

UNIVERSITY OF IDAHO  
AGRICULTURAL EXPERIMENT STATION

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Department of Entomology

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THE BEET LEAF-HOPPER

(*Eutettix tenellus* Baker)

A SURVEY IN IDAHO

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By ROWLAND W. HAEGELE

BULLETIN NO. 156

JULY, 1927

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Published by the University of Idaho, Moscow, Idaho

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- LEGEND -

**BREEDING GROUND**  
POPULATION HIGH



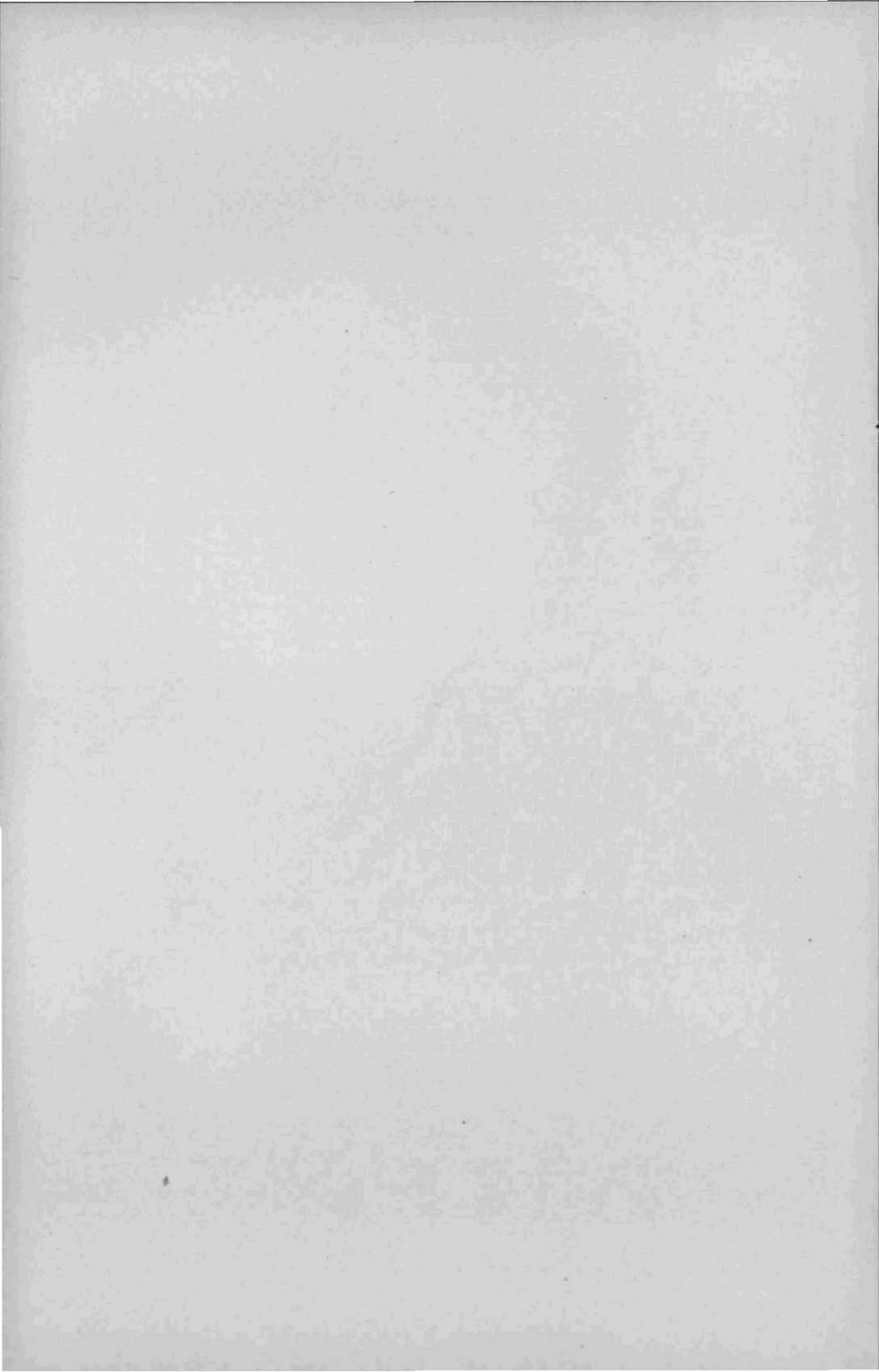
**COMMON**  
POPULATION LOW



**OCCASIONAL**  
MOUNTAIN AREAS



Relief map showing the distribution and breeding grounds of the beet leafhopper (*Eutettix tenellus* Baker) in Idaho for 1925 and 1926.



# THE BEET LEAF-HOPPER

(*Eutettix tenellus* Baker)

## A SURVEY IN IDAHO

By ROWLAND W. HAEGELE

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### Introduction

A research laboratory was established in 1925 at Twin Falls, Idaho, by the Bureau of Entomology of the United States Department of Agriculture, for the purpose of conducting a detailed ecological study of the beet leafhopper, *Eutettix tenellus* Baker. This insect is responsible for curly-top, a disease of beets which causes enormous losses to the sugar industry of Idaho and other western states. Cooperating with and under the direction of the bureau, the University of Idaho Experiment Station conducted a survey to determine the geographic distribution of the beet leafhopper and its host plants in Idaho. This was under the direct supervision of Walter Carter of the bureau, and much credit is due Mr. Carter for advice and continued guidance in the field which made possible the accomplishment of this phase of the work. Results of the survey in 1925 and 1926 are presented herein.\* In general the survey has been completed but additional data for certain localities will be gathered during the continuance of the project.

Detailed scouting was done throughout the accessible portions of the state, which included undisturbed desert areas, irrigated tracts and other agricultural lands, mountain districts, and the prairie and timbered plateau land of northern Idaho. Frequent collections or sweepings were made on different types of vegetation which furnish food for many species of insects of the leafhopper family. These included meadow lands, hay and grain fields, and numerous common shrubs and weeds of desert, cultivated, and mountain regions. The ecological aspects of the survey were kept in mind and collections were made on as strictly quantitative a basis as possible. To determine whether *E. tenellus* was present on a given host plant, 50 sweeps of a 15-inch insect net were taken from a growth of the given species of plant. The sweepings were then placed in a container with the data concerning them and the beet leafhopper specimens were later separated and counted in

\*Claude Wakeland, Experiment Station Entomologist, read the manuscript and offered valuable suggestions which are gratefully acknowledged by the writer.

the laboratory. Experience has shown that during constant survey operations the unit sweep becomes practically automatic. The principal inaccuracy lies in the fact that the vegetation swept is not of constant density, nor is the leaf surface exposed to the sweep of the net the same, even within the same species. In spite of this inaccuracy, however, the data obtained gives a relative measure of the comparative density of the *E. tenellus* population of different areas. Specimens of the plants on which sweepings were made have been determined.

### General Results of Survey

The detailed data of the survey are given in tabulated form at the end of the bulletin. Food plants of *E. tenellus* in Idaho are also listed.

Extending across the southern portion of the state are the Snake River Plains, a rolling desert area more than 350 miles long and from 30 to 75 miles wide. The Snake River traverses the length of these plains from Ashton, near the eastern border of the state, to Weiser on the western. Farming is practiced extensively on tracts of land which are irrigated by water from the Snake River or its tributaries, but scattered throughout the unirrigated portions of this area are found hundreds of abandoned places where dry farming has been attempted. The most extensive of these abandoned acreages are found on the prairies west of Rexburg, Blackfoot, and American Falls. On the higher bench lands and foot hills bordering the north and south of these plains are some dry-land farms on which cropping has been continued, and also many abandoned ones. This vast desert region of southern Idaho constitutes the most extensive breeding ground in the state for beet leafhopper.

The insect was found on a number of plants beside the sugar beet (*Beta vulgaris*), many of which have been introduced as weeds. Those most wide spread and constituting the principal hosts over the largest areas were tumbling mustard (*Sisymbrium altissimum* L.), green tansy mustard (*Sophia filipes* (Gray) Heller), Russian thistle (*Salsola pestifer* A. Nels.), and redscale (*Atriplex rosea* L.). The two mustards were commonly found on abandoned places in the desert as well as on farms throughout the hills and bench lands. The mustards mature early and are the principal hosts of the beet leafhopper in the spring. They are gradually replaced in early summer by Russian thistle on which the insect was found the remainder of the season. Russian thistle occurs in still greater abundance on abandoned farms of desert and bench land, and is almost continuous along highways, fence rows, and ditch banks.

Redscale is a host from late spring throughout the season. It is found around barn yards, feed lots, and alkali waste places as well as along highways, fence rows, and ditch banks. They are all found along railroad embankments.

Another important host, *Bassia hirsuta* (L.) Aschers, was abundant on wet alkali ground in fields and waste places throughout the irrigated lands of the Lower Snake River Valley. *E. tenellus* was extremely abundant on this host. Other weeds of the plains area which are hosts of *E. tenellus* are pigweed (*Amaranthus retroflexus* L.), tumbleweed (*Amaranthus graecizans* L.), lambsquarters (*Chenopodium album* L.), wild tomato (*Solanum triflorum* Nutt.), common nightshade (*Solanum nigrum* L.), knotgrass (*Polygonum aviculare* L.), and poverty weed (*Iva axillaris* Pursh.). These were most plentiful on cultivated land but were found occasionally in the desert along highways and railroads. The insect was collected but rarely from greasewood (*Sarcobatus vermiculatus* Torr.), or shadscale (*Atriplex confertifolia* S. Wats.), and not at all from sage (*Artemisia* sp.), though frequently from introduced hosts within large sage areas. Associated with greasewood was often found a host plant, *Suaeda torreyana* Wats., on which the few beet leafhoppers in greasewood areas seemed to congregate. The insect was not found on alfilaria (*Erodium cicutarium* L'Her.), a common host in other states (Calif., (1) (2) Ore., (3) Wn., (3). but comparatively rare in Idaho. *E. tenellus* was found throughout this wide expanse of territory from Ashton to Weiser, occurring in increasing abundance as lower altitudes were reached. The average altitude of the plains area proper is about 4,000 feet, and that of the western section embracing the Lower Snake River Valley and the Boise-Payette valleys, about 2,300 feet.

The Snake River Plains merge on the south into hills and low mountain ranges which extend into Utah and Nevada. In the southeastern part of Idaho dry land farming is carried on in the hilly portion and there is some irrigated land in the valleys. The same important host plants were common and *E. tenellus* occurred throughout, but not in great numbers. In the extreme southwestern part is a rolling plateau of sage desert of more than 5,000 feet in altitude. This plateau extends into Nevada on the south and into the Owyhee Mountains on the west. Host plants in this high area were rare and *E. tenellus* very

1. Severin, H. H. P. Aug., 1919. Notes on the Behavior of the Beet Leafhopper in California. Jour. Econ. Ent. 12:322.

2. Carsner, E. Sept., 1919. Susceptibility of Various Plants to Curly-top of Sugar Beet. Phytopathology 9:413-21.

3. Carter, Walter, 1925. Manuscript notes.

scarce, though a few specimens were taken on redblack, common nightshade, and knotgrass, both on the desert and in the mountains.

