

**OVIPOSITION OF THE CABBAGE FLY, *HYLEMYA BRASSICAE* (BOUCHE)
(DIPTERA: ANTHOMYIIDAE) IN COASTAL BRITISH COLUMBIA¹**

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The cabbage maggot, *Hylemya brassicae* (Bouche), is the most serious pest of cole crops in British Columbia (Forbes and Finlayson, 1957). Its biology was studied from 1947-1956 in connection with extensive field experiments which resulted in highly effective control measures with chlorinated hydrocarbon insecticides. By 1960 a strain of *H. brassicae* resistant to the chlorinated hydrocarbons was established on Vancouver Island. This paper records results of the 1947-1956 oviposition studies which may be useful in efforts to achieve control of this pest again.

Methods

Most of the observations were made on cabbages and rutabagas grown in loamy sand or clay loam on a single farm near Victoria. Egg counts were made in 1956 on cabbages grown in sandy loam at Vancouver.

The beginning of egg-laying each year was determined by searching for eggs in the soil around large numbers of seedlings in seedbeds and young transplants in the field as frequently as possible during April and early May.

The eggs around each of 10 plants were counted twice weekly during the oviposition period of the years 1952-1956. The same plants were used for each count, except that young cabbage plants were substituted as the older ones matured and were harvested. All the eggs found were removed with a moistened camel hair brush.

Results and Discussion

At Victoria the flies began to emerge from the overwintered puparia during the first long warm period during April or May and began to lay eggs about a week thereafter. In the 9 years under study, the earliest and latest dates for the start of egg-laying were April 23 and May 8, respectively (Table 1).

TABLE 1.—Beginning of egg-laying by the cabbage fly, *Hylemya brassicae* (Bouche), at Victoria, B.C., 1947-1956.

Year	Date
1947	April 23
1948	April 26
1949	April 25
1950	May 8
1951	May 3
1952	April 24
1953	April 24
1955	May 2
1956	May 2

Representative egg-count data are presented graphically (Fig. 1).

These data and others not reported show that eggs are laid throughout the growing season but that 3 periods of relatively heavier egg-laying occur. The times of this heavier egg-laying varied with the season but were generally in May, mid-June to mid-July, and mid-August to mid-September. Field observations and cage studies showed that these periods of heavier egg-laying followed closely the appearance of overwintered, first, and second generation flies and therefore represent the times of deposition of most of the first, second, and third generation eggs.

