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INSECTICIDE SITUATION, 1944, AS IT RELATES TO POTATO INSECT CONTROL

Sam C. McCampbell

Colorado's potato production in 1944 should not be hampered by lack of insecticides. There are sufficient insecticides although the grower may not at all times be able to obtain his first choice of materials. It is, however, up to the grower to get his order in so that the dealer will have materials in stock when needed.

Psyllid Insecticides

There is no question as to the need of spraying or dusting for psyllid control. Psyllid control is largely prevention of infestation. Growers cannot afford to take a chance on waiting to see if it is a psyllid year. Every year is a potential psyllid year, and safety lies only in getting treatments on properly and at the right times.

There has been a tendency on the part of many growers at the higher elevations to delay too long in making the first application. It is advisable to get the first psyllid application on all mountain-grown seed when the plants are 6 to 8 inches tall.

Liquid lime sulfur, dry lime sulfur, wettable sulfur, and dusting sulfur are the materials used to control this pest. Growers should at this time know what material they want to use and place orders with dealers now. While the liquid sprayer has the choice of three materials, dusting sulfur is the only insecticide suitable for the duster.

Liquid Lime Sulfur--The barrel situation is not critical as it was last year. On the other hand there will not be as many lime-sulfur plants operating as during peacetime. This means that growers wishing to use liquid lime sulfur must place their order early for their season's supply or they may get caught in a labor or transportation bottleneck.

Growers who are distant from liquid lime-sulfur plants may wish to extend their supply of lime sulfur by supplementing with wettable sulfur. An effective formula consists of:

- 5 quarts of 32° Baume liquid lime sulfur
- 5 pounds of wettable sulfur
- 100 gallons of water

Dry Lime Sulfur --All reports indicate a normal supply of dry lime sulfur available.

Wettable Sulfur --While there seems to be an adequate supply of wettable sulfur, if many new growers use this material shortages may develop locally because of transportation difficulties. Be safe and get your order to the dealer now.

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Dusting Sulfur --Sulfur manufacturers have spoken of a possible labor bottleneck; this with an overworked transportation system may make mid-season orders difficult to fill. Remedy --let your dealer know how much you need now.

Flea-Beetle Insecticides

Zinc arsenite, basic copper arsenate, cryolite and calcium arsenate are the recommended materials for flea-beetle control. Attention is called to the fact that only zinc arsenite and basic copper arsenate may be used in combination with lime sulfur. Cryolite may be combined with wettable sulfur or sulfur dust. Calcium arsenate is also suitable for combining with dusting sulfur.

Zinc Arsenite --There seems to be an adequate supply of this insecticide, but to be safe let your dealer have your order now. This material, as well as basic copper arsenate and cryolite, will also be used by bean growers.

Cryolite --There is an adequate supply of cryolite. If your dealer has your order in time, a supply will be available.

Basic Copper Arsenate --The use of this material is on the increase, and dealers can estimate usage only from reports they obtain from customers. Recent reports indicate shortages may develop during the season unless growers order early.

Calcium Arsenate --This material has tremendous usage in cotton states and production goals will be difficult to reach in the face of continued problems of manpower shortages and poor quality of crude arsenic. Growers needing calcium arsenate should get orders in soon.

Check Spraying or Dusting Machine --If equipment has not been given a final check to see that it is in order for the season's work, don't delay; see if repairs are needed. It may take considerable time to get the order filled.

✓ FUNGICIDE SUPPLY OUTLOOK

W. J. Henderson

1. COPPER FUNGICIDES--Manufacturing warehouse space shortage. Potato growers and truck gardeners should take early delivery on copper sulfate, copper oxide, and other copper materials to release this warehouse space. Copper oxide may be tight.
2. FORMALDEHYDE--Adequate
3. MERCURY COMPOUNDS (including seed treatments)--Ample for agriculture.
4. SULFUR--Adequate. Bottlenecks in manpower and shipping. Order your sulfur supply early.
5. CRESOLS and CRESYLIC ACID--Adequate.
6. WETTABLE SPREADERS and STICKERS--Tight.
7. ZINC COMPOUNDS--Adequate.

✓ PLACEMENT OF COMMERCIAL FERTILIZERS ON POTATOES

A. M. Binkley

The problem of placing fertilizer in the right place is often as important under irrigation as applying the right amount or right combination or analysis. This fact is not fully appreciated, even though there are many unanswered problems on placement.

Commercial fertilizers are ordinarily applied in two ways: (1) Broadcast, or (2) placed in a localized area close to the seed, usually called row placement. In the first method the fertilizer may be spread on the soil surface and plowed or with a fertilizer drill. Row placement is

usually a method in which fertilizer attachments are used on a planter and the fertilizer drilled in at planting time. The fertilizer can be drilled by row placement with the seed, under the seed, above the seed, or in bands on both sides of the seed row at various levels or depths.

Lack of nutrients below the optimum amount at any time may not only reduce yields but may also cause delayed maturity. Deficiencies may occur early in the growing season, especially if low soil temperatures prevail or soil moisture is in excessive or deficient amounts. Localized placement of fertilizers at planting assures a supply of nutrients, which favors more rapid early growth. This should mean earlier maturity of the crop, particularly on soils in a low natural state of fertility.

It is important to know how fertilizer salts move in the soil to obtain proper results on placement. There is a tendency for such salts to go into solution in the soil water and move about. The extent of movement is related to the amount of irrigation water applied, the method of application, and the nature of the soluble fertilizer salts present. Fertilizers tend to move only slight distances laterally, but, since they are carried along in the soil water, may move up and down. Downward movements of soluble fertilizers can be expected under heavy surface irrigations or heavy rains, whereas an upward movement can be expected when moisture is evaporating from the surface.

Movement under sub-irrigation methods should be expected to be up and down, but additional work is needed on the conditions favoring movement. Of the various fertilizers used, nitrates move very freely in the soil, potash and ammonium salts less freely, and phosphate very little. The movement of such materials is related to the factors in the soil by which compounds become fixed or insoluble.

The nature of fertilizers used is important in placement studies, since they may produce toxic action on young seedling roots. Free ammonia produced by some fertilizers may be toxic if released in sufficient concentrations. Injury from fertilizers is often more serious on sandy soils than on clay, or during dry, hot weather.

Numerous comparisons made on different methods of fertilizer placements on potatoes show that placing the fertilizer at the side of the seed in two bands, one on each side of the row, is most efficient. Placing the bands of fertilizer 2 inches from the seed at about the depth level of the lower plane of the seed piece is reported as being superior to other methods. This can be done best by the use of a fertilizer attachment to the potato planter. Numerous placement studies have been carried on under natural rainfall conditions, but very little information is available on the depth of fertilizer placements under sub-irrigated conditions. Tests are now being conducted on that problem.

Side-band placement of fertilizer is considered better because of the tendency of the salts to move up and down but very little laterally. The seed pieces then lie in soil free of fertilizer, and the young roots can develop without coming immediately into contact with fertilizers that may cause injury. It appears that the fertilizer-free soil prevents such injury. In general, fertilizer bands of about 2 inches in width are sufficient. This may be varied, however, if high rates of application are used.

In summarizing, the information to date indicates that drilling commercial fertilizers in two bands, one on each side of the row, at planting time is the most efficient method of application for potatoes. It should be spread in a band 2 inches wide, about 2 inches from the seed piece, and as deep as the lower plane of the seed piece. This method is considered to apply to surface furrow irrigation or under natural rainfall conditions, but sufficient information is not yet available on placement under sub-irrigation methods of applying water.

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