LADYBIRD BEETLES AID APHID CONTROL

Percentage Occurrence and Feeding Habits

By J. A. Munro[1]

Ladybird beetles have long been recognized as beneficial insects. Both the parent beetles and their larvae feed largely upon aphids and, together with other natural agencies, often succeed in holding them in check. Occasionally, however, as occurred during the season of 1949 when conditions favored the greenbug (grain aphid) it was not until after serious aphid damage was done to crops that the ladybird beetles and other insect enemies were sufficiently abundant to check them effectively.

The ladybird beetles are small, hemispherical beetles ranging from about 1/16 to 1/4 inch and varying in color from reddish to yellow and often with dark markings on their wing covers. They are commonly found amongst the plants where they search out and feed upon the sap-sucking aphids.

The parent beetles lay their eggs in clusters on the underside of the leaves of plants. Upon hatching, the larvae begin their battle against aphids and upon attaining full growth they transform to pupae where they remain attached to the plants for a time before emerging as beetles. There may be several generations per year. Only the adults winter over.

Field collections made during the summer of 1949 at several widely distributed points in North Dakota showed the percentage occurrence for the various species of ladybird beetles to be as follows:

Table 1. Percentage Occurrence of Ladybird Beetles in 1949 Collections*

Species	Number Collected	Percentage Occurrence
Coccinella transversoguttata Fald	98	42.1
Hippodamia convergens Guer.	75	32.2
Hippodamia 13-punctata tibialis (Say)	36	15.4
Hippodamia parenthesis (Say)	15	6.4
Coccinella 9-notata Hbst.	2	Tr.
Adalia bipuncta (L.)	2	Tr.
Hippodamia glacialis (Fab.)	1	Tr.
Coccinella perplexa (Muls.)	1	Tr.
Cycloneda munda (Say)	1	Tr.
Hyperaspis signata (Oliv.)	1	Tr.
Hippodamia (sp. undet.)	1	Tr.

*Identifications by E. A. Chapin and H. W. Somsen

Ladybird beetles are able to increase rapidly at times, especially during seasons of aphid abundance. This was well demonstrated in most sections of the State where aphids were troublesome during the past season.

[1]Entomologist, North Dakota Agricultural Experiment Station.

On June 24 an examination of a late seeding of wheat, infested with greenbugs, (aphids) near Fargo showed ladybird beetles to be present at the rate of one beetle to about three square yards of field. In addition to the beetles, their orange colored egg clusters were then commonly observed on the underside of the broad leaved weeds which were abundant in the field. The predominating species were *Coccinella transversoguttata* and *Hippodamia convergens.*

A subsequent examination of this field made on July 14 showed the ladybirds to have increased in population to an average of seven per square yard; an increase of about twenty-one fold over the earlier examination. Most of them were then the newly emerged adults and were still on the weeds on which they had spent the pupa or resting stage. It was then observed that the newer or more tender leaves of the kinghead, *Ambrosia trifida,* and marsh elder, *Iva xanthifolia,* supporting these colonies of ladybird beetles were severely skeletonized. The indications were that these beetles were solely responsible for the leaf damage. Since the only plants showing damage were the above mentioned weeds, it was additional evidence of the beneficial effects of these insects. At this time the population of aphids had been eliminated in this field, and it appeared that the beetles had at least temporarily shifted over from their aphid diet to escape starvation.

For most species the feeding on plants is a rare habit. Unfortunately one species of ladybird beetle, the Mexican Bean Beetle, *Epilachna varivestis* Muls., is a serious pest of beans and other legumes in areas as far north as Colorado. It is not known to occur in North Dakota and a few other northern states, but is expected to eventually spread over the entire country.

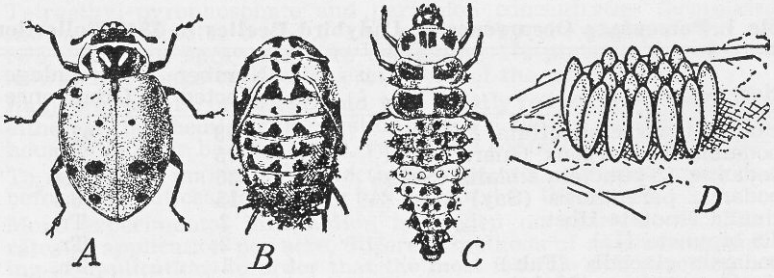

Fig. 1. The ladybird beetle, *Hippodamia convergens Guer.,* and its several stages of development: A, adult; B, pupa or resting stage; C. mature larva, and D, a cluster of eggs. (Courtesy of U.S.D.A. Bureau of Entomology and Plant Quarantine; after Clausen.)