



New World Screwworm (NWS) Exercise In Florida

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Florida Department of Agriculture and Consumer Services***

Historical Information

Current Threat Information

Exercise Information

New World screwworm

Maturation of pupa
temp. dependent,
7-60 days

Adult



Copulation



Females only mate once
Males are promiscuous

**Oviposition
on wounds**



Eggs



Eggs hatch in
8-24 hrs

Larvae



Larval feeding/Myiasis



Fully developed
L₃ larva drop to
ground 5 - 7 days
after egg hatch

IN ENVIRONMENT

ON HOST

Pupa



Pupa
burrow into
soil & pupate

Approximate Distribution

New World Screwworm Fly

Cochliomyia hominivorax (Coquerel)



Reported

Eradicated

Old World Screwworm Fly

Chrysomya bezziana (Villeneuve)



Reported

New World Screwworm in Florida

- ⦿ *Introduced in infested livestock from the southwest U.S. in 1932/1933*
- ⦿ *Was a devastating production-limiting disease of livestock ~ \$20 million annually*
- ⦿ *Also, major effects on wildlife*
 - ~20-80% of white-tailed deer fawn crop lost each year due to navel infestation*

Eradication

- *In 1957-58, with urging from Florida livestock producers, the Florida legislature approved funds for NWS eradication, which were matched with federal funds*
- *A sterile fly production plant was built in Sebring, FL in a WWII era airplane hanger*

Dr. Clarence Campbell
Florida State Veterinarian
1953-1991 (38 years)





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Eradication

- ◎ *1962: eradication program initiated in Texas*
- ◎ *1962 – 1976: mass production of sterile flies in a facility at Mission, TX*

Eradication

- ⦿ *Since 1982, the U.S. has been free of New World screwworm*

Eradication

1976: Production plant opened in Tuxtla Gutierrez, Mexico

- *Joint Mexican – USDA Effort : COMEXA*



Eradication

2006: Production plant and research center opened in Pacora, Panama

- *Joint Panamanian – USDA Effort: COPEG*



Eradication

NWS has been eradicated from the U.S., Mexico and Central America using the Sterile Fly Technique (SIT)



**Panama
Barrier**

Current Estimated Annual Losses (U.S.\$)

- ***Brazil - \$1770 million***
- ***Argentina - \$618 million***
- ***Colombia - \$264 million***
- ***Uruguay - \$210 million***
- ***Venezuela - \$199 million***
- ***All others countries - \$445 million***

Vargas-Teran et al, Impact of screwworm eradication programs using the sterile insect technique, In: V.A. Dyck et al (eds.), *Sterile Insect Technique. Principles and Practice in Area-Wide Integrated Pest Management*, 629-650.2005 IAEA. Springer.

NWS in the U.S.

- ◎ *12 cases identified since 2000*
 - *11 NWS, 1 Old World screwworm*
 - *8 horses, 3 dogs, 1 cat*



YEAR	ANIMAL SPECIES, NWS (New World Screwworm), OWS (Old World Screwworm)	IDENTIFIED BY (PP=Private Practitioner)
2000 (Feb.)	Horse imported from Venezuela, NWS	Federal veterinarian, MAIC
2000 (Mar.)	Horse imported from Argentina, NWS	PP, West Palm Beach, FL
2000 (Mar.)	Horse imported from Argentina, NWS	Federal veterinarian, MAIC
2000 (Dec.)	Domestic cat imported from Cuba, NWS	PP, Jacksonville, FL
2005 (Dec.)	Horse imported from Argentina, NWS	Federal veterinary technician, MAIC
2006 (Feb.)	Horse imported from Argentina, NWS	Federal veterinarian, MAIC
2007 (Sep.)	Domestic dog imported through Miami from Trinidad, NWS	PP, Kiln MS
2007 (Oct.)	Domestic dog imported through Boston from Singapore, <u>OWS</u>	PP, South Weymouth, MA
2008 (May)	Horse imported from Argentina, NWS	Federal veterinarian, MAIC
2010 (May)	Domestic dog imported from Venezuela, NWS	PP, Coconut Grove, FL
2011 (Feb.)	Horse imported from Argentina, NWS	Federal Veterinarian, MAIC
2012 (Jan.)	Horse imported from Argentina, NWS	Federal veterinarian, MAIC

What if?