The mountains and timber lands north of the Snake River Plains embrace the whole of central Idaho. In the mountain valleys, canyons, and meadows are stock farms on which were found several common host plants. On Willow Creek summit, the divide between Mackay and Challis, *E. tenellus* was collected from Russian thistle growing by the road at an altitude of 7,165 feet. From Salmon to Clayton, on the Salmon River, the insect occurred on Russian thistle, pigweed, and redblack. It was found on wild tomato and dog fennel (*Anthemis cotula* L.) on the site of an old sheep camp in Bear Valley, north of Stanley Basin, at an altitude of about 6,400 feet. About 100 miles of rough mountainous region separates this place from the nearest *E. tenellus* breeding area on the south. The beet leafhopper was collected from turnips (*Brassica rapa*) and redblack at Lowman on the Payette River, also many miles within the mountains. It was found on tumbleweed, Russian thistle, and redblack in the valleys of the north fork of the Payette River and of the Weiser River, and on green tansy mustard near New Meadows, located in a partly cultivated mountain basin in a heavily timbered region.

*E. tenellus* occurred on several common host plants in the Salmon River canyon from Riggins to Whitebird, and in the Clearwater River canyon from Harpster to Lewiston. A hilly plateau of prairie land extends from Grangeville to Lewiston at an elevation of about 2,000 feet above the rivers. This area extends north of Moscow as part of the Palouse wheat belt and is being successfully farmed without irrigation. No abandoned farms were seen. Many common weeds were distributed over these cultivated areas but were not found to be as abundant as in the irrigated and desert areas of southern Idaho. The plants from which the beet leafhopper was readily collected in this region were Russian thistle, tumbleweed, and pigweed. The table beets (*Beta vulgaris*) were generally more heavily infested here than other host plants and showed distinct symptoms of the curly-top disease. *E. tenellus* was present on beans (*Phaseolus vulgaris*) as well as on table beets growing at the University of Idaho Experiment Station. The insect was found on badly diseased table beets in a small garden at Headquarters, a forest rangers' camp north of Pierce near the heart of the largest forest area of white pine in Idaho.

A timbered region extends from the Palouse wheat belt to the northern boundary throughout which are many farms on logged off areas



and in small valleys. *E. tenellus* was present in small numbers on Russian thistle, tumbleweed, pigweed, and lambsquarters which were common on these farm lands. The insect was more abundant, however, in small plots of sugar beets and table beets near Coeur d'Alene, Sandpoint, Bonners Ferry, and the northern boundary at Porthill. The beets at these places showed symptoms of the curly-top disease. Samples from these northern points were sent to Twin Falls where Walter Carter confirmed the presence of the disease by testing with non-infective beet leafhoppers.

The important breeding grounds and distribution of *E. tenellus* in Idaho are shown on the accompanying map. Breeding grounds may be mapped with a fair degree of accuracy since these areas remain much the same throughout the season and from year to year. This condition is no doubt governed by the annual recurrence of the important host plants within these areas, subject to change in years of extreme drouth which would have a tendency to eliminate host plants in certain desert areas.

#### Incidental Data

The data indicate that there were two full broods and a partial third brood of the beet leafhopper in southern Idaho in 1926. Data of the 1926 collections, which represent a general average over a considerable area, show that the nymphs of the first brood appeared in numbers during May. These changed to adults in May and June as shown by the sudden abundance of males at this time. By the middle of June numbers of tiny nymphs again appeared, becoming adults of the second brood by the end of July or sooner. Nymphs continued to be common in the collections as late as September 18 in 1926 and October 3 in 1925, allowing time for at least a partial third brood.

#### Conclusion

The most common host plants of the beet leafhopper, *Eutettix tenellus* Baker, are also the most common and widely distributed weeds in all the farming communities of the state. The occurrence of the insect corresponded with the distribution of these host plants regardless of the presence of sugar beets. The insect was repeatedly collected throughout the season in as great numbers or greater from areas of Russian thistle, mustard, redscale, and *Bassia hirsuta*, as from sugar beet fields. The sugar beet, then, is not necessarily the favorite food plant of *E. tenellus*, other conditions being equal. Indications are that the insect is two brooded, with a possible partial third brood.

The plants from which the beet leafhopper was collected in Idaho are listed below. Common names are given where possible, and whether species (cultivated plants not included) are introduced or native. Those marked with an asterisk are species from which small numbers of adults were taken in only one or two instances, making them unimportant or doubtful as host plants.

Dr. Floyd W. Gail of the Botany Department of the University of Idaho very kindly determined these and a number of others that did not prove to be host plants.

### Host Plants of *Eutettix tenellus* Baker in Idaho

<b>Chenopodiaceae (family)</b>		
Beta vulgaris	Beets, Mangels	Cultivated
Atriplex rosca L.	Redscale	Introduced
*A. confertifolia S. Wats.	Shadscale	Native
*A. nuttallii S. Wats.	Moundscale	Native
*A. pabularis A. Nels.		Native
Chenopodium album L.	Lambsquarters	Introduced
*C. leptophyllum Nutt.		Native
Suaeda torreyana S. Wats.		Native
Monolepis nuttalliana Engelm.		Native
*Sarcobatus vermiculatus Torr.	Greasewood	Native
Salsola pestifer A. Nels.	Russian Thistle	Introduced
Bassia hirsuta (L) Aschers		Native
<b>Amaranthaceae</b>		
Amaranthus blitoides S. Wats.	Prostrate Pigweed	Native
A. graecizans L.	Tumbleweed	Native
A. retroflexus L.	Pigweed	Introduced
<b>Cruciferae</b>		
Erysium cheiranthoides L.	Wormseed Mustard	Introduced
Sisymbrium altissimum L.	Tumbling Mustard	Introduced
Sophia filipes (Gray) Heller	Green Tansy Mustard	Native
Brassica rapa	Turnip	Cultivated
*Thlaspi arvense L.	Penny Cress, Fanweed	Introduced
<b>Solanaceae</b>		
Solanum nigrum L.	Common Nightshade	Native
S. triflorum Nutt.	Wild Tomato	Introduced
*S. tuberosum	Potato	Cultivated
<b>Polygonaceae</b>		
Polygonum aviculare L.	Knotgrass, Knotweed	Native
*P. douglasii Greene		Native
*Rumex acetosella L.	Sheep Sorrel	Introduced
R. crispus L.	Curled Dock	Introduced
<b>Leguminosae</b>		
*Psoralea lanceolata Pursh.4.		Native
Phaseolus vulgaris	Navy Bean	Cultivated
<b>Labiatae</b>		
*Mentha canadensis L.	Wild Mint	Native
*Marrubium vulgare L.	Horehound	Introduced

Gramineae		
Bromus tectorum	Cheat Grass	Introduced
Compositae		
Iva axillaris Pursh.	Poverty Weed	Native
*Ambrosia trifida L.	Ragweed	Native
Anthemis cotula L.	Dog Fennel	Introduced
*Madia exigna (Smith) Greene	Tar Weed	Native
*Townsendia florifer A. Gray 4.		Native
*Taraxacum sp.	Dandelion	Introduced
*Lactuca pulchella (Pursh.) DC.	Blue Lettuce	Native
*L. sativa-capitata	Head Lettuce	Cultivated
Rosaceae		
*Purshia tridentata DC.	Antelope Bush	Native
Asclepiadaceae		
*Asclepias speciosa Torr.	Milkweed	Native

### Distribution in Idaho

The density of *Eutettix tenellus* populations tends to divide the state into conspicuous areas; important breeding grounds of high populations, and unimportant breeding grounds of low populations or where breeding areas were small and widely separated. Varying conditions from year to year might slightly alter the lines dividing these areas, but the data of the survey would place the divisions approximately as given. These may be listed as follows:

1. Eastern Idaho.
2. Central plains area.
3. Western plains area or Lower Snake River Valley.
4. Central and northern Idaho.

Eastern Idaho includes the Snake River Plains north of Blackfoot and south and east of American Falls to the state boundary lines. The altitude is more than 4,500 feet for practically all of this part of the state.

The central plains area extends from Blackfoot and American Falls west to Bliss, bounded on the north and south where the bench land merges into the high hills. The altitude varies from 3,000 to 4,500 feet, with an average of about 4,000 feet on the plains area proper, which comprises the greater portion.

The western plains area, or Lower Snake River Valley, extends from Bliss to the point west of Weiser where the Snake River enters the mountains. The whole of the valley was surveyed in order to obtain representative data from this section, making it necessary to include that part of the valley extending beyond the Idaho line into Oregon. The altitude varies from 2,100 feet in the valley to 3,000 feet on the benches, with an average of about 2,300 feet.

4. Occurred in sandy desert areas. Nymphs present, but plants rare.

The last division, central and northern Idaho, includes that part of the state north of the Snake River Plains. It was found to be an area with only occasional presence of the beet leafhopper, especially in the vast stretches of mountains and timber lands. There were, however, small areas in canyons and in cultivated districts at the lower altitudes where the insect was comparatively abundant, though these small areas are probably too widely separated to be of importance. Altitudes from 3,000 feet to more than 7,000 feet are found in the mountainous regions, while in the canyons the altitude is as low as 741 feet, 2000 feet below the level of the plateau from which the mountains rise.

A summary of the data follows:

*Eastern Idaho*

Number host plant collections (5) .....	144
Total number <i>E. tenellus</i> collected .....	1239
Average number <i>E. tenellus</i> per collection .....	8.60

Central plains area

Number host plant collections .....	173
Total number <i>E. tenellus</i> collected .....	10042
Average number <i>E. tenellus</i> per collection .....	58.04

Western plains area or Lower Snake River Valley

Number host plant collections .....	97
Total number <i>E. tenellus</i> collected .....	8937
Average number <i>E. tenellus</i> per collection .....	92.13

Central and northern Idaho

Number host plant collections .....	138
Total number <i>E. tenellus</i> collected .....	2731
Average number <i>E. tenellus</i> per collection .....	19.78

The following tabulation gives the detailed data of the survey collections. With the collection number is given the date, the plant on which sweepings were made, the locality, and if the beet leafhopper was found, the number of males, females, and nymphs. Each collection represents 50 sweeps of a 15-inch insect net taken from a growth of the given species of plant.

