

Two New Fungicides for Greens and Cole Crops

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Heading cole crops and greens, important crop groups in South Carolina, may now be treated with two new fungicides, Switch and Endura. Many different crops are included in the registrations. Heading brassicas (cole crops) include broccoli, Brussels sprouts, cabbage, cauliflower, napa Chinese cabbage, and kohlrabi. Leafy brassica greens include bok choy, broccoli raab (rapini), collard, kale, mustard, mustard spinach, and rape salad greens.

Switch, a water-dispersible granule, is a mixture of two new chemicals, cyprodinil and fludioxonil. It is marketed by Syngenta. Switch may be applied until 7 days before harvest. To reduce the risk of fungicide resistance, only two back-to-back applications of Switch are allowed; then another fungicide must be used once before Switch is used again. See the product label at <http://www.cdms.net/ldat/ld5EM011.pdf>

Endura is a dry granular formulation of the active ingredient boscalid. Marketed by BASF, this fungicide is a protectant with some curative activity. Endura may be applied right up to harvest on heading cole crops, but not later than 14 days before harvesting greens. To reduce the risk of fungicide resistance, only two applications are allowed per crop. See <http://www.cdms.net/ldat/ld6CU006.pdf>

Both fungicides are registered on all crops in the “Brassica Leafy Vegetable” crop group used by EPA with one exception: turnip. Turnip greens may be treated with Switch, but not with Endura. Turnips harvested for or with roots may not be treated with either fungicide. Note that these registrations also do not include spinach or lettuce.

Both Switch and Endura control *Alternaria* leaf spot and powdery mildew. Endura also controls gray mold and white mold. Endura is the only fungicide registered to control white mold on cole crops and greens. White mold can be a problem during cool, wet springs on over-wintered collard and cabbage.

This disease attacks mature plants more often than young plants.



White mold on cabbage head. Notice the soft, wet rot and white fungus growth. Firm, black sclerotia will form at the center of the rotted area.

In most years, *Alternaria* leaf spot and downy mildew are the most common fungal diseases on collard. Neither Endura nor Switch control downy mildew. Growers still need to use Aliette or Quadris/Amistar if downy mildew is a problem. Based on tests in Georgia, Switch is less effective against *Alternaria* than Quadris is.

How do Endura and Switch fit into a disease management program for collard? Either product is a good rotation partner with Quadris to control *Alternaria*. (Quadris or Amistar must be rotated 1:1 with another type of fungicide.) See the Clemson [Pest Management Handbook](#) and choose “Commercial Vegetables.”

Timing fungicide applications and harvest may be a concern with *Alternaria* leaf spot, which typically is a problem on mature plants. Based on pre-harvest intervals, Endura can be sprayed 2 weeks before harvest, followed by Switch 1 week before harvest, followed by Quadris right before harvest.

September 2004