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Extension Circular No. 30.

April, 1920.

Potato Seed Certification in South Dakota

FRANK E. McCALL, Extension Horticulturist



Official Trade Mark of the South
Dakota Potato Growers' Association

EXTENSION DIVISION
SOUTH DAKOTA STATE COLLEGE OF
AGRICULTURE AND MECHANIC ARTS
C. LARSEN, Director

Cooperative Extension Work
in Agriculture and Home
Economics, South Dakota.
State College and U. S. De-
partment of Agriculture Co-
operating

BROOKINGS, SOUTH DAKOTA

POTATO SEED CERTIFICATION IN SOUTH DAKOTA

The introduction of dangerous potato diseases, (notably powdery scab and black wart); the Federal grade regulations, and the demands of many states that potatoes for propagating purposes be certified, as to purity and freedom from diseases, has aroused unusual interest in the standardization of potato shipments from the various northern potato growing centers.

Early in 1919, the potato growers of the state felt an urgent need for definite lines of potato improvement. Accordingly, a plan for inspection and certification of potato seed stock was inaugurated. This move was entirely voluntary on the part of the potato growers and was placed under the direction of the Extension Division of the State College.

Objects of Potato Certification

The ultimate object of this potato seed improvement is not only to develop the seed industry but to raise the standard of commercial table stock. Therefore, special stress is laid upon the general work of potato standardization. The inspections and certification have been given a year's trial and the results thus far obtained give promise of rapidly developing the potato growing industry in the state.

During the season of 1919 twenty growers received certificates and a large amount of pure seed is available for this season's planting.

The following plan while entirely voluntary provides local seed centers as provision against the importation of seed from possible disease infected areas outside the state, it provides a basis for the elimination of non-standard varieties, as well as means for dissemination of information upon the correct varietal distinctions and the common potato diseases and marketing.

In as much as the potato diseases such as are subject to quarantine are not present in the state, care has been used to make the certification regulations consistent with South Dakota conditions.

Inspection Standard

In adopting a standard for the 1919 season, four inspections were deemed necessary. One preliminary inspection was made before planting to determine the purity, condition and treatment of seed stock. Two inspections during the growing season and one after the potatoes were harvested were made to note the varietal purity, general vigor of the plants, freedom from disease and varietal type, etc. After the season of 1919 the first inspection will be omitted.

GENERAL RECOMMENDATIONS FOR GROWING CERTIFIED POTATOES

1. In order to facilitate inspections and distribution of certified potato seed, it is urged that local potato growers associations be formed in each potato growing community; that officers of such associations take an active part toward the inspections, certification and distribution of the seed stock of their organization; also that a single variety be grown in a community.

2. All seed stock must be thoroughly sorted before cutting. All rotted tubers should be thrown out. It is inadvisable to plant seed having large percentages of scab, rhizoctonia, brown ring discolorations or rots. Fields from such seed usually fail to pass later inspections.

3. All seed stock must be treated before cutting in one of the following solutions:

1. Corrosive Sublimate 4 oz. to 30 gal. water for 1 1-2 hours, or
2. Formaldehyde. 1 pint to 30 gal. water for 2 hours, or
3. Formaldehyde double strength. 1 quart to 30 gal. water heated to 122 degrees. Treat for three minutes. The temperature must be maintained uniformly at 122 degrees.

Special apparatus is needed for this treatment.

4. All applicants for certification must grow a seed plot each year. This plot must be kept free from mixture, disease and run out tubers. Seed for next year's plot should be hill selected from this plot, the balance to be used as seed for the general field.

Certificate Standards

Varietal purity and freedom from disease are the determinations upon which the certificate will be issued.

A. Varietal Purity. Certification will be restricted to such varieties as have distinct characteristics and well defined commercial standing and such as are suited to South Dakota conditions.

