



# Cutting Edge / Snykant

RESEARCH NEWS FROM CITRUS RESEARCH INTERNATIONAL  
NAVORSINGSNUUS VAN CITRUS RESEARCH INTERNATIONAL

February / Februarie 2004

No. / Nr. 17

## CONTROL OF FRUIT FLIES IN CITRUS

By Tony Ware and Tim Grout

The southern African citrus industry is highly dependent on exports and phytosanitary considerations affect access to export markets. Fruit flies have a high phytosanitary status. It is consequently of great importance for the industry to ensure that adequate risk mitigating procedures are implemented for this pest.

Citrus Research International convened a meeting consisting of industry representatives, export agents, consultants and research entomologists, to evaluate the problem. The standard industry recommendations for fruit fly control have been amended as follows:

### Fruit fly monitoring

- Traps are not to be used to indicate when treatment is required but to indicate when a fixed control programme is inadequate and additional baiting is required.
- Both Capilure and Questlure baited traps should be used in all areas and placed at least 50 m apart, in the following manner:
  - For up to 6 ha citrus, 1 Capilure and 1 Questlure trap should be used,
  - For 7-9 ha citrus, 2 Capilure and 2 Questlure traps should be used,
  - For 10-12 ha citrus, 3 Capilure and 3 Questlure traps should be used,
  - For more than 12 ha citrus, 50% of the traps must contain Capilure and 50% of the traps should contain Questlure.
  - The number of traps used on larger farms must be sufficient to ensure that fruit flies are monitored adequately.
- If more than 4 fruit flies are caught per trap per week with Capilure, or more than 2 fruit flies per trap per week with Questlure, control is inadequate and an additional bait application per week is required until fly numbers return to the threshold or below.
- Change lures and dichlorvos blocks in traps every six to eight weeks.
- Do not use lures more than eight weeks after the "use before" date on the product.

### Control with toxicants applied from the ground

- A fixed weekly baiting programme, or use of M3 bait stations, must be initiated before colour break ( $\pm$  2 months before the earliest expected harvest date).
- These control measures must continue in harvested orchards until all fruit has been stripped and removed, but monitoring in these orchards must continue until all fruit on the farm has been harvested.
- If trap thresholds are exceeded in harvested orchards, treatments must be applied as for bearing orchards.
- M3 bait stations (2 per tree) must be hung in all back-yard fruit trees on the farm (including indigenous hosts such as marula trees).
- Maintenance bait sprays must be applied to every tree in every second row in a particular week and to the alternate rows in the following week.
- If control is inadequate and an additional bait spray is required, two bait sprays should be applied per week to alternate rows rather than a single spray per week to every row.
- Ensure that only fresh bait mixed on the day of application is used.
- Repeat bait applications if rain falls within 48 hours.
- Hang M3 bait stations before the "use before" date on the product has expired and do not expect control for longer than 4 months being hung.
- Bait mixtures:
  - The registered dilute volumes of protein bait require 250 ml Buminal or 400 ml Hym lure (ready for use) in 100 l water and from 300 to 800 ml per sprayed tree of this mixture, depending on tree size.
  - If the volume of bait applied per tree is less than the above range, the concentration of protein should be increased accordingly so that a similar amount of protein is used per tree. If half the recommended amount of water is used, the protein concentration should be doubled. In the case of the Mantis or Ladybird applicator the protein is concentrated 15 times to 6 l per 100 l water as only 45 ml bait is applied per tree.



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- Under no circumstances must the toxicant concentration be increased in the bait mixture. This remains as 50 g Dipterex or 175 ml Malathion EC or 300 g Malathion WP per 100 l water, no matter what concentration of protein is used.
- A new bait called GF-120 has recently been registered by Dow AgroSciences for use on citrus, including organic production. The bait and toxicant (spinosad) are already combined in a concentrate and need to be diluted with water and applied at 10 to 20 l diluted mixture per ha in large droplets. The pre-harvest interval is 1 day. Although this bait is more expensive than the old protein bait its occasional use should be considered for resistance management purposes.
- All baits are most effective when applied in the morning before it gets too hot.

## Control with toxicants applied from the air

- If aerial baiting is only used at the beginning of the season to lower fruit fly populations before commencing with a ground-based control programme, control measures will follow those described above for toxicants applied from the ground.
- If aerial baiting is the sole method of fruit fly control and the whole farm can be treated in one day, baits can be applied when trap thresholds are exceeded rather than on a fixed weekly basis. This is because this method of control is much more effective than ground-based methods.
- If numbers of trapped fruit flies still exceed thresholds after an aerial bait application, the frequency of bait applications must be increased until fruit fly numbers drop to or below the threshold.
- The mixture used for aerial baiting consists of 750 ml Hym lure 1:1 plus 250 ml Malathion UL and is applied at 1 l per ha.

## Cultural control measures

- Weekly orchard sanitation is essential. Fallen, or out-of-season fruit should be

removed and shredded or buried at least 30 cm deep.

- Alternative host plants, including plants other than fruit trees, such as bugweed, should be removed within 100 m of citrus orchards.
- Fallen marula fruit near orchards should be sprayed with a pyrethroid once a week.
- After harvesting an orchard, control measures must be maintained until the orchard can be thoroughly stripped and the remaining fruit disposed of.

## Packhouses

- Monitor fruit fly outside each packhouse using one Sensus trap with Capilure and one Sensus trap with Questlure. If the thresholds are exceeded, administer control measures.
- Keep trailers containing fruit covered.
- Destroy or remove rejected fruit daily.

## Records

- It is essential that good records be kept of trap counts, when lures are changed, volumes of baits sprayed and products used in the baits.
- Records may need to be inspected by PPECB or some other appointed authority in the event of fruit fly being intercepted in the packhouse.

All citrus producers are strongly encouraged to implement these procedures. Should the level of implementation or the efficacy of these procedures fail to provide adequate control of fruit flies more restrictive measures will need to be implemented to protect access to key export markets.