TIME OF HATCHING FIRST GENERATION BOLL WEEVILS RELATIVE TO APPEARANCE OF BLOSSOMS[1]

By PAUL CALHOUN

Timeliness is a factor of first importance in the application of poisons to control the cotton boll weevil. Applications made too soon are partially wasted; those made too late fail in a measure—a very large measure at times—to accomplish their purpose. An example of this is found in allowing first generation weevils to hatch in sufficient numbers to puncture a considerable percentage of the young bolls before making dust applications in those cases where the hibernated weevils were not poisoned when the cotton was small.

In order to be able to predict with some degree of assurance when one should expect first generation weevils to hatch where hibernated weevils are not poisoned, the pre-bloom period during which the first generation of weevils could normally be rearing was determined for an Upland and a Sea Island variety of cotton and correlated with the period required for a weevil to hatch in the field. About 450 squares were measured and tagged on Lightning Express 15-23 (Upland) and Seabrook (Sea-Island) varieties. This was done from May 29 to June 6, while the plants were in the pre-bloom stage. The time elapsing between the date of measuring the squares and the date of blossoming was recorded in each case. The average time required for each size measured to blossom is shown graphically in Chart A, while Tables I and II show more complete data for the sizes of chief interest from the standpoint of possible producers of first generation weevils. It can be seen from the tables that most of the blossoms occur within two days of the average calculated.

G. D. Smith* determined that the average time required from egg to adult under field conditions at Madison, Florida, was between 21 and 22 days. As the temperatures at Madison differ but little from the temperatures of the greater part of the Florida cotton belt, these figures may be considered sufficiently correct for all practical purposes for the principal cotton growing areas of the state.

Referring to Chart A, it is evident that for a weevil to hatch in an upland field before blossoming time it will have to develop

[1]Contribution from the Dept. of Cotton Investigations, Fla. Agric. Experiment Sta.

*Bulletin 926, U. S. D. A. (1921) G. D. Smith.

TABLE I.—Time Required for Upland Squares of Various Sizes to Bloom.

Diameter in Millimeters	Number Measured	Percent Blooming in Days											Average, Days
		14	15	16	17	18	19	20	21	22	23	24	
4.5	18							22	44	22	6	6	21.3
4.6	11						9	37	18	18	9	9	21.1
4.7	12							58	42				20.4
4.8	25							40	44	12		4	20.8
4.9	22						16	54	25	5			20.2
5.0	43				6		16	44	16	16		2	20.2
5.1	16			6	6		31	38	19				19.7
5.2	19						52	26	16		6		19.8
5.3	25					8	48	32	12				19.5
5.4	31				3	10	36	45	6				19.4
5.5	28			7	7	14	50	18	4				18.8
5.6	20				5	25	40	25	5				19.0
5.7	19		6	16	6	19	36	11		6			18.3
5.8	34		5	12	18	35	18	9	3				17.9
5.9	14		14	9	28	28	21						17.3
6.0	34	6	6	24	15	29	18	2					17.2

TABLE II.—Time Required for Sea Island Squares of Various Sizes to Bloom.

Diameter in Millimeters	Number Measured	Percent Blooming in Days									Average Days
		17	18	19	20	21	22	23	24	25	
4.5	18						28	39	28	5	23.1
4.6	16						25	56	19		22.8
4.7	17					6	29	53	12		22.7
4.8	10						40	50	10		22.7
4.9	9						67	22	11		22.4
5.0	20					25	65	10			21.9
5.1	5				20	20	20	40			21.8
5.2	12					58	33	9			21.5
5.3	16				18	38	44				21.2
5.4	10			10	30	30	30				20.8
5.5	15				13	63	8	13			21.2
5.6	12		8		25	33	25	8			20.6
5.7	9		11		11	78					20.6
5.8	17			12	41	41		6			20.4
5.9	3		33	33		33					19.3
6.0	8	12	25	12	12	39					19.4

from rather small squares. In the variety tested they would have to develop in squares of about 4.5 millimeters diameter at the time of oviposition. Weevils do not ordinarily develop in smaller squares than this, as very small squares dry so readily after they fall from the plants that the larvae they contain die. On the other hand, it appears that first generation weevils find no difficulty in hatching within three or four days after first

