

WASHINGTON POTATO SEED LOT TRIALS 1982

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Introduction

Since 1961 potato seed coming into the state of Washington has been planted in trial(s) by Washington State University. These trials are a cooperative effort between the Washington State Potato Commission, Washington State Potato Seed Commission, Washington State University and the Washington State Department of Agriculture. The tubers that were planted in these trials from 1961 through 1978 come from seed receivers in the state of Washington. Each lot was identified as to both origin (state and seed grower) and receiver (Washington handler or grower) and this identification was provided to the public in the form of an annual seed lot report. The results were also made public at a Seed Lot Field Day. The objectives of the trial were to: (1) determine the disease content of seed lots coming into Washington; (2) inform the Washington potato industry of the results of these determinations and (3) assist seed growing areas in providing quality potato seed for Washington growers.

In 1978 a major change in the seed lot trial was brought about (see Washington Voluntary Foundation Seed Trial 19th Annual Washington State Potato Conference Proceedings 1980, p. 3). The intent of this change was to work with growers and potato seed certifying agencies from areas supplying seed for planting into commercial potato fields in Washington to obtain as near as is feasible Ring Rot free potato seed. The major change in the new approach was that seed samples no longer would be submitted by Washington growers and receivers but would come only from seed growers in the seed supplying areas. Results of the readings would be made public and the seed grower identification would be known.

In the fall of 1981 it was decided that the Foundation Seed Lot Trial as we have known it since 1979 was not entirely adequate. Therefore a dual seed lot system has been implemented for the 1982 season. This will be a combination of the two previous efforts - briefly they will be as follows: (1) two sources of seed samples - (a) seed agencies/seed growers; (b) Washington seed receivers; (2) two locations (a) foundation trial at WSU Prosser Experiment Station; (b) commercial trial at WSU Othello Research Unit.

COMMERCIAL SEED LOT TRIAL (OTHELLO)

Seed samples for these trials will be submitted by seed receivers within the state of Washington. Hopefully this will represent all seed lots entering the state. The identification of the seed grower and the receiver will be the responsibility of the receiver (if he wishes to work with his seed supplier and have the samples sent by the grower that's between the buyer and the seller). Each sample should consist of 300 to 400 single drop tubers. When the samples are collected the receiver is responsible for delivering them to the Othello Research Unit (some pick-up service for multiple samples will be arranged). The lots will be publically identified as to source, i. e., seed grower and receiver. The results of the disease readings will be made public at a field day and through a printed Seed Lot Report.

The purpose of the program is to help improve the productivity of Washington potato producer through the use of good seed.

This Presentation is part of the Proceedings of the 1982 Washington Potato Conference and Trade Fair.

NORTHWEST FOUNDATION SEED TRIALS (PROSSER)

The Foundation Seed Lot Trial located at Prosser will accept seed of foundation grade or higher, the samples will come only from the seed grower through the Certification agency. All lots entered will be coded and the identity will be known to the seed agency and/or the seed grower through the agency. The results will be made public at field day but will not have the seed grower identified. The readings will be made available to the certification agencies and they in turn report the findings to the seed grower. The following Appendix A has more complete details.

1982 Northwest Foundation Seed Trials

Sponsored by
 Washington State University
 Washington State Department of Agriculture
 Washington State Potato Seed Commission
 Washington State Potato Commission

December 8, 1981



This year the Washington potato industry and the sponsors named are cooperating in new trials with seed lots entered by grower's number rather than grower's name. For those seed growers wishing to participate, the following information outlines the method by which the trials will be conducted.

Objective of Trials

To aid Seed Agencies in the removal of seed lots to be classified as Elite II or Foundation from certification that contain excessive tolerances of diseases such as black leg, leaf roll, giant hill, ring rot and other diseases that are readily expressed in the long, warm growing season of South central Washington.

Seed Lots Accepted in Trials

Only seed lots to be certified in the next growing season as Elite II or Foundation will be accepted. Occasionally a few lots of a lower or higher classification that a Seed Agency suspects as having over tolerance of disease will be accepted.

Maximum Lots in Trials

One hundred lots per year.