5. In the number of host plant collections, only those collections from plants listed as hosts are included.

## EASTERN IDAHO

No.	Date	Plant	Locality	Male	Female	Nymph	Total
	1925						
34	Sept. 3	Russian thistle	.....6 mi. W. Stone, edge of prairie	21	24	32	77
35	Sept. 3	Redscale	.....4 mi. N. Stone, field	9	10	—	19
36	Sept. 3	Tumbling mustard	.....7 mi. N. Stone, field	—	1	—	1
37	Sept. 3	Russian thistle	.....2 mi. W. Holbrook	2	—	—	2
38	Sept. 4	Redscale & alfalfa	.....1 mi. E. Holbrook	—	—	—	—
39	Sept. 4	Sage	.....6 mi. E. Holbrook, in hills	—	—	—	—
40	Sept. 4	Russian thistle	.....N. of Holbrook	1	—	—	1
41	Sept. 4	Tumbling mustard	.....5 mi. N. of Holbrook, field	1	—	2	3
42	Sept. 4	Tumbleweed	.....5 mi. N. Holbrook	2	—	1	3
43	Sept. 4	Sage	.....16 mi. N. Holbrook, in hills	—	—	—	—
44	Sept. 4	Russian thistle	.....19 mi. N. Holbrook, in hills	5	4	2	11
45	Sept. 4	Sage	.....15 mi. E. Arbon, in mountains	—	—	—	—
46	Sept. 4	Horehound	.....E. of Roy, in mountains	—	—	—	—
47	Sept. 4	R. thistle & pigweed	.....E. of Roy, near divide in Mts	2	1	—	3
48	Sept. 4	Poverty weed	.....E. of Roy, in garden	—	1	—	1
76	Sept. 7	Redscale	.....near Pauline	2	—	—	2
77	Sept. 7	Russian thistle	.....Arbon	4	1	—	5
78	Sept. 7	Redscale	.....6 mi. E. Pauline	—	—	—	—
79	Sept. 7	Weedy garden	.....10 mi. E. Pauline, in hills	—	—	—	—
112	Sept. 15	Russian thistle	.....15 mi. S. Blackfoot	30	16	1	47
113	Sept. 15	Russian thistle	.....10 mi. S. Blackfoot	87	35	3	125
114	Sept. 15	Russian thistle	.....3 mi. S. Blackfoot	31	14	—	45
115	Sept. 15	<i>Salsola kali</i>	.....15 mi. N. Pocatello	—	—	—	—
116	Sept. 15	Russian thistle	.....10 mi. N. Pocatello	28	13	10	51
117	Sept. 16	Russian thistle	.....5 mi. S. Pocatello	12	3	—	15
118	Sept. 16	Pigweed (dry)	.....18 mi. E. Pocatello, in Mts.	4	2	—	6
119	Sept. 16	Redscale	.....18 mi. E. Pocatello, in Mts.	—	—	—	—
120	Sept. 16	Redscale	.....18 mi. S. Pocatello	—	—	—	—
121	Sept. 16	Russian thistle	.....20 mi. S. Pocatello	—	—	—	—
122	Sept. 16	Russian thistle	.....4 mi. N. Robin	—	—	—	—
123	Sept. 16	Russian thistle	.....Robin	—	—	—	—
124	Sept. 16	Redscale	.....Arimo	—	1	—	1
125	Sept. 16	Redscale	.....3 mi. S. Arimo	1	—	—	1
126	Sept. 16	Russian thistle	.....6 mi. S. Arimo	10	3	1	14
127	Sept. 16	Russian thistle	.....11 mi. SE. Arimo, field	2	1	—	3
128	Sept. 16	Russian thistle	.....11 mi. SE. Arimo, field	1	1	—	2
129	Sept. 16	Tumbleweed	.....11 mi. SE. Arimo, field	1	—	—	1
130	Sept. 16	Pigweed	.....7 mi. SW. Downey, field	—	—	—	—
131	Sept. 16	Redscale	.....12 mi. SW. Downey, in hills	1	—	—	1
132	Sept. 16	Russian thistle	.....2 mi. N. Malad, in hills	—	—	—	—
133	Sept. 16	Russian thistle	.....12 mi. S. Malad, field	1	2	—	3
134	Sept. 16	Russian thistle	.....10 mi. SW. Malad, field	23	16	2	41
135	Sept. 16	Russian thistle	.....10 mi. W. Malad, field	—	—	—	—
136	Sept. 17	Russian thistle	.....10 mi. NW. Malad, field	1	—	—	1
137	Sept. 17	Sugar beets	.....3 mi. NW. Malad	1	—	—	1
138	Sept. 17	Redscale	.....2 mi. NW. Malad	1	—	—	1
139	Sept. 17	Sugar beets	.....5 mi. N. Malad	1	1	—	2
140	Sept. 17	Sugar beets	.....7 mi. S. Downey	—	1	—	1
141	Sept. 17	Russian thistle	.....11 mi. S. Downey, field	—	2	—	2
142	Sept. 17	Russian thistle	.....near Oxford, field	—	—	—	—
143	Sept. 17	Redscale	.....Oxford, alkali meadow	—	—	—	—
144	Sept. 17	Russian thistle	.....2 mi. S. Clifton, field	2	1	—	3
145	Sept. 17	Sugar beets	.....10 mi. W. Preston	—	—	—	—
146	Sept. 17	Russian thistle	.....12 mi. W. Preston, field	—	—	—	—
147	Sept. 17	Russian thistle	.....8 mi. SW. Preston, field	—	—	—	—
148	Sept. 17	Russian thistle	.....8 mi. S. Preston, sand hills	2	3	—	5

No.	Date	Plant	Locality	Male	Female	Nymph	Total
1925							
149	Sept. 17	Sugar beets	8 mi. S. Preston	4	2	—	6
150	Sept. 17	Tumbleweed	9 mi. SE. Preston, field	4	—	—	4
151	Sept. 17	Russian thistle	3 mi. N. Preston, field in hills	—	—	—	—
152	Sept. 17	Russian thistle	5 mi. N. Preston, field in hills	1	—	—	1
153	Sept. 18	R. thistle & grass	13 mi. N. Preston, in hills	—	—	—	—
154	Sept. 18	R. thistle, redscale	near Treasureton, in hills	—	—	—	—
155	Sept. 18	Sage	Cleveland, in hills	—	—	—	—
156	Sept. 18	Russian thistle	Thatcher	8	—	1	9
157	Sept. 18	Redscale	5 mi. N. Thatcher	—	—	—	—
158	Sept. 18	Redscale	3 mi. S. Grace	—	—	—	—
159	Sept. 18	Russian thistle	3 mi. N. Grace	—	1	—	1
160	Sept. 18	Russian thistle	Soda Springs	—	—	—	—
161	Sept. 18	Russian thistle	6 mi. S. Soda Springs, field	—	—	—	—
162	Sept. 18	Tumbling mustard	12 mi. S. Soda Springs	—	—	—	—
163	Sept. 18	Russian thistle	8 mi. N. Montpelier, field	—	—	—	—
164	Sept. 18	Slough grass	Montpelier	—	—	—	—
165	Sept. 18	Redscale	5 mi. S. Montpelier	—	—	—	—
166	Sept. 18	Brush, grass	W. shore of Bear Lake	—	—	—	—
167	Sept. 19	Sage & Bunch grass	18 mi. N. Montpelier	—	—	—	—
168	Sept. 19	Redscale (green)	Central	—	—	—	—
169	Sept. 19	Russian thistle	near Lund	—	—	—	—
170	Sept. 19	Russian thistle	10 mi. W. Lava, field	1	2	—	3
207	Oct. 3	Russian thistle (dry)	22 mi. SW. Howe, field in desert	3	3	—	6
208	Oct. 3	Russian thistle (dry)	12 mi. N. Taber, field in desert	45	19	16	80
209	Oct. 3	Wild tomato	3 mi. N. Taber, roadside	5	2	—	7
210	Oct. 3	Russian thistle	6 mi. S. Taber, field	53	28	16	97
211	Oct. 4	Sugar beets	15 mi. S. Idaho Falls	—	—	—	—
212	Oct. 4	Redscale	5 mi. N. Idaho Falls	—	—	—	—
213	Oct. 4	Russian thistle	10 mi. N. Idaho Falls, field	4	—	—	4
214	Oct. 4	Redscale	Roberts, field	—	—	—	—
215	Oct. 4	Russian thistle	10 mi. N. Roberts	1	—	—	1
216	Oct. 4	Redscale	Hamer	1	—	—	1
217	Oct. 4	Russian thistle	Camas, sandy area	15	8	1	24
218	Oct. 4	Russian thistle	5 mi. S. Dubois	10	—	—	10
219	Oct. 4	Russian thistle	5 mi. W. Dubois	—	—	—	—
220	Oct. 4	Russian thistle	10 mi. W. Dubois	2	2	—	4
221	Oct. 4	Russian thistle	12 mi. E. Reno, Liby Hot Spgs.	2	—	—	2
222	Oct. 5	Russian thistle	6 mi. N. Dubois, in desert	2	—	—	2
223	Oct. 5	Redscale (green)	3 mi. E. Rea, in forest	—	—	—	—
224	Oct. 5	Russian thistle	5 mi. N. Ashton	—	—	—	—
225	Oct. 5	Russian thistle	3 mi. S. Ashton	—	—	—	—
226	Oct. 5	Russian thistle	5 mi. N. St. Anthony	—	—	—	—
227	Oct. 5	Russian thistle	Sugar City, field	—	—	—	—
228	Oct. 6	Russian thistle	15 mi. W. Rexburg, field	—	—	—	—
229	Oct. 6	Russian thistle	Rigby, field	2	3	2	7
230	Oct. 6	Russian thistle	5 mi. E. Idaho Falls, hills	—	—	—	—
1926							
234	July 20	Sugar beets	5 mi. N. Blackfoot	7	1	5	13
235	July 20	Sugar beets	12 mi. S. Idaho Falls	7	5	31	43
236	July 20	Redscale	12 mi. S. Idaho Falls	—	1	—	1
237	July 20	Sugar beets	5 mi. N. Idaho Falls	9	13	14	36
238	July 20	Russian thistle	7 mi. N. Idaho Falls	—	1	—	1
239	July 21	Red top & clover	Sugar City	—	—	—	—
240	July 21	Red-top meadow	10 mi. W. Ashton	—	—	—	—
241	July 21	Russian thistle	4 mi. E. Ashton	—	1	—	1
242	July 21	Russian thistle	10 mi. SE. Ashton	—	—	—	—
243	July 21	Tumbling mustard	near Lamont	2	2	—	4
244	July 21	Tumbling mustard	near Tetonia	1	—	—	1

No.	Date	Plant	Locality	Male	Female	Nymph	Total
1926							
245	July 21	Lambsquarters	4 mi. N. Driggs	—	—	—	—
251	July 22	Knotgrass	7 mi. E. Victor	—	—	—	—
252	July 22	Russian thistle	5 mi. W. Tetonia	2	4	—	6
253	July 22	Russian thistle	W. of Tetonia	—	1	—	1
387	Sept. 3	Redscale	3 mi. S. Downey, beet field	3	1	—	4
388	Sept. 6	Russian thistle	10 mi. S. Malad	1	2	—	3
401	Sept. 11	Russian thistle	7 mi. W. Stone	21	3	20	44
402	Sept. 11	Tumbleweed	10 mi. S. Holbrook, field	8	4	—	12
403	Sept. 11	Russian thistle	Holbrook, stubble field	9	4	24	37
404	Sept. 11	Russian thistle	13 mi. E. Holbrook, in hills	6	6	2	14
405	Sept. 11	Russian thistle	7 mi. W. Malad, field	9	2	1	12
406	Sept. 11	Russian thistle	Malad, field	4	1	4	9
407	Sept. 12	Gum plant	3 mi. NW. Malad	—	—	—	—
408	Sept. 12	Redscale	12 mi. NW. Malad	9	1	1	11
409	Sept. 12	Redscale	5 mi. E. Arbon, in hills	22	4	1	27
410	Sept. 12	Russian thistle	Arbon	6	2	1	9
411	Sept. 12	<i>A. bitoides</i>	W. of Arbon	1	—	—	1
421	Sept. 18	Russian thistle	7 mi. S. Pocatello, field	25	10	11	46
422	Sept. 18	Redscale	McCammon, field	2	—	1	3
423	Sept. 18	Russian thistle	McCammon, field	1	—	—	1
424	Sept. 18	Russian thistle	Downey, field	25	10	5	40
425	Sept. 18	Tumbleweed	1 mi. S. Downey, fallow field	1	—	—	1
426	Sept. 18	Sugar beets	Preston	7	3	1	11
427	Sept. 18	Russian thistle	3 mi. NE. Preston, field	1	2	1	4
428	Sept. 18	Russian thistle	Thatcher	—	—	—	—
429	Sept. 18	Sugar beets	Grace	4	1	1	6
430	Sept. 18	Russian thistle	Grace, field	2	—	—	2
431	Sept. 18	Russian thistle	Soda Springs, field	—	—	—	—
432	Sept. 18	Redscale	S. of Soda Springs, along RR.	—	—	—	—
433	Sept. 18	Russian thistle	5 mi. S. Soda Springs	—	—	—	—
434	Sept. 18	Redscale	6 mi. S. Soda Springs	1	—	—	1
435	Sept. 18	Tumbling mustard	10 mi. W. Montpelier, field	1	—	—	1
436	Sept. 18	Sugar beets	Montpelier	16	11	11	38
437	Sept. 19	Redscale	6 mi. S. Montpelier	1	—	—	1
438	Sept. 19	Sugar beets	1 mi. E. Montpelier	7	7	2	16
439	Sept. 19	Russian thistle	17 mi. E. Montpelier	—	—	—	—
440	Sept. 19	Redscale	Border	1	—	—	1
454	Sept. 22	Sugar beets	6 mi. SE. Idaho Falls	2	—	—	2
455	Sept. 22	Russian thistle	12 mi. SE. Idaho Falls	2	—	—	2
456	Sept. 22	Redscale	16 mi. SE. Idaho Falls, barnyard	—	1	—	1
457	Sept. 22	Knotgrass	Gray (Gray's Lake)	—	—	—	—
458	Sept. 23	Russian thistle	Bancroft, field	1	—	1	2
459	Sept. 23	Redscale	Lava Hot Springs	1	—	—	1

