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LOCKWOOD LECTURE

"Exploiting Chemical Ecology and Plant Signaling for Developing a Push-Pull Strategy for Africa and Beyond"

Dr. Zeyaur R. Khan

Principal Scientist, International Centre of Insect Physiology and Ecology, Nairobi, Kenya and Adjunct Professor, Cornell University, Ithaca, NY

Monday, November 13, 2017

Tea: 2:30 p.m., Lecture: 3:00 p.m.

Jones Auditorium, The Connecticut Agricultural Experiment Station
123 Huntington Street, New Haven, CT

Dr. Khan has developed novel approaches for integrated pest and weed management for resource poor African farmers by selecting appropriate companion plants that naturally emit signaling chemicals (semiochemicals) and influence plant-plant and insect-plant interactions. Plants highly attractive for egg laying by lepidopteran cereal stem borer pests were selected and employed as trap crops, which produce significantly higher levels of volatile cues, used by gravid stem borer females to locate host plants, than corn or sorghum. Despite their attractiveness to stem borer moths, these plants supported minimal survival of the pests' immature stages. Plants that repelled stem borer moths were selected as intercrops, which also attracted natural enemies of the pests through emission of (E)-β-ocimene and (E)-4,8-dimethyl-1,3,7-nonatriene. The intercrop also suppressed parasitic weed, *Striga hermonthica* (Del.) Benth., through an allelopathic mechanism. He has identified and selected new drought and temperature tolerant trap and intercrop plants suitable for drier agro-ecologies which have appropriate chemistry in terms of stem borer control and striga suppression. Opportunities for semiochemical delivery by companion plants, including plant-plant signaling and early herbivory alert, are being explored for developing future smart IPM strategies for Africa and beyond.