- ① ***What if an outbreak of NWS was discovered in Florida?***
 - ***Are we prepared to respond?***
 - ***Can the agencies/groups involved work together effectively?***
 - ***What resources would be required?***
 - ***How quickly could the outbreak be contained and eradicated?***



Screwworm Costs

***Annual losses from this pest
if reintroduced in the U.S. are
estimated to be >\$900
million annually***

Screwworm Response Training Exercise

- ◉ ***Initiated by Dr. Tom Holt, Division of Animal Industry, FDACS***
- ◉ ***Developed in conjunction with UF CVM***
- ◉ ***Funded by USDA***
- ◉ ***First training exercise simulating a screwworm outbreak in the U.S.***

Operation Red Fly

A tabletop training exercise on an outbreak of New World screwworm in Florida

State Emergency Operations Center
Tallahassee, Florida
January 24-25, 2012



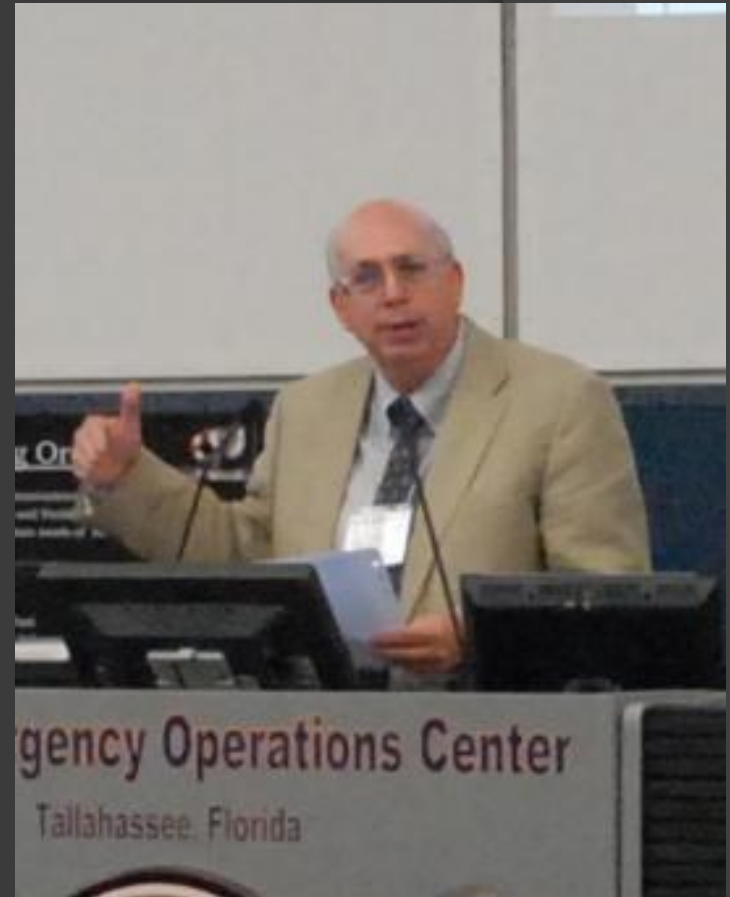
January 24-25, 2012



State Emergency Operations Center (SEOC)

Goal

To give exercise participants an opportunity to plan, initiate, and evaluate current response concepts and capabilities in a simulated outbreak of New World screwworm (NWS) in Florida