## CENTRAL PLAINS AREA

No.	Date	Plant	Locality	Male	Female	Nymph	Total
1925							
1	Sept. 1	Rabbit brush	S. of Declo, in hills	—	—	—	—
2	Sept. 1	Russian thistle	Albion field	10	3	10	23
3	Sept. 1	Russian thistle	4 mi. S. Albion, field	53	21	35	109
4	Sept. 1	Sage	6 mi. S. Albion	—	—	—	—
5	Sept. 1	Tumbling mustard	6 mi. S. Albion	—	—	1	1
6	Sept. 1	Rabbit brush	9 mi. S. Albion	—	—	—	—
7	Sept. 1	Redscale	Elba, stackyard	60	31	32	123
8	Sept. 1	Rabbit brush & sage	2 mi. S. Elba	—	—	—	—
9	Sept. 1	Russian thistle	2 mi. S. Elba	1	—	1	2
10	Sept. 2	Redscale	Almo	67	27	18	112
11	Sept. 2	Meadow grass	3 mi. W. Almo	—	—	—	—
12	Sept. 2	Sage & lupine	3 mi. W. Almo	—	—	—	—
13	Sept. 2	Rye grass	1 mi. N. Conant	—	—	—	—
14	Sept. 2	Rabbit brush & sage	5 mi. SW. Conant	—	—	—	—
15	Sept. 2	Russian thistle	5 mi. SW. Conant	13	6	1	20
16	Sept. 2	<i>A. pabularis</i>	4 mi. S. Conant	2	—	—	2
17	Sept. 2	Redscale	11 mi. N. Strevell	12	9	7	28
18	Sept. 2	Atriplex sp.	9 mi. NW. Strevell	—	—	—	—
19	Sept. 2	Russian thistle	5 mi. NW. Strevell	30	15	27	72
20	Sept. 2	Redscale	Strevell	31	16	12	59
21	Sept. 2	Redscale & pigweed	Gunnell Ranger Station	17	11	3	31
22	Sept. 2	Sage	Gunnell Ranger Station	—	—	—	—
23	Sept. 2	Sage & poverty weed	Kelsaw Canyon	—	—	—	—
24	Sept. 3	Russian thistle	3 mi. W. Naf, in desert	39	23	11	73
25	Sept. 3	<i>D. moquini</i>	6 mi. W. Naf, in desert	—	—	—	—

No.	Date	Plant	Locality	Male	Female	Nymph	Total
1925							
26	Sept. 3	Weedy garden	Holstein Ranger Station, Mts.	—	—	—	—
27	Sept. 3	Sage	Holstein Ranger Station, Mts.	—	—	—	—
28	Sept. 3	Rabbit brush	3 mi. E. Strevell in Mts.	—	—	—	—
29	Sept. 3	Russian thistle	6 mi. NE. Strevell	17	5	2	24
30	Sept. 3	Sage	11 mi. E. Strevell	—	—	—	—
31	Sept. 3	Russian thistle	near Black Pine, edge desert	1	7	—	8
32	Sept. 3	Redscale	near Black Pine, edge desert	29	9	13	51
33	Sept. 3	Russian thistle	E. of Black Pine, among sage	17	4	8	29
49	Sept. 4	R. thistle & redscale	4 mi. S. Roy	3	1	1	5
50	Sept. 4	Russian thistle	4 mi. N. Roy, in field	3	1	—	4
51	Sept. 4	Redscale	4 mi. S. Rockland, stackyard	3	—	—	3
52	Sept. 4	Tumbleweed	2 mi. S. Rockland	6	1	—	7
53	Sept. 6	Russian thistle	8 mi. N. Idahome, large area	28	9	18	55
54	Sept. 6	Russian thistle	3 mi. N. Idahome, among sage	62	19	31	112
55	Sept. 6	Russian thistle	Idahome, large field	42	14	82	138
56	Sept. 6	Russian thistle	3 mi. S. Idahome	43	17	25	85
57	Sept. 6	<i>A. pabularis</i>	1 mi. N. Malta	—	—	—	—
58	Sept. 6	<i>A. pabularis</i>	2 mi. E. Malta	—	—	—	—
59	Sept. 6	<i>A. pabularis</i>	5 mi. E. Malta	—	—	—	—
60	Sept. 6	Redscale	9 mi. E. Malta, sage area	5	2	—	7
61	Sept. 6	Tumbleweed	Sublet	6	9	—	15
62	Sept. 6	Russian thistle	2 mi. N. Sublet	2	—	—	2
63	Sept. 6	Russian thistle	7 mi. N. Sublet	—	1	—	1
64	Sept. 6	Russian thistle	13 mi. N. Sublet	5	7	1	13
65	Sept. 6	Russian thistle	Yale school, 30 mi. E. Burley	4	3	4	11
66	Sept. 6	Russian thistle	5 mi. E. Yale school	127	61	53	241
67	Sept. 6	Russian thistle	10 mi. E. Yale school	17	15	15	47
68	Sept. 6	Russian thistle	10 mi. W. American Falls	18	14	16	48
69	Sept. 6	Russian thistle	5 mi. W. American Falls	22	17	7	46
70	Sept. 7	Russian thistle	5 mi. E. American Falls	45	20	8	73
71	Sept. 7	Russian thistle	Schiller, 13 mi. E. Am. Falls	101	44	48	193
72	Sept. 7	Redscale	2 mi. S. Schiller	28	8	7	43
73	Sept. 7	Russian thistle	8 mi. S. Schiller	18	7	8	33
74	Sept. 7	Russian thistle	18 mi. S. Schiller	41	10	6	57
81	Sept. 11	Russian thistle	near Rogerson	244	95	23	362
82	Sept. 11	Russian thistle	4 mi. W. Rogerson	146	63	31	240
83	Sept. 11	Russian thistle	Salmon Dam, isolated patch	245	128	46	419
84	Sept. 11	Wild tomato	11 mi. S. Rogerson	2	—	—	2
85	Sept. 11	Wild tomato	14 mi. S. Rogerson, along RR.	10	6	1	17
86	Sept. 11	Russian thistle	14 mi. S. Rogerson, along RR.	11	8	—	19
87	Sept. 11	Russian thistle	20 mi. S. Rogerson, Nevada line	13	9	2	24
88	Sept. 11	Russian thistle	Shoshone Creek 2 mi. S. of line	27	5	4	36
89	Sept. 11	Sage	10 mi. S. Rogerson	—	—	—	—
90	Sept. 14	Russian thistle	2 mi. N. Milner	23	9	1	33
91	Sept. 14	Redscale	McHenry, 7 mi. N. Milner	8	2	1	11
92	Sept. 14	Russian thistle	16 mi. N. McHenry, large area	345	189	61	595
93	Sept. 14	Redscale	Kimama	60	45	5	110
94	Sept. 14	Russian thistle	Adelaide	34	18	3	55
95	Sept. 14	Wild tomato	Cole	37	36	15	88
96	Sept. 14	Russian thistle	Minidoka	44	24	34	102
97	Sept. 14	Cheat grass	15 mi. E. Minidoka	3	5	4	12
98	Sept. 14	<i>Psoralea lanceolata</i>	2 mi. W. Minidoka	24	7	—	31
99	Sept. 14	<i>Salsola kali</i>	near Wapi	—	—	—	—
100	Sept. 14	Russian thistle	4 mi. E. Wapi	126	54	39	219
101	Sept. 14	Redscale	5 mi. F. Wapi	133	98	24	260
102	Sept. 15	Russian thistle	2 mi. N. American Falls	8	13	9	30
103	Sept. 15	Russian thistle	9 mi. N. American Falls, bench	67	46	5	120
104	Sept. 15	Russian thistle	9 mi. S. Aberdeen	59	30	5	94
105	Sept. 15	Russian thistle	4 mi. S. Aberdeen	94	39	—	133
106	Sept. 15	Redscale	5 mi. N. Aberdeen	3	2	—	5
107	Sept. 15	Russian thistle	10 mi. NW. Aberdeen	38	11	1	50
108	Sept. 15	Redscale	10 mi. N. Aberdeen	—	1	—	1
109	Sept. 15	Russian thistle	15 mi. N. Aberdeen	62	19	12	93
110	Sept. 15	Redscale	3 mi. N. Sterling	11	5	—	16
111	Sept. 15	Russian thistle	8 mi. N. Sterling	11	6	1	18
171	Sept. 30	Russian thistle	10 mi. S. Shoshone, field	42	14	1	57
172	Sept. 30	Wild tomato	5 mi. S. Shoshone, roadside	75	15	13	103
173	Sept. 30	Russian thistle	2 mi. N. Shoshone, in desert	105	76	7	188
174	Sept. 30	Russian thistle	8 mi. N. Shoshone, in desert	142	108	2	252
175	Sept. 30	Horehound	8 mi. N. Shoshone, in desert	2	1	—	3
176	Sept. 30	Russian thistle	Ice Caves, 20 mi. N. Shoshone	58	40	8	106
177	Sept. 30	Wild tomato	28 mi. N. Shoshone, field	90	64	13	167
178	Sept. 30	<i>Dasiphora fruticosa</i>	9 mi. W. Picabo	—	—	—	—
179	Oct. 1	Russian thistle	3 mi. E. Picabo	40	26	12	78
180	Oct. 1	Redscale	3 mi. E. Carey	3	3	—	6
181	Sept. 1	Russian thistle	11 mi. E. Carey, in foothills	10	11	2	23