Identity of Seed Lot in Trials

Each grower will label his lot with a number furnished by his Seed Agency. Seed lots in the trials will not be identified by the grower's name. It would be desirable for the Seed Agency to change each grower's number every year.

Desired Samples per Lot of Seed

A sample should be submitted for at least every 25 acres of seed to be classified as Elite II or Foundation.

Sampling Methods by Seed Growers

1. Select, at random, 400 tubers (a mixture of 3 to 8 ounces) in storage after harvest.
2. A better method would be to select the 400 tubers at harvest -- a few from each truck load of seed from the lot to be entered in next year's trials. The sample of tubers should be placed in clean, well ventilated containers in the grower's storage, until reboxing in Seed Lot Trial boxes.

General Procedures

Cardboard boxes will be sent to the Seed Agency for distribution to its growers. Individual growers will label the outside of each box with his number, fill the boxes with his seed, seal the boxes and see that the boxes are returned to his Seed Agency. The Seed Agency will have the responsibility of delivering the boxes of samples to WSU-IAREC, ATTN: Dr. Gene D. Easton, Box 30, Prosser, Wa. 99350, prior to planting. Washington State University personnel will plant them by hand in single 400-ft rows and read plant symptoms later for disease. Representatives of the certification agencies from the seed-producing areas will be invited and encouraged to be present during the readings. The plots will be the subject of an annual field day and disease readings will be made available. The results of these trials are for information purposes only and are not a part of any regulatory program.

Specific Procedures:

1. Cost per Sample -- Seed growers belonging to the Washington State Potato Seed Commission will be charged an entry fee of twenty-five dollars (\$25.00) per sample. Other Washington seed growers and out-of-state or Canadian seed growers will be charged a fee of fifty dollars (\$50.00) per sample. This cost differential is because Washington seed growers contribute to the Washington Potato and Seed Potato Commission which fund the additional cost of these trials.
2. Sample Containers -- New cardboard containers approximately 24 x 18 x 16 inches, information labels and fiber tape will be furnished by Washington State University and mailed to each Seed Agency desiring to cooperate in these trials. The containers will be mailed collapsed and consist of an inner and outer box. Boxes will have off-set holes in sides for air ventilation. Seed growers will be responsible for reconstructing boxes, taping securely, attaching correct labels to the boxes and writing his grower's number on each label. Seed growers will gather at random no less than 400 tubers (about 75 lbs) for each of his seed lots to be submitted. Growers will tape both boxes closed and deliver the samples to his Agency for shipment to Prosser, Wa. Samples should be stored under same or similar storage conditions as the grower's storage prior to shipment.
3. Last Date to Request Sample Containers -- Requests for containers will be submitted by each Seed Agency to WSU-IAREC, ATTN: Dr. G. D. Easton, Box 30, Prosser, Wa. 99350 by January 18 of each year.
4. Last Date to Pay Fees -- Due by January 18 of each year.
 - a. \$50 per sample for non-Washington seed growers.
\$25 per sample for Washington Seed Potato Commission members.

b. Grower's agency should prepare a check including total fees for growers participating in trials payable to "Washington State Potato Commission" and forward to Washington State Potato Commission, 108 Interlake Road, Moses Lake, Wa. 98837

