

Weed Control in Brassica Crops

New York 2016

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The Brassica crops include broccoli, Brussels sprouts, cabbage, and cauliflower, often called the cole crops. In addition to the cole crops, the Brassica group includes leafy greens, including garden cress, collard, kale, kohlrabi, turnip greens, watercress, and many oriental greens. The third major group of Brassica crops is the Brassica root crops, including daikon, horseradish, radish, rutabaga, turnip, and wasabi. Several herbicide labels include the cole crops and various leaf or root crops, but few labels include all of the Brassica crops.

Broccoli, Brussels sprouts, cabbage, and cauliflower are normally grown from transplants. In general, transplants are more tolerant of herbicides than seeded crops. Some herbicides used on Brassica crops may bleach young leaves, or cause curling and spotting on leaves. This discoloration usually has disappeared at harvest of heading crops, but may remain visible on leafy crops. The root crops normally are less sensitive to herbicide injury than the leafy crops, but companies have limited labels for herbicide use on root crops.

Treflan incorporated before transplanting cole crops has been a common herbicide treatment for many years. It can be used safely when soil temperature is above 60F. Below 60F, transplant roots do not grow well in Treflan-treated soil, and the roots often have a bottle brush appearance. Treflan does not control mustard weeds (shepherdspurse, yellow rocket, wild radish, Virginia pepperweed) or composite weeds (common ragweed, common groundsel, horseweed), or smartweeds (ladysthumb, Pennsylvania smartweed, prostrate knotweed). It should be used with another preemergence herbicide, such as GoalTender.

Devrinol XT is a new formulation of napropamide that lasts longer and is more effective than the previous formulation. It may be applied to cole crop transplants before or after transplanting. It should be used in spring when soil temperature is below 60F. Devrinol is a good annual grass herbicide but does not control many important broadleaves.

Dual Magnum (indemnified state label) may be applied before planting or up to 48 hr after transplanting the heading Brassicas. It should not be used with GoalTender to avoid crop injury. Dual Magnum controls most annual grasses and broadleaves. It is effective against yellow nutsedge, eastern black nightshade, and redroot pigweed. It is weak on common lambsquarters, mustards, and some composites. Dual Magnum also is labeled for the leafy Brassica crop group.

Prowl H2O is similar to Treflan chemically. It should not be used when soil temperature is below 60F. It may cause plant stunting, S-shaped stems, swelling at the soil line, and broken plants at the soil line in stiff winds. The Prowl H2O label requires application to soil between rows to avoid plant contact and the above problems. When air and soil temperature is above 70F, there is less potential for crop injury from Prowl H2O.

GoalTender should be applied to the soil surface before transplanting. Do not incorporate or work the soil after application. Water the transplants soon after planting to avoid plants lying on the soil surface, which can cause foliar burn. Transplants normally grow out of the injury but may be delayed in maturity. GoalTender controls most annual broadleaves and grasses for 4-6 weeks.

Command is labeled only for cabbage. It can be applied before or after transplanting. It often causes early bleaching of cabbage leaves, but the plants grow out of the injury. Command controls most annual grasses and several broadleaves, including common lambsquarters, common ragweed, galinsoga, and velvetleaf. It should not be used within 1200 feet of greenhouses or dwellings. There is a tolerance for the heading Brassica crop group, and we hope to have the label expanded to all the cole crops.

Spartan is labeled for processing cabbage. We hope to expand the label to all cole crops. Spartan controls crabgrass, fall panicum, foxtails, and many broadleaves. It provides good control of common chickweed, common lambsquarters, common groundsel, galinsoga, nightshades, pigweeds, and smartweeds. It has some yellow nutsedge activity.

For postemergence weed control in Brassica crops, there is limited choice. GoalTender may be applied once or twice with 4-8 fl oz in broccoli, cabbage, and cauliflower. This rate will control many small annual broadleaves, but may miss most Brassica weeds (shepherdspurse, wild radish, yellow rocket, Virginia pepperweed). A grass killer (Poast or Select Max) may be applied with the GoalTender to improve annual grass control.

The only other postemergence herbicide registered for the Brassicas is Stinger, which controls composites, legumes, nightshades, and smartweeds. Stinger is labeled for all the heading Brassicas and the leafy Brassicas. It may curl crop leaves but they grow out of the injury.

Bicyclopyrone (BIR) is a new HPPD inhibitor which has preemergence and postemergence activity against several annual grasses and broadleaf weeds. We used BIR pretransplant, posttransplant, and postemergence on broccoli, cabbage, and Chinese cabbage. Broccoli and cabbage were tolerant of BIR pretransplant and postemergence. There was some injury in some experiments when applied posttransplant. BIR killed Chinese cabbage postemergence. After 3 years of testing, it appears to be safe enough for labeling on cole crops. BIR kills most annual grasses and broadleaves when they are in the cotyledon or 1-2 leaf stage. Once beyond that stage, it misses many weeds. We need to explore potential uses to determine the most effective methods and timing of application.

We have tested Zidua on the cole crops for several years but it appears to be too toxic for use on Brassica crops.