



Biological Control of Pink Hibiscus
Mealybug (PHM)
Maconellicoccus hirsutus (green)

St. Kitts and Nevis 1995



Origin

Pink Hibiscus Mealybug

- Africa
- India
- Pakistan
- Australia
- South East Asia

Western Hemisphere Infestation PHM

- Caribbean Islands (Early 1990s)
 - Trinidad (August 1995)
 - Grenada (September 1994)
 - St. Kitts (October 1995)

PHM

- Reported attacking over 200 plant genera
- Attacking
 - Fruits : Soursop, guava, grape
 - Vegetables: pigeon pea, beans, maize, peanuts
 - Fiber: cotton
 - Ornaments: Hibiscus, sorrel
 - Trees: teak and mora

Damage of PHM

- Toxic saliva
 - Results in malformation of leaves, fruits and shoot growth
 - Stunting of plant growth
 - Occasional death of plant
 - Shortened internodes “Bunchy Top”
 - **Black sooty mold**

Economic Losses

- 47 plant species infested (limited distribution)
 - Hibiscus, sorrel, vegetables sugar cane
- Trinidad and Tobago
 - Over \$125 million
 - 125 plant species (sugar cane, vegetables, cocoa, orchard crops)
- Grenada
 - Over \$10 million
 - 130 plant species infested

St. Kitts, PHM

- October 13, 1996
 - National Task Force
 - Ministry of Agriculture
 - CARDI
 - Sugar Manufacturing Corporation
 - Horticultural Society
 - ❖ **Control**
 - ❖ Insecticide Spraying, Pruning and Burning

St. Kitts Biological Control Program

- Cooperative Effort:
 - Ministry of Agriculture
 - CARDI
 - USDA, APHIS
 - Establish Insectary Operation
 - Host Plant Material: Japanese Pumpkin
 - Mealybug Culture
 - Parasite and Predator Cultures

St. Kitts Biological Control Program

- Imported Exotic Natural Enemies from
 - China
 - Pakistan
 - Egypt
 - Malaysia
 - Hawaii – USA

Parasite Releases St. Kitts

- *Anagyrus kamii* – China (IIBC)
 - Classical Biological Control
 - Initial Releases: August 1st 1996
 - 30 days- Average of 26% Parasitization
 - Mealybug Population Density
 - Reduced 2nd Instar to Adults mealybugs by 80% in 5 months (December 1996)

Predator Releases St. Kitts

- *Cryptolaemus montrouzieri* –
Augmentative Biological Control
 - “Mealybug Destroyer” – Biopesticide
 - Coleoptera: Coccinellidae
 - Commercially Produced – California
 - Release approximately 10, 000 adults/week in St. Kitts (200 to 500 adults/site)
 - Significant reductions by 6-8 weeks at release sites
 - Follow up with the release of Parasites