

Horticulture
Section
Vol. II, Nos. 2 and 3

February-March 1944
Colorado State College
Fort Collins, Colorado

Misc. Series Paper No. 233, Colorado Agricultural Experiment Station

POTATO CONFERENCE

On January 28, 1944, a meeting of the federal and state potato research and extension workers in Colorado was held at Colorado State College.

Pertinent problems such as seed treatment, general disease control, and flea beetle and psyllid control were discussed. In addition, in the light of present research and extension work, recommendations for the 1944 season were decided upon.

Recommendations

Seed Treatment

Scab

Treat only scab-infected seed being planted in soils infected with little or no scab.

Rhizoctonia

Treat rhizoctonia-infected seed being planted in cool or low-soil-temperature conditions.

Chemicals

Use semesan-bel or acid mercury dip treatment on whole unsprouted seed only.

Cutting Knives

- a. Use power-driven rotary knife. An economical method regardless of the presence of ring rot.
- b. Use boiling water for knife disinfection if facilities are available; otherwise use mercuric chloride bath (1-500) replaced every half day, and use a tank holding at least 5 gallons to each knife. Experimental work has shown the boiling-water method to be the most effective.

Late Blight Disease

Seed

1. Buy the best seed obtainable.
2. Discard all discolored or rotten tubers.
3. Continue planting same varieties.
4. Seed treatment is not effective in late blight control.

Spray

1. At first warning from county agent apply 4-4-50 Bordeaux mixture at heavy rate of application (at least 125 gallons per acre).
2. It is advisable to spray following any period of high humidity (rain or continued cloudy weather with frequent dews).
3. Report immediately to county agent anything that looks like late blight on the vines.
4. Bordeaux mixture will not mix with lime-sulfur.
5. Zinc arsenite can be applied with Bordeaux spray.
6. Use a combination of lime-sulfur for psyllids and zinc arsenite for flea-beetle on present spray program.

7. If late blight shows up, use a combination of Bordeaux mixture and zinc arsenite for spraying.
8. If late blight appears after regular program is completed, spray with Bordeaux mixture.
9. Dusting is not recommended for the control of late blight unless the conditions are such that it is impossible to get a sprayer through the field.

Since no experimental results have been released on the use of dust fungicides in Colorado for the control of late blight, no specific recommendations can be given. However, for the benefit of the grower who wishes to use dust, the following recommendations of workers of the Maine Agricultural Experiment Station for growers in Maine are directly quoted:

*"Copper-Lime Dust.--This material is less effective as a fungicide than Bordeaux. However, it will give good commercial control of diseases if properly used. It has the advantage that it can be applied to large acreages in a comparatively short time. This feature makes it a valuable fungicide for use in time of emergency or when blight is spreading rapidly. It is a convenient fungicide also for fields where water is difficult to obtain.

A 9 percent copper-lime dust applied at the rate of 25 to 35 pounds per acre is recommended. Dust can be prepared on the farm by thoroughly mixing 25 pounds of monohydrated copper sulphate with 75 pounds of spray lime. It is preferable to dust in the evening providing the air is quiet and dew is forming. Much of the dust that is applied when the plants are dry and a wind is blowing is wasted. The dust must stick to the potato tops to be effective. Moisture on the leaves will enable it to stick."

"Insoluble or Factory made Copper Fungicides.--Several good insoluble copper fungicides are on the market. These materials are easy to mix and do not discolor the potato foliage, which are qualities in their favor. The fact that they do not leave a colored residue on the potato foliage is a distinct asset when spraying seed plots and other fields that are rogued for the control of virus diseases.

Some farmers have mixed lime with insoluble copper fungicides in an attempt either to control flea beetles or to provide a means of determining the extent of coverage that is being obtained. This is an undesirable practice since it causes an early maturity of plants and a correspondingly lower yield. The directions given by the manufacturers should be followed when growers use the commercial insoluble copper fungicides.

Experimental fields sprayed with the insoluble copper fungicides have as a general rule yielded somewhat less than those sprayed with Bordeaux. The insoluble copper fungicides give good control of late blight, provided the fields are kept well sprayed."

Irrigation

1. Light irrigation with good drainage will reduce chances of tuber infection or decay.
2. Deep irrigation furrows may also reduce chances of tuber infection or decay or rot.

3. If late blight is present, avoid late irrigations.
4. Avoid irrigation of late-blight-infected potato fields at night or early morning.

Storage

1. Ventilate storage so that condensed water does not form on potatoes or drop on them from ceiling.
 - a. Introduce air near floor of cellar to avoid condensation of water on potatoes.
 - b. Higher humidities can be carried in well insulated cellars before ceiling condensation of water occurs.
2. Repair cellar roofs so they will not leak.

General

1. Spread cull potatoes out so freezing will kill late blight organism.
2. Do not dump cull and diseased potatoes out where they will grow.
3. Eliminate all volunteer potatoes.
4. Do not harvest late-blight-infected potato fields until all vines are dead.

Flea-Beetle Control

- a. Either spray or dust may be used.
- b. Both must be applied thoroughly and well.
- c. The 1942 and '43 tests by the Experiment Station have shown that four applications of insecticide are necessary for flea-beetle control; in years when conditions in August are favorable for flea beetles, five applications are needed.
- d. Growers should follow a definite control program throughout the season. The first, second, and third applications can be made at 10-day intervals. The fourth and fifth should be made 1 week apart.

If indications of a serious late-blight epidemic are prevalent, Bordeaux spray 4-4-50 should be applied in a separate spray as often as needed.
- e. Complete coverage of the potato foliage with spray or dust is necessary to obtain results in psyllid and flea-beetle control.

