Table 1.—Weight and relative percentage of bran removed from 1000-g samples of rough rice of 3 varieties with 3 milling times on a McGill no. 3 rice mill, and yearly average bran production by a commercial mill.

	McGill no. 3 mill[a] (milling time)						
	30 sec		20 sec		10 sec		Commercial mill[b]
Variety	(g)	(%)	(g)	(%)	(g)	(%)	(g)
Nato	86.7	100	78.3	90	61.3	71	98.4
Dawn	95.9	100	85.1	89	73.5	76	109.7
Bell Patna	91.7	100	81.4	89	67.4	74	98.5
Average	91.4	100	81.6	89	67.4	74	

[a] Each value is of 3 replications in each of which the same trend was observed.
[b] Each value is the average bran production per 1000 g of rough rice for production of U. S. no. 2 rice for 1 year.

Table 2.—Average number of progeny of 4 species of insects developing in milled rice as affected by degree of milling (% bran removal) and by variety of rice.[a,b]

% bran removed	Variety: Dawn	Nato	Belle Patna	Avg
		Rice Weevil		
74	33.0	467.3	90.7	197.0**
89	17.0	190.7	30.7	79.5**
100	52.3	101.6	17.0	57.0**
Avg	34.1	253.2**	46.1*	
		Lesser grain borer		
74	53.3	324.7	30.7	136.2**
89	42.0	218.7	21.0	93.9**
100	15.7	150.7	20.3	62.2**
Avg	37.0*	231.4**	24.0	
		Confused flour beetle		
74	77.7	177.3	170.7	141.9**
89	24.0	53.3	94.7	57.3**
100	5.0	22.0	18.0	15.0
Avg	35.6**	84.2**	94.5**	
		Indian-meal moth		
74	7.3	30.3	22.3	20.1**
89	0.3	1.3	1.0	0.9
100	0	0.3	0.7	.3
Avg	2.5	10.6**	8.0**	

[a] Each value is avg of 3 replications.
[b] (*) and (**) indicate significance at the 5% and 1% levels, respectively.

in Dawn and lesser grain borers in Belle Patna, the number of progeny decreased significantly for each insect as more bran was removed in milling. Of the 3 varieties milled the Nato variety was more suitable to a statistically significant (1% level) extent for the rice weevil and lesser grain borer at each degree of milling. The Nato and Belle Patna were more suitable than Dawn for the confused flour beetle and the Indian-meal moth, though not to a statistically significant extent in each case.

These data provide no explanation for the insects' preferences among varieties of rice. However, degree of milling differences are in agreement with general observations and those of Pingale et al. (1957) of preferences for brown rice or lightly milled rice over rough or well-milled rice.

Samples of each variety and each degree of milling were evaluated as to degree of milling by personnel of the Grain Division, Consumer and Marketing Service, USDA, Beaumont, Tex. All samples milled 20 and 30 sec were classed *well milled.* Dawn and Belle Patna samples milled 10 sec were classed *reasonably well milled.* Nato samples milled 10 sec were classed *lightly milled.*

Although this work was not based on official classes of milling, the data suggest that degree of milling affects insect development, and that further testing is needed. The varietal differences indicate that samples of each major variety must be evaluated if uniform milling standards are to be established to limit insect infestation.

REFERENCE CITED

Pingale, S. V., S. B. Kadkol, M. Narayana Rao, M. Swaminathan, and V. Subrahmanyan. 1957. Effect of insect infestation on stored grain. II—studies on husked, hand-pounded and milled raw rice, and parboiled milled rice. J. Sci. Food Agr. 8(9): 512–6.

A Cage Used to Study the Finding of a Host by the Ladybird Beetle, *Stethorus punctum*[1,2]

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Twenty adults of the ladybird beetle, *Stethorus punctum* (LeConte), were placed 10 times in a specially designed cage in an attempt to determine their ability to seek a host. The cage was constructed for studying the attractiveness of various diets to *S. punctum.* Before the diet tests could be instituted it was necessary to determine if *S. punctum* could be significantly attracted, using this cage, to its natural prey, the European red mite, *Panonychus ulmi* (Koch). This note summarizes the findings of research conducted the summer of 1969.

METHODS AND MATERIALS.—Fig. 1 shows the test cage assembled, with the lid open. The cage was constructed from the following materials: 1 plastic box, 2×2×1⅛ in.;[4]

[1] Coleoptera: Coccinellidae.
[2] Authorized for publication Jan. 13, 1970, as paper no. 3723 in the journal series of the Pennsylvania Agricultural Experiment Station. This research was supported in part by USDA, Agr. Res. Serv. Grant no. 4023. Received for publication Jan. 27, 1970.
[3] Graduate assistant and Professor of Entomology respectively, Department of Entomology.

[4] Ward's Natural Science Establishment, Inc., Rochester, N. Y. 14603.

