

succession of the most favoured and easily marketable vegetables such as radishes, lettuce, cabbage, brinjals, amaranth etc., can be grown. Wherever the school garden exists, the children are being instructed in laying out plots, in recognising various seeds and weeds, the different useful grasses, and the useful and destructive insects and birds of the garden. The value of this branch of training is already shown by the interest it has aroused among the children and the willing co-operation which has been forthcoming. It is hoped that the Educational authorities will see their way to inducing more schools to maintain school-gardens.

In a few cases, it has been found that the parents of children attending the school look upon manual labour with contempt, they should know that it is just those countries where manual labour has never been looked upon as a bar to advancement that are the most advanced and wealthiest.

Thyagarayanagar, }
Madras, November 1939. }

Yours &c.,
S. Sundararaman

Research Notes.

The Yam leaf beetle

Galerucida biclor Hope, a pest of elephant foot yam (*Amorphophallus conopsea* Bl.) Elephant foot yam is subject to the attacks of two insect pests—*Galerucida biclor* (Fam. Chrysomelidae) and *Hippotion celerio* (Fam. Sphingidae). Of these the former does some serious damage to the crop; in some years the loss due to the insect is said to be about one third of the total crop. The grubs feed on the leaves and at times the entire stems are also attacked. The adult beetles also feed on the leaves and make holes in them. The pest has been noted to feed under laboratory conditions on *Colocasia* also. It has been recorded from Malabar and Godavari in the Madras Presidency and also from United Provinces, Dhera Dun, Nepal, Assam and Burma.

Eggs are laid in clusters in the soil at a depth of about an inch. The egg measures one mm. long and 0.75 mm. broad and is yellowish brown in colour, spherical in shape and sculptured. When about to hatch it turns shining and creamy white in colour. The egg period is about 7 days.

The newly hatched grub measures 3 mm. long and one mm. broad. It is pale black in colour and bears hairs and warts on the body. The grub feeds on the leaves of the food plant. The first moult is 5 to 6 days after the hatching and the second 4 to 5 days after the first moult. In 4 to 5 days after the second moult the grub enters the soil for pupation. Pupation is inside an oval chamber at a depth of an inch. The larval period is about 13 days.

The pupa is pale yellow in colour and measures 6.5 mm. long and 3.5 mm. broad. The pupal period is 8 to 9 days.

The adult beetle measures about 7.5 mm. long and 5 mm. broad. The general colour of the beetle is brown with black spots and patches on the dorsal and ventral surfaces. A description of the beetle is given by Maulik in Fauna of British India, Coleoptera, Chrysomelidae, (Galerucinae) pages 554 to 556.

Handpicking of the grubs and adult beetles was tried with success. Other methods such as dusting with arsenicals are under trial.

4-12-1939, }
Ag. Res. Institute, Coimbatore. }

M. C. Cherian,
N. Krishna Menon.

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