## THE BEET LEAF-HOPPER

17

No. Date	Plant	Locality	Male	Female	Nymph	Total
1925						
182 Oct. 1	Poverty weed	14 mi. E. Carey	—	—	—	—
183 Oct. 1	Russian thistle	Craters of Moon, cinder bed	4	4	—	8
184 Oct. 1	Russian thistle	8 mi. E. Craters	2	2	—	4
185 Oct. 1	Redscale	10 mi. E. Craters, field	11	10	—	21
186 Oct. 1	Russian thistle	6 mi. W. Arco	55	40	1	96
187 Oct. 2	Redscale	3 mi. N. Arco, field	—	1	—	1
188 Oct. 2	Russian thistle	Moore (alt. 5476 feet)	6	5	—	11
1926						
b Feb. 26	Grass	2 mi. N. Hansen Bridge, Hansen	—	1	—	1
c Mar. 3	Russian thistle (old)	7 mi. S. Hollister, fence row	—	1	—	1
d Apr. 10	Green tansy mustard	Twin Falls, field	—	7	—	7
30 Apr. 23	Shadscale	Desert between Malta & Strevell	—	—	—	—
31 Apr. 23	Green tansy mustard	Strevell	—	3	—	3
32 May 13	Tumbling mustard	McHenry	—	1	5	6
33 May 13	Tumbling mustard	.16 mi. N. McHenry, large area	—	6	209	215
34 May 13	Russian thistle	.17 mi. N. McHenry, large area	—	—	12	12
35 May 13	Tumbling mustard	.18 mi. N. McHenry, large area	—	7	126	133
36 May 13	Tumbling mustard	.9 mi. S. Kimama	1	5	52	58
37 May 13	Tumbling mustard	.5 mi. S. Kimama	1	8	37	46
38 May 13	Russian thistle	Kimama	—	—	—	—
39 May 13	Green tansy mustard	Adelaide	—	—	22	22
40 May 13	Green tansy mustard	Cole	—	1	6	7
41 May 13	Redscale	Minidoka	—	—	3	3
42 May 14	Cheat grass	15 mi. E. Minidoka	—	9	95	104
43 May 14	Green tansy mustard	4 mi. E. Wapi	—	11	38	49
44 May 14	Green tansy mustard	5 mi. E. Wapi	—	7	3	10
45 May 14	Tumbling mustard	.2 mi. N. American Falls	—	3	86	89
46 May 14	Tumbling mustard	.9 mi. S. Aberdeen	—	2	1	3
47 May 14	Tumbling mustard	.9 mi. N. American Falls	—	1	2	3
48 May 14	Tumbling mustard	.4 mi. S. Aberdeen	—	—	—	—
49 May 15	Shadscale	Malta	—	—	—	—
50 May 15	Tumbling mustard	Albion	—	1	—	1
51 May 20	<i>M. nuttalliana</i>	Salmon Dam	13	26	—	39
52 May 20	Russian thistle	near Salmon Dam, desert	47	48	4	99
53 May 20	Russian thistle	Roseworth, field	21	40	1	62
54 May 20	Russian thistle	Castleford	126	132	22	280
55 May 24	Servis berry	10 mi. E. Three Creek	—	—	—	—
56 May 24	Red-top	1 mi. E. Three Creek	—	—	—	—
57 May 25	Meadow	2 mi. W. Three Creek	—	—	—	—
58 May 25	Green tansy mustard	16 mi. N. Three Creek	3	17	—	20
59 May 25	Green tansy mustard	Grassy Hill, N. of Three Creek	2	5	—	7
60 May 25	Green tansy mustard	Grassy Hill, N. of Three Creek	16	21	4	41
75 June 1	Rabbit brush	10 mi. W. Shoshone, sand dunes	—	—	—	—
76 June 1	Russian thistle	4 mi. W. Gooding	11	29	—	40
77 June 1	Willow	6 mi. W. Bliss	—	—	—	—
78 June 1	Russian thistle	14 mi. W. Bliss	25	11	6	42
82 June 11	Russian thistle	8 mi. N. Shoshone Basin	115	152	4	271
83 June 11	Knotgrass	Shoshone Basin	—	21	8	29
84 June 11	Willow	Shoshone Basin	—	8	19	27
85 June 11	Knotgrass	Shoshone Basin	—	17	16	33
86 June 11	<i>M. nuttalliana</i>	Shoshone Basin	—	—	2	35
87 June 11	Meadow	Shoshone Basin	—	—	—	—
88 June 11	Buckbrush, flowers	Shoshone Basin	—	—	—	—
89 June 14	Russian thistle	5 mi. W. Hagerman	12	119	—	131
90 June 14	Willow	8 mi. W. Bliss	—	6	—	6
91 June 14	Wild tomato	10 mi. W. Bliss	6	6	—	12
189 July 6	Russian thistle	Jerome, (Nym. 1st. and 2nd. instar)	8	78	7	93
190 July 6	Redscale	20 mi. N. Shoshone, (Nym. same)	31	83	61	175
191 July 6	Russian thistle	4 mi. W. Picabo, (nymphs same)	27	52	13	92
192 July 6	Redscale	3 mi. E. Carey, (nymphs same)	16	88	3	107
193 July 6	Poverty weed	18 mi. E. Carey	—	—	—	—
194 July 6	Antelope bush	Craters of Moon	1	—	—	—
195 July 6	Wild tomato	5 mi. E. Craters of Moon	20	8	1	29
196 July 6	Russian thistle	9 mi. E. Craters of Moon	24	49	3	76
197 July 6	Russian thistle	3 mi. W. Arco	11	72	17	100
198 July 7	Russian thistle	2 mi. N. Arco	—	9	—	9
368 Aug. 26	Redscale	Blue Lakes	—	1	—	1
369 Aug. 26	Russian thistle	Jerome, field	4	1	13	18
370 Aug. 26	Redscale	5 mi. N. Shoshone	36	33	38	107
371 Aug. 26	Redscale	2 mi. N. Shoshone, canal bank	19	14	3	36
372 Aug. 26	Russian thistle	2 mi. N. Shoshone, canal bank	4	9	24	37
373 Aug. 26	Russian thistle	5 mi. S. Bellevue, field	3	11	3	17
379 Aug. 27	Russian thistle	Fairfield	5	9	9	23
380 Aug. 27	Redscale	near Hill City	5	4	5	14

## IDAHO EXPERIMENT STATION

No.	Date	Plant	Locality	Male	Female	Nymph	Total
	1926						
381	Aug. 27	Meadow	7 mi. W. Hill City	—	—	—	—
382	Aug. 27	Russian thistle	15 mi. W. Hill City, field	2	1	9	12
383	Aug. 27	Wild tomato	9 mi. E. Dixie	6	—	1	7
384	Aug. 27	Knotgrass	5 mi. E. Dixie	1	—	—	1
385	Aug. 27	Meadow	Dixie	—	—	—	—
386	Aug. 27	Redscale	3 mi. W. Dixie	21	11	8	40
389	Sept. 10	Rabbit brush	3 mi. S. Murtaugh	—	—	—	—
390	Sept. 10	Russian thistle	5 mi. S. Murtaugh, field	60	17	97	174
391	Sept. 10	Russian thistle	6 mi. NW. Oakley, desert	79	32	15	126
392	Sept. 10	Shadscale	5 mi. NW. Oakley desert	—	—	—	—
394	Sept. 10	Russian thistle	Oakley, field	47	7	7	61
395	Sept. 10	Redscale	4 mi. SE. Oakley	18	9	9	36
396	Sept. 10	Russian thistle	12 mi. W. Almo, field	12	7	4	23
397	Sept. 10	Redscale	7 mi. W. Almo	19	3	2	24
398	Sept. 10	Shadscale	12 mi. E. Almo, desert	—	—	—	—
399	Sept. 10	Redscale	12 mi. W. Strevell, desert	2	1	1	4
400	Sept. 11	Redscale	Strevell, field	3	3	10	16
412	Sept. 12	Russian thistle	3 mi. S. Roy	—	—	—	—
413	Sept. 12	Russian thistle	Roy, field	4	—	1	5
414	Sept. 12	Russian thistle	2 mi. S. Rockland, field	44	15	5	64
415	Sept. 12	Russian thistle	near Yale school	30	11	7	48
416	Sept. 12	Russian thistle	Idahome, in desert	20	7	22	49
417	Sept. 13	Shadscale	Malta, in desert	—	—	—	—
418	Sept. 13	Russian thistle	Malta, field	18	7	6	31
419	Sept. 13	Shadscale	Malta, in desert	—	—	—	—
420	Sept. 13	Russian thistle	Albion, field	62	22	24	108
464	Oct. 18	Head lettuce	Twin Falls, field	9	7	—	16
465	Oct. 18	Poverty weed	Twin Falls, field	14	12	—	26
466	Dec. 3	Knotgrass	Twin Falls, stackyard	1	1	—	2

## WESTERN PLAINS AREA (LOWER SNAKE RIVER VALLEY)

No.	Date	Plant	Locality	Male	Female	Nymph	Total
	1926						
a	Feb. 18	Grass	8 mi. N. Glens Ferry	—	2	—	2
1	Apr. 12	Wormseed mustard	Mountain Home along RR.	—	6	—	6
2	Apr. 15	Wormseed mustard	Sand Hollow, 8 mi. E. Parma	—	1	—	1
3	Apr. 15	Wormseed mustard	10 mi. W. Emmett	—	—	—	—
4	Apr. 15	Green tansy mustard	Letho Bridge, W. of Emmett	—	—	—	—
5	Apr. 15	Shepherds purse	4 mi. N. Letho	—	—	—	—
6	Apr. 15	Wormseed mustard	E. of Willow Creek, near Payette	—	—	—	—
7	Apr. 15	Mustard sp.	Willow Creek	—	4	—	4
8	Apr. 15	Alfilaria	Big Willow, near Payette	—	—	—	—
9	Apr. 15	Alfilaria	Little Willow, near Payette	—	—	—	—
10	Apr. 15	Alfilaria	Little Willow, near Payette	—	—	—	—
11	Apr. 15	Mustard sp.	9 mi. S. Weiser	—	8	—	8
12	Apr. 15	Mustard sp.	Weiser	—	—	—	—
13	Apr. 16	Russian thistle	Riverside, 10 mi. W. Melba	—	136	—	136
14	Apr. 16	<i>Draba verna</i>	Riverside	—	—	—	—
15	Apr. 16	Lambsquarters	Riverside	—	7	—	7
16	Apr. 16	Tumbling mustard	S. of Deer Flat	—	7	—	7
17	Apr. 16	Tumbling mustard	S. of Deer Flat	—	1	—	1
18	Apr. 16	Tumbling mustard	Melba	—	1	—	1
19	Apr. 17	Tumbling mustard	Mountain Home (1st. Nym of year)	—	1	1	2
20	Apr. 17	Tumbling mustard	10 mi. W. Glens Ferry	—	10	—	10
61	May 25	Shadscale	9 mi. S. Bruneau	—	—	—	—
62	May 25	Greasewood	9 mi. S. Bruneau	4	—	—	4
63	May 25	<i>Suaeda torreyana</i>	8 mi. S. Bruneau	3	6	—	9
64	May 25	Russian thistle	4 mi. S. Bruneau	18	30	2	50
65	May 26	Russian thistle	Bruneau	33	151	9	193
66	May 26	<i>S. torreyana</i>	8 mi. E. Bruneau	24	18	4	46
67	May 26	Shadscale	8 mi. E. Bruneau	2	1	—	3
68	May 26	<i>Grayia brandegei</i>	10 mi. E. Bruneau	—	—	—	—
69	May 26	Russian thistle	10 mi. E. Bruneau	55	32	7	94
70	May 26	Russian thistle	Indian Cove, 9 mi. W. Hammett	150	170	3	323
71	May 26	Russian thistle	Hammett	81	126	2	209
72	May 26	Russian thistle	Glens Ferry	103	178	15	296
73	May 26	Russian thistle	7 mi. E. Glens Ferry, on bench	95	86	34	215
74	May 26	Russian thistle	15 mi. E. Glens Ferry, by canal	34	47	3	84
79	June 2	Undetermined	10 mi. E. Bruneau, sand dunes	2	—	—	2
80	June 2	<i>Psoralea lanceolata</i>	10 mi. E. Bruneau, sand dunes	1	1	1	3
81	June 2	<i>Townsendia florifer</i>	10 mi. E. Bruneau, sand dunes	1	1	2	4
92	June 14	Russian thistle	King Hill	7	56	1	64

