

Bait Station vs. Chemical Control in Argentina

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INTRODUCTION

Air or ground baits sprays, which constitute the standard control method of Mediterranean fruit fly today for most countries, utilize a food attractant and an organic phosphorous insecticide. Although very effective, when properly and timely applied, bait sprays have a number of limitations, such as short residual activity, undesired side -effects especially air sprays, which require solutions. The finding of long-life traps constitutes the main objectives of an ongoing effort (Broumas et al., 1998).

Use of toxic traps in a baits stations system gives satisfactory fly control in some cases of low population densities. The bait station (traps with attractant + insecticide) for the control of fruit flies is an innovative alternative to the traditional terrestrial or aerial application of toxic baits. This procedure has the advantage of not polluting the atmosphere and preserving the beneficial entomofauna (Putruele & Domínguez, 2001; Putruele & Scattone, 2001).

Several types of traps found in the market: of specific attractant (to capture certain species of fruit flies), of general attractant (to capture several species) and, of insecticides (DDVP, Piretrines and other).

In the present paper, the results of comparative field studies on chemical control and deployment on the efficacy of the bait station methods, for the control of the medfly carried out during 2003/ 2004, we reported.

MATERIAL AND METHODS

Since December 12, 2003 to February 12, 2004 different assays of bait station system were conducted with the objective of adding new tools in the Integrated Pest Management (IPM) of Fruit Flies, were set in the Concordia area. Concordia is in the North - East of the country at 31° 22' latitude South and 58° 07' longitude West at 47.8 m over sea level. This region has 60,000 ha cultivated mainly with Navel oranges and mandarins. Argentina is the first mandarin grower of the Southern Hemisphere and the Concordia region produces 80% of the country. This region has very good climatic conditions for citrus. In winter, the average temperature is 13 °C with 8 °C the minimal average temperature; however, there is 18 °C during great part of the day. The annual average temperature is 18.5 °C, the average RH is 79% and the rainfall average is 1300 mm.

The test evaluated wire four treatments one types of traps/insecticide (R. Heath), two types' toxic bait and a four as control. The purpose of the test was to evaluate the behavior of bait station system versus chemical control of *C. capitata* in the citrus orchard. Simultaneously, percentage of

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fruit damage at harvest it analyzed. To evaluate the bait station strategy as a chemical control method, field-tests it done in host species of Medfly (*Citrus sinensis* var. Valencia late) in the Concordia Agricultural Experimental Station of the INTA.

The experiment was consisted of six and half hectare plots with the following treatments:

- a) The Bait Station it to place every second tree in one hectare
- b) Ground bait sprays (chemical control locally in use) with NULURE 1, 5 %, Malathion 100 E 0.1% and applied in alternate rows, once a week in our case, in one hectare.
- c) Ground bait sprays (chemical control locally in use) with SUSBIN 2 %, Malathion 100 E 0.1% and applied in alternate rows, once a week in our case, in one hectare.
- d) Control in one hectare

This citrus orchard has high degree of isolation because the different treatments need for evaluated.

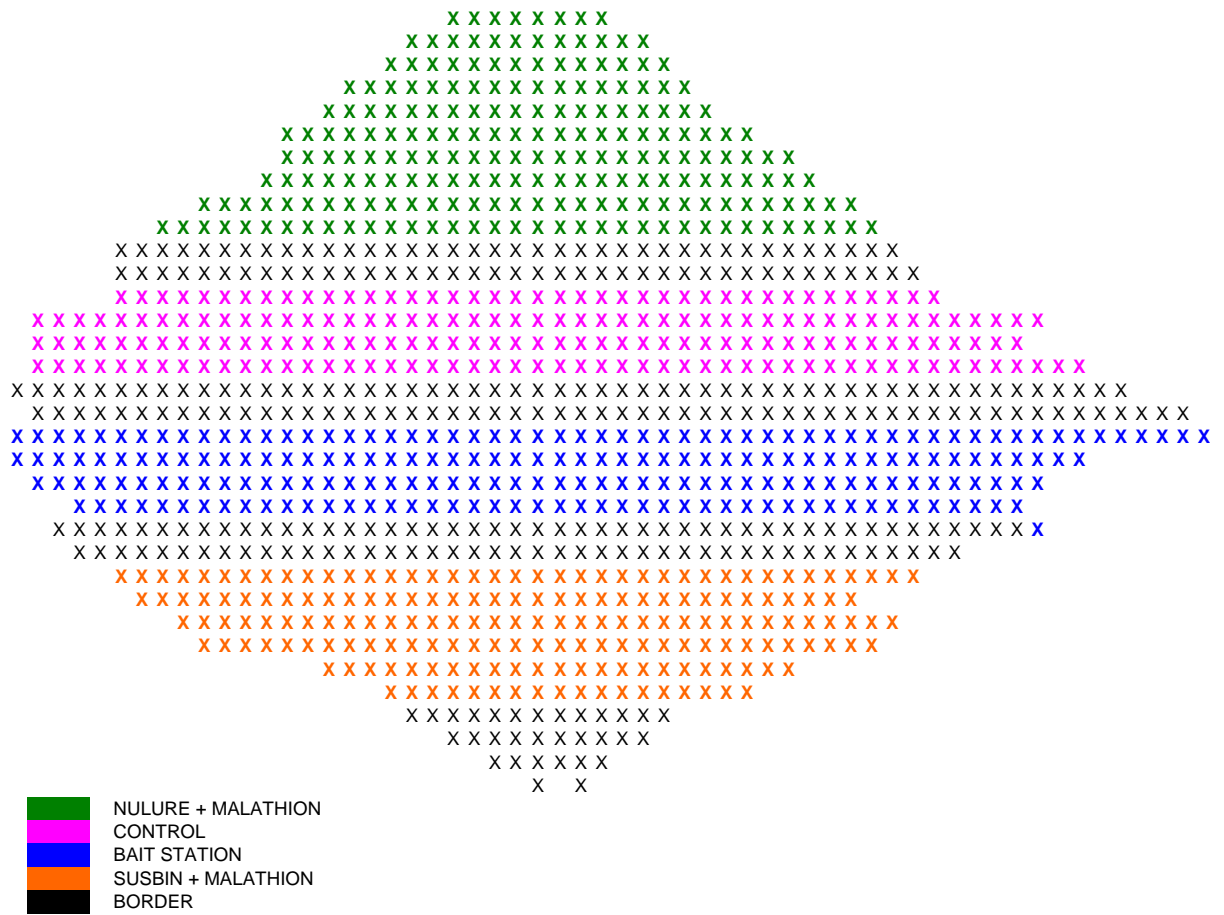
Medfly population densities were assessed every week by placing in each plot five PMT traps, International Pheromones' Plastic Mc Phail Trap (IPM Better World), baited with lure patch Ammonium acetate (Consep) + lure patch Putrescine (Consep) + lure patch Trimethylamine (Consep) and water plus Triton. These traps to expose for one full day and then to removed.