Only the varieties now adopted or which may be adopted in the future by the South Dakota Potato Growers Association as standard for South Dakota, will be eligible for certification. The 1920 list is as follows:

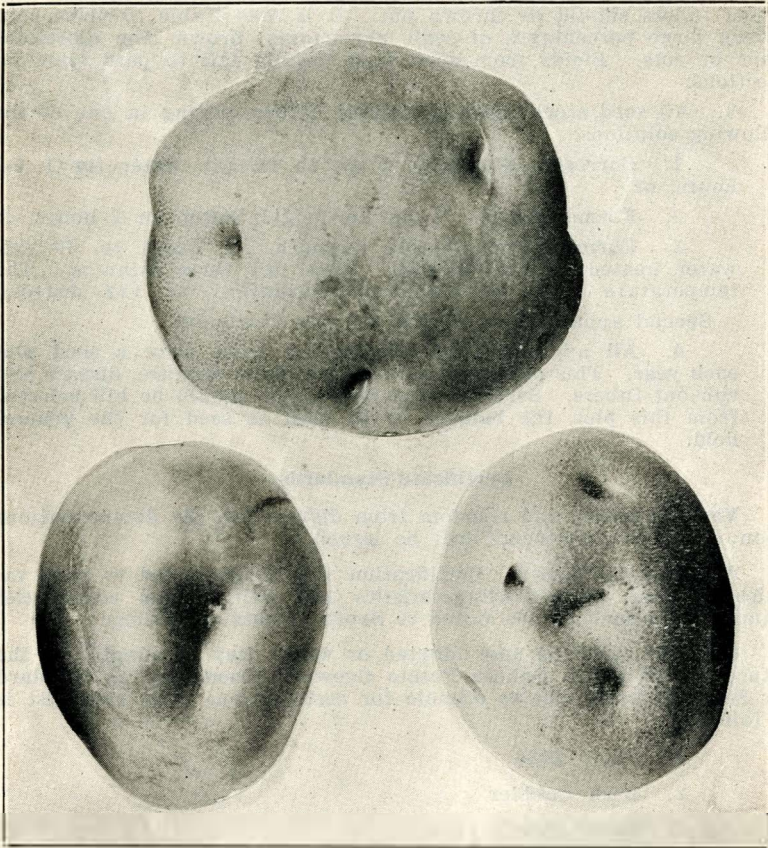
1. Early Ohio
2. Irish Cobbler
3. Rural New Yorker
4. Green Mountain
5. Bliss Triumph
6. King.

Other varieties such as Cannon No. 2, Bugless, Sir Walter Raleigh, Early Petosky, etc., will be certified under the name of the group to which the variety belongs.

Trueness to Type. The tubers must conform to the accepted type for the variety, in shape, size, color and characteristic markings.

Size. Only tubers of U. S. Grade No. 1 for size shall be offered for seed propagation purposes. Among the early varieties, seed tubers should not weigh over 10 ounces, nor over 12 ounces in case of the late varieties. Tubers 2 to 8 ounces are best for seed purposes.

B. Freedom from Disease. Two kinds of transmissible diseases are recorded. The one where specific causes and definite remedial measures are known; as for example, common scab, late blight, black



IRISH COBBLER

leg, black scurf or rhizoctonia, etc. The others for which the specific cause is unknown or still in doubt such as leaf roll, mosaic, curly dwarf, etc.

It is planned that through the inspection service much can be done toward elimination of the controllable diseases from the potato fields of the state. It is planned that the inspection service shall keep in touch and be consistent with the best available information on the nature and control of potato diseases.