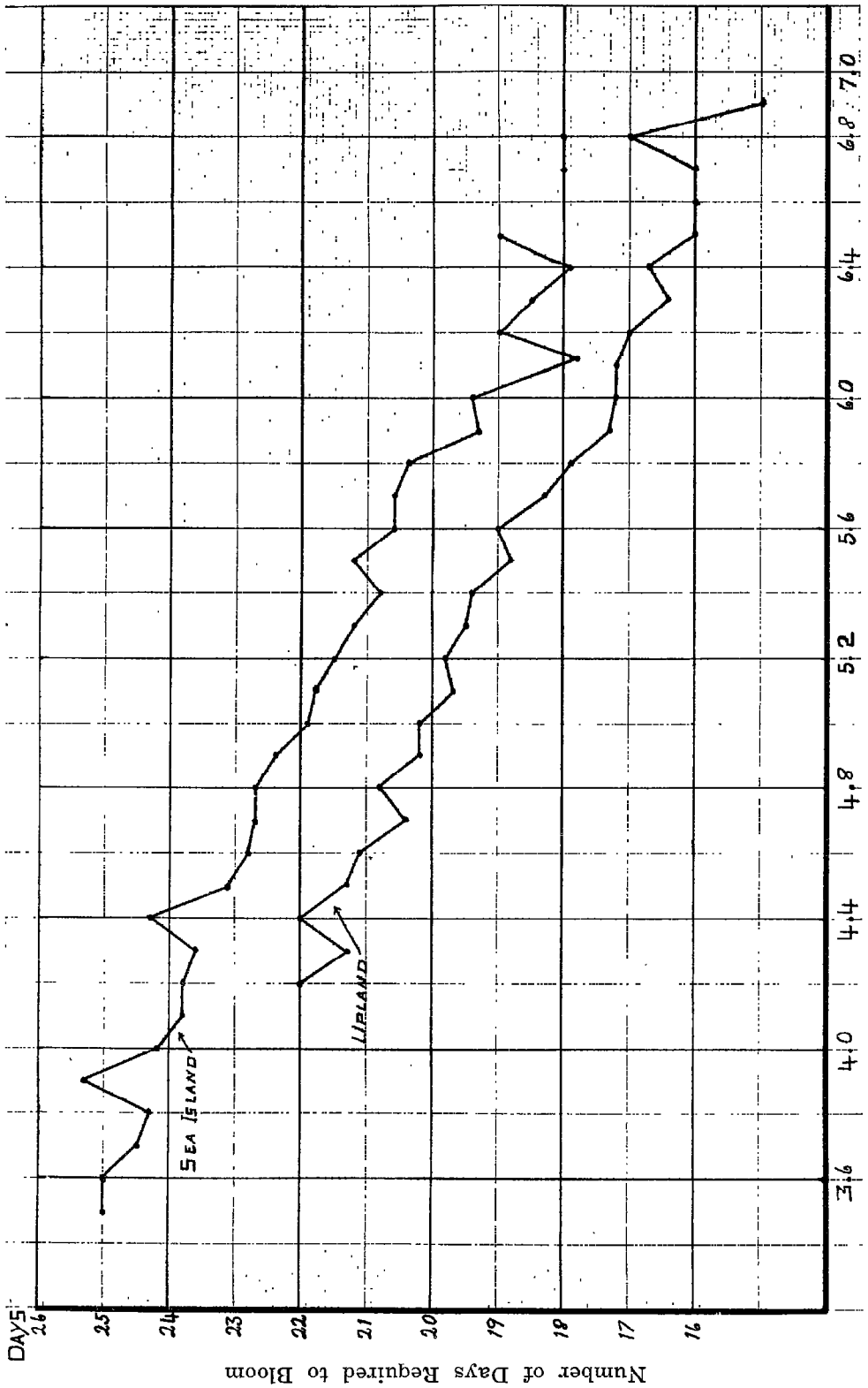

CHART A.—Time Required for Squares to Bloom.

blossoming time, as squares of from 5.5 to 6.0 millimeters diameter easily produce adult weevils except under unfavorable weather conditions. Although Lightning Express 15-23 was the only Upland variety tried, it is not probable that other standard Upland varieties would show sufficient differences in the pre-bloom period as measured to be of importance in weevil control operations. Earliness has been one of the aims of most cotton breeders for years, therefore, considerable uniformity is to be expected in this regard. Some of the Sea-Island strains, however, possibly would have a pre-blossom weevil breeding period sufficiently long to permit first generation weevils to begin to hatch several days before first blossoming.

Most growers do not realize that first generation weevils can begin hatching so early. In fact, ordinarily they do not hatch that early in sufficient numbers to cause damage, as generally a large percentage of the eggs first laid never produce weevils, because many of the immature stages are killed by the hot sunshine prior to the time the cotton is large enough to furnish sufficient protective shade. On the contrary, if rainy weather predominates from the time infested squares begin to fall, and no hot sunny weather occurs, first generation weevils begin to hatch in an infested field by the time blossoms appear, or very shortly afterward. In this case they may easily become numerous enough to puncture many of the young bolls within three weeks after the first blossoms occur.

NOTES ON UTAH COLEOPTERA

GEO. F. KNOWLTON

(Continued from page 56)

Stenocorus vestitus Hald.
Logan, August 13, 1921 (G. E. King).

Leptacmaeops subpilosa (Lec.)
Bountiful, 1929 (Pack); Cache Junction, June 3, 1912 (Hagan); Logan, July 4, 1909 (Titus); Logan Canyon.

Acmaeops longicornis Lec.
Maryvale, June 25, 1906.

Leptura chrysocoma Kby.
Logan, July 30, 1904.

Typocerus velutina (Oliv.)
Logan, July 27, 1928 (Pack).