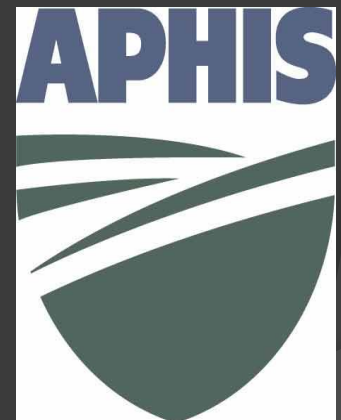


*Dr. Thomas Holt
Florida State
Veterinarian*



> 90 exercise participants

25 Agencies & Organizations Represented



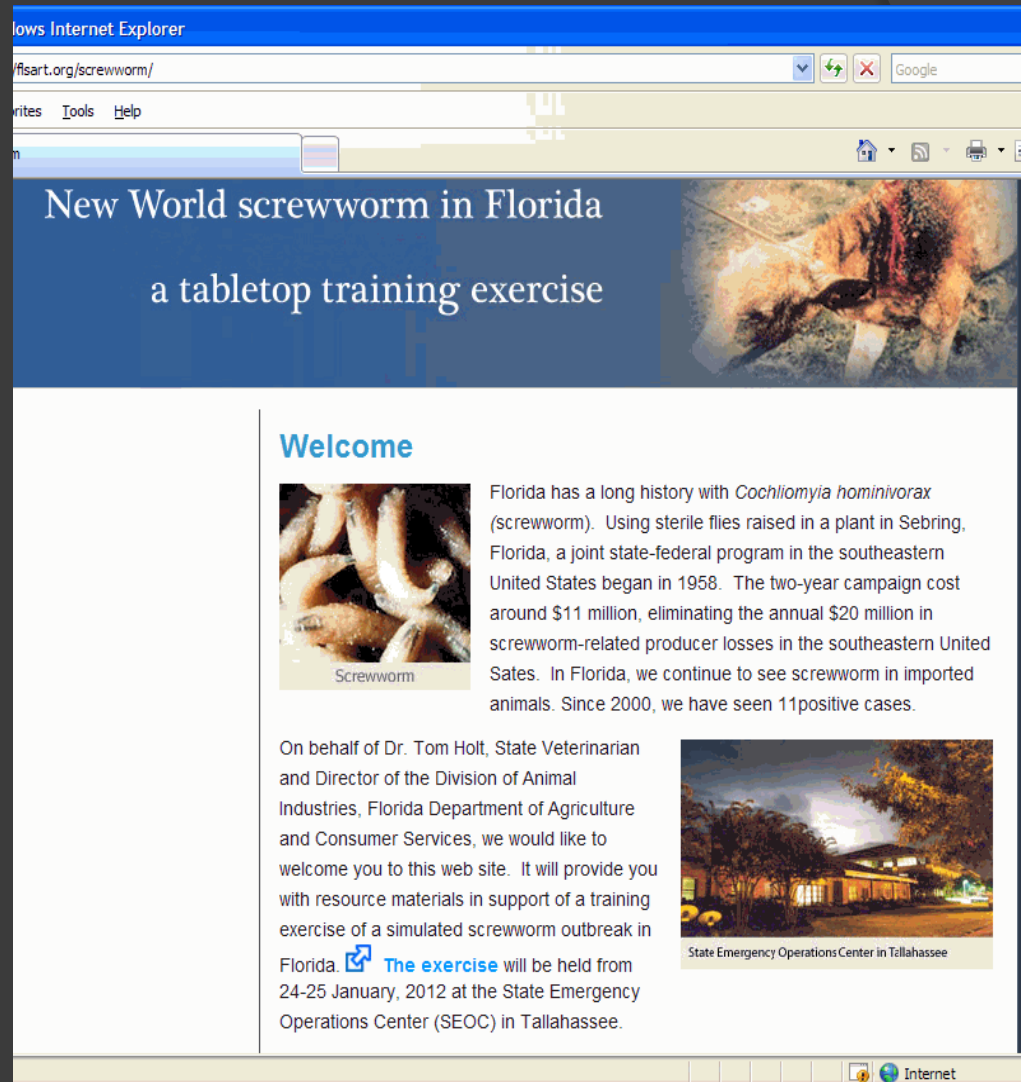
Expert Panel

- ◉ *Dr. John Welch, USDA/APHIS IS Screwworm Eradication Program*
- ◉ *Dr. Steve Skoda, USDA/ARS
Screwworm research unit*
- ◉ *Dr. Alejandro Parra, COMEXA
Mexican Agricultural Service*
- ◉ *Dr. Roberto Navarro, COMEXA
Mexican Agricultural Service*
- ◉ *Dr. Wendy Gonzalez, Dominican Republic*