PLAN OF OPERATION

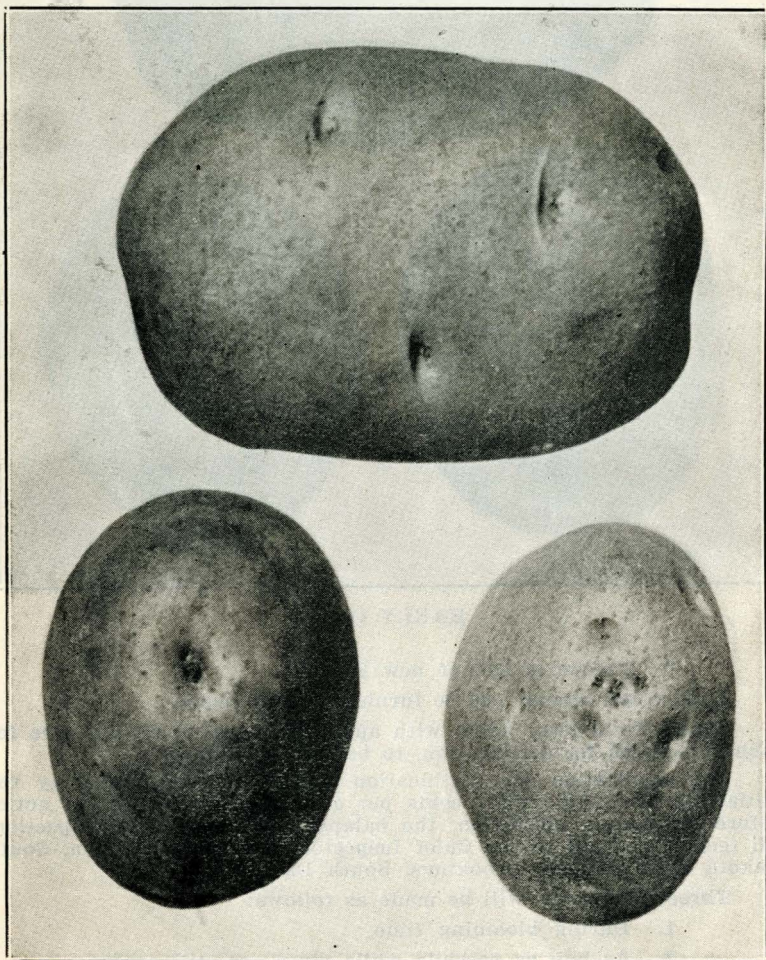
Eligibility: Who may apply.

Any potato grower in South Dakota whose varieties and seed stock conform to the above regulations is eligible to apply for potato inspection and certification.

Application:

All applications must be made to the chief inspector by June 15 of the year in which the inspection is to be made. The application should be accompanied by the following information.

- a. Varieties
- b. Acreage
- c. Source of seed
- d. Yield preceding year
- e. Crop history for past three years of the field intended for certification.



GREEN MOUNTAIN



EARLY OHIO

f. Nature of soil of new field.

Application blanks will be furnished upon request.

Fees. Total fees: \$2.00 with application and \$1.00 per acre for each acre listed for certification, to be paid as follows:

The application for certification must be accompanied by the initial fee of \$2.00. Fifty cents per acre is to be paid upon notice before the second inspection, the balance at time of last inspection. All fees to be paid to the Chief Inspector, Extension Division, South Dakota State College, Brookings, South Dakota.

Three inspections will be made as follows:

1. During blooming time.
2. As late as possible while vines are still green.
3. After harvesting, at or before shipping time.

BASIS OF CERTIFICATION**First Inspection**

Blackleg.—More than 80 hills per acre disqualifies.

Varietal Mixtures.—More than 250 plants of foreign varieties per acre disqualifies.

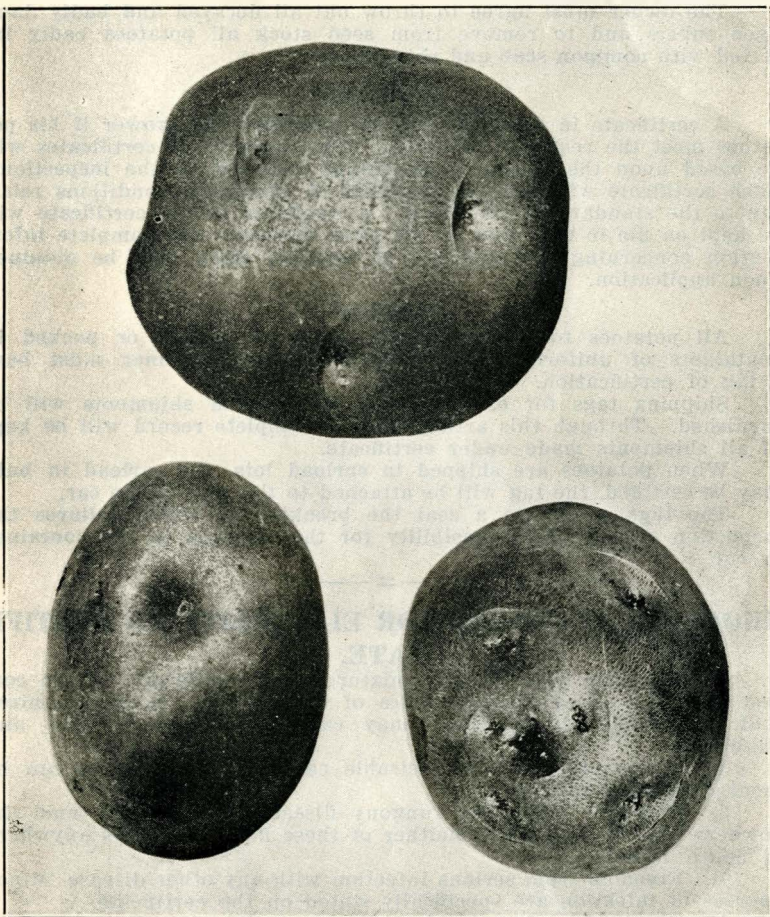
Weak Plants.—Including Curly Dwarf, Mosaic, Wilt, Etc. A total of more than 450 hills per acre disqualifies.

