PORINA MOTH FLIGHT ACTIVITY IN THE SOUTHERN NORTH ISLAND

ALAN CARPENTER and T.K. WYETH

Agricultural Research Division, MAF, Palmerston North

Summary

Porina moth (*Wiseana* spp [excluding *Wiseana signata* and *W. umbraculata*]) flight activity was studied at six sites in the southern North Island using light traps. Peak periods of moth flight varied from year to year and moths were caught from September to March in most areas.

INTRODUCTION

Porina moth flight activity has been studied over a wide geographic area and the data used to predict pasture damage by porina caterpillars (French 1979; Helson 1967). Research in the southern North Island by Helson (1967) showed that the main porina moth flight was September-November, however, farmers and farm advisors believed that flight times were more variable.

French and Pearson (1979) working in North Canterbury (which has a well synchronised October-November flight (Wood 1977)) have constructed a predictive model for use in porina control. The model predicts, from data on peak flight periods and temperature, the period during which cultural and chemical control measures will have optimum effect, usually about 6 weeks after peak flight.

The purpose of this research was to find out if the flight periods of porina moths at a range of sites in the southern North Island were as well synchronised as they are in Canterbury.

METHODS

Light traps similar to those used by Helson (1967) were located at sites shown in Fig. 1 (they were all in hill country except for the Normanby and Hauorongo sites). The traps were operated from 25.8.78 at Normanby, Hukanui and Waikanae and from 3.10.77 at Coonoor, Hauorongo and Okarae and continued at all sites until 30.4.80.

Each trap was emptied Monday mornings and the contents dispatched to Palmerston North for analysis.

Fig. 1 Map of southern North Island showing the location of the light traps

Pasture and Forage Crop Pests

Fig. 2 Weekly moth catches expressed as cumulative percent of the total catch

Pasture and Forage Crop Pests

RESULTS

The light trap catches from the six sites are shown in Fig. 2. At Normanby, Hukanui, Hauorongo and Okarae the peak flight was October-December. However, some moths were caught from September to March.

The major flight at Waikanae occurred in February and March, with a small flight in November. This was the only site with a markedly bimodal flight pattern. At Coonoor the main flight was spread from November to February, the longest duration recorded in this study.

Except at Waikanae, none of the flight patterns were consistently bimodal. Hauorongo had a bimodal pattern in the 1977-78 season but not in the two subsequent seasons. At Hukanui the 1978-79 flight was bimodal but in the succeeding season it was not. The 1979-80 flight at Normanby was trimodal, contrasting strongly with the unimodal situation in the preceding season. It seems that except for Waikanae, none of the flight patterns recorded in this study could be regarded as consistently representing two distinct flights.

DISCUSSION

At all the sites except Waikanae and Coonoor, the majority of moths were collected from mid October to the end of December. The Waikanae results are similar to those recorded for the Marlborough Sounds (French 1979) and Paiaka (lowland Manawatu) (Cumber 1951). The spread of flight at Coonoor is similar to that reported for mid-Canterbury (Wood 1977) and for Wairakei (Helson 1967).

The results from the other four sites were as well synchronised as those in North Canterbury (French 1973) but were about a month later. The main periods of flight are about 1.5 - 2 months later than Helson (1967) described for Makara (Wellington). The variable occurrence of polymodality at three of the sites is inconsistent with Helson's (1967) finding of consistent bimodality at several sites. He related it to two different species of *Wiseana* having different flight periods but in the cases reported here there appeared to be only one species involved.

The data presented show that the spread and timing of porina flights vary from place to place and year to year. More detailed data on the implications of this variability in terms of egg laying and hatching are required before a predictive model for porina control in the southern North Island can be made.

ACKNOWLEDGEMENTS

The authors are grateful to: the Burn family, Ray Lawrence, S.D. Wright, John Bell, G.M. Thomson, staff at the Taranaki Agricultural Research Station, R.K. Darwin, Tony Rhodes, Jon Heslop and John Bryant for their assistance in siting, running and servicing the light traps; to Fiona Stanley and Peter Allan for assistance with sorting the light trap catches and to Dr J.A. Springett for criticising the manuscript.

REFERENCES

- Cumber, R.A., 1951. Flight records of Lepidoptera taken with a modified Rothamstead light trap operated at Paiaka. *N.Z.J. Sci. Tech.* 33 13: 187-90.
- French, R.A., 1973. Some aspects of the population dynamics, biology and economic status of *Wiseana* spp. Ph.D. thesis Lincoln College.
- French, R.A., 1979. Adult periodicity of porina in the Marlborough Sounds. *Proc. 32nd N.Z. Weed and Pest Control Conf.*: 62-64
- French, R.A. and Pearson, J.F., 1979. Influence of temperature on the rate of development of porina (*Wiseana* spp.; Hepialidae) egg and timing of larval emergence in the field. *N.Z.J. Agric.* 7: 315-319.
- Helson, G.A.H., 1967. Adult periodicity of *Wiseana* spp (Family Hepialidae) in New Zealand as revealed by light traps. *Trans. Royal Soc. N.Z. Zoology* 9 (8): 80-91.
- Wood, J., 1977. Arthropoda collected in light traps at Winchmore. *Winchmore Irrigation Res. St., Technical Report* 10: 1-59.

Postscript: The detailed data on which this paper is based is available to interested persons, from the senior author.