

Zofia Płuciennik, Remigiusz W. Olszak, Urszula Tworkowska Research Institute of Pomology and Floriculture Pomologiczna 18, 96-100 Skierniewice, POLAND

"ATTRACT AND KILL" AS CONTROL METHOD OF CODLING MOTH Cydia pomonella (L.) IN HOME GARDENS AND ALLOTMENTS

ABSTRACT. The experiments were carried out during two seasons (2000 and 2001) in allotments and home gardens heavily infested by the codling moth. The compound Appeal 04 PA applied twice per growing season at a dose of 10 drops per tree gave good results in controlling this pest. Its efficacy was comparable to that obtained on the plot treated once with Owadofos 540 EC (fenitrothion) and varied from 58.3 to 75.3% and from 59.1 to 79.5% for both compounds, respectively.

Key words: codling moth, control, attract and kill

INTRODUCTION. Appeal 04 PA, a new compound for controlling the codling moth in orchards, was registered in Poland in 2001. It is a new

generation remedy, acting otherwise than insecticides applied hitherto. Appeal 04 Pa consists of both the pheromone of codling moth (codlemone – 0.1%), which entices males of the moth and a synthetic pyrethroid (cyphluthrin – 4.0%), which subsequently kills the enticed males. Application manner of Appeal 04 PA is discrepant, too. The paste-formed compound is contained in special, manually operated applicators, by which it is deposited as single drops on twigs and trunks of trees. Why controlling the pest with Appeal 04 PA it is not sprayed on the whole trees but applied pointwise. Thus, it is a compound very safe not only for humans but also for beneficial organisms living in the orchard and for the environment.

Investigations on "attract and kill" method for controlling the codling moth in commercial orchards have shown that the results were strictly dependent on the number of drops of the compound deposited on a specified area of the orchard (Charmillot et al., 1996; Charmillot, 1997; Dickler et al., 1998; Płuciennik et al., 1999, 2000). In orchards of that kind the threat of the pest is usually not very high.

Studies conducted at the Institute of Pomology and Floriculture over 2000-2001 aimed at testing the ability of Appeal 04 PA for limiting the number of fruit damaged by the codling moth in small home gardens and allotments, where the pest population is usually high and its control – very arduous.

MATERIALS AND METHODS. The experiment was conducted over 2000-2001 in two orchards situated at Skierniewice and Godzianów, central Poland. Description of the experimental layouts is as follows:

- Skierniewice a plot within the experimental orchard of the Institute of Pomology and Floriculture, where no insecticides had been applied for 5 years; four rows of trees of 'Wealthy' cv. (6-8 trees per row, 29 trees in total).
- Godzianów a homestead orchard composed of 31 trees of various cultivars in which a codling moth had not been controlled so far.

Each of the orchards studied was divided into 3 sections. In the first the application of Appeal 04 PA at a dose of 10 drops per tree

took place twice per season at an interval of 6 weeks. In the second section one spraying with fenitrothion (Owadofos 540 EC) was executed at the time when the first generation of codling moth had occurred. Several trees without any treatment against this pest constituted the third section (control).

The treatment efficacy was estimated upon the number of affected fruit, expressed as a percentage of both yield picked up from trees (a sample of 1000 fruits) and that comprised of fallen fruit (200). The results are presented in Figure 1.



1 – Control 2 – Appeal 04 PA – 2x10 drops/tree 3 – Owadofos 540 EC (fenitrothion) –1x2.25 l/ha

Figure 1. Efficacy of Appeal 04 PA and fenitrothion in controlling the codling moth

RESULTS. In all the experiments conducted, Appeal 04 PA applied twice a season at a dose of 10 drops per tree significantly decreased the number of fruit damaged by the codling moth. The results of such treatment were comparable to those obtained with a single spraying with fenitrothion (Owadofos 540 EC). The efficacy of controlling the codling moth with Appeal 04 PA varied from 58.3 to 75.3% whilst on trees treated with fenitrothion a reduction of fruit damage ranged within 59.1 and 79.5%.

The results obtained show that Appeal 04 PA can be very useful in limiting the extent of fruit damage caused by the codling moth on trees growing both in home gardens and allotments, where due to the proximity of other crops the use of conventional insecticides would inflict some danger.

REFERENCES

- Charmillot P.J., Pasquier D., Scalco A., Hofer D. 1996. Studies on the control of the codling moth *Cydia pomonella* L. using attractant insecticide. MITT. SCHWEIZ. ENT. GES. 69: 431-439.
- Charmillot P.J. 1997. "Attract and Kill" to control codling moth *Cydia pomonella*. Abstracts, Workshop on arthropod pest problems in pome fruit production, Einsiedeln, Switzerland, 30.11-3.12, 1997, p. 34.
- Dickler E., Wirth J., Bäumer S., Lösel P.M., Elbert A. 1998. Experience with two consecutive years of attract and kill in two commercial orchards in the Baden-Württemberg region of Germany in the 1995-96 growing seasons. Abstracts, VI European Congress of Entomology, Ceske Budejovice, August 23-29, 1998, p. 641.
- Płuciennik Z., Olszak R.W., Tworkowska U. 1999. "Attract and Kill" a new possibility of controlling codling moth. Proc. Nat. Conf. Orchard Plant Protection, Skierniewice, Poland, February 16-17, 1999, pp.131-136.
- Płuciennik Z., Olszak R.W., Tworkowska U. 2000. Efficacy of the product "Attract and Kill" in controlling codling moth. Proc. Nat. Conf. Orchard Plant Protection, Skierniewice, Poland, February 15-16, 2000, pp. 281-285.