## THE BEET LEAF-HOPPER

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No.	Date	Plant	Locality	Male	Female	Nymph	Total
1926							
93	June 15	Redscale	Glenns Ferry	27	101	3	131
94	June 15	Russian thistle	12 mi. W. Glenns Ferry	7	73	3	83
95	June 15	Poverty weed	Mountain Home	—	1	—	1
96	June 15	Green tansy mustard	Mountain Home	2	30	—	32
97	June 15	Russian thistle	10 mi. W. Mountain Home	3	5	—	8
98	June 15	Tumbling mustard	20 mi. W. Mountain Home	1	7	—	8
99	June 15	Tumbling mustard	Boise	—	—	—	—
100	June 15	Red clover	Boise	—	—	—	—
101	June 15	Greasewood	Caldwell	—	—	—	—
102	June 16	Greasewood	Nyssa, Ore.	—	—	—	—
103	June 16	Redscale	Nyssa, Ore.	16	89	2	98
104	June 16	Redscale	5 mi. N. Nassa, drainage canal	11	20	—	31
105	June 16	Russian thistle	Ontario, Ore.	9	55	—	64
106	June 16	Sweet clover	Ontario, Ore.	—	—	—	—
107	June 16	Russian thistle	Vale, Ore.	—	—	—	—
108	June 16	Milkweed	4 mi. S. Vale, Ore.	—	1	—	1
109	June 16	Moundscale	10 mi. S. Vale, Ore., in desert	7	1	—	8
110	June 16	Greasewood	Vale, Ore.	—	—	—	—
111	June 16	Shadscale	15 mi. W. Adrian, Ore.	—	—	—	—
112	June 16	Russian thistle	12 mi. W. Adrian, in desert	65	45	2	112
113	June 16	Moundscale	8 mi. W. Adrian, in desert	5	—	—	5
114	June 18	Redscale	2 mi. W. Parma, feed-lot	15	102	—	117
115	June 18	Russian thistle	2 mi. N. Wilder, feed-lot	42	111	2	155
116	June 18	Russian thistle	Big Bend, Ore.	15	121	9	145
117	June 18	Russian thistle	Adrian, Ore.	11	75	3	89
118	June 18	Moundscale	7 mi. S. Adrian, Ore.	—	4	—	4
119	June 18	Greasewood	Homedale	—	—	—	—
120	June 18	Russian thistle	Homedale (Nym. 1st. & 2nd instar)	36	382	39	457
121	June 18	Moundscale	Homedale	1	1	—	2
122	June 18	<i>Bassia hirsuta</i>	6 mi. S. Homedale (Nymphs same)	81	443	53	577
123	June 18	Russian thistle	Claytonia (nymphs same)	84	282	33	399
124	June 18	Russian thistle	3 mi. E. Nampa	15	37	3	55
125	June 18	Redscale	Kuna	17	48	—	65
126	June 18	Russian thistle	Melba (Nym. 1st. & 2nd instar)	198	275	85	558
127	June 18	<i>Bassia hirsuta</i>	6 mi. W. Melba (nymphs same)	131	252	25	408
128	June 18	Shadscale	5 mi. W. Given Springs	—	—	—	—
129	June 18	Russian thistle	1 mi. E. Given Springs	47	50	5	102
130	June 18	Redscale	Given Springs	93	227	21	341
131	June 19	Russian thistle	5 mi. N. Payette	20	149	2	171
132	June 19	Prune trees	10 mi. N. Payette	—	—	—	—
133	June 19	Sugar beets	4 mi. W. Weiser, in Ore.	8	33	—	41
134	June 19	Redscale	10 mi. W. Weiser, in Ore.	9	27	—	36
135	June 19	Russian thistle	7 mi. E. Weiser	12	62	2	76
169	June 23	Sugar beets	5 mi. NW. Weiser	6	18	1	25
170	June 23	Redscale	3 mi. SE. Payette, stackyard	4	20	—	24
171	June 23	Alkali grass	10 mi. W. Emmett	—	—	—	—
172	June 23	Greasewood	3 mi. W. Emmett	—	—	—	—
173	June 23	Redscale	3 mi. E. Emmett	21	36	2	59
174	June 23	Russian thistle	Black Canyon	9	62	1	72
175	June 23	Russian thistle	6 mi. SW. Emmett	37	100	13	150
233	July 13	<i>Bassia hirsuta</i>	10 mi. E. Parma	375	316	531	1222
254	July 27	Russian thistle	Murphy	25	37	31	93
255	July 27	Redscale	Oreana, 18 mi. SE. Murphy	13	53	34	100
256	July 27	Rye grass	Oreana	—	—	—	—
259	July 27	<i>Bassia hirsuta</i>	Grandview	15	79	61	155
260	July 27	Tule	Bruneau	—	—	—	—
261	July 27	Swamp grass	Bruneau	—	—	—	—
262	July 27	Redscale	Wickahoney	2	8	13	23
263	July 27	Redscale	Riddle	2	7	13	22
264	July 28	Poverty weed	Owyhee, Nevada	—	—	—	—
265	July 28	Chaparral	16 mi. NW. Riddle	—	—	—	—
266	July 28	Common nightshade	Brown ranch, 16 mi. S. Triangle	4	6	6	16
267	July 28	Horehound	28 mi. S. Grandview	—	—	—	—
268	July 28	Street lamp	Grandview	—	—	—	—
269	July 29	Russian thistle	Sinker Creek, 10 mi. E. Murphy	5	30	16	51
270	July 29	Redscale	3 mi. N. Silver City	46	51	24	121
271	July 29	Knotgrass	Dewey, near Silver City	7	4	—	11
272	July 29	Sage	Dewey	—	—	—	—
274	July 29	Willow	Cow Creek, 16 mi. W. Silver City	—	—	—	—
273	July 29	Willow	Cow Creek, 21 mi. W. Silver City	—	—	—	—
275	July 29	Redscale	11 mi. N. Jordan Valley, Ore.	9	33	21	63
276	July 30	Redscale	Jordan Valley, Ore.	67	117	75	259
277	July 30	Redscale	Sucker Creek, 14 mi. N. J. Valleys.	38	82	74	194
278	July 30	Rabbit brush	Sucker Creek, 18 mi. N. J. Valley	—	—	—	—
279	July 30	Sedge grass	Sucker Creek, 30 mi. N. J. Valley	—	—	—	—
280	July 30	Shadscale	17 mi. SW. Homedale	—	—	—	—

No.	Date	Plant	Locality	Male	Female	Nymph	Total
	1926						
460	Oct. 9	Russian thistle (dry)	Bruneau	2	3	—	5
461	Oct. 10	Greasewood	7 mi. S. Bruneau	—	—	—	—
462	Oct. 10	<i>Suaeda torreyana</i>	7 mi. S. Bruneau	—	1	—	1
463	Oct. 10	Russian thistle (dry)	Glenns Ferry	1	—	—	1
189	Oct. 2	Sugar beets	15 mi. S. Mackay	—	—	—	—

## CENTRAL AND NORTHERN IDAHO

1 25

190	Oct. 2	Russian thistle	11 mi. S. Mackay	—	—	—	—
191	Oct. 2	Wild tomato	Mackay	—	—	—	—
192	Oct. 2	Redscale	7 mi. N. Mackay	—	—	—	—
193	Oct. 2	Redscale	3 mi. N. Chilly, stackyard	—	—	—	—
194	Oct. 2	Russian thistle	Willow Creek Summit	—	—	—	—
195	Oct. 2	Russian thistle	Grand View Canyon	—	—	—	—
196	Oct. 2	Shadscale	10 mi. S. Challis	—	—	—	—
197	Oct. 2	Redscale	5 mi. N. Challis	2	—	—	2
198	Oct. 2	Russian thistle	Ellis	—	—	—	—
199	Oct. 2	Shadscale	May	—	—	—	—
200	Oct. 3	Russian thistle	4 mi. N. Goldberg	—	—	—	—
201	Oct. 3	Russian thistle	15 mi. S. Goldberg	—	—	—	—
202	Oct. 3	Shadscale	5 mi. S. Goldberg	—	—	—	—
203	Oct. 3	Redscale	4 mi. N. Howe, old sheep camp	1	7	—	8
204	Oct. 3	Russian thistle	4 mi. N. Howe	1	1	—	2
205	Oct. 3	Shadscale	5 mi. N. Howe	1	—	—	1
206	Oct. 3	Russian thistle	9 mi. W. Howe	4	4	—	8

1926

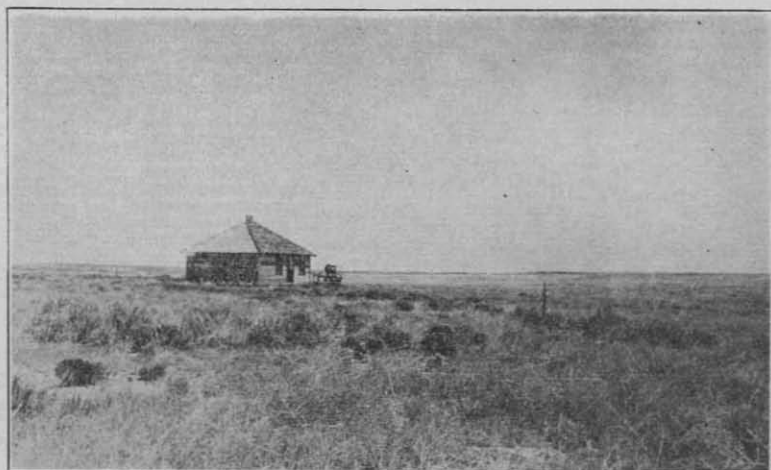
136	June 20	Blue lettuce	5 mi. N. Weiser	4	17	—	21
137	June 20	Dog fennel	10 mi. N. Weiser	—	2	—	2
138	June 20	Russian thistle	14 mi. N. Weiser, in hills	5	33	—	38
139	June 20	Wheat cockle	2 mi. S. Midvale	—	—	—	—
140	June 20	Tumbleweed	1 mi. N. Midvale	2	6	1	9
141	June 20	Russian thistle	1 mi. N. Midvale	5	16	—	21
142	June 20	Redscale	Cambridge	2	16	—	18
143	June 20	Green tansy mustard	10 mi. N. Cambridge	—	1	—	1
144	June 20	<i>P. douglasii</i>	Council	—	—	—	—
145	June 20	<i>A. millefolium</i>	Council	—	1	—	1
146	June 20	White clover	Council	—	—	—	—
147	June 20	Knotgrass	2 mi. N. Council	—	—	—	—
148	June 20	Tumbling mustard	2 mi. S. Starky	—	5	—	5
149	June 20	Wild flowers	5 mi. N. Starky, in mountains	—	—	—	—
150	June 21	Clover and timothy	10 mi. N. New Meadows	—	—	—	—
151	June 21	<i>D. campestris</i>	6 mi. N. New Meadows, grainfield	—	—	—	—
152	June 21	Meadow land	2 mi. N. New Meadows	—	—	—	—
153	June 21	Wild flowers	1 mi. N. New Meadows	—	—	—	—
154	June 21	Green tansy mustard	New Meadows	9	9	—	18
155	June 21	Penny cress	New Meadows	1	—	—	1
156	June 21	Grass & brush	5 mi. E. New Meadows, in timber	—	—	—	—
157	June 22	Pines	McCall	—	—	—	—
158	June 22	Horehound	McCall	—	—	—	—
159	June 22	Knotgrass	1 mi. S. McCall	—	—	—	—
160	June 22	<i>L. catonii</i>	2 mi. S. McCall	—	—	—	—
161	June 22	Aspen	2 mi. S. McCall	—	—	—	—
162	June 22	Meadowland	8 mi. S. McCall	—	—	—	—
162	June 22	Borage sp.	4 mi. S. Donnelley	—	2	—	2
163	June 22	Knotgrass	1 mi. S. Donnelley	—	1	—	1
164	June 22	Tumbling mustard	4 mi. N. Cascade	—	1	—	1
165	June 22	Knotgrass	Cabarton	—	—	—	—
166	June 22	<i>V. californicum</i>	Smiths Ferry	—	—	—	—
167	June 22	Russian thistle	4 mi. S. Banks	16	18	5	39
168	June 22	Russian thistle	Spring Valley	5	13	8	26
176	June 25	Redscale	Indian Valley	—	—	—	—
177	June 25	Tumbling mustard	Indian Valley	—	—	—	—
178	June 25	Dog fennel	Indian Valley	1	3	1	5
179	June 25	Russian thistle	Indian Valley	4	9	—	13
180	June 25	Russian thistle	2 mi. W. Council	11	58	—	69
181	June 25	Tumbling mustard	Hornet Creek, 11 mi. W. Council	—	—	—	—
182	June 25	Knotgrass	28 mi. W. Council, in mountains	—	1	—	1
183	June 25	Grainfield	28 mi. W. Council, in mountains	—	—	—	—
184	June 25	Ferns	35 mi. W. Council, in timber	—	—	—	—
185	June 25	<i>V. bracteosa</i>	Ballards Ferry	—	—	—	—
186	June 26	Russian thistle	Homestead, Ore.	2	—	—	2
187	June 26	Tumbling mustard	10 mi. S. Homestead, Ore.	—	—	—	—
188	June 26	Russian thistle	20 mi. S. Robinette, Ore.	8	10	3	21

