

IDAHO CERTIFIED SEED POTATO INDUSTRY AND RELATED SUBJECTS

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I. INTRODUCTION

To attend your annual Washington Potato Conference is a pleasure, a privilege, and an education. I don't know of any other area where you can find the entire potato industry -- growers, shippers, processors, allied industries, and extension and research people -- meeting with a common purpose, that of solving the challenging problems facing the potato industry. This is evidenced by the large attendance and the quality of research material presented. I hope my contribution will be of value in solving your seed and disease problems.

II. STATISTICS ON THE 1965 IDAHO CERTIFIED POTATO CROP

In 1965, 536 Idaho growers entered 34,430 acres for certification of which 30,567 acres met the certification standards for field and storage inspections. Approximately 10 percent of the acreage entered was rejected. Russet Burbank accounted for 29,691 acres of the accepted acreage, followed by 451 acres of Norgold, 225 Kennebec, 103 Shoshoni, 49 Early Gem, 38 White Rose, 9 Menominee, and 1 Pontiac.

There were about 600 acres meeting standards for the foundation class and listed as foundation in the seed directory. In addition, many other growers maintain their own seed plots which are comparable to foundation.

III. AREAS OF PRODUCTION

The Idaho seed potato production is confined primarily to high altitude and isolated areas ranging in elevation from 5,300 to 6,000 feet. In these areas all potatoes except garden plots are entered in the certification program. In recent years certification has increased in other areas, particularly in new irrigation projects. Certified seed is produced in several different sections of the state with the major portion being produced in the southeastern section. The areas of production may be traced across the state starting in the southeast corner and identified as follows:

1. Caribou and Bannock Counties -- Grace and Lava Hot Springs Areas
2. Teton County -- Driggs, Victor, and Tetonia Areas
3. Fremont County -- Ashton Area

4. Lemhi County -- Salmon Area
5. Butte and Custer Counties -- Challis, Mackay, Darlington, Moore, and Arco Areas
6. Small areas starting at Newdale in the eastern section and following along the Snake River through Idaho Falls, Blackfoot, American Falls, and down through the southcentral section near Burley, Rupert, and Twin Falls.
7. Valley County -- McCall and Donnelly Areas
8. Small acreage in northern Idaho

IV. QUALITY OF THE 1965 CROP

From the disease standpoint the quality of the 1965 crop is probably better than any other produced in Idaho since leaf roll became a problem. In fact the field readings show that most lots passing the final inspection would meet foundation requirements except for tuber unit planting. As you know, tuber unit planting is one requirement for foundation production in Idaho. This improvement can be attributed largely to four factors: stricter standards and regulations, increased grower effort, increased use of foundation seed, and a natural decline in the green peach aphid population. I would like to discuss the first two with you. The latter two are self explanatory.

A. Changes in Standards and Procedures

The Idaho standards and procedures were reported at your first annual conference in 1962, and are a part of the published proceedings of that conference. Therefore, no details will be reported at this time except some changes in standards which have been made and which have helped improve the quality of our seed. First, the tolerance for leaf roll in the field has been reduced from .5% to .2%. Second, eligibility of seed to be entered for certification is based on both winter test plot and field readings. Formerly, any lot of seed meeting winter test plot standards was eligible to enter for certification. Now only those lots of seed meeting winter test plot requirements and showing less than .1% of leaf roll during any field inspection are eligible. Also the maximum tolerance permitted in the winter test plots has been reduced. Third, a lot of seed is not eligible to enter for certification if it is known that it was exposed to ring rot even though no plant or tuber symptoms are exhibited.

B. Grower Effort

With leaf roll presenting a constant threat to the Russet Burbank seed industry the growers in three of the major seed areas organized and have been carrying on community cooperative seed improvement programs. The leaf roll battle was staged from two fronts -- one of

controlling and reducing the amount of leaf roll being planted in the area and the other by controlling the green peach aphid population. A brief resume of one of these programs is as follows:

