

COOPERATIVE EXTENSION WORK  
IN  
AGRICULTURE AND HOME ECONOMICS  
STATE OF OKLAHOMA

W. D. BENTLEY, Director

OKLAHOMA AGRICULTURAL AND  
MECHANICAL COLLEGE AND  
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STILLWATER, OKLAHOMA

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# VEGETABLE SPRAY CALENDAR

*For Controlling Insects*

By C. E. SANBORN,  
Professor of Entomology,  
Oklahoma A. and M. College,

and

D. C. MOORING,  
Extension Horticulturist

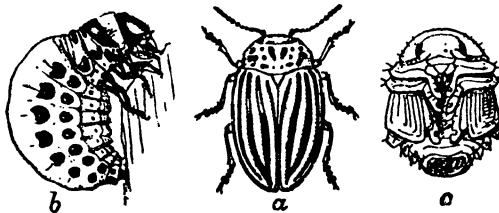


Figure 1—Larva (b) and Adult Potato Bug (a)



## INSPECT DEVELOPING PLANT

In preventing plant damage by insects and diseases it is necessary to make frequent inspections. Sometimes a severe infestation may apparently occur within a period of twenty-four hours. Infestation, however, generally increases gradually, and should always be controlled before it does damage.

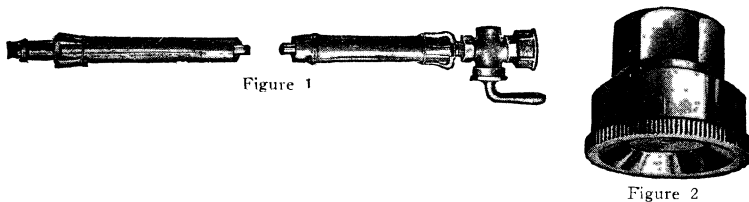


Figure 1

Figure 2

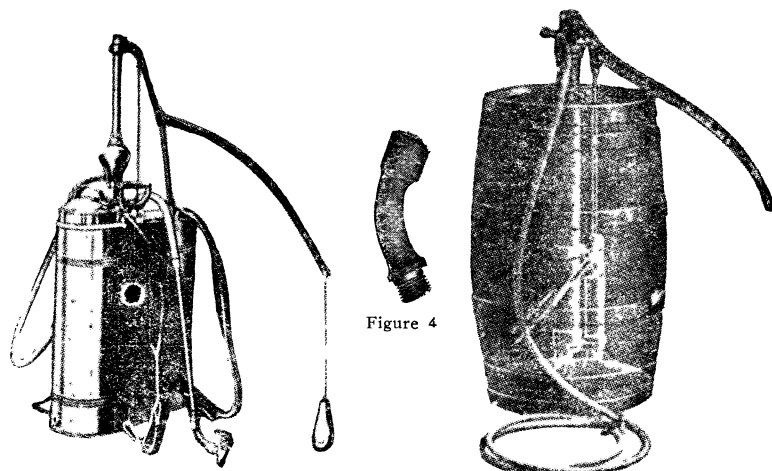


Figure 3

Figure 4

Figure 5

In order to profit by so doing, it is necessary to provide apparatus and spray materials in advance.

A dusting machine is very convenient for applying poison sprays and repellants in the dry or dust form. Such applications are comparatively cheap, efficient and easily made.

Any of the dust sprays may be applied quickly and efficiently early in the morning while the dew is on, with a porous sack, which may be made of cheese cloth.

Barrel spray pumps can be mounted on trucks and wheeled to different places for convenience in applying the spray solution. This type of sprayer has quite a range of uses, since it can be used for spraying gardens, small fields and small orchards, also whitewashing trees, fences and buildings. It is not practical, however, for spraying large orchards. (Figure 5.)

Various attachments are necessary for conveying the spray in a proper manner from the pump to the plants. First, about 20 to 30 feet of strong spray hose is desirable. To this an extension rod about (Figure 1) 8 feet in length, fitted with an angle nozzle (Figure 4) or an angle and nozzle (Figure 2) which will break the spray into a fine mist, and permit the operator to spray in practically all directions by simply turning the extension rod in either direction while in use. The same equipment may be attached to power sprayers.

