from stress if exposed to extended periods of hot and dry or cool and wet climatic conditions. The period of time needed from application to rainfall or irrigation varies for each herbicide. In general, a six-hour rain free period is sufficient for most herbicides, although some formulations have decreased this time to approximately one hour. Many postemergence (POST) herbicides require a spray additive to ensure maximum herbicide performance. In west Texas, a crop oil concentrate is recommended over non-ionic surfactants for many herbicides (the glyphosate formulations are one exception, however), while for other herbicides, the choice is not as critical as long as a good quality spray additive is used. Some herbicide labels suggest the addition of liquid nitrogen fertilizers or dry spray grade ammonium sulfate for improving herbicide performance. Mixing order and compatibility are an issue for many herbicides; therefore, always carefully read and follow label instructions for maximum herbicide performance.



There are two types of herbicides applied POST: systemic (mobile) and contact

(non-mobile). Systemic POST herbicides are taken up by leaves and transported to sites within the plant where the herbicide is needed to control the weed. Contact herbicides kill only the plant tissue

that comes in direct contact with the herbicide. In general, thorough coverage on leaf and stem surfaces is more critical for contact herbicides compared to systemic herbicides. However, thorough coverage is still important for all POST herbicides. Thorough coverage can be accomplished by applying herbicides to smaller weeds, increasing the carrier volume and/or spray pressure, proper boom height, and accurately applying the herbicide to weeds growing beneath the crop canopy (through various nozzle arrangements and spray equipment).

The potential of spray drift is a possibility with all herbicides, but is of particular concern with non-selective herbicides such as Gramoxone, Roundup, and Ignite, along with 2,4-D and 2,4-DB to which crops such as cotton are particularly sensitive. The items mentioned to improve spray coverage along



with various nozzle types and drift retardants can potentially reduce spray drift. However, the number one way to minimize spray drift is to avoid spraying herbicides during high winds.

The length of soil activity (residual activity) of POST herbicides varies from no soil activity to activity that may last into the fall or next growing season. It is important to know the rotational crop restrictions when choosing a POST herbicide since some of these herbicides may influence rotational crop selection. It

is also important to know if a herbicide has limited or no residual activity so additional weed control practices are planned for season long control.

The use of some POST herbicides is dependent on the variety selection. Below are herbicide options in cotton (conventional, Roundup Ready, LibertyLink, and BXN varieties) and peanuts.

**CONVENTIONAL COTTON.** **Staple** may be applied POST on conventional and herbicide-tolerant varieties. It is one of the few herbicides that may be applied over-the-top (OTT) for broadleaf weed control in non-transgenic cotton. Staple has good activity on Palmer amaranth and annual morningglories, but **WEED SIZE** (2 inches or less) is important for effective weed control. Annual and perennial grasses may be controlled with the POST-Grass herbicides which include: **Assure II, Fusilade, Fusion, Poast Plus, and Select.** Control of bermudagrass will require sequential applications of these products. Tank-mixes of the POST-Grass herbicides and Staple should be avoided since antagonism can occur. **MSMA/DSMA** is labeled for use postemergence-directed in cotton after a height differential has been established between cotton and weeds. MSMA may be used OTT (3 inches to early first square) at a reduced rate as a rescue operation, but expect cotton injury to occur. **Envoke** is a new OTT cotton herbicide, but it is not currently labeled in west Texas because of cotton injury and additional concerns.

**ROUNDUP READY COTTON.** **Roundup WeatherMax (Roundup, Touchdown, and several other glyphosate formulations)** may be applied OTT in Roundup Ready cotton from **GROUND CRACK to 4<sup>th</sup> TRUE LEAF STAGE.** Two full rates of glyphosate (22 to 32 ounces/A depending on the glyphosate formulation) may be applied OTT. Sequential over-the-top applications must be at least 10 days apart and cotton must have at least two new nodes of growth between

