2025 Weed Management Programs for Leafy Greens (Collard, Kale, Mustard, Turnip)

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Weeds compete with the crop for light, water, nutrients, and physical space while often harboring troublesome insects and diseases. For example, wild radish (photos on right) is not only one of the most difficult weeds to control in these crops but can harbor and increase problems with diamondback moth caterpillars.

Fall plantings will likely consist of summer annual weeds including nutsedge, wild radish, pigweeds, purslane, morningglory, various grass species, and Florida pusley. Winter plantings will likely consist of wild radish, cutleaf evening-primrose, henbit, swinecress, chickweed, shepherd's purse and corn spurry. ***Avoid fields with heavy infestations of nutsedge or wild radish if at all possible.***

Cultural weed management practices including crop rotation and stale seedbed techniques can be very beneficial as most leafy greens are slow to establish and lack competitiveness during early-season. Intelligent crop rotation fosters controlling problem weeds for leafy greens, like nutsedge or radish, in other crops thereby mitigating the seed bank.

A stale seedbed approach can also be quite effective. Tilling and preparing the field for planting will stimulate weed emergence; thus, allowing weeds to emerge followed by a timely non-selective herbicide applied just before planting with minimal soil disturbance while planting can improve weed control. Nutsedge is still very difficult to manage with this approach; the best option may be tillage to prepare the bed, Roundup at its maximum rate applied 5-7 days before planting, and Gramoxone applied 24 hours before planting.

Mechanical control continues to be a primary method of weed control for leafy greens. Deep turning the land and burying troublesome weed seed can be very effective for most weed species assuming the ground has not been turned for at least three years. Many small-seeded weed species, like pigweed and purslane, emerge in the top few inches of the soil profile and when buried lose viability over time. In-row cultivation for non-mulched systems remains effective, however be aware that cultivating will destroy herbicide residual activity. Research evaluating the tine weeder (photo on right) has also proven effective when transplanting, starting clean, initiating tilling a few days after transplanting, and tilling every few days.

Herbicidal control programs are slowly improving and are discussed on the back for seeded (all crops) and transplants (collard and kale). Of importance, previous herbicide history should be determined prior to planting to avoid injury from herbicides that carry over from rotational crops. *Also, remember greater herbicide injury will occur with all crops when applied prior to, during, or just after cold and/or wet conditions.*

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Nick T. Place, Dean and Director

Seeded Bareground Production: *Seeded production offers greater challenges in weed control and poses greater crop injury potential as compared to transplants (collard and kale). It is nearly impossible to manage a severe radish or nutsedge infestation in this system.*

Step 1.	Remove weeds with tillage, Roundup*, and/or Gramoxone** prior to planting.
Step 2.	Incorporate Treflan 2" deep into moist soil at 10-16 oz/A with lower rates on lighter soils, in an intense irrigation program, and/or in a harsh environment.
Step 3.	**Collard and Kale ONLY:** once plants have reached 3" growing normally, apply Dual Magnum topically at 8-12 oz/A. If plowing, plow first followed by Dual Magnum and then irrigate for activation. **Dual Magnum is <u>not labeled</u> for mustard/turnip** due to consistent reduction in biomass.
Step 4.	Apply Select Max at 9 oz/A without adjuvant when grasses are 3"; goosegrass 1" or less.
Step 5.	Stinger at 0.33-0.5 pt/A can be applied to each of these crops when actively growing up to 30 days before harvest (15 days for turnip top). <u>Review rotational restrictions closely</u>; effective on a limited weed spectrum including clover, cocklebur, and ragweed but will not control radish. Minor injury in mustard greens has been observed.
Note:	Row middle sprays of Roundup, Aim, and/or Satellite HydroCap are available; avoid crop contact.

***Roundup:** apply no more than 30 oz/A of Roundup PowerMax 3 (or equivalent) in a single application and wait <u>≥</u>3 days between application and seeding; additionally, either tillage or irrigation implemented between application and seeding is encouraged.

****Gramoxone:** apply at least 24 hr before planting.

Transplant Bareground or Mulch Production for Collard and Kale Only:

Step 1.	Remove weeds with tillage, Roundup*, or Gramoxone** prior to planting.
Step 2.	*For bareground*, incorporate Treflan 2" deep into moist soil at 10-16 oz/A with lower rates on lighter soils, in an intense irrigation program, and/or in a harsh environment.
Step 3.	About 10 days after transplanting **when plants are growing normally**, apply Dual Magnum topically at 8-12 oz/A. If plowing, plow first followed by Dual Magnum and then irrigate for activation.
Step 4.	Apply Select Max at 9 oz/A without adjuvant when grasses are 3", goosegrass" or less.
Step 5.	Stinger at 0.25-0.5 pt/A can be applied to each of these crops when actively growing up to 30 days before harvest. <u>Review rotational restrictions closely</u>; effective on a limited weed spectrum including clover, cocklebur, and ragweed but will not control radish.
Note:	Row middle sprays of Roundup, Aim, and/or Satellite HydroCap are available; avoid crop contact.

Roundup: **For bareground production: Apply no more than 30 oz/A of Roundup PowerMax 3 (or equivalent) in a single application <u>AND</u> allow ½" of rainfall/overhead irrigation or implement tillage <u>AND</u> at least 7 days between application and transplanting. ***For mulch production:*** Apply no more than 30 oz/A of Roundup PMAX 3 (or equivalent) in a single application and wait <u>≥</u> 3 days before transplanting OR make a single application between 30 and 60 oz/A AND wait <u>≥</u> 10 days; regardless of rate and timing a single rainfall/overhead irrigation of at least 0.5" between application and planting is required to remove the product from the mulch. After irrigation, punch new transplant holes and place plants a minimum of 6" from old holes or torn mulch.

****Gramoxone:** apply at least 24 hr before planting; remove from mulch with ½" of rain/irrigation in a single event.

Critical Thinking Points!

1. **The # 1 weed control mistake made by leafy green growers is applying the grass herbicide too late.**
2. **Obtain Dual Magnum** label at https://www.syngenta-us.com/labels/indemnified-label-login
3. **DO NOT apply Dual Magnum at planting of collard and kale, do not use in turnip or mustard at all.**
4. Plowing can be very effective; ideally plow, then apply residual herbicides back to row middles.
5. Use conservative herbicide rates on sandy soils with low organic matter and/or with intense irrigation.
6. Always follow herbicide label requirements and restrictions; read label for potential injury or carryover concerns.