

QUEENSLAND DEPARTMENT OF PRIMARY INDUSTRIES

DIVISION OF PLANT INDUSTRY BULLETIN No. 805

**DAMAGE TO PASSION-FRUIT BY THE QUEENSLAND
FRUIT FLY, DACUS TRYONI (FROGGATT)***

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SUMMARY

Damage to passion-fruit resulting from oviposition by the Queensland Fruit Fly *Dacus tryoni* (Froggatt) was investigated in the Redlands district of south eastern Queensland. It occurred in all three cropping periods of the year but was of more significance during the less productive periods of January to April and May to August, than during the main season in October to January. In weekly assessments damage reached peaks of 96, 80 and 26% respectively.

Losses resulted mainly from market rejection of damaged fruit, premature fall of stung passion-fruit being unimportant.

I. INTRODUCTION

In eastern Australia passion-fruit are produced mainly in the Nambour-Redlands area of south-east Queensland.

The Queensland Fruit Fly, *Dacus tryoni* (Froggatt), is the most important insect pest of passion-fruit (Murray 1976). Oviposition in immature green fruit results in the formation of calluses ('stings') in the skin of the fruit. Some of the stung fruit may fall prematurely to the ground (May 1953). Other stung fruit will persist on the vine to maturity but are not acceptable for fresh market sale because of the damage.

The present investigation made in 1973-74 was designed to obtain data on the incidence of damage according to cropping pattern in the main commercial passion-fruit cultivar, hybrid E23.

II. MATERIALS AND METHODS

Observations were made at the Redlands Horticultural Research Station, Ormiston, on 54 grafted passion-fruit vines planted in January 1972. The plants were spaced at 4.8 m within rows which were 3.4 m apart. The plants were trained to a vertical two-wire trellis. Sprays of the fungicides maneb and copper oxychloride were applied as required but no insecticides were used. The inter-row areas were kept under mown sward. A 1-m-wide strip, immediately under the vines, was kept bare by constant shallow cultivation so that fallen fruit could be readily seen and hand harvested. Assessments of crop production and *D. tryoni* damage were made between 21 May 1973 and 10 June 1974. All fallen fruit were collected daily and classified as immature green or as mature, marketable fruit and either as damaged or undamaged.

* This study forms part of a M.Sc. project undertaken under the aegis of the Department of Entomology, University of Queensland.

III. RESULTS AND DISCUSSION

Figure 1 shows that there were three main cropping periods during the year: an early summer crop, October to January; a late summer crop, January to April; and a winter crop, May to August. Of these, the early summer crop was the most important. Premature fall of green fruit was of minor importance.