applications. Glyphosate provides excellent control of many annual broadleaf and grassy weeds and controls or suppresses several perennial weeds including silverleaf nightshade (whiteweed) and woollyleaf bursage (lakeweed). Not all glyphosate formulations contain a non-ionic surfactant, so depending on the formulation used, additional adjuvants may be needed. Spray grade ammonium sulfate may also be used as a spray additive and is recommended with all glyphosate applications in west Texas. Ammonium sulfate helps condition the hard water typically found in west Texas. If ammonium sulfate is used, make sure it is added to the tank prior to the addition of glyphosate. Glyphosate applications made after the 4<sup>th</sup> leaf stage may cause fruit abortion, abnormally shaped bolls, and yield loss. Potential tank mix partners with glyphosate OTT include **Staple** and **Dual Magnum**. Consult the glyphosate label to ensure other tank mixes are labeled for use OTT.

**LIBERTYLINK COTTON.** **Ignite** at 32 to 40 ounces per acre may be applied OTT of LibertyLink cotton from emergence to 70 days before harvest. Up to 80 ounces may be used in-season. There is not a “window of application” for cotton when using Ignite; however, the “window of application” does in fact pertain to **WEED SIZE**. Ignite is a contact herbicide and is most effective when weeds are small and actively growing. Carrier volumes should be a minimum of 15 gallons per acre. Ignite controls many broadleaf weeds, including annual morningglory and cocklebur. More information regarding this new technology may be found at <http://lubbock.tamu.edu/cotton/pdf/liblinkcot.pdf>.

**BXN COTTON.** **Buctril** may be used OTT in BXN cotton; however, this technology will not be available after the 2004 growing season. Buctril controls annual morningglory and common cocklebur, but is extremely weak on Palmer amaranth and does not control grass weeds.

**PEANUT.** There are several herbicides labeled for use POST in peanuts. **Cadre** is probably the most active herbicide used POST in peanut. Cadre has good activity on many broadleaves, grass weeds, and nutsedge. There is an 18-month rotational restriction following application before cotton may be planted, which limits the use of this herbicide in west Texas. **Pursuit** has good activity on a broad spectrum of weeds, but has the same rotational restriction as Cadre. Nitrogen fertilizer is recommended with Pursuit application. **Basagran** and **Ultra Blazer** may be used POST in peanuts. Basagran has activity on cocklebur, wild sunflowers, and yellow nutsedge whereas the strength of Ultra Blazer is Palmer amaranth, ragweed, and other small sized annual broadleaf weeds. Neither of these herbicides will provide any residual weed control. **Storm**, a prepackaged mixture of Basagran and Blazer, may be used to control a wide range of small and actively growing annual broadleaf weeds. All of these herbicides need a spray additive to improve herbicidal activity with a crop oil concentrate being the most widely recommended.

**2,4-DB** may be used OTT in peanut. This herbicide has good activity on several annual broadleaf weeds including morningglory and sunflower. 2,4-DB plus crop oil will cause typical phenoxy injury to peanuts, but previous research suggests this injury will not result in yield losses at the end of the season. 2,4-DB may be tank mixed with other herbicides to broaden the spectrum of weeds controlled. The dominant issue with using 2,4-DB in west Texas is cotton injury. Adjacent cotton fields are exceedingly susceptible to 2,4-DB drift. Tank contamination should also be an important concern when the same equipment is used in both peanut and cotton production.

**Dual Magnum** and **Outlook** are preemergence herbicides that may also be used POST in peanut to decrease the potential of crop injury following application. These herbicides have good activity on annual grasses and small-seeded broadleaf weeds, but must be applied prior to weed emergence or emerged weeds must be controlled by tank-mixed with another POST herbicide. Activity on yellow nutsedge has been observed when these herbicides are applied POST to peanut, but activation shortly after herbicide application by rainfall or irrigation is necessary for effective control. **Poast Plus** and **Select** are labeled for use in peanuts for POST control of annual and perennial grasses. **Gramoxone Max plus Basagran** may be used EPOST in peanut until 28 days after ground-crack. Gramoxone has good broad-spectrum activity on many annual broadleaf weeds and will cause some burn on grasses and nutsedge. Basagran is added to this mix to help protect the peanut from Gramoxone injury. However, even with the safening effect of Basagran some burning of the peanut foliage will still occur.

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