

Phenology and spatial analysis of some Coleoptera infesting a feed-mill

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Abstract

Coleoptera collected by food-bait traps and categorized in a ground floor of Central Italy feed-mill were reported.

A total of 3,396 beetles were found during the one-year survey; more abundant presence of specimens occurred in July and August whereas less presence were observed during February and March.

Tribolium confusum J. du Val. was the most abundant and widespread species, followed by *Oryzaephilus surinamensis* (L.), *Tribolium castaneum* (Herbst), *Attagenus brunneus* Fald., *Sitophilus oryzae* (L.) and *Stegobium paniceum* (L.).

The spatial patterns of the six species were depicted; kriging procedures applied to annual trap catches showed a high variability in the distribution of different pests.

For *O.surinamensis*, *T.castaneum* and *T.confusum*, high catches allowed us to built the contour maps for monthly trap catches; the comparison of the spatio-temporal dynamic of these three pests highlights a segregation of populations both in the space and time and suggests a strong interaction between species.

On the basis of our results, spatial and temporal distributions observed result deeply affected by some factors, as food availability, processing practices, temperature conditions in different premises and interaction between species.

Key words: Phenology, spatial analysis, Coleoptera, feed-mill