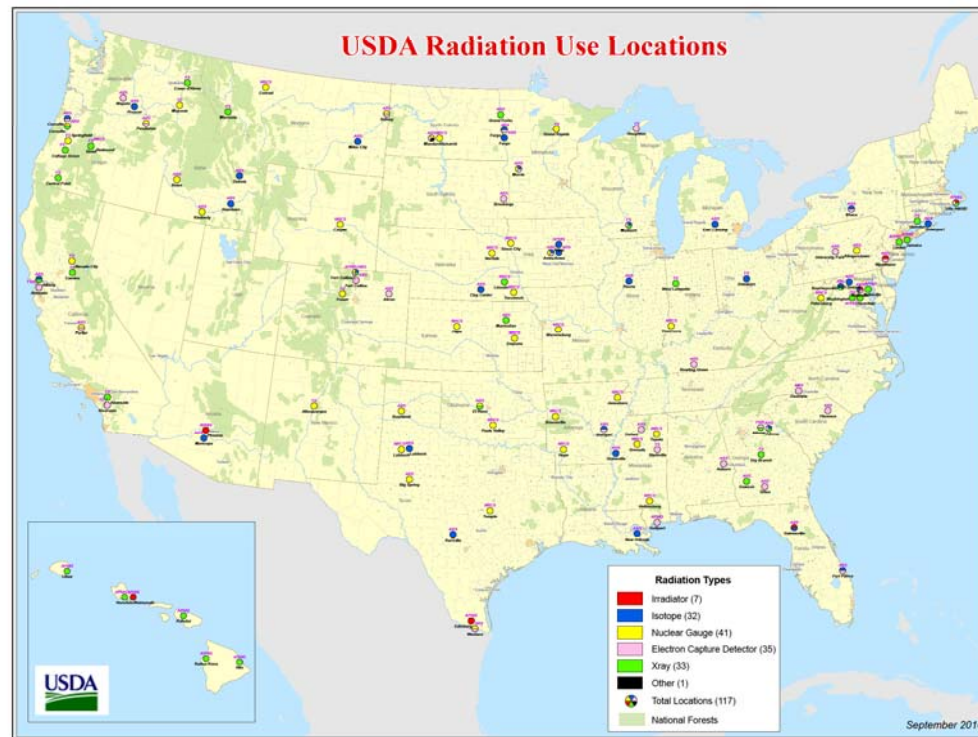


Isotopes for Research and Sterile Insect Production

John Jensen, Director
Radiation Safety Division
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Emergency Coordination



USDA Research Programs using Radioisotopes



- 130 Locations
- 220 Primary Investigators

Radioisotopes Used in Research

(bold isotopes in current inventory)

Isotope	Activity Authorized (mCi)		Isotope	Activity Authorized (mCi)
C-14	2511		K-42	25
Ca-45	127		Mn-52	25
Ca-47	20		Mn-54	25
Cd-109	60		P-32	1663
Cd-115m	20		P-33	470
Cl-36	60		Ra-226	1
Cr-51	100		S-35	2062
Cu-64	20		Sc-47	25
Fe-55	50		Se-75	25
Fe-59	70		Sr-85	25
H-3	4893		Tc-99m	25
I-125	760		Zn-65	65

Stable Isotopes Used in Research

Isotope		Isotope
H-2		Ca-48
C-13		Fe-54
N-15		Fe-57
O-18		Fe-58
Mg -25		Zn-67
Mg -26		Zn-70
Ca-42		Se-74
Ca-44		Se-76

Insect Sterilization Program

- Screwworm (50 M per week)
 - Pink Bollworm (50 M per week)
 - Mediterranean Fruit Fly (90 M per week)
 - Mexican Fruit Fly (170 M per week)
- Emergency Surge Capacity (X10)

Insect Sterilization Program - Benefits

- United States
 - no longer endemic (no infestations)
 - treating outbreaks (reintroduction)
 - \$1.38 Billion annual benefit to producers
- Mexico and Central America
 - Creating free trade/product transport zone (GOAL)
 - Release and inspection still required
 - \$642 Million annual benefit to producers

Adult Screwworm



Mouthhooks on Larvae which cause the Damage



3rd Instar Larvae Crawling Out of Wound



Infested Shoulder Wound



Pupae Packing and Shipping



The sterile males (pupae) are packed in cardboard boxes with blue ice prior to shipment, and sent to their final destination by land or plane.

Screwworm Program Advance Through Central America



Darien Gap in Panama – Current Barrier