Vegetables practically matured should always be removed from the field. The vines of plant stocks should then be raked and burned in order to prevent the development of insect broods and diseases which might infest following crops.

**VEGETABLE SPRAY CALENDAR**

PLANT	HOW AFFECTED	INSECT	APPEARANCE OF INSECT	REMEDY
Cabbage	Plants cut off at ground	Cut worms	1½ inches long, brown, gray or blackish color	Poison bran mash. Fall and winter plowing
Cabbage	Holes eaten in leaves	Green cabbage worm	Green worms	Arsenate of lead, paris green or calcium arsenate
Cabbage	Sap sucked out of plant	Green aphids or plant lice	Plant lice varying in color from green to black, resemble small spiders	Nicotine sulphate (Black Leaf 40) or nicotine dust, 3% strength
Corn (roasting ears)	Tip end of ears worm-eaten	Corn ear worm	Gray or blackish worm	Dust as soon as silks begin to appear with powdered arsenical at the rate of 2 or 3 lbs. per acre
Cucumber and Melons	Eats foliage, and worm stage bores into root and stem	Striped cucumber beetle	Two-fifths inch long, striped with yellow and black	Plant excess number of seed; thin later if necessary. Apply nicotine dust, 4% strength
Cucumber and Melons	Feeds on flowers and fruit. Larva or worm stage infests the roots	Spotted cucumber beetle	Adult ¼ inch long, yellowish green in color with 12 black spots on wing covers	Plant excess number of seed; thin later if necessary. Apply nicotine dust, 4% strength
Cucumber and Melons	Sap sucked out of plant	Aphids or plant lice	Green in color, resemble small spiders. Abundant on under side of foliage	Spray with nicotine sulphate solution or dust with 3% nicotine dust
Lettuce	Sap sucked out of plant	Aphids or plant lice	Green in color, resemble small spiders. Abundant on under side of foliage	Spray with nicotine sulphate solution or dust with 3% nicotine dust
English Peas	Sap sucked out of plant	Aphids or plant lice	Green in color, resemble small spiders. Abundant on under side of foliage	Spray with nicotine sulphate solution or dust with 3% nicotine dust
Field Peas	Bore into seed	Weevils	One-fifth inch long, black colored	Carbon bisulphide
Potatoes (Irish) and Eggplant	Foliage eaten	Potato bug (Colorado potato beetle)	Ochre yellow in color. Wing covers striped with ten black stripes	Arsenate of lead, calcium arsenate or paris green

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PLANT	HOW AFFECTED	INSECT	APPEARANCE OF INSECT	REMEDY
Potatoes (Irish) and Eggplant	Riddles leaves with punctures	Potato flea beetle	Small black beetle one-sixteenth inch long	Arsenate of lead, calcium arsenate or paris green
Radishes	Riddles leaves with punctures	Flea-beetle	Small black beetle one-sixteenth inch long	Nicotine dust, 4% strength or arsenical poison
Squash	Eats foliage, and worm stage bores into root or stem	Striped cucumber beetle	Two-fifths inch long, striped with yellow and black	Plant excess number of seed; thin later if necessary. Apply nicotine dust, 4% strength
Squash	Feeds on flowers and fruit. Larva or worm stage infests the roots	Spotted cucumber beetle	Adult $\frac{1}{4}$ inch long, yellowish green in color with 12 black spots on wing covers	Plant excess number of seed; thin later if necessary. Apply nicotine dust, 4% strength
Squash	Sap sucked out of plant	Aphids or plant lice	Green in color, resemble small spiders. Abundant on under side of foliage	Spray with nicotine sulphate solution or dust with 3% nicotine dust
Squash	Pierce tissues and extracts juice	Squash bug	Brown in color, $\frac{3}{4}$ inch long. Disagreeable odor.	Place shingles or boards among plants; bugs go under them at night. Collect and destroy in morning. Dust with nicotine dust, 6% strength
Tomato	Eats foliage	Tomato or tobacco horn worm	Large green worms about three inches long	Arsenate of lead, calcium arsenate or paris green or hand picking
Tomato	Plant cut off at ground	Cut worms	$1\frac{1}{2}$ inches long, brown, gray or blackish color	Poison bran mash. Fall and winter plowing

### Arsenical Poisons

Arsenate of lead comes in the powdered and paste forms. Use only one-half as much powdered arsenate of lead as of the paste form. The formulae given below apply to the powdered arsenate of lead.

