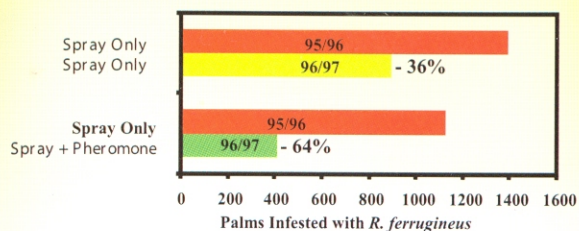




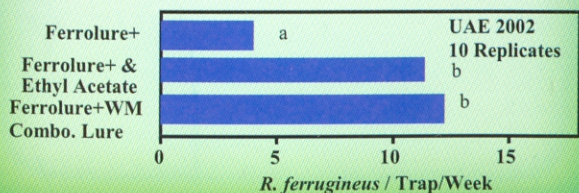
Pheromone Trapping Significantly Reduces Infestation in UAE more than Spraying



UAE 1995-1997, 1,466 farms with 349,342 palms in 1994.
Average 1994-5 infestation of 1.9%

Integrated Pest Management for the Control of Red Palm Weevil in the UAE Eastern Region, Al Ain, F. A. A. El Ezaby, O. Khalifa & A. El Assal, First Int. Conf. On Date Palms, Al-Ain, UAE, March 8-10, 1998.
700 mg lure used

Ferrolure+ is a mixture of 4-methyl-5-nonanol and 4-methyl-5-nonanone that captures 65% more insects than Ferrolure which is only 4-methyl-5-nonanol. Ferrolure+700WM is a combination lure that emits both Ferrolure+ (Pheromone) & ethyl acetate (Kairomone) at specified rates that are optimal for the capture of *R. ferrugineus*. Ferrolure+WM combination lures have been tested in the United Emirates. When used in buried bucket traps Ferrolure+WM combination lures are as effective as Ferrolure+ & Weevil Magnet lures used separately.



Technical Specifications Ferrolure+700WM Combination Lure

Pheromone Component:
Ferrolure+700 mg

Chemical Components:
4-methyl-5-nonanol (9 parts): 4-methyl-5-nonanone (1 part)

Component Purity:
greater than 95% chemical purity of both components
Analysis Certificate Provided.

Weight per Lure:
Minimum 700 mg of mixture of 4-methyl-5-nonanol & 4-methyl-5-nonanone sealed into a plastic pouch.

Formulation:
Bubble formulation, colorant added for visualization, stabilizer added.

Release rate:
3-10 mg/day under field conditions. (The warmer the temperature the faster the release.)

Kairomone Component:
Weevil Magnet 40 mL ethyl acetate

Chemical Components:
Ethyl acetate

Component Purity:
greater than 95% chemical purity Analysis Certificate Provided.

Weight per Lure:
Minimum 40 mL of ethyl acetate / lure

Formulation:
Bag formulation, colorant added for visualization, stabilizer added.

Release rate:
200-400 mg/day under field conditions. (The warmer the temperature the faster the release.)

Packaging:
Combination lures packaged in individual aluminum packages each labeled to purchaser specifications.

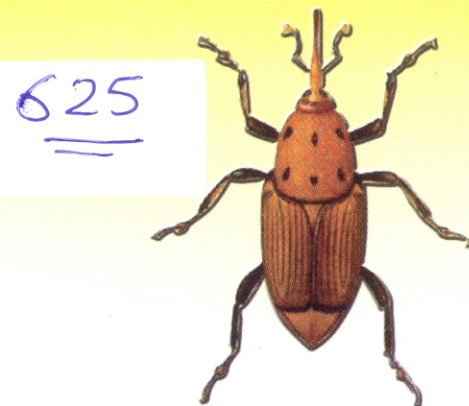
Manufacturing Date:
All combination lures manufactured less than 2 months prior to shipment.

Shipping:
Sea or Airfreight.

Expiry Date:
All combination lures have expiry 2 years after manufacture.



RED PALM WEEVIL



Technical information for use of Ferrolure+700WM Pheromone/Kairomone Lure for *R. ferrugineus*

ChemTica Internacional, S. A.

Apdo. 159-2150, San José, Costa Rica

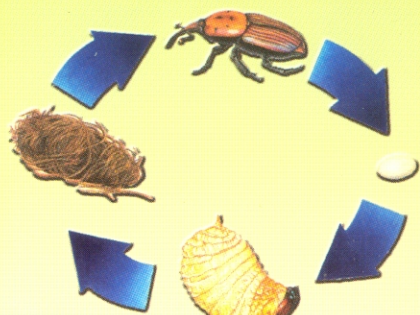
Tels.: 506-2261-5396 / 2261-2424

Fax: 506-2261-5397

e-mail: info@pheroshop.com

www.chemtica.com

RPW PHEROMONE TRAPPING SYSTEM



Problem:

Female DATE PALM WEEVIL lay eggs in wounds created by harvesting, pruning & off-shoot removal. Weevil larvae tunnel in palm stem & can kill palms. Infested palms are sites of infestation for other palms. Females can lay ~350 eggs (Butani, 1975). Life cycle: eggs <1 week; larvae ~4-6 weeks; pupae ~2-3 weeks; adults ~12-16 weeks.

