

March 15,
1939

SUGGESTIONS FOR THE CONTROL
OF THE PEA WEEVIL
IN
OREGON

For

1939

Based upon the recommendations prepared by the Pacific Northwest Cooperative Pea Weevil Control Project Committee Representing a number of State Agricultural Experiment Stations, County Agricultural Agents and the Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

AGRICULTURAL EXPERIMENT STATION
Oregon State Agricultural College
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FOREWARD

The fourth annual pea weevil conference of Federal, State and County workers interested in the pea weevil problem in the Pacific Northwest was held at Portland, Oregon, on March 15th and 16th, 1939, under the auspices of the Pacific Northwest Cooperative Pea Weevil Control Project Committee.

During this conference papers resulting from investigational work on the pea weevil problem during the season of 1938 were presented by State, Federal and privately employed workers associated with pea production and weevil control.

The following committee prepared suggestions for the control of the Pea Weevil in 1939.

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R. L. Webster, Washington Agricultural Experiment Station
K. W. Gray, Oregon Agricultural Experiment Station
W. E. Shull, Idaho Agricultural Experiment Station
F. G. Hinman, Bureau of Entomology and Plant Quarantine
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The following recommendations are essentially the same as those prepared by the above noted committee but are modified, in some respects, to fit Oregon conditions.

SUGGESTIONS FOR THE CONTROL OF THE PEA WEEVIL FOR 1939

Prepared by the Pacific Northwest Cooperative
Pea Weevil Control Project Committee, with
Modifications to fit Oregon Conditions.

March 15, 1939

I. WEEVIL CONTROL DEMONSTRATED

Control of the pea weevil is essential to the continued welfare of both the canning and dry pea industry. Weevily peas are not desirable for human consumption and the presence of the weevil may cause serious losses to both the seed pea and processing industries.

Experiments and extensive tests on a commercial scale conducted in Oregon, Washington, and Idaho have demonstrated that the pea weevil can be controlled by cultural practices, sanitation, and the use of rotenone-bearing insecticides.

II. DUSTING RECOMMENDATIONS

1. Dusting for control of the pea weevil on edible peas, field basis (Including seed peas of edible varieties).

Dusts should be prepared with some inert material, such as talc, diatomaceous earth, or clay and should contain not less than three-quarters of one per cent (0.75%) rotenone.

Based on experience to date, the plant source of rotenone (cube, derris, timbo, etc.) does not appear to be a factor.

Applications should be made at the rate of 20 to 25 pounds per acre by an efficient dusting machine.

- a. Time and number of applications.

It must be emphasized that successful control of the weevil by dusting depends upon the timeliness of application.

The dust must be applied between the interval that the pea weevils enter the field and before the females begin egg laying.

In general the first application of dust should be made within a few days after the peas start to bloom and before any pods have set. At this time the weevils are still largely concentrated near the field edges. Peas blooming early in the season and before all weevils are out of hibernation may receive additional weevil populations after the first application. In these cases additional applications may be necessary.

The period between successive applications will depend to some extent on weather conditions, being shorter in warm than in cool periods. This period will vary from four to ten days.

b. Dusting equipment.

Dusting equipment should be of such type as to deliver the required amount of dust and to adequately cover the acreage in the limited time necessary for proper control of the insect.

The capacity will vary with the width of the machine and speed of travel. For example, a dusting machine covering a swath 35 feet wide and operated at a speed of 4-1/2 miles per hour is capable of dusting approximately 16 acres per hour. The speed of travel should not exceed 5 miles per hour.

The duster should be equipped with a canvas hood or trailer or combination of both, for the purpose of reducing wind drift of the dust. Where a trailer is used alone, it should be at least 25 feet in length.

In general, effective dust applications cannot be attained if wind velocity exceeds 12 miles per hour. Satisfactory results have been attained with power driven dusting equipment mounted on tractors and trucks or drawn by tractors, trucks, or horses.

c. Dusting procedure.

Since the pea weevil, in migrating from hibernation quarters to the pea fields, tends to first infest the field edges, it is possible to secure adequate control in most cases by dusting a marginal strip.

Where fields are ten acres or less in size, it is advisable to dust the entire acreage for satisfactory results. Where large fields are involved, a sweep net survey should be made and the infested areas marked off to indicate the portions to be dusted. The number of weevils collected in 25 sweeps of the net is generally employed in determining infested areas. In the case of canning and freezing peas, a population averaging as low as one insect per two hundred sweeps of the net is usually considered a dangerous infestation and dusting should be done.

In the case of seed peas, indications are that 5 weevils to 25 sweeps of the net will give an infestation of approximately 20%.

Current knowledge of the minimum populations necessary to produce economic injury under all conditions is incomplete and the foregoing figures for dangerous populations are to be considered tentative only.

