Tick Control in Cattle with Effective Microorganisms

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Background

The tick *Boophilus microplus*, is a serious pest of cattle in Brazil. In the State of Rio de Janeiro, direct losses in milk and beef cattle production are a major economic concern. Indirect losses are also costly in terms of control measures based mainly on chemical pesticides and their adverse effects on environmental pollution, and milk, meat and human contamination. Because of the magnitude of this problem, a study was conducted to determine whether Effective Microorganism (EM) could provide a measure of biological control against this bloodsucking arachnid.

Experimental Procedure and Results

Methodology consisted of the application of EM 5 in two stages: in the first stage, engorged females were treated with an EM solution; in the second stage, eggs or larvae were immersed in decreasing concentrations of EM in water, Results were evaluated by egg weight and larval mortality.

Pretreatment of engorged females with EM 5 concentrations ranging from 400 to 900 g liter^{-1} resulted in 80 percent or greater mortality of the larvae in an in vitro experiment; 20 percent or fewer of the larvae survived. In another experiment, engorged females were immersed in EM 5 solutions at 400 or 900 g liter^{-1} and the resulting larvae were immersed in increasing concentrations of EM 5 from 400 to 900 g liter^{-1}. The larval mortality ranged from about 45 percent at the lower EM 5 concentrations (400 to 500 g liter^{-1}) up to 65 percent at the higher concentrations (700 to 900 g liter^{-1}).

These preliminary results seem to indicate that unidentified non-controlled factors may have interfered in the test systems that were used. Thus, carefully controlled experiments are now being conducted to ensure that the results obtained will be consistent and conclusive.