Formulas:

Sprays

- | | |
|--------------------------|--------------|
| 1. Basic copper arsenate | - 2 pounds |
| Liquid lime-sulfur | - 1 gallon |
| Water | -40 gallons |
| 2. Zinc arsenite | - 2 pounds |
| Lime-sulfur | - 1 gallon |
| Water | -40 gallons |
| 3. Cryolite | - 6 pounds |
| Wettable sulfur | -10 pounds |
| Water | -100 gallons |

Caution: Do not mix cryolite with lime-sulfur!

Dusts

- | | |
|--------------------------|-----------|
| 1. Basic copper arsenate | - 1 part |
| Sulfur | - 2 parts |
| 2. Calcium arsenate | - 1 part |
| Sulfur | - 4 parts |
| 3. Cryolite | - 1 part |
| Sulfur | - 1 part |

Dusts should be applied at the rate of 25 to 30 pounds to the acre.

Psyllid Control

Spray or Dust

1. Liquid lime-sulfur (1-40)
 2. Wettable sulfur (10# to 100 gal.)
 3. Dry lime-sulfur (8-10# to 100 gal.)
 4. Dusting sulfur (25-30# per acre)
- - - - -

SAN LUIS VALLEY McCLURE POTATO MARKET
REPORT

Five growers and shippers of San Luis Valley McClure potatoes have just completed a study of present wartime marketing conditions and post war marketing conditions and problems in producing and shipping their product.

The men making the following report are:

Lester Hawkins, shipper-grower, member of San Luis Valley Potato Improvement Ass'n.; W. A. Farrow, shipper-grower, member of San Luis Valley Potato Shippers Ass'n.; W. G. Johnson, manager and member of Board of Control of Monte Vista Potato Growers Ass'n.; Lyman Wright, grower, member of San Luis Valley Potato Improvement Board, and Ben R. Ferguson, horticulturist, A.R.T. Co., Monte Vista, Colo.

Eight major midwestern potato markets (Omaha, Nebr.; Davenport, Ia., Rock Island and Moline, Ill., Chicago, Ill., St. Louis, and Kansas City, Mo., and Wichita, and Hutchinson, Kans.) were visited in an effort to obtain information in the form of criticisms and from inspections made of potatoes on the markets to bring back to growers and shippers of the San Luis Valley to incorporate into the San Luis Valley potato improvement program. Brokers, jobbers, and retailers in each of these markets were contacted in an effort to obtain complete information.

Disease - Of the numerous lots of potatoes seen in the various markets, only a few lots showed spotted bags. This is due to the fact that most of the San Luis Valley growers have cleaned up their seed to the extent that there is now a minimum amount of disease present. This good seed policy must be continued if commercial lots of potatoes are to continue to enjoy this quality and appearance. Every spotted sack gives that variety a bad name with the trade.

Color - In all markets the color was considered fair to good on McClure potatoes. There was some complaint on color in instances where receivers would receive a car of very light reds or a car where dark reds and light reds were mixed in the same bag. These were very undesirable. Loss of color in open bins

in retail stores caused considerable loss in fading out with too much lightburn and greening of potatoes in the bin. This caused a very unattractive potato and was one of the main criticisms on the trip.

Sizing - We found the sizing to be satisfactory in all consumer-size packages, such as 10 pound bags. For open bin sales we found that retailers wanted a 2-inch minimum because the 1-7/8-inch minimum caused too wide a variation in size from 1-7/8 inch to the 3-inch and 4-inch potatoes in the same bins.

Washed vs. Dry - In markets where potatoes were moved rapidly in large volume, jobbers and retailers preferred a washed potato because of the eye appeal through cleanliness and brightness which the potato carried. In markets where the movement was slower and trade was sluggish, handlers preferred unwashed potatoes because of the keeping qualities.

Mechanical Injury - Some criticism was found in every market regarding mechanical injury, and the appearance of the potatoes in retail markets showed excessive injury through handling principally on the production end. Several retailers mentioned that it was necessary because of mechanical injury to throw away from 6 to 10 percent of the potatoes purchased. In some cases where McClure potatoes were featured under spot lights and as the center of attraction in stores it was disappointing to see large highly colored McClures holding the limelight of the store with an estimated 4 to 6 percent mechanical injury ruining the appearance of the entire bin.

Packaging - Trade in every market demanded a new clean branded bag. In every market brokers, jobbers and retailers remarked that the Colorado branding law had helped to make the McClure potato market and should be fully enforced.

The trade preferred a warehouse pack. Every market asked for a 10-pound bag which in some cases had increased the sales as much as 100 percent.

Prices - Price on McClures, Idaho Russets, and Nebraska Triumphs were comparable in almost every market, running from 10 pounds for 40¢ to 10 pounds for 54¢.

Demand - In no market contacted did Idaho Russets outsell McClures this season. Sales varied from 10 sacks of McClures to 1 sack of Idaho Russets, to a 50-50 sale.

In the various markets the San Luis Valley McClure potato is considered and advertised as an all-purpose potato for baking, frying, boiling, and mashing. Many retailers remarked upon the excellent cooking quality of the San Luis Valley McClure this season.

The group of growers and shippers from the San Luis Valley was received exceptionally well in the various markets, and many brokers and potato dealers in the markets remarked that it was the first group of farmers to make such a visit to the various markets.

Colorado State College of A. & M. A.
AGRICULTURAL EXPERIMENT STATION
Fort Collins, Colorado

Penalty for Private Use to Avoid
Payment of Postage, \$300

Ernest J. Honney Director

FREE BULLETINS

POSTMASTER:-If not at address, please
check and return. No postage required;
stamp name of your office plainly.

() Unclaimed () Address Unknown

Correct Address

See Sec. 622, Postal Laws and Regulations