2. Dusting for control of the pea weevil in home plantings.

Garden planting should be dusted with rotenone-bearing dusts at intervals of 4 to 5 days. As soon as the peas get beyond the edible stage, the vines should be destroyed. Peas that are allowed to ripen in small gardens are an important source of weevil infestations.

3. Dusting for the control of the pea weevil on Austrian winter field peas.

The use of rotenone-bearing dusts for weevil control in Austrian winter field peas was extensively tested under commercial conditions in the Willamette Valley in 1938. No work has been done on Austrian peas in other areas. The results obtained in the Willamette Valley have demonstrated that a significant degree of control, as measured by improved average germination and quality, was achieved by means of the following dusting practices:

- a. Since only one dust application is now considered economically feasible for weevil control on Austrian peas, this application should be so timed as to kill the maximum number of weevils possible. In general this will be after the bulk of the population has left hibernation. This may be after the peas are in full bloom and some pods have set.

Information as to when this dust should be applied will be made public through the Oregon Agricultural Extension Service acting in cooperation with the Oregon Agricultural Experiment Station and the U. S. Bureau of Entomology and Plant Quarantine.

- b. Recommendations relative to equipment, material, and rate of application are the same as for edible peas.
- c. While dusting has given beneficial results in the control of the weevil on Austrian peas, it is not sufficiently effective to permit any relaxation of the established recommendations for early harvest and prompt fumigation.

III. BORDER TRAP CROPS AND THEIR CARE

The use of a border trap crop in eastern portions of Oregon, Washington, and Northern Idaho has proved of value in many instances in reducing weevil damage. These border trap crops consist of plantings of peas 1 drill-width around the edge of the field. Planting schedules should be so arranged that the peas in the border strip come into blossom 7 to 10 days before the main field. It is necessary that the weevils in these borders be destroyed by dusting before the main crop comes into bloom. The peas in these borders will often be heavily infested and should be destroyed by plowing under before they ripen.

IV. SANITARY AND CULTURAL MEASURES

1. Of coordinate value with dusting are various cultural and sanitation practices (including the fumigation of seed peas) which should be followed as a means of reducing weevil populations from year to year. The most important of these are as follows:

- a. Weevil-free seed.

Never plant seed containing living weevils since large numbers are able to escape from such seed and infest the growing crop. Fumigate or otherwise treat seed to kill weevils. (See Paragraph 3, Care of Harvested Seed.)

b. Care of field refuse.

Plow field refuse deeply under using jointers immediately following harvest. An attempt to salvage weevil-infested canning peas as seed only breeds more weevil for succeeding crops. Peas grown as a soil conserving crop should be thoroughly plowed under shortly after blossoming. Otherwise, they may constitute a source of weevil infestation for all the peas in that area.

Burning pea stubble is no longer recommended as a means of checking the weevil, since it is a serious question as to whether the resulting progressive decrease in soil fertility does not outweigh the immediate benefits of partial weevil control.

2. Separate districts desirable for the growing of dry and green peas.

Since the pea weevil does not reach maturity at the time peas are harvested for canning purposes, it is usually the more mature peas that produce the adult weevils which will infest the fields the following year. Areas in which seed peas (edible or Austrian varieties) are grown therefore produce much larger weevil populations than do exclusively green pea areas. Segregation of the two types of production is therefore suggested. Present indications are that there is no significant interchange of weevil populations between growing areas separated by a non-producing area as little as three to four miles wide.

The growing of green peas in districts segregated from seed-producing areas cannot, however, be relied upon to eliminate the necessity of control measures in such areas, although it should reduce the amount and cost of such control. This is because there is always an unavoidable loss of peas at harvest which have a sufficient degree of maturity to permit the weevils to complete their development.

3. Care of harvested seed.

Peas of both Austrian and edible varieties should be harvested as soon as they are ripe in order to minimize shattering.

Harvested peas of edible varieties should be stored in tight bags or bins to prevent any weevils from escaping.

These peas should be fumigated or otherwise treated in order to destroy the weevils before processing.

Austrian winter field peas should be fumigated immediately after harvest and before cleaning to kill any weevil larvae present before they develop sufficiently to affect germination. Effective fumigants include hydrocyanic acid gas, chloropicrin, carbon disulphide, and others.

V. SUPERVISION IN WEEVIL CONTROL CAMPAIGNS IMPORTANT

It must be remembered that effective control of the pea weevil can only be brought about by the thorough and intelligent application of these suggestions. Competent supervision and planning is therefore essential if satisfactory results are to be secured.

VI. COMMUNITY WIDE COOPERATION IMPORTANT

Active participation in the accomplishment of the aforementioned control practices by the cannery, pea growers and the entire agricultural and urban community is important.

For detailed information and guidance concerning the use of these suggestions consult your local authority such as Entomologist or County Extension Agent.