Table 1.—Summary of observed reaction of *S. punctum* to various attractants when utilizing a newly designed cage.[a]

Treatment	Total beetles attracted	Range attracted per replicate	Replicates	Student's "t"
Mites	61	0–8		
vs.			20	3.014[b]
no mites	19	0–3		
Mites + leaves	58	0–8		
vs.			20	2.716[c]
Leaves	24	0–3		

[a] df = 19; t0.05 = 2.093, t0.01 = 2.861.
[b] Significantly different at 1% level.
[c] Significantly different at 5% level.

four 9-dram plastic vials;[5] white Dacron Ninon screening;[6] and Elmer's Contact Cement®.[7]

The cage was constructed by drilling a ¼-in. hole in the center of each of the 4 sides of the plastic box. A ¼-in. hole was drilled into the center of the base of each of the 4 vials. The bases of the vials and a corresponding area around the holes in the box were sanded lightly with fine sandpaper. Elmer's Contact Cement was then placed on the bottom of the vials and a corresponding area around the holes in the plastic box. After ca. 15 min the holes were aligned and the vials were affixed to the plastic box. The glue dries yellowish, thus no visual attractiveness is suspected.

The centers of the plastic caps for the vials were removed with a razor blade and Dacron Ninon screening was cemented over these areas. Finally, a 1-in. hole was drilled into the center of the top of the plastic box with a 1 in. hole saw. This hole was then covered with the screening.

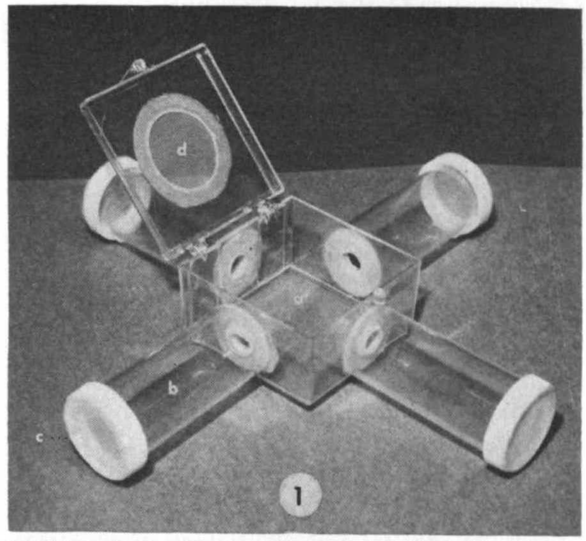
To begin the test the caps of the vials were removed and the pair of samples to be tested was placed into vials 1 and 2 and replicated in vials 3 and 4 and then the caps were replaced (Fig. 2). With the cage resting flat on a table 20 adults of *S. punctum* were liberated into the box. Small desk fans, 0.1 amp, catalog no. FR-10,[8] were placed 8 in. from points A and B (Fig. 2). To reduce air current the openings on the fans were covered with masking tape reducing the opening to ¼ in. × 2½ in. With the samples in the vials and the beetles in the box the fans were turned on and the test was begun.

Of the beetles that were placed in the box those that had gone to the vials were counted at the end of 1 hr. The beetles were removed from the vials with a camel's hair brush and placed through the ¼-in. holes back into the box. This same procedure was repeated for 10 hr.

RESULTS AND DISCUSSION.—*S. punctum* adults were attracted significantly, at the 1% level, to *P. ulmi*, when given a choice of *P. ulmi* vs. no mites (Table 1). When *P. ulmi* + apple leaves vs. apple leaves alone were compared, *S. punctum* demonstrated a significant preference, at the 5% level, for the *P. ulmi* + apple leaves (Table 1).

Future trials are planned to test the attractiveness of various diets for rearing *S. punctum* making use of this cage, now that it has been established that *S. punctum* can be significantly attracted to *P. ulmi* when using this cage.

[5] M. Brenner Drugs, Seventh and Division St., Harrisburg, Pa. 17110.
[6] Dodgeville Finishing Co., Attleboro, Mass. 02703.
[7] Borden Chemical Co., New York, N. Y. 10017.
[8] Emerson Electric Co., Builder Products Div., St. Louis, Mo. 63100.



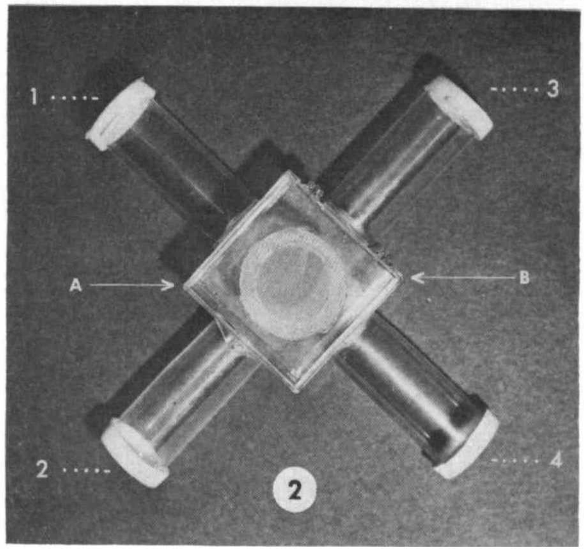


FIG. 1.—Test cage. (a) Plastic box (lid open), (b) Plastic vial, (c) (d) Dacron Ninon screening.

FIG. 2.—(1) (2) (3) (4) Removable caps, (A) (B) direction of air flow.

Parasitization of Whiteflies[1] on Strawberry Plants in Southern California[2]

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During studies on the biological control of the two-spotted spider mite, *Tetranychus urticae* Koch, on strawberry plants in southern California (Oatman and McMurtry 1966; Oatman et al. 1967, 1968), it was noted that immature stages of whiteflies on the leaves were

[1] Hemiptera: Aleyrodidae.
[2] Received for publication Feb. 6, 1970.