## THE BEET LEAF-HOPPER

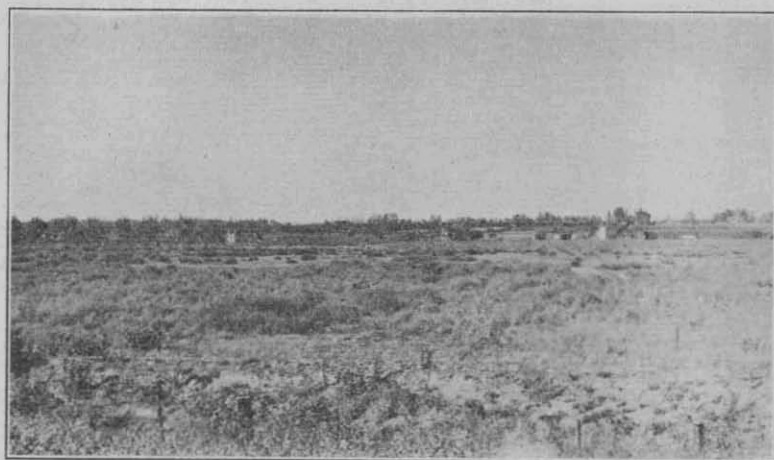
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No.	Date	Plant	Locality	Male	Female	Nymph	Total
1926							
199	July 7	Russian thistle	6 mi. S. Mackay	—	1	—	1
200	July 7	Russian thistle	4 mi. N. Mackay	—	4	1	5
201	July 7	Meadowland	20 mi. N. Mackay	—	—	—	—
202	July 7	Russian thistle	Willow Creek Summit (Alt. 7165 ft)	—	5	—	5
203	July 7	Russian thistle	Challis, field	1	3	1	5
204	July 7	Russian thistle	20 mi. N. Challis	—	4	—	4
205	July 8	Pigweed	10 mi. N. Salmon	1	1	—	2
206	July 8	<i>C. leptophyllum</i>	10 mi. N. Salmon	—	—	—	—
207	July 8	Redscale	11 mi. N. Salmon	2	3	—	5
208	July 9	Redscale	Salmon	—	2	—	2
209	July 9	Russian thistle	5 mi S. Salmon	1	7	—	8
210	July 9	Russian thistle	20 mi. S. Salmon	1	6	—	7
211	July 9	<i>C. leptophyllum</i>	15 mi. N. Challis	1	1	—	2
212	July 9	Redscale	15 mi. N. Challis	—	1	—	1
213	July 9	Undetermined	15 mi. N. Challis	—	—	—	—
214	July 9	Shadscale	5 mi. SW. Challis	—	—	—	—
215	July 9	Grasewood	10 mi. SW. Challis	—	—	—	—
216	July 9	Russian thistle	Clayton	—	1	—	1
217	July 10	Knotgrass	Stanley	—	—	—	—
218	July 10	Meadowland	Stanley	—	—	—	—
219	July 10	Knotgrass	9 mi. W. Stanley	—	—	—	—
220	July 10	Clover	9 mi. W. Stanley	—	—	—	—
221	July 10	Willow	10 mi. W. Stanley	—	—	—	—
222	July 10	Sage	Stanley Basin	—	—	—	—
223	July 10	Grass	Fir Creek, 30 mi. W. Stanley	—	—	—	—
224	July 11	Wild tomato	Bear Valley, sheep camp	—	4	1	5
225	July 11	Dog fennel	Bear Valley, sheep camp	—	2	—	2
226	July 11	Meadowland	Bear Valley	—	—	—	—
227	July 11	Knotgrass	10 mi. N. Lowman, in mountains	—	—	—	—
228	July 12	Redscale	Lowman, barnyard	2	5	1	8
229	July 12	Turnips	Lowman, garden	15	30	1	46
230	July 12	Flowers	8 mi. S. Lowman, in mountains	—	—	—	—
231	July 12	Knotgrass	Idaho City	1	—	—	1
232	July 12	Common nightshade	10 mi. E. Boise, near Shaw Mt.	—	4	—	4
281	Aug. 1	Russian thistle	5 mi. S. Riggins	15	51	4	70
282	Aug. 1	Russian thistle	Riggins	20	95	34	149
283	Aug. 2	Redscale	Whitebird, in stackyard	—	4	2	6
284	Aug. 3	Knotgrass	Grangeville	—	—	—	—
285	Aug. 3	Cornfield	8 mi. NE. Grangeville	—	—	—	—
286	Aug. 3	Ragweed	3 mi. N. Harpster, Sally Ann Cr.	2	5	1	8
287	Aug. 3	Pigweed	Kooskia in garden	2	5	—	7
288	Aug. 3	Knotgrass	2 mi. W. Kamiah	—	—	—	—
289	Aug. 3	<i>A. bitoides</i>	5 mi. E. Nez Perce	2	1	—	3
290	Aug. 3	Lambquarters	4 mi. E. Nez Perce	2	4	5	11
291	Aug. 3	Curled dock	3 mi. E. Nez Perce	—	2	3	5
292	Aug. 3	Potato vines	2 mi. E. Nez Perce	3	3	—	6
293	Aug. 3	Tumbleweed	6 mi. N. Nez Perce	—	3	—	3
294	Aug. 4	Ferns & grass	8 mi. N. Nez Perce	—	—	—	—
295	Aug. 4	Meadowland	4 mi. S. Headquarters	—	—	—	—
296	Aug. 4	Goldenrod	Headquarters	—	—	—	—
297	Aug. 4	Table beets	Headquarters	24	33	51	108
298	Aug. 4	Mealowland	Headquarters	—	—	—	—
299	Aug. 4	Turnips	Pierce	17	9	20	46
300	Aug. 4	Sheep sorrel	Weippe	—	1	—	1
301	Aug. 4	Turnips	Greer	2	5	—	7
302	Aug. 5	Table beets	Orofino	56	18	43	117
303	Aug. 5	Ragweed	22 mi. W. Orofino	2	—	—	2
304	Aug. 5	Pigweed	22 mi. W. Orofino	13	11	1	25
305	Aug. 5	Russian thistle	20 mi. E. Lewiston	—	6	—	6
306	Aug. 5	Russian thistle	Lewiston	7	27	4	38
307	Aug. 6	Tumbleweed	10 mi. N. Lewiston, top of grade	8	6	—	14
308	Aug. 6	Tumbleweed	10 mi. S. Moscow	18	13	4	35
309	Aug. 6	Lambquarters	Moscow	2	2	—	4
310	Aug. 6	Table beets	U. of I. Exp. Station, Moscow	363	134	252	749
311	Aug. 6	Beans	U. of I. Exp. Station, Moscow	12	3	2	17
312	Aug. 7	Tarweed	5 mi. N. Moscow	3	2	—	5
313	Aug. 7	Dandelion	Potlatch, fallow field	11	3	—	14
314	Aug. 7	Pigweed	Emida	6	10	2	18
315	Aug. 7	Meadowland	10 mi. S. St. Maries	—	—	—	—
316	Aug. 7	Lambquarters	St. Maries	—	—	—	—
317	Aug. 7	Table beets	St. Maries	5	3	12	20
318	Aug. 7	Table beets	Carlin Bay	19	15	38	72
319	Aug. 7	Sugar beets	Carlin Bay	16	9	27	52
320	Aug. 8	Sugar beets	Coeur d'Alene	14	2	71	87
321	Aug. 8	Russian thistle	Spokane, Wn.	2	23	—	25
322	Aug. 8	Knotgrass	2 mi. S. Newport, Wn.	2	—	—	2

No.	Date	Plant	Locality	Male	Female	Nymph	Total
1926							
323	Aug. 8	Meadowland	2 mi. S. Newport, Wn.	—	—	—	—
324	Aug. 8	Table beets	Old Newport, Idaho	—	1	1	2
325	Aug. 9	Pigweed	4 mi. N. Sandpoint	2	8	1	11
326	Aug. 9	Meadowland	Sandpoint	—	—	—	—
327	Aug. 9	Sugar beets	5 mi. S. Bonners Ferry	9	3	8	20
328	Aug. 9	Tumbleweed	2 mi. N. Bonners Ferry	16	7	5	28
329	Aug. 9	Timothy meadow	3 mi. S. Bonners Ferry	1	—	—	1
330	Aug. 9	Wild mint	3 mi. S. Bonners Ferry	5	1	2	8
331	Aug. 9	Pigweed	1 mi. W. Bonners Ferry	4	5	5	14
332	Aug. 10	Pigweed	Copeland	—	1	—	1
333	Aug. 10	Table beets	Copeland	5	11	9	25
334	Aug. 10	Slough grass	2 mi. N. Coneland	—	—	—	—
335	Aug. 10	Sugar beets	Porthill, on Canadian line	3	2	—	5
336	Aug. 10	Lambsquarters	Porthill	3	—	—	3
337	Aug. 10	Table beets	Porthill	19	10	45	74
338	Aug. 10	Pigweed	Porthill	2	4	4	10
344	Aug. 10	Pigweed	Eastport, on Canadian line	1	2	2	5
345	Aug. 11	Meadowland	4 mi. S. Bonners Ferry	—	—	—	—
346	Aug. 11	Sugar beets	U. of I Sub-station, Sandpoint	13	11	8	32
347	Aug. 12	Pigweed	12 mi. E. Sandpoint	3	—	1	4
348	Aug. 12	Pigweed	Hope, in garden	—	—	—	—
349	Aug. 12	Tumbleweed	6 mi. NW. Clark Fork, in garden	3	1	1	5
350	Aug. 12	Chaparral	Cabinet, in timber	—	—	—	—
351	Aug. 12	Table beets	Cabinet	1	2	5	8
359	Aug. 14	Grass	11 mi. N. Wallace, in mountains	—	—	—	—
360	Aug. 14	Pigweed	Kellogg	—	—	—	—
361	Aug. 14	Mangels	3 mi. W. Wallace	4	2	1	7
362	Aug. 14	Meadowland	15 mi. W. Kellogg	—	—	—	—
363	Aug. 16	Tumbleweed	7 mi. W. Coeur d'Alene	3	3	8	14
364	Aug. 16	Tumbleweed	Colfax, Wn., fallow field	10	5	—	15
365	Aug. 17	Russian thistle	Lapwai	62	90	11	163
366	Aug. 17	Lambsquarters	Craigmont	18	13	1	32
367	Aug. 17	Tumbleweed	Grangeville	9	8	—	17
374	Aug. 26	Pigweed	Hailey, in garden	12	7	5	24
375	Aug. 26	Alfalfa	3 mi. N. Hailey	—	—	—	—
376	Aug. 26	Lambsquarters	2 mi. S. Ketchum	1	1	—	2
377	Aug. 26	Sage	Ketchum	—	—	—	—
378	Aug. 26	Russian thistle	Ketchum	10	4	6	20