1. Financing -- charged each seed grower a fee for operating capital for association.
2. Education -- it was necessary to thoroughly inform all people in the community on leaf roll and green peach aphid relationship.
3. Reducing the amount of leaf roll being planted and maintained.
 - a. Recommended use of foundation seed. All seed planted for certification had to be approved by a committee -- only those lots showing no leaf roll or a very slight amount were accepted.
 - b. A survey of home gardens showed that the potatoes were carrying a high percentage of leaf roll and mosaic -- as a result a supply of cut and treated certified seed was offered free to all home gardeners.
 - c. Sponsored rouging schools and demonstrations to help growers and roguers identify diseased plants.
4. Reducing the green peach aphid population.
 - a. All winter hosts (peach and apricot trees) were removed.
 - b. A survey showed that cut flowers and transplants were a means of introducing the aphids. As a result the following practices were established:
 - (1) Sprayed the cemeteries after Memorial Day and each funeral.
 - (2) Set up a free spraying station for people bringing in transplants and cut flowers.
 - (3) Gained cooperation from greenhouse operators.
 - (4) Sprayed home gardens free of charge.
 - c. Recommended use of di-syston.

V. RELATED TOPICS

A. Tagging and Sealing of Bulk Certified Seed Potatoes

As the bulk method of handling potatoes has increased, so have

the requests for some method to maintain the identity of certified seed handled in bulk. In 1965 the Idaho Crop Improvement Association, Inc. formulated a plan to tag and seal bulk loads of certified seed. The procedures for bulk tagging and sealing are briefly explained in the following.

1. Potatoes must be graded to meet at least the minimum standards for the yellow tag grade.
2. Bulk tags and seals will be issued only to the grower who produced the seed and must be attached at his storage.
3. The seal shall be attached to the unloading mechanism in such a manner that it will break if the machinery is operated.
4. A certification tag designating grade (blue, red, green, or yellow) must be attached with the seal.
5. Also a bulk tag shall be attached with the seal and must show the following information:
 - a. Variety
 - b. Grower
 - c. Seal number
 - d. Inspection certificate numbers
 - e. Date Inspected
 - f. Buyer's Name
 - g. Approximate weight
 - h. Date and time of loading
 - i. Trucking firm's name and driver's initials
 - j. Truck license number
 - k. Certification tag number
6. The grower shall furnish the Federal-State Inspection Service a completed bulk sales reporting form which shows the information on the bulk tag.

B. Selecting a Source of Seed

Due to the explosive nature of leaf roll and ring rot under Washington conditions utmost care should be exercised in selecting seed. Your Potato Commission report "Spud Topics", Volume X, Number 13, issued November 16, 1965, has some very good suggestions on seed selection. If you haven't read it I would recommend that you get a copy.

The Idaho Crop Improvement Association, Inc., publishes a seed directory which lists the names of growers entering potatoes for certification and shows the acres accepted and rejected and the virus disease reading. It is admitted that difficulties are encountered in reporting exact trace amounts of diseases. Any reading of disease less than .1% is reported as a trace -- one plant in 500 acres is

reported as a trace or two plants per acre would show as a trace. If you want to know the exact amount when a trace is reported ask the grower to produce his field inspection report which will show the number of diseased plants found.

Your commission's recommended procedure on selecting seed should safeguard you against leaf roll problems in seed and in most cases ring rot. However, ring rot is a horse of a different color, and I would like to discuss it separately.

C. Ring Rot

Ring rot is a very difficult disease to cope with in any certification program. Any time it shows in certified seed, someone is ready to decapitate someone else. Who should get the axe, the certified grower, the certification and inspection agency, the broker, or the table stock grower? Before we decide, let us take a little better look at ring rot and how it performs or doesn't perform. To my knowledge all certifying agencies have a zero tolerance on ring rot. Does this mean they guarantee the seed to be absolutely free of ring rot? I don't think so. They mean it was not found in any of their sampling or inspection methods. They hope it is free and in most cases it is, but anyone with much experience with ring rot would not guarantee it to be free.

Ring rot isn't always as easy to detect or see as a shining star on a bright night. Surely if you have a nice long warm growing season and the ring rot takes a fast wilt, it can be easily identified. Unfortunately in most of our seed areas we don't have these nice long warm growing seasons, and to make detection more difficult and even impossible, ring rot sometimes does not produce any symptoms in the plant or tubers. Work at Wyoming showed that with light inoculations three growing seasons were required before plant symptoms were expressed. A report in the American Potato Journal stated that plants grown from inoculated tubers may show no symptoms the first year. In the same journal, a case in New York was illustrated in which ring rot was not detected by inspection until seven years after its introduction.

