

Improving Biocontrol of European Chafer

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Introduction

The European Chafer, *Rhizotrogus majalis*, is a serious invasive turf pest that was found in New Westminster, BC in 2001. Chafer larvae feed on grass roots and damage lawns, boulevards, golf courses and other commercial grass lands. Increasing concern surrounding the use of chemical pesticides and the potential contamination of the environment from their use has resulted in an increased interest in using naturally derived products to control these new invaders. Entomopathogenic fungi, namely *Metarhizium anisopliae* and *Beauveria bassiana*, *Heterorhabditis Bacteriophora* (an entomopathogenic nematode), and Neem seed cake were applied alone and in combination, on both first and second instar Chafer larvae in 2010 and 2011.



Figure 1. European Chafer adult.



Figure 2. European Chafer larvae.

Objectives

The aim of this study was to determine the efficacy of various controls of European Chafer larvae, including naturally occurring nematodes, several strains of native entomopathogenic fungi, Neem seed cake and various combinations of these agents at different rates.

Methods

Laboratory and field trials were set up to test the control of first and second instar European Chafer larvae respectively. Trial plots were constructed with soil, turf, and pots/tulip boxes. Fungal spores of *M. anisopliae* and *B. bassiana* and nematodes were applied as a drench to the surface of the turf. Neem seed cake (powdered) was mixed thoroughly with soil. Mortality assessments for the laboratory trial were conducted seven weeks post-treatment, and for the field trial eleven weeks post-treatment.

