

Management recommendations for Corn Flea Beetle and Stewart's Bacterial Wilt Disease of Sweet Corn

1. Plant sweet corn varieties that are resistant to Stewart's Wilt disease:

The most effective management tactic for Stewart's wilt is to use resistant varieties. Varieties can be categorized into four levels: resistant, moderately resistant, moderately susceptible, or susceptible to Stewart's Wilt. Some hybrids that are resistant to Stewart's wilt are Bonus and Eliminator (yellow su), Sweet Sue (bicolor su), Miracle (yellow se), Ambrosia and Buckeye (bicolor se), Argent (white se), and Zenith (yellow sh2). A list of disease ratings for 674 sweet corn varieties evaluated at the University of Illinois can be found via the internet at: <http://www.sweetcorn.uiuc.edu/report-index.html>

2. Insecticides for corn flea beetle control:

Option 1: Buy sweet corn seed that has been commercially treated with a systemic insecticide. Buy seed treated with Cruiser 5FS (thiamethoxam), Poncho 250 (clothianidin), or Gaucho 480 (imidacloprid). This is the easiest way to apply insecticide because it is already on the seed when bought. These treatments are effective for flea beetle control until the 5-leaf stage.

Seed treatment is advantageous on varieties rated as moderate or susceptible to Stewart's Wilt, especially in a summer after a relatively warm winter. Tests done by Dr. Jerald Pataky at the University of Illinois showed that incidence of Stewart's wilt in susceptible varieties was reduced by about 70% by Gaucho. Gaucho also reduced the severity of symptoms. The degree of control by Gaucho was roughly equivalent to using a hybrid with one higher level of resistance, among the four levels used when rating the disease. Gaucho alone will not control corn flea beetle and Stewart's wilt on susceptible varieties.

Cruiser and Poncho are similar to Gaucho but have a broader spectrum of activity against soil insect pests.

Option 2: Use Concur or Latitude as a hopper box seed treatment. These are systemic insecticides that are formulated as dry talc-based products. Concur is imidacloprid + metalaxyl. Latitude is imidacloprid + carboxin + metalaxyl. These are effective for flea beetle control until the first true-leaf stage.

Option 3: Use a systemic soil insecticide at planting, in furrow or as a drench banded over the row. Furadan 4F (carbofuran) is the best choice. The other choices are Counter 15G or 20CR (terbufos) or Thimet 20G (phorate), but these are not usually as effective as Furadan for control of corn flea beetle. The products provide systemic protection for about 2 to 4 weeks.

NOTE: THERE IS NO ADVANTAGE TO USING MORE THAN ONE OF OPTIONS 1, 2, AND 3 TO CONTROL CORN FLEA BEETLE IN THE SAME PLANTING.

Option 4: Wait until seedlings emerge when they can be scouted for presence of flea beetles. Scout two or three times per week until the 7-leaf stage, preferably on calm sunny warm days when beetles are most likely to be found on corn plants. The threshold for susceptible varieties is 6 beetles per 100 plants. The threshold for resistant varieties is 2 beetles per plant and >25% of seedlings severely damaged by beetle feeding injury. If the threshold is exceeded, then spray with Sevin, Diazinon, Penncap-M, Lannate, Lorsban, Pounce, Asana, Mustang, Capture, Warrior, or Proaxis. The foliar sprays are not usually as effective as the systemic seed or soil treatments, especially when flea beetle populations are heavy. The foliar products provide protection for about 7 days. Control of corn flea beetle is not needed after the 7-leaf stage.

Flea Beetle Index	Predicted severity of Stewart's Wilt	Variety recommendation	Insecticide recommendation
<90	Negligible	Resistant or susceptible varieties can be grown, but should be scouted to verify that flea beetles are not present.	On resistant or susceptible varieties, use insecticide option 4.
90 to 94	Slight to moderate	Resistant varieties are recommended. Susceptible varieties can be grown but should be supplemented by insecticide.	On resistant varieties, use insecticide option 4. On moderate or susceptible varieties, use insecticide options 1, 2, or 3.
95 to 100	Moderate to severe	Resistant varieties are strongly recommended. Susceptible varieties can be grown but must be supplemented by insecticide.	On resistant varieties, use insecticide option 4. On moderate or susceptible varieties, use insecticide options 1 or 3.
>100	Severe	Resistant varieties are strongly recommended. Susceptible varieties are likely to perform poorly even if treated with the best insecticide.	On resistant varieties, use insecticide option 4. On moderate or susceptible varieties, use insecticide options 1 or 3.