SOME FACTORS INFLUENCING THE REPRODUCTION AND LONGEVITY OF

COCCINELLA SEPTEMPUNCTATA LINNAEUS

[COLEOPTERA : COCCINELLIDAE]

BY

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Introduction

The effectiveness of predatory Coccinellids as mortality agents of aphid depends on many factors. The theoretical number of aphids consumed by larvae and imagines during one summer has been reported earlier, together with other characteristics of the larvae (Sundby, 1968).

At our latitude C. septempunctata is univoltine with a long-lasting oviposition period. Aphids have several generations a year, and may already reach a high population level in June and July. During these months, Coccinellid larvae are most numerous, while highest population density of Coccinellid adults is usually noted in August and September.

The inability of predatory Coccinellids to survive when prey is scarce is reported to be a limiting factor for their effectiveness (Smith, 1965). The synchronization between the development of predator and prey, the fecundity of Coccinellids in relation to the type of food eaten, and the efficiency of Coccinellids as predators at our latitude are central problems. The effect of aphids and artificial food on the longevity, reproduction and survival of adults of C. septempunctata is reported in this paper. The importance of hibernating places is also described.

Material and methods

The methods used are the same as reported previously (Sundby, 1966). The Coccinellid beetles used originated partly from the field, partly from laboratory cultures. The adults were kept in glass jars.
one pair in each, and the food consumption recorded every day. The amount of food offered was more abundant than the amount consumed. The eggs produced were removed three times a day. The artificial food consisted of liver, hydrolyzate of yeast, casein and honey. The aphid used was *Myzus persicae* (Sulzer). The work was carried out at 21.0 ± 1 °C and at about 50 % r.h. Artificial light was used though natural light was admitted through the windows of the room. Other methods are described where applicable.

**General feeding habits and egg production**

Adults of *C. septempunctata* are aphid consumers. After hibernation they start feeding as soon as aphids are available in the spring. The amount of food eaten decreases after two to three weeks (fig. 1) and remains nearly constant throughout the rest of the summer. Oviposition starts about a week after feeding, and may last 3 months; an average of 7-800 eggs are laid.

![Relationship between the food intake, age, and fecundity of adults of *C. septempunctata* (30 replicates).](image)

**Fig. 1.** Relationship between the food intake, age, and fecundity of adults of *C. septempunctata* (30 replicates).

- **A**: Number of aphids eaten by egg producing imagines the first weeks after hibernation.
- **B**: Number of aphids eaten by newly emerged imagines.
- **C**: Number of eggs produced by hibernated females.

Food is necessary for the egg production. There is no egg production by this species if it doesn’t feed on aphids. In spite of high food consumption, newly emerged females usually do not oviposit until the following year. Dissection shows the fat bodies develop