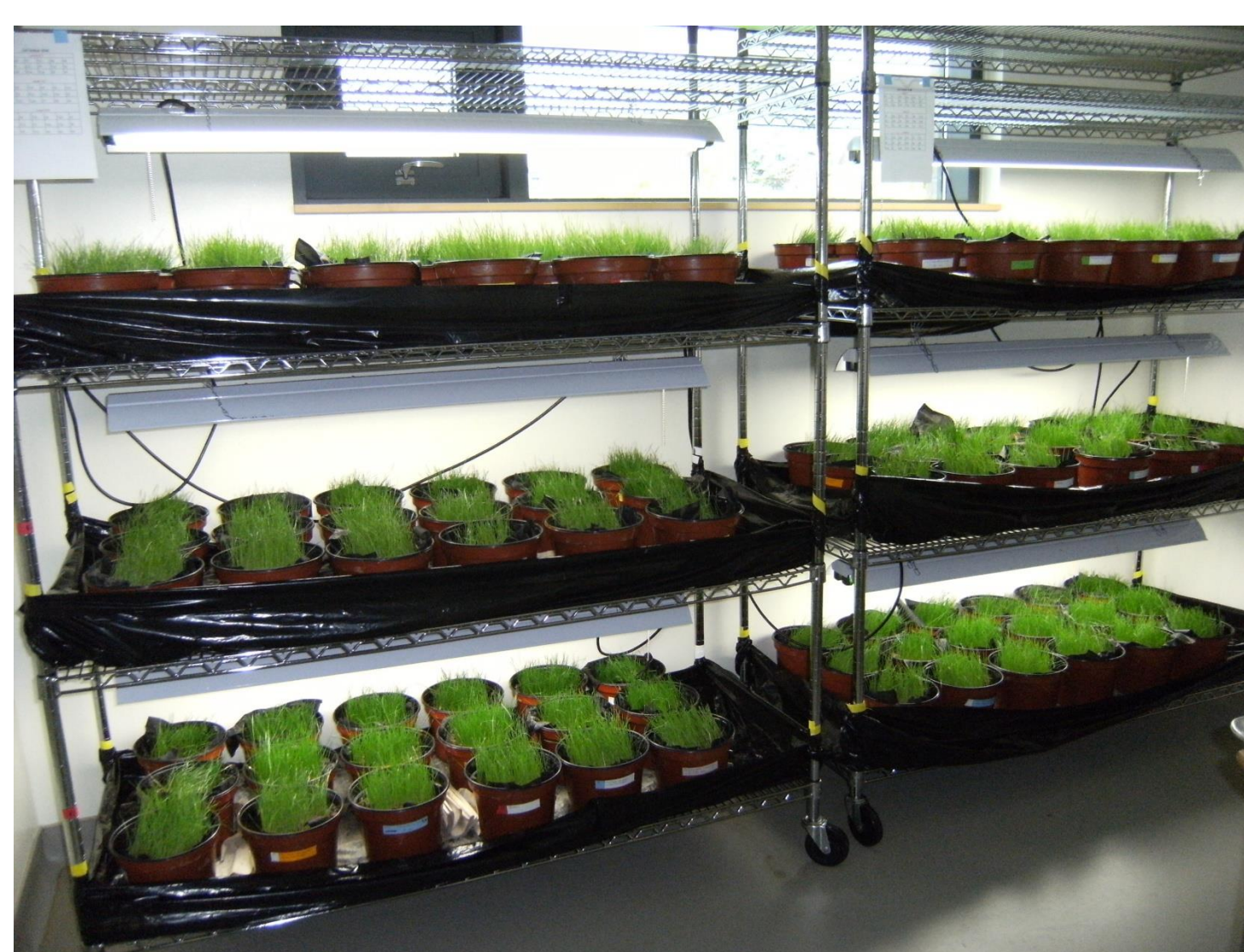


Figure 3. Laboratory trial



Figure 4. Field trial

Results

Some treatments using a combination of biocontrol agents showed promise against first instar chafer, and Neem cake was effective for control of both first instar (small) and second instar (large) larvae.