Fruit sampling it conducted systematically (one a week) in all treatments to assess the infestation levels in fruits.

RESULTS AND DISCUSSION

Site Description

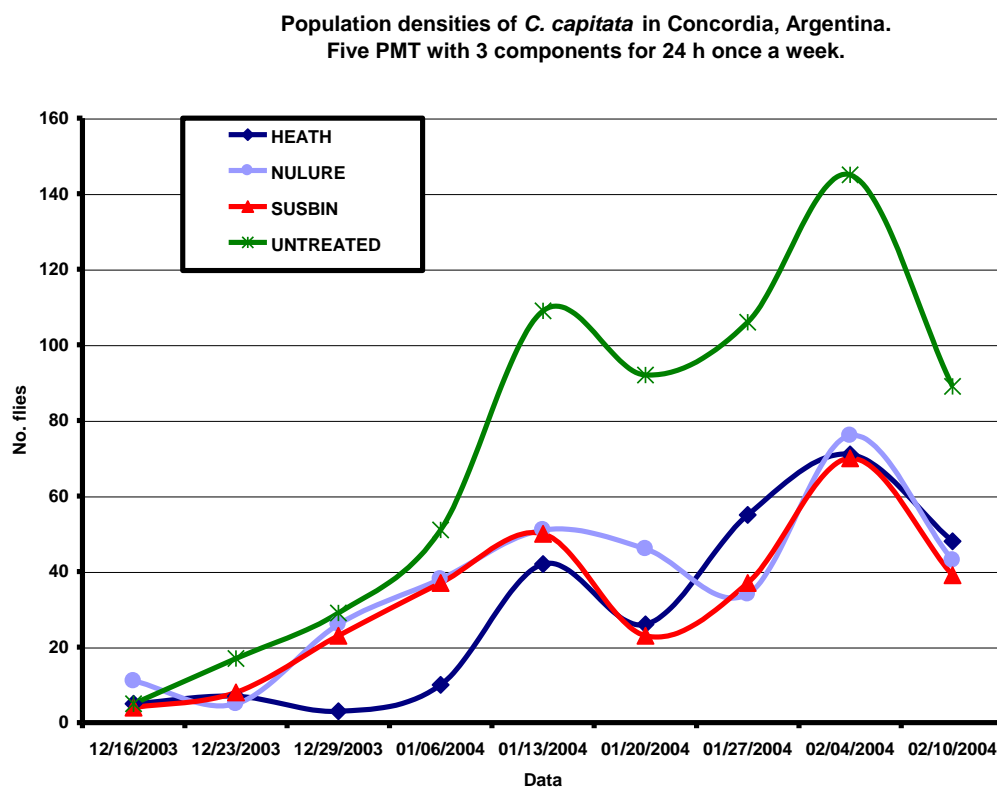
Valencia late/ trifoliate orchard- Map of test area



Pest population density

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The population densities were taken once a week in each treatment. The following figure shows the dynamic population of the medfly during the field assays using IPM with the three components and water plus Triton.



The Medfly in the Heath Bait Station (267 adults) was lower than the Nulure Chemical Control (330 adults) and Susbin Chemical Control (291 adults), but in these treatments no have statistical significant difference. The maximum capture was been detected in untreated control (643 adults).

Damage estimation

The fruit infestation level in the four treatments was control each week since December 12, 2003 to February 12, 2004. The results obtained are show in **Table 1**.

Table 1: Damage level per treatment

<i>Treatment</i>	<i>N° larvae total</i>	<i>Level damage (%)</i>
NULURE + MALATHION	1	0.70
SUSBIN + MALATHION	3	2.11
HEATH BAIT STATION	4	2.82
UNTREATED CONTROL	134	94.37

CONCLUSIONS

The HEATH' Bait Station showed similar protection to NULURE Chemical Control and SUSBIN Chemical Control in fruit infestation levels. These three treatments protected the orange orchard during entire time the fruit susceptibility. The UNTREATED treatment showed a high infestation larval in the fruits. This was been caused by the high population of *C. capitata* in Concordia area and huge susceptibility to the medfly by Valencia late orange.

The bait station methodology provides a useful medfly management tool combined with other IPM (Insect Pest Management) methods used in this area. This procedure has the advantage of not polluting the atmosphere and preserving the beneficial entomofauna. The application of bait station is very important in integrated or organic fruit production and the several marked that controlled the quantity insecticides residues.

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