

Miscellaneous Series #272

SPUD NOTES

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FIELD DAY SCHEDULES

San Luis Valley Experimental and Demonstration Farm - August 7. Tour starts 10:30 a.m. with airplane dusting demonstration on potatoes.

Montrose Potato Field Day Tour - August 15. Write Bill Stewart, Montrose for program.

High Plains Potato Workers' Conference - August 17 and 18. University of Wyoming, Laramie, Wyoming.

✓ POTATO PSYLLID AND POTATO FLEA BEETLE CONTROL

George M. List

The experience of 1944 should convince all potato growers that the potato psyllid is a very destructive pest. The spring infestation in 1944 was extremely heavy with the result that many early plantings of potatoes were almost a complete failure where careful control work was not done. It is felt that fully 50 percent of the twenty-five million dollar crop of 1944 would have been lost without psyllid control. We will never know what the actual loss was where poor control work was done.

The initial infestation of 1945 was much lighter. However, the weather conditions have been more favorable for the insect than they were a year ago. While early potatoes are maturing with comparatively light loss there is still time for serious conditions to develop in the late plantings, so the control program should be carried through carefully.

The potato flea beetle is not common to all potato growing sections of the state. In those sections where the insects mark the tubers with worm tracks the insect control program should be planned with the control of the flea beetle in mind. The flea beetle is being taken in about the usual numbers for this time of year. Much injury will undoubtedly occur in the infested areas if a complete control program is not followed. Fortunately flea beetle and psyllid control can be combined.

Where the two insects are involved the following formulas are recommended:

Sprays

1. Basic copper arsenate.....5 pounds
 Liquid lime sulfur.....2 1/2 gallons
 Water.....100 gallons

2. Zinc arsenite.....5 pounds
 Lime sulfur.....2 1/2 gallons
 Water.....100 gallons

Dusts

1. Basic copper arsenate..... 1 part
 Dusting sulfur..... 3 parts

2. Cryolite..... 4 parts
 Dusting sulfur..... 6 parts

Much of the flea beetle injury to tubers occurs rather late in the season so for the combined program for flea beetles and psyllids, four, or in some cases, five applications are advisable. These should start when the plants are about 6 inches tall and the later applications follow from 7 to 10 days apart. At least 125 gallons of spray should be applied per acre, or 25 pounds of dust.

Where psyllids form the only problem the above formulas without the basic copper arsenate, zinc arsenite, or cryolite, are recommended. Thoroughness in the application of both sprays and dusts should be emphasized. Observations of work in the field indicate that many are doing rather careless work, with dusts especially. The rush of other work is forcing many to dust under poor air conditions, travel too rapidly in the field, and in many ways do careless work.

The new insecticide, DDT, is showing promise against both the psyllid and flea beetle. Data on its use were taken last year and with the work under way this year it is hoped we will soon be in a position to make definite recommendations. It is not generally available at this time, but may be another season.

ROGUEING SEED POTATOES

Gordon Poe

Rogue early and often.

Rogueing potatoes is simply digging out any plant that is not normal or is off-type to the variety or strain. Plants to be dug out may be classified as follows:

1. Diseased plants
2. Weak plants
3. Variety or strain mixtures
4. Mutations

Rogueing will help to prevent the spread of disease by insects, and will save labor and expense later. Nebraska Experiment Station reported that many of the virus diseases are spread through insects as shown by the transmission of spindle tuber by grasshoppers, flea beetles, tarnish bug, and Colorado potato beetle.

Montana Experiment Station showed a decrease in yield of from 19 to 75 percent caused by mosaic and spindle tuber in their yield plots. They found rogueing very effective in eliminating crinkle mosaic, leaf roll, and spindle tuber from seed stocks.

All diseases do not show up in all plants at an early stage of development. Ring rot, fusarium, and some other diseases show up after the plant is about 60 to 70 days old. Haywire, blackleg, and some other diseases may show up at all stages of growth. Insects may spread virus disease any time after the plant comes up.

It is a good plan to walk into a field of potatoes and get an idea of the effect of soil, moisture, temperature and other conditions on the general growth of the plants. This will help in determining what diseases, particularly virus types, which may have symptoms masked by growing conditions. After this has been done, start roguing by taking one row at a time for an hour or two. After that you will become better adjusted to color, light and other factors influencing disease readings. Then two rows can be taken at one time with good results.

Vines must be carried out of the field when they are dug out. This will prevent a chance for spread due to insects.

In late roguing one should carry out all tubers from diseased hills. If they are left in the ground they will be dug along with the rest at digging time and go into the same lot with the good ones.

Good roguing does not mean you have to know all about every disease, simply be able to know the difference between a standard plant in a variety and one that is not healthy or is not normal.

Rogue early and often.

✓"ADOBE SPOTS", "SLICK SPOTS", "SOIL SPOTS", OR "BAD SPOTS"

Robert Gardner

The Cause

It is much easier to correct a bad soil condition if the cause is known. The cause of the so-called "bad spots", "slick spots", or "soil spots", therefore, is important.

The coarse particles of the soil are referred to as gravel or sand, the medium particles as silt, and the very fine particles as clay. The clay particles give the soil its sticky properties and are responsible for the hard, cloddy, granular, or friable structure. These properties are determined not merely by the amount of the clay in the soil but also by the character of the clay. When the clay comes in contact with "alkali" in the soil moisture it absorbs some of the elements from the "alkali." These absorbed elements may greatly change the soil properties. If the "alkali" is high in sodium, the clay becomes very sticky and will not form granules, but forms a compact mass which will not take water readily, does not "sub" well, and is very hard when dry. If the sodium is replaced with calcium, the soil tends to become friable and mellow again. The improvement may be slow but the calcium soil eventually becomes friable.

The material which we commonly refer to as "alkali" consists of a mixture of salts containing varying proportions of sodium, calcium, and magnesium. These salts are directly injurious to plants if the concentration is high and if the percentage of sodium is high they also injure the physical properties of the soil. The "bad spots" are usually areas where there has been at one time a relatively high sodium percentage.

Correction

Before the bad spots can be corrected it usually is necessary to replace part of the sodium with calcium. This may be accomplished in a number of ways. If the

soil contains lime a slow exchange of the calcium from the lime with the sodium takes place as the salts are removed by irrigation. Manure, green manure, or sulfur speeds up the exchange process. A quicker procedure is to add gypsum or some other soluble calcium salt to the soil. This practice is more effective on light-textured than heavy-textured soils. The amount of gypsum required for heavy-textured soils may be too great to be economical.

One fact which should be made clear is that gypsum is not a blanket cure for alkali. It will help to improve the physical condition of the soil and will reduce the alkalinity of "black alkali" soils but will not counteract the injurious effects of "white alkali" on crop growth. Where salts are present in high concentrations they must be washed out before the land will become productive.

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