

UGA Weed Control Programs for Broccoli, Cabbage, and Cauliflower 2019

A. S. Culpepper and J. C. Vance, University of Georgia, Tifton

Crop rotation, tillage, and a sound herbicide program are all often critical components for long-term success. This circular focuses on developing sound herbicide programs while minimizing crop injury for the following production systems: 1) transplanting into bareground, 2) seeding into bareground, and 3) transplanting into mulch. Transplant production is suggested with heavy weed infestations, especially when wild radish is present. Specific production practices may alter weed and crop responses; thus, **growers must evaluate these programs on limited acres until gaining experience.**

TRANSPLANT BAREGROUND PRODUCTION: A systems approach using Treflan, Goal 2 XL, Dual Magnum, and Select Max can be extremely effective in the management of weeds while minimizing injury.

Step 1. The first step to success in bareground production is making sure no weeds are emerged at planting. If this requires Roundup as a burndown, make sure applications are made at least 3 days prior to transplanting. Additionally, after application but before planting, either irrigate or till the soil. Figures 1 and 2 show damage from Roundup applied 1 day preplant. Gramoxone is also an option, make sure to apply it at least 24 hr prior to transplanting (REI).

Step 2. Incorporate Treflan 2 inches deep into a moist soil at 10 to 16 oz/A; use lower rates on lighter soils, in an intense irrigation program, and/or in a harsh environment. Transplants are more tolerant than seeds.

Step 3. After land is prepared for planting, apply Goal 2XL, irrigate for ideal planting environment, wait at least 3 days (**at least two days must be sunny**), and then punch holes and transplant. Goal 2XL rate should be 10 to 16 oz/A; lower rates on sands with intense irrigation or when cold and wet. Also, use of transplants at least 5 weeks of age can reduce injury potential. Goal is a very effective herbicide for controlling pigweeds, purslane, primrose, radish, and other broadleaf weeds (Figure 4); include Gramoxone or Roundup when applying Goal 2XL if weeds have germinated but again make sure the Roundup is applied at least 3 days prior to planting and irrigate after application and before planting.

Step 4. About 10 days after transplanting **when plants are growing normally**, apply Dual Magnum topically at a rate of 8 to 12 oz/A. Delay Dual Magnum application if plants are stressed.

Step 5. Apply Select Max at 9 oz/A without adjuvant when grasses are 3 inches or less.

Figure 1. Broccoli response to Roundup PowerMax II applied 1 day before transplant.

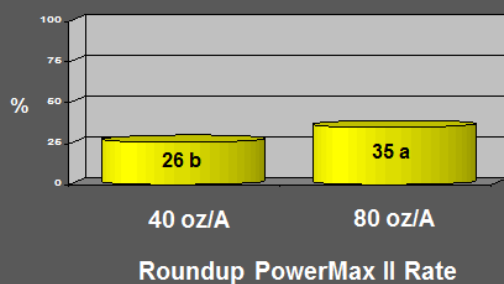
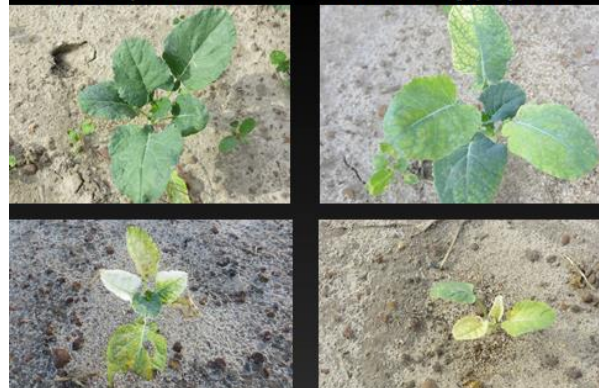


Figure 2. Top left photo: Non-treated. All other photos: Roundup PowerMax II at 40 oz/A one day preplant



SEEDED BAREGROUND PRODUCTION: Seeded production offers greater challenges in weed control and poses greater crop injury potential as compared to transplants. The program below may be helpful but for fields heavily infested with wild radish, transplant production is strongly encouraged as it allows the use of Goal.