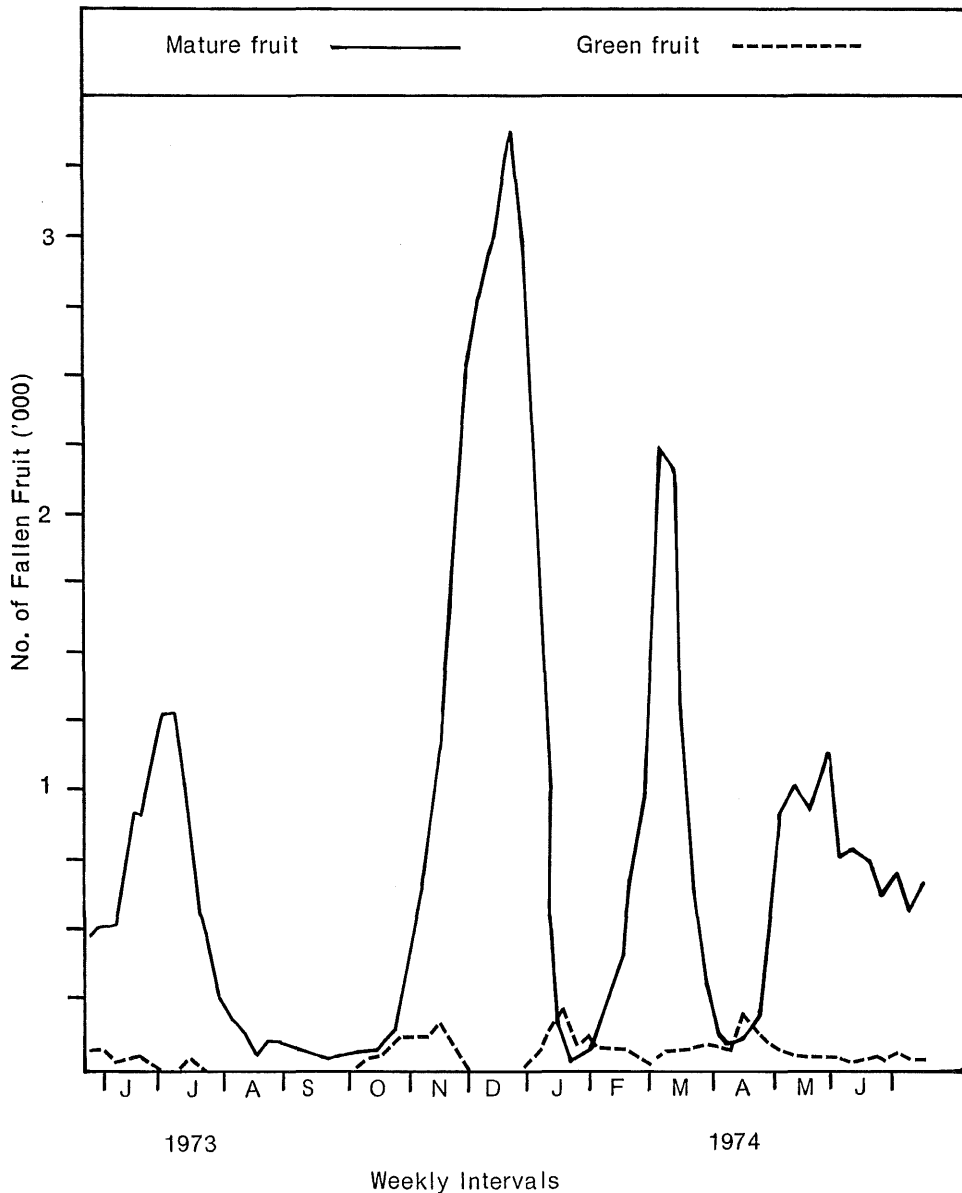


Figure 1. Weekly counts of green and mature passion-fruit which fell from 54 vines.

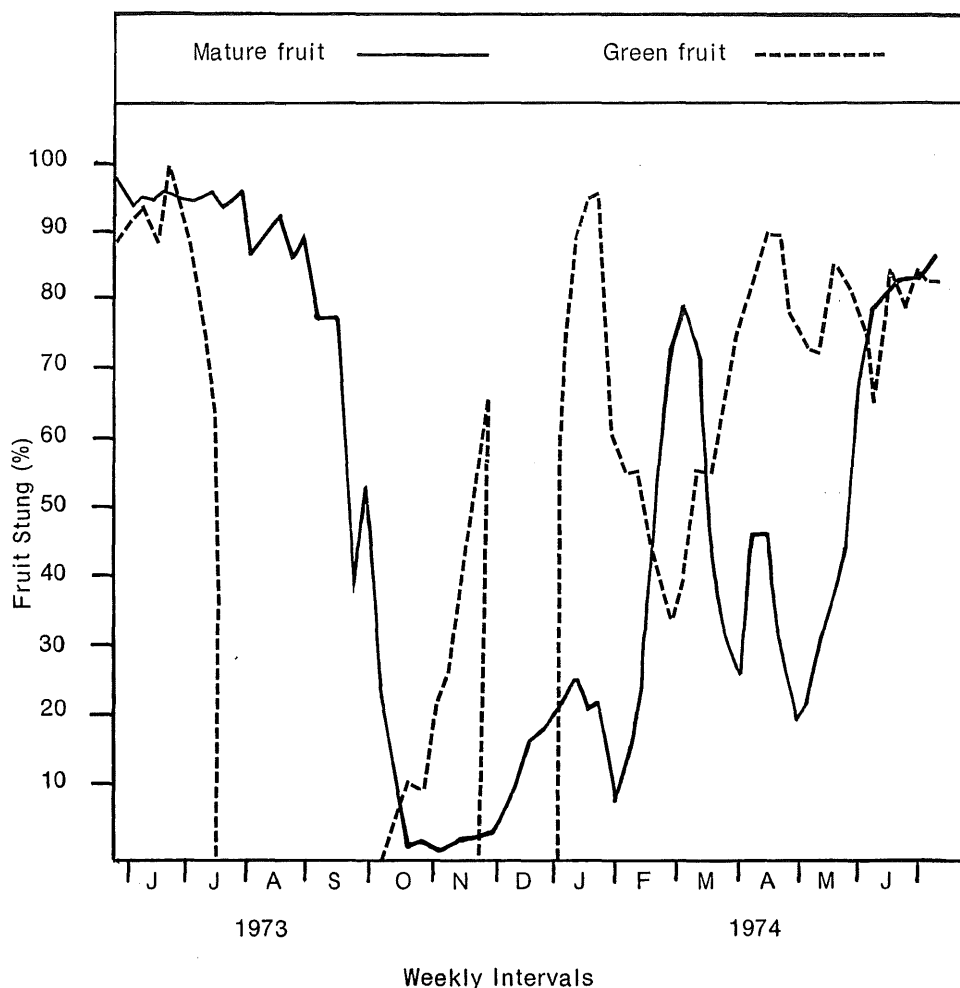


Figure 2. Seasonal incidence of *D. tryoni* damage on fallen green and mature passion-fruit.

Figure 2 shows that the incidence of damage was greatest for the two less important cropping periods of late summer and winter, when up to 96% and 80% respectively of mature fruit showed damage. Damage was least for the most important cropping period of early summer, reaching a maximum of 26% in mature fruit.

Damaged mature fruit is unmarketable, and this results in the main economic loss caused by *D. tryoni*. It is not certain from this study whether *D. tryoni* is the main cause of premature fall of green fruit. It is however obvious from the results in figure 2 that prior damage by *D. tryoni* is not necessary for premature fall of green fruit.

The current practice of spraying at 10 to 14-day intervals with 0.03% dimethoate to control fruit fly (Murray 1976) can be seen to be justified for the late summer and winter crops. However, the economics of such regular spraying for the early summer crop seems worthy of further investigation.

IV. ACKNOWLEDGEMENTS

The assistance of Mr L. P. Cooper in collection of data and Dr E. Exley and Mr G. Swaine in preparation of the manuscript is gratefully acknowledged.

REFERENCES

- MAY, A. W. S. (1953).—Queensland Host Records for the Dacinae. *Queensland Journal of Agricultural Science*. 10:36-79.
- MURRAY, D. A. H. (1976).—Insect Pests of Passion-fruit. *Queensland Agricultural Journal*. 102:145-151.

(Received for publication 26 April 1979)

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