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Crop Production Guide Series

General Keys for Successful Weed Management in Field Crops

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1. **Know your weeds.** Successful weed management starts with correctly identifying the weeds you are trying to control. Many weeds look similar, but may respond differently to mechanical and chemical weed control. There are several weed identification references available in text and on the internet.



2. **Know all weed control options that are available.** We generally think of herbicides as the only option for weed control. However, other options may include physical (hand pulling and hoeing), mechanical (plowing, cultivation), cultural (seeding date, seed population, row pattern, crop rotation, variety selection), biological (use of insects, mites, diseases, and other biological control agents), and prevention (weed seed dissemination by seeding and movement of equipment). Herbicides in combination with other methods often may be more successful than either method alone.
3. **Know what your herbicides can and cannot do!** Sometimes we fall into the trap that all herbicides are alike. In fact, they can be quite different. Differences may include water solubility (movement in soil), soil activity, length of soil activity, movement in the plant, spectrum of weed activity, ability to volatilize and move off-target, etc. Knowing what our herbicides can and cannot do will help us make better choices on which herbicide to choose in light of the weeds present, rotational crop concerns, and if additional weed control help is needed. Always carefully read and follow labeled instructions and pay close attention to rotational crop restrictions, weed size, and the addition of spray additives (crop oil concentrate, fertilizer, non-ionic surfactant, etc.).

4. **“Yellow” herbicides are a good foundation for weed control.** The dinitroaniline herbicides (Prowl, Treflan (trifluralin), Sonalan, others) are effective on annual grass and small-seeded broadleaf weeds. The success of these herbicides is based on using appropriate labeled rates for your soil type. Uniform incorporation of these herbicides is critical to ensure germinating weeds come in contact with the herbicide prior to emergence. These herbicides can also be used in minimum tillage situations where water is used to incorporate. Keep in mind this may not be the best way to incorporate them, but may be the best way under reduced-tillage cropping systems. Rates for water-incorporation are generally higher than rates for mechanical incorporation, so follow label recommendations for your soil type. With overhead irrigation, it is necessary to apply from 0.75 to 1.0 inch of actual water for proper incorporation of the yellow herbicides. The current Prowl label allows for preplant chemigation or a surface application followed by water and preemergence chemigation or a surface application followed by water. The current Sonalan labels states that Sonalan use in peanuts may be surface-applied followed by irrigation. There is no chemigation label for Sonalan. Treflan (trifluralin) may be chemigated. Do not surface apply Treflan and use irrigation to incorporate.
5. **Start with a clean seedbed.** Winter weeds and early-emerging summer weeds, like tumbleweed, should not be present at the time the crop is emerging. Early-season weed competition can slow crop growth and compete for water and nutrients. The most critical time for weed control is the first 4 to 6 weeks after emergence. This is the time that weeds can have the greatest impact on yield.
6. **Are additional soil-applied herbicides needed?** The “yellow” herbicides are effective on annual grasses and several small-seeded broadleaf weeds, but some escapes will occur. Nevertheless, several larger-seeded broadleaf weeds such as morningglory, cocklebur, and sunflower species, and perennials such as yellow and purple nutsedge and silverleaf nightshade (whiteweed) are not effectively controlled. Using preemergence herbicides may enhance control of these weeds.
7. **Properly timed postemergence herbicides are most effective.** The success of herbicides applied postemergence is largely dependent on weed size and coverage, which often go hand in hand. Be careful not to exceed weed size restrictions according to the herbicide label. Use crop oil concentrates or other adjuvants if specified on the label. Use an appropriate carrier volume to ensure thorough spray coverage on the weed. A weed that does not come in contact with the herbicide will not be controlled. Not all herbicides have broad-spectrum activity, so match the postemergence herbicide with the weed(s) you are trying to control. Postemergence herbicides will be more effective when applied to non-stressed weeds, which often coincides with the first part of the growing season. Controlling weeds early is when you can achieve your biggest bang for your buck, the time at which weed competition is at its peak.
8. **Be careful of crop injury.** It is very important to understand the potential causes of herbicide injury. The following is a list of potential causes: improper incorporation, spray-tank contamination, improper sprayer calibration, excessive herbicide rate for the soil type, improper



herbicide application timing or method, failure to adhere to crop rotation restrictions, interaction with other pesticides or spray additives, application of herbicide to crops under stress, off-target drift of herbicides labeled for use in other crops, small concentration of herbicides in irrigation water, and normal herbicide symptomology.

9. **Scout fields for unusual weeds.** Although weed resistance may be over stated in most cases, we need to watch for weed control that decreases over time. A buildup of resistant weeds does not occur quickly, so be watchful of poor control over time. Using a certain type herbicide may result in weed shifts. Be watchful of new weeds in the area and new weeds per section of land. New, difficult-to-control weeds should be a top priority so small infestations do not become bigger problems.
10. **Weed control starts in the fall of the year.** After harvest, the fall months are good times to work on perennial weed patches. Systemic herbicides like Roundup, 2,4-D, and Clarity can be very effective because these herbicides are absorbed by leaves and move below ground and disrupt storage tissue. This disruption should allow for fewer plants to emerge the following spring. Make sure that applications are made prior to the first frost. Applications after freezing temperatures have occurred will be much less effective due to decreased absorption and translocation.

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