

TECHNICAL NOTES

WINTER BREEDING OF *PTHORIMAEA OPERCULELLA* (GELECHIIDAE) IN NORTH QUEENSLAND

The tobacco leaf miner (*Phthorimaea operculella* (Zell.)) has been a particularly troublesome pest of tobacco in North Queensland during recent years (Saunders and Ettershank 1961). In this area the tobacco season extends from July to early February. July and August cover the seedbed period when rigid control of pests precludes breeding in young tobacco plants. An upsurge in leaf miner activity, however, often occurs in late September and early October despite the planting of clean seedlings and scheduled field applications of insecticides.

The life cycle of this insect in North Queensland varies from 22 to 51 days, depending upon temperature (Atherton 1936). Thus rises in moth activity may be expected at intervals throughout the tobacco season. The large populations of moths present early in the season, however, seemed to be unaccountable unless due to some factor such as winter breeding.

During the winter of 1961 field studies were made on the occurrence of leaf miner in tobacco and other areas in North Queensland. On 17 occasions in 10 different localities larval infestations were found. These were mainly during the months of June and July and were in potatoes and tomatoes as well as tobacco. Details are given in Table 1.

TABLE 1

RECORDS OF *P. operculella* ADULTS BRED FROM LARVAE COLLECTED DURING THE WINTER OF 1961

Date Collected		Locality	Host	Source of Larvae
May 28	Emerald Creek ..	<i>Solanum tuberosum</i> L. (potato)	} Tubers
July 6	Innot Hot Springs ..	do.	
„ 18	Chircan	do.	
June 28	Koah	<i>Lycopersicum esculentum</i> Mill. (tomato)	} Leaves
„ 28	Lemonside	do.	
„ 28	Mareeba	do.	
July 18	Chircan	do.	
„ 18	Lemonside	do.	
„ 18	Parada	do.	
„ 26	Mary River ..	do.	
June 28	Emerald Creek ..	<i>Nicotiana tabacum</i> L. (tobacco)	Old crop and volunteer plants
July 6	Innot Hot Springs ..	do.	Volunteer plants
„ 18	Leadingham Creek ..	do.	Volunteer plants
„ 18	Parada	do.	Old crop plants
„ 26	Mary River ..	do.	Old crop and volunteer plants

Winter breeding of leaf miner could be responsible for large populations of the insect early in the season and these recorded occurrences clearly demonstrate the value to tobacco growers of (a) destroying all tobacco crop residues, (b) maintaining farms free from volunteer tobacco plants, and (c) avoiding the growing of winter crops of potatoes and tomatoes.

Some Solanaceous weeds are known to be hosts of the leaf miner (Atherton 1936) although no infestations in these were found on the farms covered by this survey.

REFERENCES

- ATHERTON, D. O. (1936).—Leaf miner and stem borer of tobacco in North Queensland. *Qd Agric. J.* 45:12-31, 131-145, 239-248, 331-344.
- SAUNDERS, G. W., and ETTERS HANK, G. (1961).—Insecticidal control of leaf miner in tobacco. *Qd J. Agric. Sci.* 18:403-5.

G. W. SAUNDERS,
Queensland Department of Agriculture and Stock.

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