

# Decision Support Systems to Field Studies: CIPM strengths and collaborations

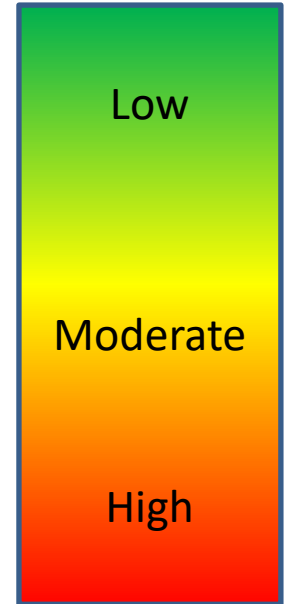
Godshen Robert Pallipparambil







Pest Information Database



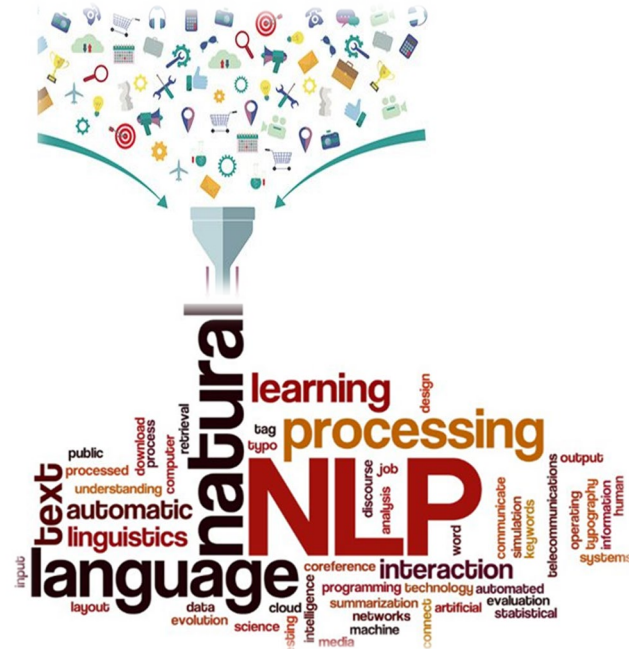
# Upcoming focus areas



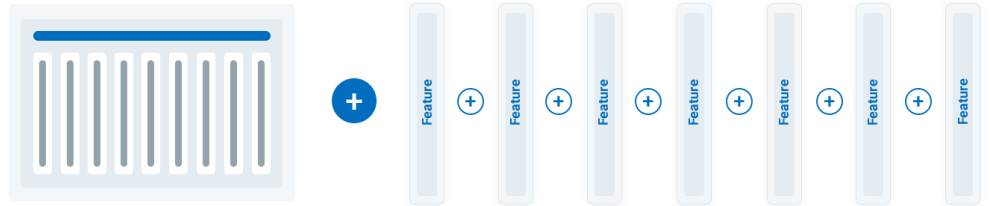
**N.C. Plant Sciences Initiative**

**Improving the World**

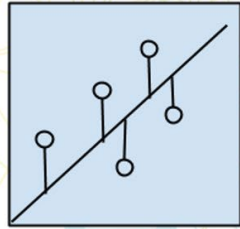
Through Plant Science Innovation



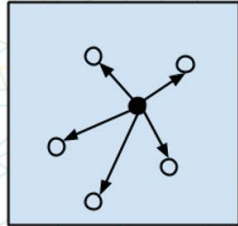
# Text Analysis



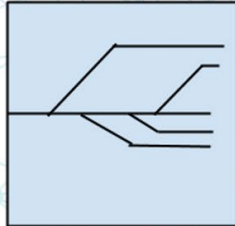
# Text Analysis



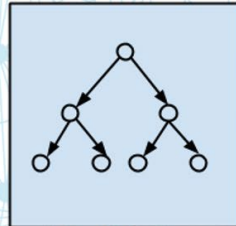
Regression Algorithms



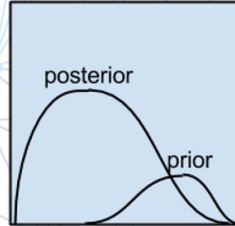
Instance-based Algorithms



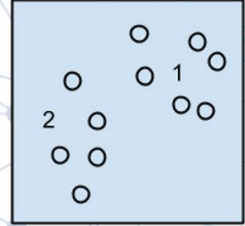
Regularization Algorithms



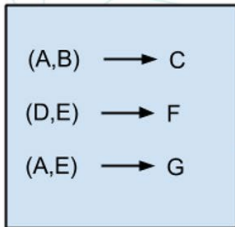
Decision Tree Algorithms



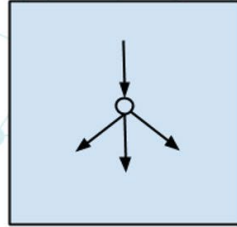
Bayesian Algorithms



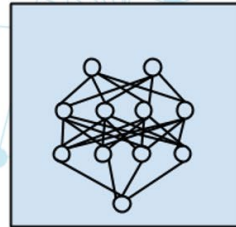
Clustering Algorithms



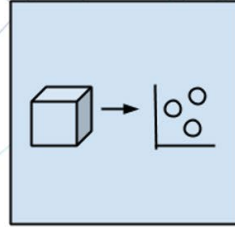
Association Rule Learning Algorithms



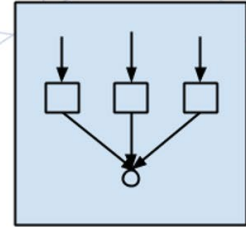
Artificial Neural Network Algorithms



Deep Learning Algorithms



Dimensional Reduction Algorithms



Ensemble Algorithms

# Text Analysis

## Label

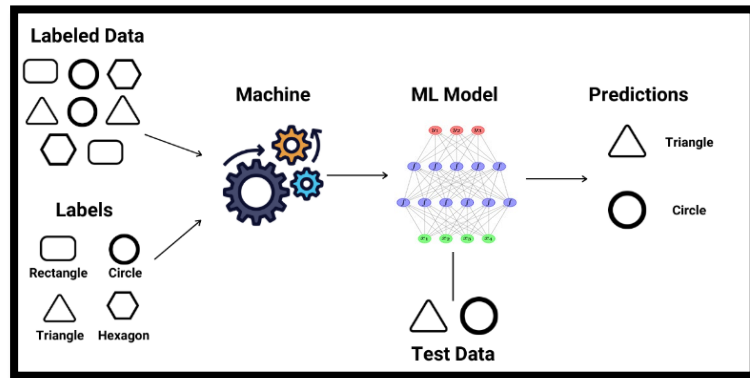
great numbers during the active vegetative growth at the pod formation stage. During 1995-96, the pest appeared by the end of December-January in chickpea fields and slowly increased in numbers. However, by the end of February and early March, it transformed into a **severe outbreak** of *H. armigera*. It was found damaging leaves,