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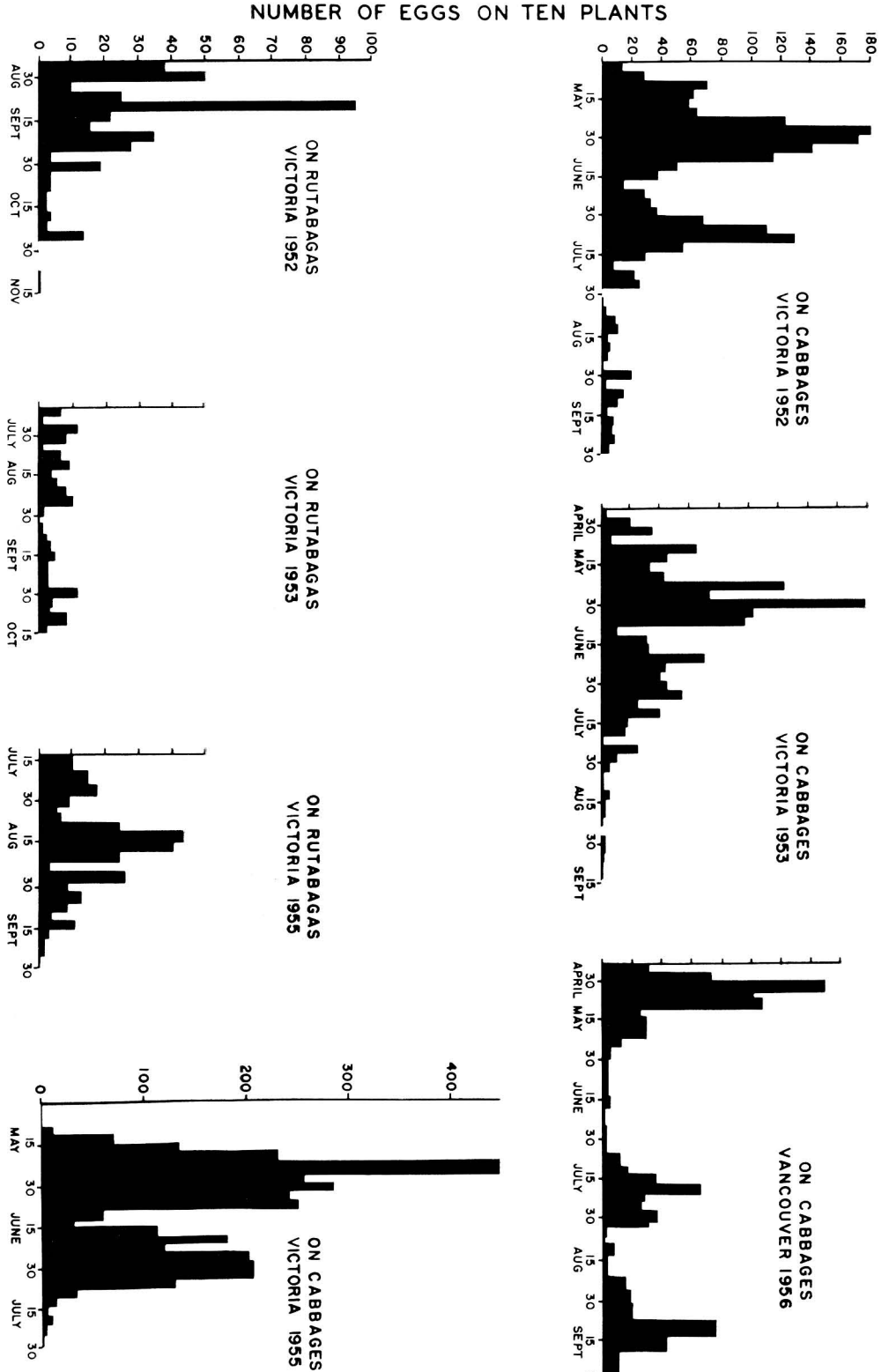


Fig. 1.—Oviposition by the cabbage fly, *Hylemya brassicae* (Bouche), in British Columbia.

Egg deposition in spring appears to be heavier than in summer (Fig. 1). This has also been noted by Gibson & Treherne (1916) in British Columbia, by Miles (1953) in England, and by de Wilde (1947) and Yaman (1960) in the Netherlands. Miles considers that this is not due to lack of adults but rather to the fact that the environment in summer provides little food to sustain the adults and as a result they do not survive to complete oviposition. De Wilde implicates parasites, predators, and weather conditions. In the localities of the present studies still another factor was involved: as the season advanced there was present a progressively greater acreage of cole crops over which the eggs were distributed and while the egg-laying of each generation may have been equal or even successively greater, the number of eggs to be found on a sample of 10 plants was smaller.

In coastal British Columbia early cabbages attract large numbers of first and some second generation eggs. Later cabbages attract some first and some third but mostly second generation eggs. Since rutabagas are not usually seeded until late June and are not favored for oviposition until mid-July, they receive mostly third generation eggs.

Summary

Oviposition studies in coastal British Columbia from 1947-1956 showed that the cabbage fly, *Hylemya brassicae* (Bouche), begins to lay eggs in late April or early May. Some eggs are laid throughout the growing season but periods of heavier oviposition occur in May, mid-June to mid-July, and mid-August to mid-September. These are the times of deposition of most of the first, second, and third generation eggs.

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