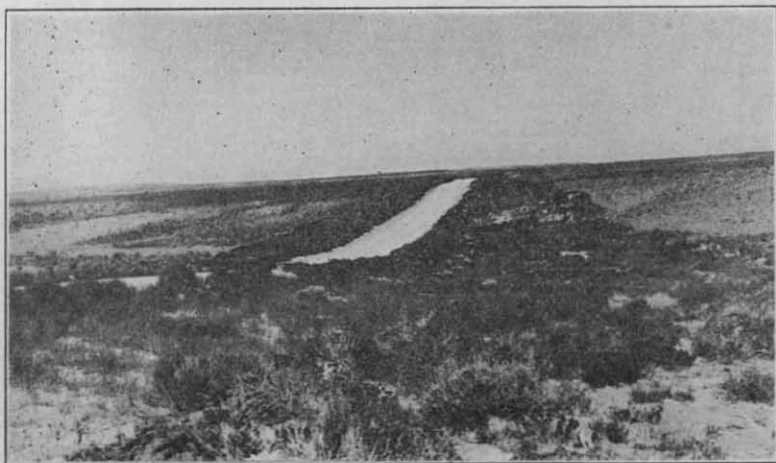
Abandoned dry-land farm in desert region of southern Idaho. The ground on such places is entirely covered with a growth of tumbling mustard (*Sisymbrium altissimum* L.) green tansy mustard (*Sophia filipes* (Gray) Heller), and Russian thistle (*Salsola pestifer* A. Nels).



Waste area within irrigated district where redscale (*Atriplex rosea* L.) is thriving on soil that has become seeped and contains too much alkali for field crops.



Redscale growing in pens used for sheep feed-lots in winter. Such a condition is also common around corrals and stockyards on most farms.

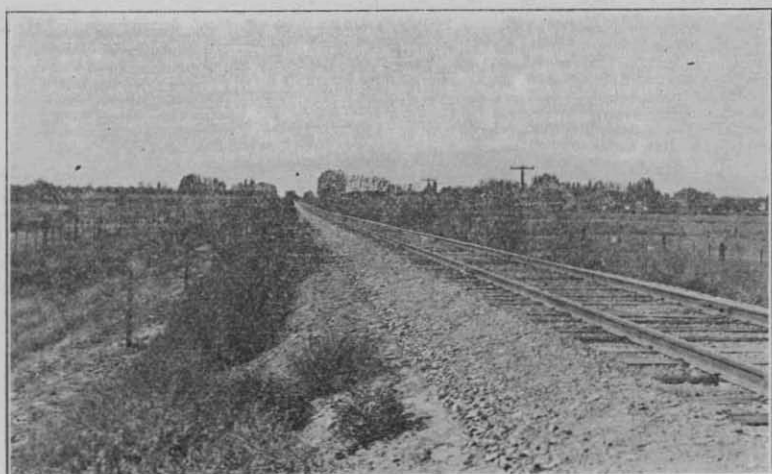


Russian thistle along highway in sage desert. Typical of graded roads throughout the Plains area of southern Idaho.

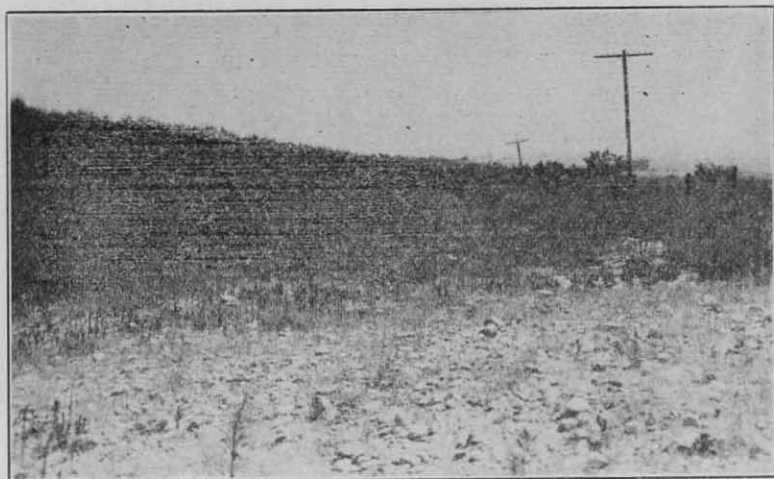




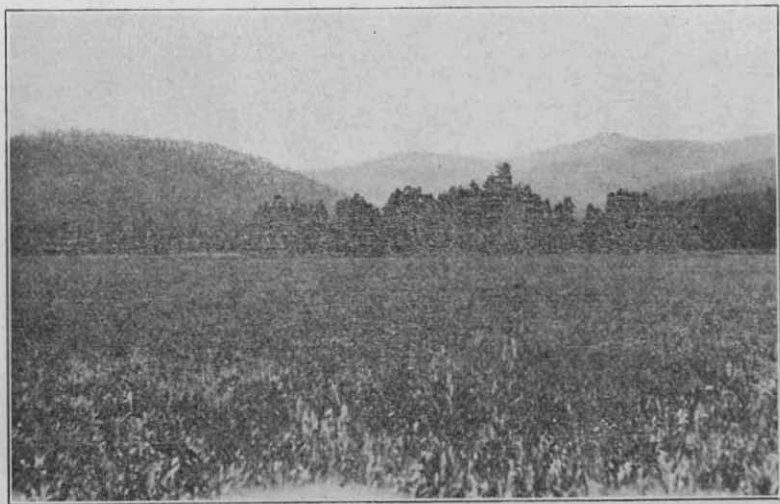
Russian thistle along highway in an irrigated district. Other host plants are found along these highways and such breeding grounds of the beet leafhopper are uniformly distributed over all irrigated districts.



Russian thistle and redscale on railroad embankment.



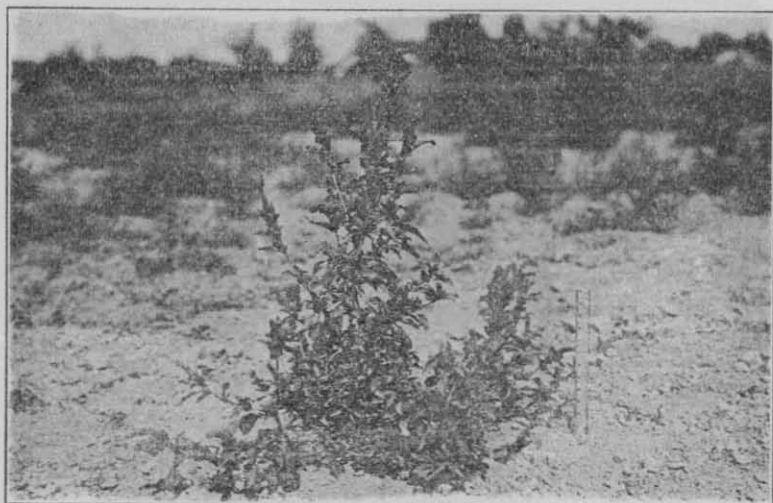
A rank growth of *Bassia hirsuta* (L.) Aschers covers the wet alkali slope in background. This host plant is common on wet alkali land of the Lower Snake River Valley.



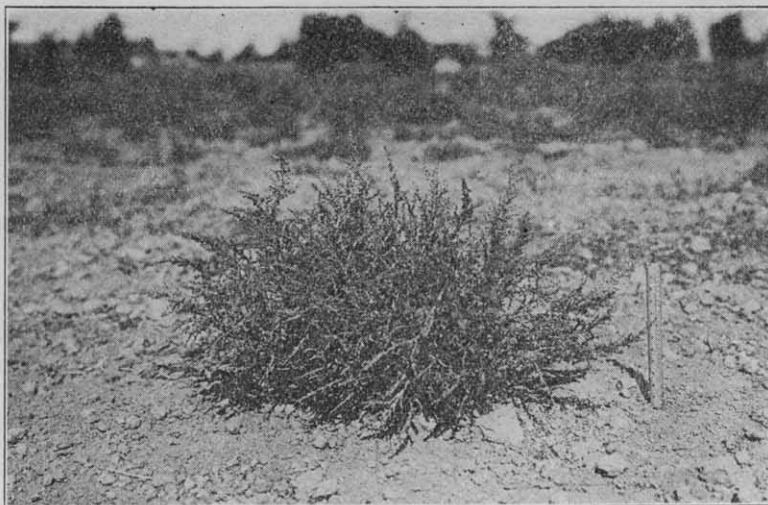
Meadow in high mountains of central Idaho. Part of a sheep camp can be seen among trees where the beet leafhopper was found on introduced host plants.



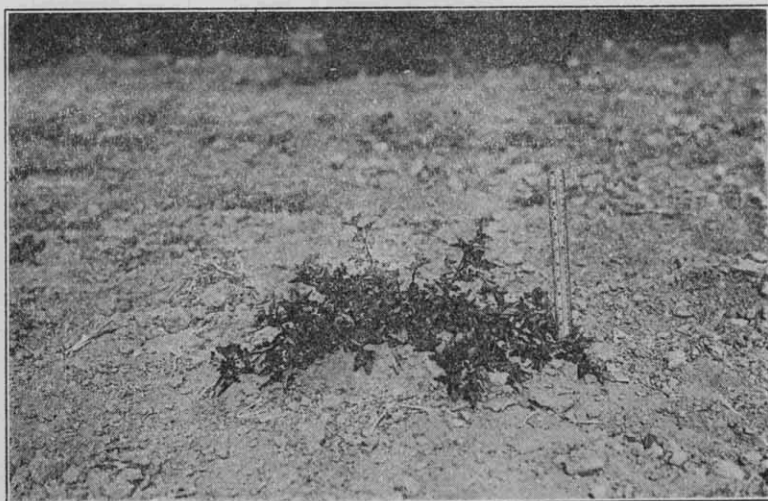
*Suaeda torreyana* S. Wats. (to the left of picture) in association with greasewood (*Sarcobatus vermiculatus* Torr).



Pigweed (*Amaranthus retroflexus* L.), is a host plant common in all cultivated areas of the state



Tumbleweed (*Amaranthus gracilis* L.), is a host plant abundant in most dry-land farming districts.



Common nightshade (*Solanum nigrum* L.). A related species, wild tomato (*Solanum triflorum* Nutt.), is more widely distributed than common nightshade and is more important as a host plant.