

Food Preference of *Protaetia fusca* Grubs¹

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(Presented at the meeting of December 12, 1949)

Information on the larval food preference of a newly discovered scarabaeid, *Protaetia fusca* (Herbst),² has been meager. Most members of the subfamily Cetoniinae to which the present species belongs are scavengers during their larval stage. An extremely dense concentration of grubs was observed in a pile of sugar mill mud press and leaf mold where this species was first discovered.² This fact was highly suggestive of its food preference. An experiment to determine the degree of preference was made under greenhouse conditions and its results are described in this note.

Two kinds of soil were used; one, with low trash content and the other, with high trash content. The former was a mixture of 87 per cent by volume of field soil with low humus content and 13 per cent of pulverized peat moss. The latter was a mixture of 33 per cent by volume of a similar field soil, 10 per cent of peat moss, and 57 per cent of partly decomposed leaf mold of monkey-pod tree and pineapple plant. These soils were placed in wooden boxes, each having about one-half cubic foot capacity. One young pineapple plant each was planted in half of the cages. Fifteen grubs of the late second instar were introduced into each cage after the roots had established themselves in the boxes. The four different treatments repeated in two cages per treatment were: (1) low trash soil with plant, (2) high trash soil with plant, (3) low trash soil without plant, and (4) high trash soil without plant.

The feeding period was limited to one month. Body weights of the grubs were determined with an analytic balance at the beginning and also at the termination of the test. Standard soil moisture sampling cans were used for confining the grubs individually while weighing. At the termination, carefully washed roots were examined for feeding injury under a lens of 10 times magnification.

Data are presented in Table 1. Normal survival and growth of grubs occurred in every cage of high trash soil, irrespective of plant growth in the cages. Two grubs only survived in the two cages of low trash soil with plant. They were both decidedly poorer in growth, and were found feeding upon the decaying basal leaves which were partly buried under the ground. Four grubs survived in the two cages of low trash soil without plant, but they were all starved and dying.

¹ Published with the approval of the Director as Technical Paper No. 191 of the Pineapple Research Institute, University of Hawaii.

² Pp. 9 and 20, this issue of "Proceedings."

Table 1.—Survival and body weight gain of *Protaetia fusca* larvae after a month's feeding in two kinds of soil with and without growing plant.

Treatment	Cage	Grubs Introduced	Grubs Survived	Average Body Weight at Beginning (gm)	Average Body Weight at Termination (gm)	Gain in Wt. (gm)
Low trash soil with plant	A	15	1	.1554	.4647	.3093
	B	15	1	.1610	.4239	.2629
High trash soil with plant	A	15	14	.1333	.7413	.6080
	B	15	13	.1428	.7587	.6159
Low trash soil without plant	A	15	3	.1352	.1310	-.0042
	B	15	1	.1330	.0950	-.0380
High trash soil without plant	A	15	15	.1506	.8023	.6517
	B	15	15	.1480	.7108	.5628

No feeding injury was found on the roots in any cage of either low or high trash soil. The indications were clear that the grubs specifically preferred to feed on trash and refused to feed on live roots in the absence of trash. Although the present demonstration was limited to pineapple roots, their preference for trash, however, will probably hold true even in the case of other plant species under ordinary conditions.

It is concluded that *Protaetia fusca* is a scavenger during its larval stage, showing specific preference for organic matter. Pineapple roots are not likely to be attacked by the grubs.