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SEQUENTIAL SAMPLING OF THE COTTON FLEAHOPPER IN OKLAHOMA

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Increasing cost of chemical control and the loss of beneficial insects have made it necessary to more accurately determine when to apply insecticides to cotton for fleahopper control. Controls for fleahoppers often result in bollworm increases, especially if they are applied late.

To successfully integrate control of fleahoppers with other insect control, it is necessary to have a sampling technique that is quick and accurate. The sequential sampling is an accurate sampling technique that may save more than 50% in time over other sampling methods (Waters 1975). It has been widely applied for insect control sampling (Pieters and Sterling 1974).

How to Sample

Fleahopper sampling should begin as soon as pin-head squares appear. The terminal of each plant should be examined thoroughly. Select plants to be sampled at random. The sampling pattern is unimportant so long as all parts of the field are covered.

How to Use the Sequential Sampling Table

The cotton insect control fact sheet for Oklahoma No. 7162 recommends treatment for fleahopper when 40 or more fleahoppers are found per 100 plants. Therefore, the following decision table is based on 40 fleahoppers per 100 terminals as the economic threshold.

To use the table, begin by sampling and recording the number of fleahoppers (if any) on the first plant. You then move to a second plant and count the fleahoppers present, and add the number Ken Pinkston - Extension Entomologist

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(if any) to those on the first plant The number of fleahoppers count. etc. is recorded in the center column entitled running total. The running total column then is not the number of fleahoppers found on the plant, but the total number of fleahoppers found on all plants sampled. If the running totals are equal to or above the decision to treat column, stop sampling and treat. If the running totals are equal to or lower than the decision to not treat, stop sampling and do not treat. As long as the running total remains between the two limits, continue to sample. The ND symbol means no decision. As can be seen from the table, no decision can be made to treat until at least 10 plants are sampled and a decision not to treat cannot be made until at least 26 plants are sampled. The values to determine this table were derived from extensive sampling in southwestern Oklahoma.

If table indicates that no decision can be made after 100 plants are checked, then the field should be resampled within 3 days.

*Footnote

Research in Oklahoma indicates that treatment of fleahoppers in Oklahoma is generally not economical.

References Cited:

- Pieters, Edward P., Windfield L. Sterling. 1974. A sequential sampling plan for cotton fleahopper. Environ. Entomol. 3:102-106.
- Waters, W. E. 1955. Sequential sampling in forest insect surveys. Forest Sci. 1:68-79.

confidence interval 90%								
	Decision						Decision	
Plant	Decision	Running	Begin	Plant	Decision	Running	Begin	
	No Treat	Total	Treatment	Number	No Treat	Total	Treatment	
1	ND		ND	51	9		26	
2	ND	1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	ND	52	10		26	
3	ND		ND	53	10	4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	20	
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5	ND		ND	55	11		27 27	
6	ND		ND	56	11		27	
7	ND	and the state of t	NTD	57	12		20	
8	ND		ND	58	12		20	
9	ND		NTD	59	12		20	
10	ND		12	60	12		29	
11	ND ND		12	61	1.5	the particular and the second second	29	
12			12	62	10		29	
12			12	62	13	·····	30	
17	ND -		13	03	14		30	
14	ND		13	64	14		30	
15	ND		13	65	14		31	
16	ND		14	66	15		31	
1/	ND	<u> </u>	14	67	15	and the second se	32	
18	ND		14	68	15		32	
19	ND		15	69	16		32	
20	ND		15	70	16		33	
21	ND		16	71	1 6		33	
22	ND		16	72	17		33	
23	ND		16	73	17		34	_
24	ND		17	74	17		34	
25	ND		17	75	18		34	
26	1		17	76	18		35	
27	1		18	77	. 19		35	
28	1		18	78	19		35	
29	2		18	79	19		36	
30	2		19	80	20		36	
31	3		19	81	20		36	
32	3		19	82	20		37	
33	3		20	83	21	-	37	
34	4		20	84	21		37	
35	4		20	85	21		38	
36	4		21	86	21		20	
37	5		21	87	22		20	
38	5		21	88	22		20	
39	5		22	89	22		39	
40	6		22	90	20		39	
41	6		22	90	20	<u></u>	39	
42	6		22	91	20		40	
43	7		22 22	74 02	24 27		40	
44	7		20	01.	24		41	
45	7		24 27	94 05	24		4 L	
40 46	/ 0		24	95	25		41	
40 47	0		24	96	25		42	
41 //0	0		25	97	25		42	
40 40	ð		25	98	26		42	
49 50	9		25	99	26		43	
50	9		26	100	27		43	

Table 1. Sequential Sampling for Fleahoppers K = 4.46

* ND means no decision can be made.

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