To further illustrate and emphasize the difficulties encountered in detecting ring rot, I would like to relate some of my experiences during twenty years of inspection work. In 1965 five growers planted the same lot of seed. Ring rot was found easily in four of the growers' fields. In the fifth field it was never found even though the field received four re-inspections (a total of six inspections). We would still be re-inspecting this field had the frost not destroyed all the foliage. Incidentally, this crop was rejected because of storage conditions.

Perhaps I should explain our re-inspection procedure. In most cases when re-inspections are made from two to six inspectors thoroughly go over the field. From this you can see that one

re-inspection is equivalent to several average inspections. We continue to re-inspect at certain intervals until we find ring rot or the plant foliage is destroyed from frost.

Another example: Two growers planted the same lot of seed in which ring rot was readily detected in one. The other due to a late fall was re-inspected nine times. Even though we had all the plants in the field named, we did not find any ring rot. This grower finally cancelled certification in order to get rid of us.

I remember another situation where four growers planted the same lot of seed. Ring rot was found the first inspection on one, the second on another, and the first re-inspection on the third. In the fourth it was never found. The last and final inspection consisted of inspecting each plant in the field. This grower also cancelled.

One more example was in a small 2-acre field where two ring rot plants were showing. Two days later numerous plants were showing the fast wilt symptoms. Only one plant was found in a field planted with the same seed stock by another grower.

From this discussion you can see that ring rot may readily express a symptom, the expression may be retarded, or the symptoms may never be expressed in a given year. In a badly infected Russet Burbank field I could show you at least 75 gradations or degrees of ring rot symptoms. Some seasons under certain conditions the early symptoms may be prevalent and well expressed. Other seasons and under different conditions there is practically no early symptom expression. The same is true for the late symptom expression. I have seen fields where neither the early or late symptoms showed. Instead a faint resemblance of the early symptoms would show in the very apical part of large plants. In this case only a lot of practical field experience will enable an inspector to detect the disease.

Are you now ready to say who should take the rap when ring rot is found in certified seed? Your decision might depend upon what phase of the industry you are connected with. If a seed grower produces certified seed in good faith and to the best of his ability, it has met all inspection requirements, but shows up with ring rot, should he be responsible for the subsequent crop? If so, he better get out of the seed business because he cannot afford to run the risk. Should the inspection agency be responsible if diligent and conscientious inspections were conducted? If so, I am changing occupations as of now. How about the broker if he has done his part? If so, he'd better get out of the business. What about the table stock grower? He probably can't afford it either depending upon the severity of crop loss.

Perhaps we should take a long hard look before we lower the boom on anyone. Would it be possible for the table stock growers to form a cooperative insurance pool whereby a grower could recoup a part of his losses? I know of a group of bean growers who were trying to

eradicate Halo blight in their area. Each member of the group paid a fee into the pool based on his acreage. When blight was found in a field the field was plowed. The grower was re-imbursed for a part of his crop. Do you think such a plan would work with potato growers? I will add that such a plan should not exonerate careless growing and handling of certified seed. It should not cover the seed grower who habitually comes up with ring rot, or the broker or table stock grower who bargains for cheap seed or contaminates a crop by careless handling methods.

VI. FREIGHT RATES

Because of the numerous inquiries, Gilbert Monroe, Idaho Potato Growers, Inc., Idaho Falls, Idaho, prepared the following chart to be included in this report:

From:	To:	Cost	/ Pounds
Deer Lodge, Montana	Moses Lake	44-1/2¢	40,000
Deer Lodge, Montana	Othello	44-1/2¢	40,000
Deer Lodge, Montana	Quincy	48-1/2¢	40,000
Manhattan	Moses Lake	53-1/2¢	40,000
Manhattan	Othello	53-1/2¢	40,000
Manhattan	Quincy	61-1/2¢	40,000
Station nearest St. Ignatius	Moses Lake	44-1/2¢	40,000
	Othello	44-1/2¢	40,000
Driggs, Ashton, Mackay, or Grace, Idaho	Moses Lake, Othello and Quincy	63 ¢ 58 ¢	40,000 or 45,000
Driggs, Ashton, Mackay, or Grace, Idaho	Yakima, Sunny- side and Kennewick	53 ¢	45,000

VIII. CONCLUSION

I hope that I have given you a picture of the Idaho Certified seed potato industry and have introduced you to some of the problems and difficulties encountered in producing and inspecting certified potatoes.

If you have any suggestions on how we can improve our program or have any legitimate complaints when using Idaho seed we will certainly appreciate hearing from you.