LONG TERM EFFECT OF THE FIRE ANT PATHOGENS VAIRIMORPHA INVICTAE AND THELOHANIA SOLENOPSAE IN ARGENTINA

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Abstract

A long term study of fire ant populations (mainly Solenopsis invicta Buren) naturally infected with Vairimorpha invictae Jouvenaz and Ellis (Microsporida: Burenellidae) and Thelohania solenopsae Knell, Allen, and Hazard (Microsporida: Thelohaniidae) is in progress. Six rectangular field plots (10 x 100 m) were set up in north central Santa Fe Province, Argentina, in May 2000. Initially, five of these plots were infected with microsporidia, the density of colonies ranged from 4 to 19 per plot and the infection rates ranged from 15 to 50% of the active colonies. The other plot was infection-free (control plot) with an initial density of 8 uninfected colonies. The plots have been monitored every 2-5 months for the density of colonies (mound counts and population indexes) and rates of microsporidian infections. In February 2001, a 85-100% reduction in fire ant colony density was observed in all infected plots. Some reinfection occurred in two plots. In contrast, in the control plot, a gradual increase in colony density was observed until both microsporidia naturally infected the plot in December 2001. After that, a 100% reduction in colony density was observed. In February 2002, only 5% of the initial number of colonies was found in one plot. Preliminary conclusions indicate that these microsporidia have lowered the field density of S. invicta in Argentina. The magnitude of their impact will be determined at the end of the study (2003/2004). This detrimental effect on S. invicta populations is consistent with previous work conducted in Buenos Aires Province with S. richteri Forel. Because of dual infections, it was impossible to separate the individual effects of both microsporidia.