

TENT CATERPILLARS

In Breeding Useful Parasites

They May Be Valuable Friends

F. G. Werner and
G. D. Butler, Jr.

Department of Entomology

One of the kinds of insects that keeps the bollworm and other caterpillars that eat our crops under a measure of control is a group of flies called tachinids. These are roughly similar to the house fly in appearance but are much different in habits.

The larval or maggot stage is passed inside caterpillars and some other insects, usually resulting in the death of the host. We have 150 other kinds in Arizona, some of them very abundant. Some of them are very narrow in their food preferences, the larvae eating only specific kinds of caterpillars. Others are able to attack a wide variety of hosts and are probably of the greatest general importance.

Precise Food Habits

These flies have many generations in a year, usually hibernating as adults during the cooler months. Each generation is dependent on a supply of the right kinds of caterpillars. One of the ques-

tions we are trying to answer is where they find caterpillars during the "off seasons" for crops. If they find few or none, the population of tachinids drops so low that it takes several generations to recover, even when there are many caterpillars available later.

Is Possible Host

One possible host during early spring is the Great Basin tent caterpillar, an insect that defoliates cottonwood and willow in many places almost every year. This might be an important reservoir host and it has the added advantage that it does not feed on crop plants. It has one generation a year, most of the year being spent in the egg stage.

Fairly large numbers of tent caterpillars were present in the Tucson area in the spring of 1957 and we gathered large batches of the cocoons to determine which parasites, if any, were successful in breeding through on this host. Almost immediately large numbers of tachinid adults began to emerge, and lesser numbers of some parasitic wasps. The tachinids have now been identified. Seven species are represented. Unfortunately, the species of tachinids do not have common names so will have to be referred to by their scientific names.

Survives Over Summer

Phorocera tachinomoides was the commonest one and it has been collected over the southern half of the state. It is apparently principally a parasite of tent caterpillars but has been reared from the bollworm and must survive through the summer on hosts other than tent caterpillars because we have collected it from March through November.

Achaetoneura archippivora came out in fair numbers and it has a wide variety of caterpillar hosts. During 1957 it was reared also from beet armyworm, cabbage looper, fall armyworm, and bollworm, all important crop pests, and from a few other caterpillars. *Exorista larvarum* also emerged in fair numbers and it is known to be one of the principal parasites of the salt-marsh caterpillar or "woolyworm" on cotton and vegetables late in the season.

Zenillia hyphantriae emerged from one sample from Sabino Canyon and this species has been reared from the bollworm and the fall armyworm in some other areas. The other three species reared apparently are not directly involved in the destruction of major pests on crops.

Transfer Seems Logical

Achaetoneura and *Exorista*, at least, are known to be important parasites of major crop pests in Arizona and the descendants from the flies that breed in the tent caterpillar undoubtedly transfer over to these caterpillars later in the season. *Achaetoneura* could go directly from tent caterpillars to beet armyworms and cabbage loopers, since these are abundant on crops in the spring. So our tentative conclusion is that the cottonwood and the Great Basin tent caterpillar do play a part in tiding over at least part of the tachinids at a time when they might have difficulty.

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Average silage and grain yields of hybrid corn varieties grown at the Mesa Experiment Station, Mesa, Arizona, in 1955, 1956, and 1957.

Corn hybrid or variety	3-yr. average yield in % of Mexican June							
	Silage %	Grain %						
1. Funk G-29	68	147	5. Funk G-740	92	124	21. Pioneer 9178	84	153
2. Funk G-50	74	143	6. Funk G-792W	88	123	22. United 6	78	142
3. Funk G-91	76	136	7. Pfister 303	65	143	23. Northrup King KR2	63	145
4. Funk G-711	89	123	8. Pfister 347	72	158	24. Northrup King K3A	67	173
			9. Pfister 381	68	163	25. Northrup King KS6	58	143
			10. Pfister 383	67	160			
			11. Pfister 403	72	167	26. Northrup King KY4	63	139
			12. Pfister 484	84	131	27. Northrup King KY7	68	147
			13. Wisconsin 575	62	133	28. Texas 26	90	167
			14. Wisconsin 642	65	152	29. Texas 15W	88	180
			15. Wisconsin 692	68	149	30. Texas TRF-3	79	153
			16. Wisconsin 641AA	66	149			
			17. De Kalb 1002	87	146	31. Mexican June (check)	100	100
			18. De Kalb 1050	84	145			
			19. De Kalb 1051	90	156	Yield of Mexican June calculated in lbs./A.	55,730	3851
			20. Pioneer 312A	76	157			