5. Last Date Washington State University will Accept Samples for Planting -- Samples will be delivered to WSU-IAREC, ATTN: Dr. Gene D. Easton, Box 30, Prosser, Wa. 99350, no later than March 20 of each year.
6. Cutting and Planting Samples -- Each sample will be assigned a planting number and planted about April 7. All tubers will be split lengthwise with a sterilized knife to increase spread of ring rot, black leg and mosaic viruses within the sample and deposited in their outer box for planting. Knives will be heat sterilized in an autoclave for 30 minutes at 15 psi between each seed sample. Personnel will wear plastic throw-away gloves and will discard them after cutting each lot. Extreme care will be taken to assure that bacteria from one sample cannot be spread to the next sample. Seed will be planted 12 inches apart by hand into open furrows of a 400-ft 36-inch wide row. Plastic throw-away gloves, plastic bags to cover arms, and containers will be discarded after planting each row. Furrows will be covered and hilled immediately after planting. All gloves, plastic bags, and cardboard containers, etc., will be destroyed.
7. Herbicide Application for Weed Control -- Prior to potato emergence herbicides will be incorporated over the hills of rows by a Lilliston cultivator for weed control.
8. Systemic Soil Insecticide Application -- A systemic soil insecticide for aphid, Colorado potato beetle and mite control will be side-dressed when 50% of the potatoes have emerged.
9. Further Cultivation or Field Work -- No further cultivation or field work will occur until vines are killed within 10 days after Field Day, except for normal row irrigation, to eliminate any possibility of disease spread by mechanical means.
10. Foliage Insects and Powdery Mildew Control -- Foliage insects and powdery mildew will be controlled by aircraft application of pesticides.
11. Dates of Disease Readings -- On about June 10 plants will be read for mosaic virus mottles, early leaf roll, and early black leg symptoms. On about June 30 plants will be ready for ring rot ^{1/}, leaf roll, black leg and miscellaneous diseases. On about August 1 final readings will be taken of ring rot ^{1/}, black leg and giant hill.
12. Field Day and Publication of Disease Content in Samples -- A Field Day will be held for the public to view disease content in the samples. Disease content but not identity of samples will be made available through the Washington State Potato Commission.
13. Crop Rotation of Land for Seed Lot Trials -- An annual green manure crop will be planted during alternate years and plowed under to destroy early growth of weeds and volunteer potatoes.

The field selected should contain at least twice (6 acres) the acreage required to prevent volunteer plants.

14. Fertilization -- Phosphate and potassium fertilizers will be applied according to Washington State University soil test recommendations. Zinc will be applied every third crop of potatoes. Low rates of nitrogen (ammonium sulfate) will be applied before every potato crop to enhance ring rot and leaf roll readings. All fertilizers will be broadcast across rows and incorporated by plowing.

^{1/} Reading of ring rot symptoms in stems or tubers will be the responsibility of Washington State University.

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NORTHWEST FOUNDATION SEED LOT TRIALS

INFORMATION FOR EACH SEED LOT SAMPLED TO BE RETURNED BY JANUARY 18, 1982.
(Lot of seed grown by you in 1982 for certification in 1982-83.)

1. Seed Agency _____
2. Growers Lot Number (assigned by grower's Seed Agency) _____
3. Potato Variety _____
4. Lot certification classification: Elite II _____ or Foundation _____
(Check one)
5. Number of acres sample represents _____
6. Approximate number of tons of potatoes sample represents _____
7. Complete and mail this form to: Dr. G. D. Easton, WSU-IAREC, Box 30, Prosser, Wa.
99350. Phone (509) 786-2226

Washington State University, Washington State Department of Agriculture,
Washington State Potato Seed Commission and the
Washington State Potato Commission Disclaimer

Content of disease in sample of seed potatoes will represent only the sample delivered and depending upon randomization and integrity of sampling, may or may not represent disease content of the entire lot of seed.

Samples of seed lots received in broken containers, samples of tubers that were crushed, bruised, burned, frozen, flabby, samples of tubers with dead eyes, excessive sprouts, insect injuries or rodent bites that occurred during storage in the seed-growing area, or in transit to WSU-IAREC, Prosser, Wa. will be rejected from planting.

Washington State University does not guarantee that a 400-tuber sample from at least every 25 acres per lot of a certain certification classification of seed will express either a part or total disease content in the lot of seed.

Washington State University will not be responsible for poor or no emergence of seed treated with inhibitors or tubers inadvertently treated with volatile chemicals during storage in a seed growing area or during transit to WSU-IAREC, Prosser, Wa.

Washington State University and the Washington State Potato Commission are performing a testing service for growers and assume no liability for any loss to any grower resulting from its test findings.

SPECIAL NOTE: THIS FORM MUST BE COMPLETED IN ITS ENTIRETY BEFORE SAMPLE BOXES WILL BE SENT OUT TO PARTICIPATNTS. SAMPLE BOXES AND FURTHER INFORMATION WILL BE MAILED FEBRUARY 15, 1982. IDENTITY OF DISEASES IN SAMPLES WILL BE MADE AVAILABLE THROUGH THE WASHINGTON STATE POTATO COMMISSION.