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AN INTEGRATED BIOLOGICAL CONTROL V^OGRPM¥OYILEPTINOTARSADECEMUNEATA

Eleanore Groden^ Francis A. Drummond\ D. Biever2 and A.R. Alford^

1 • Dept. Entomology, Univ. of Maine, Orono, ME 04469, USA
2 : USDA, ARS, Fruit & Veg. Insect Res., Yakima, WA 98902, USA

Studies were conducted at the University of Mame Potato Researcl Farm in Preque Isle, Maine to examine the potential of a combmation of biological agents for management of the Colorado potato beetle (CPB), Leptinotarsa decemlineata. A combination of small plot evaluations and cage studies were used to assess the effectiveness foliar applications of insect pathogens, Beauueria bassiana and Bacillus thuringiensis, and releases of predators, Perillus biocnlatus and Coleomegilla maculata. Each agent was evaluated mdependentl and in combination with the others. The combination of biological agents were combined in a large plot study to compare an integrate biological control strategy with conventional, and low-input pest management programs.

All Bt treatments resulted in significant reductions in small and large CPB larval densities over the season when compared with othe . treatments. Significant reductions in fourth instar densities were see in the B. bassiana and P. bioculatus treatments compared to th control, however densities were not as low as those m the Bareatments. Analysis of the cage data revealed no mipact c) C maculata releases on CPB populations. The number of adult nroduced were significantly reduced in all Bt, B. bassiana, and r^taLurtreatments com'pared with the control. The lowest mea Emergence was observed in plots with all three naorta^f^//^^^^j^' however, only P. bioculatus alone resulted ^^^^'^^f^'^^%^'^^^^^ emergence than the remaining non-control treatments. These resul indicate that considerable additional mortality occurred during the stage in the soil in the B. bassiana treatments.

The large plot experiment resulted in no significant ^l^P^'^.Z^^' management treatments on CPB egg ^-^-'f':}\^'lll^^^^ lower densities of small and large 1^^^^%^^^.^^ J n J e S season in the biological treatment ^o^^P^.^-^^.^^^^V^Xences betweer low input treatments. There were no significant differences De yields in any of the treatments.