Calcium arsenate comes in powdered form. It generally contains more poison than lead arsenate. Calcium arsenate containing 40% arsenic oxide should be applied at the rate of about one pound to 50 gallons of water.

Dust 1 lb. of powdered arsenate of lead or  $\frac{3}{4}$  lb. calcium arsenate or  $\frac{1}{4}$  lb. of paris green to 7 lbs. of air-slaked lime.

Dust on the plants early in the morning while the dew is on. A cheese cloth sack is convenient for applying the dust.

Liquid Sprays.— $\frac{1}{2}$  lb. of powdered arsenate of lead or  $\frac{3}{8}$  lb. of calcium arsenate or 2 ozs. of paris green to 12 gallons of water, into which a pound of freshly slaked lime has been strained. Apply with a sprinkling can or spray pump.

#### **Nicotine Sulphate or Black Leaf 40**

Two teaspoonfuls to 1 gallon of soapy water. Apply with a spray pump. Be sure and cover the plant completely, especially the under side of the leaves of melons and cucumbers.  $\frac{1}{4}$

#### **Nicotine Dust**

Nicotine dust is becoming very popular as a contact dust spray and also acts as a repellent. It is not very common on the average Oklahoma market at present. Nicotine sulphate (Black Leaf 40) is more common on the market and can be used in making the nicotine dust.

To obtain percentage of strength of nicotine dust, use either of the following methods:

##### **1. By measure—**

Use 3 pints of nicotine sulphate (Black Leaf 40) to 50 lbs. of hydrated lime to make a 3% dust.

Use 4 pints of nicotine sulphate (Black Leaf 40) to 50 lbs. of hydrated lime to make a 4% dust.

Use 6 pints of nicotine sulphate (Black Leaf 40) to 50 lbs. of hydrated lime to make a 6% dust.

##### **2. By weight—**

Use 1 oz. of nicotine sulphate (Black Leaf 40) to 1 lb. hydrated lime to make approximately a 3% dust.

Use 2 ozs. of nicotine sulphate (Black Leaf 40) to 1 lb. of hydrated lime to make approximately a 6% dust.

Where a large amount of dust is desired, use two boxes each of a capacity of not less than a bushel. Arrange a tight removable lid or cover for each box. Arrange a frame containing a fine wire screen (about 16 inch mesh). Place the hydrated lime and nicotine sulphate on the screen in the upper box, and with a stiff brush or broom cause it to be sifted through the screen. Replace the lid and bring the lower box into the upper position and the emptied box into the lower position. Repeat the operation of mixing the nicotine sulphate and lime. After three or four siftings, the mixture should be sufficiently uniform for application.

Where a small quantity of nicotine dust is desired, sprinkle the nicotine sulphate on the lime in a container that can be closed tightly, and mix thoroughly. Rocks in the container will assist in mixing. The object in having

the container covered is to prevent the escape of the nicotine fumes which will otherwise be absorbed by the lime.

It is not advisable to permit nicotine dust to come in contact with raw sores.

Nicotine dust when not in use should be kept in an air-tight container.

#### **Poison Bran Mash**

Wheat bran 6 lbs., paris green 5 ozs., cheap molasses or syrup 1 pt., 1 orange or lemon. Thoroughly mix the poison. Squeeze juice of the fruit into the syrup, also the chopped rind and pulp and dilute with  $\frac{1}{2}$  gallon water. Then mix with poisoned bran, adding enough water to make stiff. Scatter among plants and just inside of garden limits in evening. Several applications may be necessary. •

#### **Carbon Bisulphide**

Use  $\frac{1}{2}$  oz. of carbon bisulphide to 1 bu. of beans or peas. Place in a shallow pan in an air-tight enclosure. Do not bring fire near, as carbon bisulphide is very explosive.

