



XXIV International Congress of Entomology

'New Era in Entomology'

ICE 2012 DAEGU KOREA

August 19-25, 2012 | Daegu, Korea

S1012TU02

Integrated Pest Management

S1012

Key agronomic and ecological factors impacting moth borers populations and their natural enemies in the context of sugarcane expansion and intensification.

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Global intensification and expansion of agricultural areas for more food and energy products is expected to change pest-plant interactions and the related ecosystem services. For example, intensification of agronomic practices, land use change, landscape fragmentation, incorporation of crop genetic improvements and altered harvest regimes lead to predictable shifts in pest and beneficial natural enemy communities in new sugarcane areas. This is particularly the case in the developing countries where natural vegetation patches are rapidly converted into agricultural land. In this context, the risk of biodiversity loss associated with pest outbreaks is often mentioned. Through different experiences in several sugarcane producing countries, it is shown how over application of fertilizers, water stress, misuse of insecticides, harvest delay, trash blanketing cane burning, use of susceptible varieties, Silicon deficient soils can dramatically increased infestation from major moth borers such as *Eldana saccharina* (Lepidoptera: Pyralidae) and *Chilo sacchariphagus* (Lepidoptera: Crambidae) with sometimes severe yield losses. This situation is often exacerbated by the lack of natural enemies, particularly in large-scale monoculture systems where natural vegetation has been cleared. The impact of such factors on arthropod communities should be carefully analyzed and incorporated in a new ecologically-based pest management approach at a landscape scale. This calls for increased scientific understanding of landscape effects on spatial crop?pest?natural enemy interactions and their ecosystem services such as biocontrol in the sugarcane areas.

Keywords: *stem borers, sugarcane, infestation, agricultural practices, ecosystem services, beneficials*

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