Step 1. Incorporate Treflan 2 inches deep into a moist soil at 10 to 16 oz/A with lower rates used on lighter soils, in an intense irrigation program, and/or in a harsh environment.

Step 2. Once plants have reached 3 inches **growing normally**, apply Dual Magnum topically at 8 to 12 oz/A.

Step 3. Apply Select Max at 9 oz/A without adjuvant when grasses are 3 inches or less.

TRANSPLANT MULCH PRODUCTION: A systems approach using Goal 2XL, Dual Magnum, and Select Max can be extremely effective in the management of weeds while avoiding unacceptable crop injury.

Step 1. Control emerged weeds with Roundup and/or Gramoxone prior to planting; both products must be removed from mulch by 0.5 inch rain/irrigation in a single event prior to planting or severe injury can occur (Figure 3). Avoid Roundup applications within 5 d of planting even when washing mulch if possible.

Step 2. Apply Goal 2XL prior to punching new holes and wait at least 5 days (**at least two days must be sunny**) after application **before** punching holes and transplanting. In most situations, Goal 2XL at 12-16 oz/A is in order although rate can be increased to 24 oz/A for severe weed infestations (some injury is expected at 24 oz/A). Goal is a very effective herbicide for controlling pigweeds, purslane, primrose, radish, and other broadleaf weeds (Figure 4).

Step 3. About 10 days after transplanting **when plants are growing normally**, apply Dual Magnum topically at 8 to 12 oz/A. Delay Dual Magnum application if plants are stressed.

Step 4. Apply Select Max at 9 oz/A without adjuvant when grasses are 3 inches or less.

Step 5. Row Middle: 1) Dual Mag. + Goal + Roundup or 2) Dual Mag. + Chateau + Roundup are excellent options prior to planting. Avoid contacting the mulch top with either mixture, wait at least 3 days (at least 2 sunny) after applying Goal, but before planting. **To stress an important point: DO NOT allow Chateau to contact the top of the mulch.**

Figure 3. Roundup must be removed from the mulch.



Roundup on mulch

No Roundup

Figure 4. Goal is very effective on many problem weeds.



Pigweed

No Goal

Goal preplant

Critical Thinking Points To Avoid Crop Injury!

1. In transplant production, use the Goal 2XL formulation. **DO NOT USE GOAL IN SEEDED PRODUCTION!**
2. Use conservative herbicide rates when planting on sandy soil with low organic matter and/or with intense irrigation.
3. Dual Magnum topical application should be applied when crop is growing normally and not overly stressed.
4. **Herbicides will cause greater injury when applied prior to, during, or just after cold conditions.**
5. In bareground transplant production, do not disturb Goal application with tillage.
6. **Dual Mag.** is a 3rd party registration. Obtain label from <https://www.syngenta-us.com/labels/indemnified-label-login>
7. **Chateau** is a 3rd party registration. Obtain label from Georgia Fruit and Vegetable Growers Association.
8. **Avoid fields heavily infested with nutsedge, no control options exist other than plowing once planted.**
9. Always follow label restrictions of each product used; read label for potential injury or carryover concerns.
10. Although growers prefer to spray Treflan preemergence after seeding or prior to transplanting and then irrigate, this use pattern is not currently labeled thus it cannot be recommended. Efforts are underway to address this need.



The University of Georgia and Ft. Valley State University, the U.S. Department of Agriculture and counties of the state cooperating. Cooperative Extension, the University of Georgia College of Agricultural and Environmental Sciences, offers educational programs, assistance and materials to all people without regard to race, color, national origin, age, gender or disability.

An Equal Opportunity Employer/Affirmative Action Organization
Committed to a Diverse Work Force