A POWERFUL NEW INSECTICIDE FOR THE ORGANIC GROWER

Thomas P. Kuhar and John Speese III, Eastern Shore AREC - Painter, VA

Entrust 80WP® is a new insecticide manufactured by Dow, and it will be available commercially by mid-April 2003. Entrust contains the active ingredient spinosad, which is in the naturalyte class of chemistry. Spinosad is a fermentation product produced by the soil-dwelling actinomycete Saccharopolyspora spinosa. Actinomycetes are microorganisms that have characteristics of both bacteria and fungi. In summer 2002, spinosad was granted organic status by the USDA National Organic Program (NOP). Spinosad is not a new insecticide, and it has been marketed for a number of years under trade names such as SpinTor 2SC® for fruit and vegetables, and Tracer® for cotton. These formulations; however, contain inert ingredients that are not NOP approved. Entrust is a wettable powder and contains NOP approved inert ingredients; therefore, it is OMRI certified and labeled for use on a wide variety of insect pests on agronomic crops, fruits, and vegetables.

In insecticide screening trials conducted at the Eastern Shore Agricultural Research and Extension Center at Painter, VA, we have obtained consistent, good control on a number of hard-to-control vegetable insects with spinosad. For most crops, labeled rates of spinosad range from 0.025 to 0.15 lbs active ingredient/acre.

In bell pepper studies at the ESAREC, spinosad at 0.0954 lb/acre has provided excellent control of European corn borer (ECB), a serious pest of sweet peppers.

Virginia pepper production, and losses in untreated plots may be as high as 50% damaged fruit. Weekly sprays from beginning fruit formation until harvest are necessary in most years. Results with spinosad on peppers have been equal to those of the standard organophosphate acephate (Orthene®, Address®).

Spinosad also has an excellent fit in potato production because it not only controls ECB, but Colorado potato beetle (CPB) as well. Studies at the ESAREC have demonstrated that spinosad at 0.046 lb/acre provides CPB control equal to that of imidacloprid (Provado 1.6F®) foliar sprays at the same rate. In the past, CPB has developed resistance to organophosphate, organochlorine, carbamate, and pyrethroid insecticides; therefore, new classes of effective chemistry are needed from the standpoint of resistance management. Previously, very few materials were available to organic growers for CPB control, among these were the Bacillus thuringiensis tenebrionis insecticides and certain formulations of azadirachtin (neem).

These materials have a major drawback in that they were effective only on small larvae. Spinosad, however, is effective on larvae and hardshells (adult beetles) as well.

Spinosad was also effective at controlling the worm complex in cole crops. Applied at 0.046 and 0.094 lb/acre in 1998 cabbage trials at the ESAREC, spinosad produced >92 % marketable heads in cabbage, compared to 3 % marketable heads in the untreated plots. Spinosad is also very effective on the corn earworm, which is the same insect species as the tomato fruitworm and the cotton bollworm. It is also effective on some thrips and leafminers, which are hard-to-control pests of many fruit and vegetable crops.

Entrust 80WP® will be labeled on the following vegetables: fruiting vegetables (e.g. pepper, eggplant, tomato), potatoes, cucurbits (melons, cucumbers, pumpkins, squash), cole crops and

sweet corn, as well as minor crops within these groups. Many fruit and nut crops are also on the label. Growers should consult the label carefully before using. We plan to evaluate Entrust® on vegetable insects at the ESAREC this year, and we believe that it should provide the same level of control as the currently labeled formulations of spinosad.

Originally printed in Virginia Vegetable, Small Fruit and Specialty Crops – March-April 2003.