Solution:

Regular surveys to detect infested palms, sanitation removal & recovery of infested palms, insecticide spraying of infested palms & pheromone trapping are methods to decrease infestation.

Pheromone Trapping:

Weevils can fly over 1 km per day. Pheromone trapping intercepts dispersing weevils & significantly reduced new infestation.

Optimization of Trapping:

Trap Design:



- Sides of traps must be rough to allow weevils to crawl inside.
- Entry holes must be made in traps to allow weevil entry.
- Entry holes should be near ground level to allow weevils to easily crawl inside.

Trap Location:



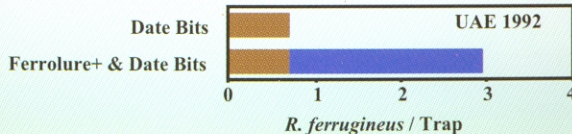
- Spacing of 100 meters between traps is recommended.
- Buried traps are more effective than traps on palms.
- Traps in shade retain water longer

Baiting of traps:

Pheromone & Food Required:

Pheromone of *R.* is a mixture of 4-methyl-5-nonanol & 4-methyl-5-nonanone (Bio-Pesticides, Brit. Crop Prot. Council, 1998). Long term trial in Saudi Arabia confirmed 65% higher capture rates using both components (Ferrolure+) than with single component lures containing only 4-methyl-5-nonanol (R. A. Abozuhairah et al, Int. Congress Ent., Florence, Italy, 1996).

- **Combination of Food & Pheromone in traps increases efficiency.** Date fruit, sugarcane, apples & bananas are all satisfactory foods.



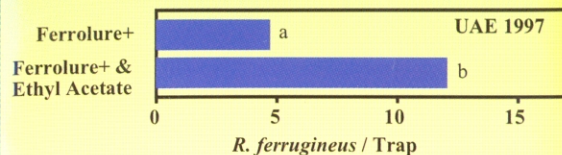
Test conducted by Mr. R. K. Al-Shareqi & Dr. S. Gassouma in UAE in 1992 (n = 10). Traps contained insecticide-treated date palm pieces 700 mg lure used

- Food can be treated with ~1-3% AI non-repellant insecticide:

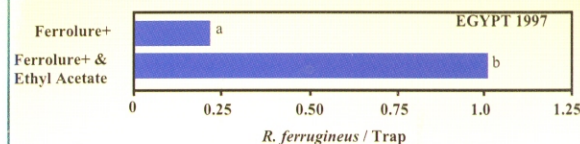
Recommended non-repellant insecticides:
Deltramethrin, Carbaryl Chloropyrifos

Repellant insecticides: Acetelic, Endosulfan, Quinaphos

Addition of plant kairomone lures to pheromone / food traps increases capture of *R. ferrugineus*.



Test conducted in UAE by Mr. Hashim Aswar, July, 1997. 14 buried traps containing date fruit pieces & either Ferrolure+ (700 mg lure) or Ferrolure+ (700 mg lure) & Weevil Magnet (Kairomone)

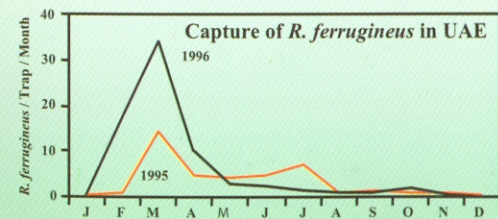


Test conducted in Egypt by Dr. G. Moawad & Y. El-Sebay, August, 1997. 30 bucket traps on ground containing bigas, molasses & either Ferrolure+ or Ferrolure+ & Weevil Magnet (Kairomone) (Proceedings of FAO Workshop on Red Date Palm Weevil & its Control, Dec. 1998, Cairo).

Result: Addition of kairomone, ethyl acetate, increases captures 2.5-5X.

What to expect from trapping weevils

- High captures February to May
- Lower Infestation rates



Integrated Pest Management for the Control of Red Palm Weevil in the UAE Eastern Region, Al Ain F. A. A. El Ezaby, O. Khalifa & A. El Assal, First Int. Conf. On Date Palms, Al-Ain, UAE, March 8-10, 1998. 700 mg lure used