www.flstart.org/screwworm

A website was developed to accompany the exercise



Moderator – Dr. Paul Gibbs



Historical Perspective

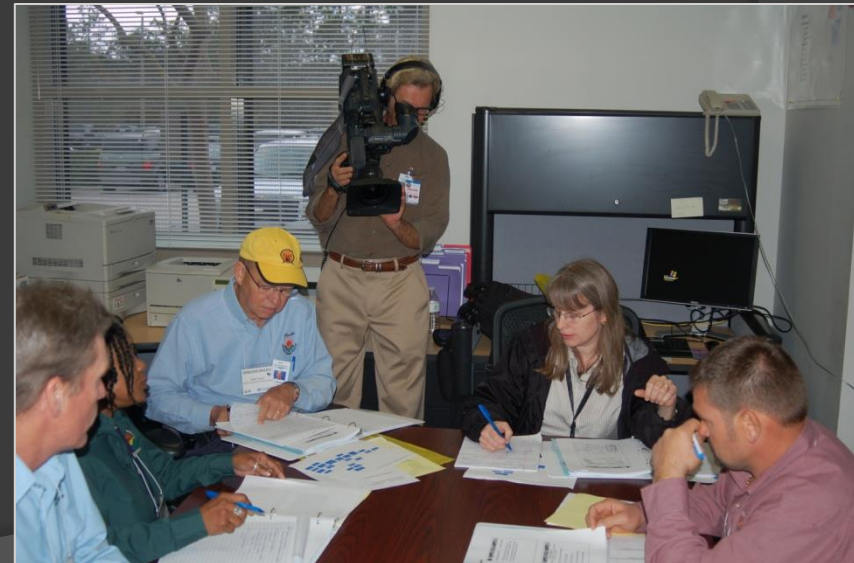


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Florida State Veterinarian
1953-1991***

Exercise Structure

Participants responded to a series of situation reports over 2 days

MAC, IMT and JIC interaction



Screwworm outbreak scenario



Simulated news report

Screwworm outbreak scenario

***Interstate animal movement
impacted***



Affected livestock, pets, wildlife and human health



Simulated Multiple Press Briefings

Utilized a simulated Joint Information Center (JIC)



Summary

- *Overall, state, federal, local and private stakeholder groups worked very well together*
- *Evident that early recognition, treatment of cases and stop movement of animals all very important in limiting an outbreak*
- *Sterile fly release is the only means of eradication*
 - *Dependent on having access to large numbers of sterile flies*

Summary

- *International cooperation with Mexico (COMEXA) was vital to rapidly supply sterile flies*
- *The Mexican plant was able to quickly ramp up production from their normal 10 million flies per week to 100 million flies*



What was achieved?

- ***Participants (96%) felt that they were much better educated about NWS after the exercise***
- ***Participants (88%) felt better prepared to respond to a NWS outbreak in Florida***



What was achieved?

- ***Participants (95%) felt that interagency cooperation between federal and state agencies was good***
- ***Participants (81%) felt that communication with other organizations who participated was effective***



Recent Developments Raise Concern

- ***USDA ending funding for the plant in Mexico***
- ***Questionable that the Panama plant could meet the added needs for a U.S. NWS outbreak***
- ***It is important to have plans in place for a NWS response in the U.S.***

Exercise Planning Team



- ***Fiona Maunsell, UF CVM***
- ***Dana McDaniel, UF CVM***
 - ***Paul Gibbs, UF CVM***
- ***Kendra Stauffer USDA/APHIS***
- ***Greg Christy, FDACS/DAI***

If You See This



***Call the Division of Animal
Industry or USDA/APHIS
Veterinary Services***

The End

Thank you