

Biological control of corn earworm – sunn hemp enhancement compared to mass releases of parasitoids

Roshan Manandhar and Mark G Wright, PEPS

Corn earworm (*Helicoverpa zea*, Lepidoptera, Noctuidae) is a serious pest of sweet corn in Hawaii. Managing this pest with insecticides is near impossible, and wild levels of natural enemies are inadequate to suppress the massive numbers of larvae that emerge from eggs laid onto corn silks. We recently completed work comparing the potential of enhancing natural enemy abundance using sunn hemp to create in-field insectaries, with mass-releases of lab-reared egg parasitoids. Sunn hemp attracts a Lycaenidae butterfly that lays its eggs on the flowers. Up 60% of these eggs may be parasitized by various parasitoid wasps, including *Trichogramma pretiosum*. These parasites, natural enemies of corn earworm as well, can move from sunn hemp into corn planted nearby. *Trichogramma pretiosum* can also be fairly easily mass reared in captivity.



We conducted trials comparing corn earworm parasitism in a corn monoculture, corn intercropped with sunn hemp, and in corn plots with releases of about 300,000 *T. pretiosum* per acre, a procedure known as augmentative biocontrol.

Parasitism was highest in the augmentative biocontrol plots, followed by the sunn hemp intercropped plots, with the un-augmented monoculture showing the lowest level of parasitism. Augmentation plots also had the highest percentage of undamaged corn ears, and smallest percentage of severely damaged ears. Overall, the augmentation plots had the highest corn ear yield, and sunn hemp plots slightly higher than the monoculture plots. Predators (*Orius* spp.) were more abundant in sunn hemp plots, and they may contribute to suppressing other corn pests.



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