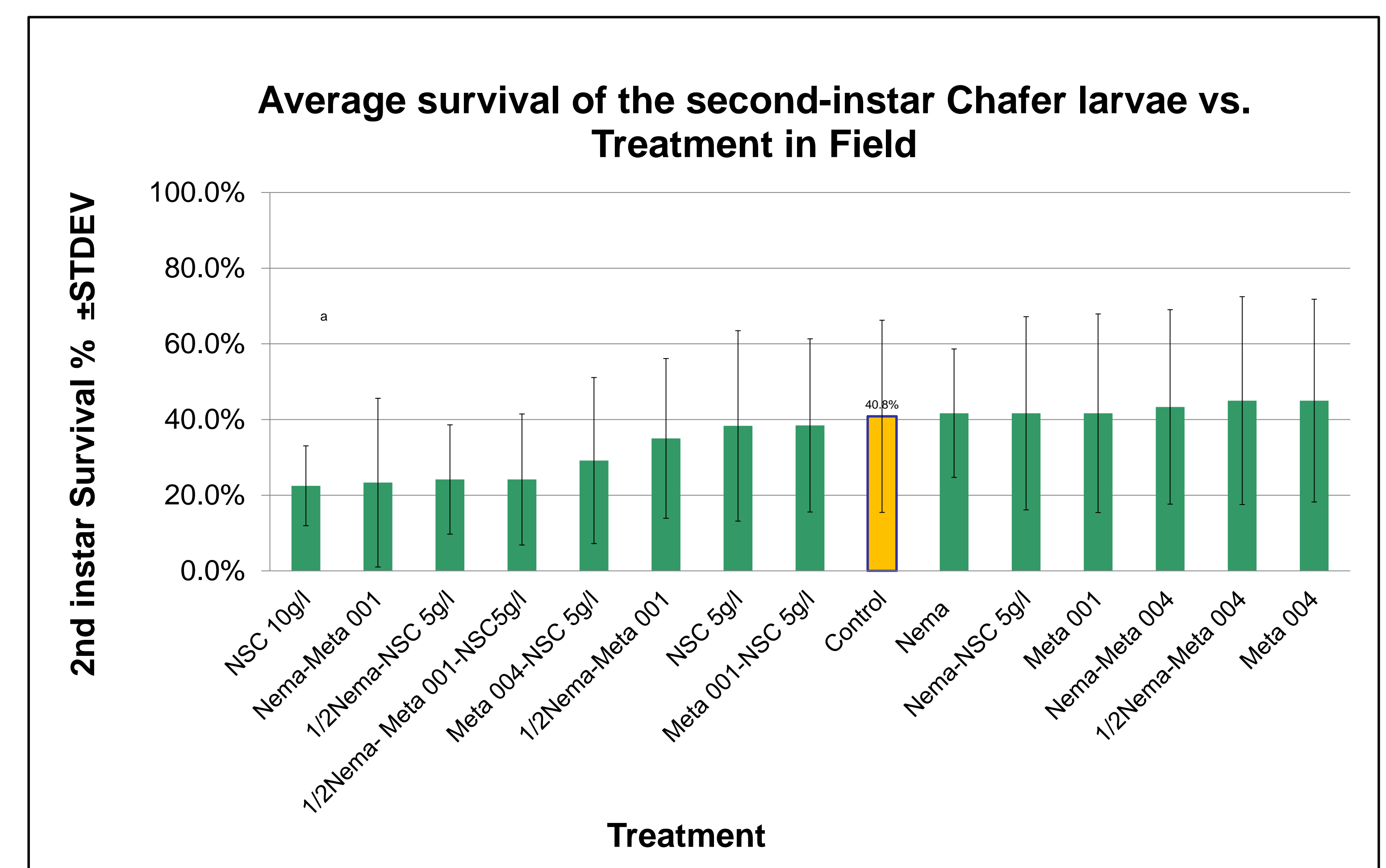
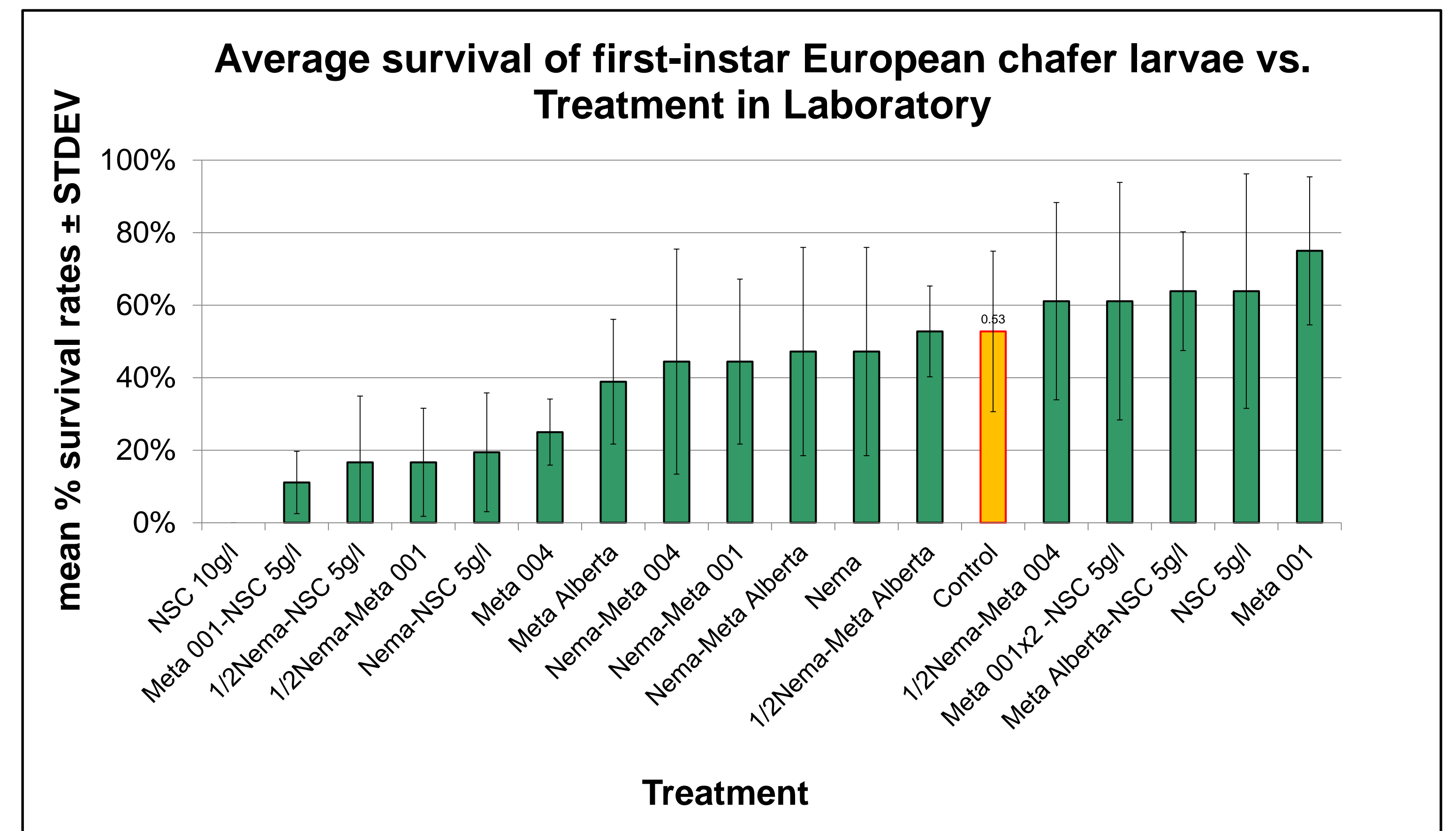


Figure 5. Chafer larva infected with *M. anisopliae*



Figure 6. Neem Seed Cakes ready to be blended with soil

References

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