On September 26, 2014, APHIS molecularly confirmed the first U.S. **detection of Old World bollworm (OWB)** in San Germán, **Puerto Rico**. This single adult male moth was detected in a pheromone trap in a bean field on September 12, 2014, as part of a PPQ survey effort. OWB feeds on many types of plants and can affect 180 species of wild and cultivated plants in more than 45 families. Major hosts include: artichokes, beans and forage legumes, bell peppers, cacao, chrysanthemums, cotton, maize, wheat, and other small grains, okra, peas, potatoes, rice, sorghum, sugarcane, sunflowers, tobacco, and tomatoes. In most places where OWB occurs, it is considered a severe economic pest and is also known to fly long distances. OWB is known to occur in many countries in Africa, Europe, Asia, and Oceania and has recently become established in Brazil and Argentina. OWB is closely related to the corn earworm, *Helicoverpa zea*, which is widespread in the United States. The

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controversial scholarly and non-academic debate. The recent return of **pink bollworm** (*Pectinophora gossypiella*) pests in several Indian states has provided cause for concern about widespread resistances in Lepidopteran pests towards the endotoxins produced in Indian Bt cotton plants as well as about severe setbacks in regard to cotton farmers' livelihood security. This study is the first to provide empirical evidence



# Collaborations



Dr. Rangaswamy Muniappan  
Director, IPM innovation lab




**USAID**

# Recent International Partnerships



# Collaborations



 **Agricultural Research Service**  
U.S. DEPARTMENT OF AGRICULTURE

**Daniel K. Inouye U.S. Pacific Basin Agricultural Research Center: Hilo, HI**