Second Inspection

Blackleg.—More than 20 hills per acre disqualifies.

Varietal Mixtures.—More than 75 hills of foreign varieties per acre disqualifies.

Weak Hills.—50 hills per acre shall be dug for sample. Five



BLISS TRIUMPH

per cent producing conspicuously less than the average yield will disqualify.

Powdery Scab-Black Wart.—A single specimen of each disqualifies.

Wilt, Mosaic, Curly Dwarf, Etc.—More than 150 hills per acre disqualifies.

Late Blight.—The presence of late blight disqualifies.

THIRD INSPECTION

The presence of **powdery scab, black wart or late blight** disqualifies.

More than five per cent of brown ring discolorations of **fusarium wilt** disqualifies.

More than ten per cent of **common scab** or **rhizoctonia** (moderate infections) disqualifies.

The owner must agree to throw out all decayed and badly damaged tubers and to remove from seed stock all potatoes badly infected with **common scab** and **rhizoctonia**.

Certificates

A certificate in duplicate will be furnished the grower if his potatoes meet the required standards. The issuance of certificates will be based upon the record of conditions obtained by the inspections. Each certificate will carry a statement of significant conditions relating to the standard of the stock. A duplicate of the certificate will be kept on file in the office of the chief inspector and complete information concerning the standard of certified stock may be obtained upon application.

Shipment

All potatoes for seed purposes must be bagged or packed in containers of uniform weight. Each bag or container must bear a tag of certification.

Shipping tags for exclusive use on certified shipments will be furnished. Through this arrangement a complete record will be kept of all shipments made under certificate.

When potatoes are shipped in carload lots, the carload in bulk may be certified, the tag will be attached to the seal of the car.

The tags constitute a seal the breaking of which relieves the inspection service of responsibility for the potatoes in the container or car.

REQUIRED STANDARD FOR ELIGIBILITY TO CERTIFICATE.

1. Freedom from varietal mixtures, and conformity to the correct vine and tuber characteristics of the variety. It is recognized that environmental conditions may cause variations in type and quality.
2. Conformity to such desirable commercial grades as can be secured through sorting.
3. Freedom from the fungous disease, black wart, and the powdery scab. (At present neither of these diseases occurs anywhere in South Dakota.)
4. Freedom from serious infection with any other disease. Minor degrees of infection are specifically stated on the certificate.
5. The holder of a certificate is responsible for all undesirable conditions which may develop after the date of the last inspection.

SOUTH DAKOTA POTATO GROWERS ASSOCIATION
and
EXTENSION DIVISION OF SOUTH DAKOTA STATE
COLLEGE
BROOKINGS, SOUTH DAKOTA

This certifies that the potato field and seed stock of

Name

Postoffice

County

South Dakota has been inspected by the duly authorized agent of the South Dakota Potato Growers Association and the South Dakota State College, and that said seed stock meets the prescribed standards (see reverse of this sheet) relative to freedom from disease and variety purity.

This certificate covers only the acreage and crop herein described, and is given upon the signing of a statement by the above applicant,

....., that he has fulfilled all requirements made by the official inspection of his field and storage bins, and that he will carry out the full intent and purpose of this certificate.

Chief Inspector.

C. LARSEN, Director.

The following statement of conditions pertains to the potato seed stock covered by this certificate of inspection grown by

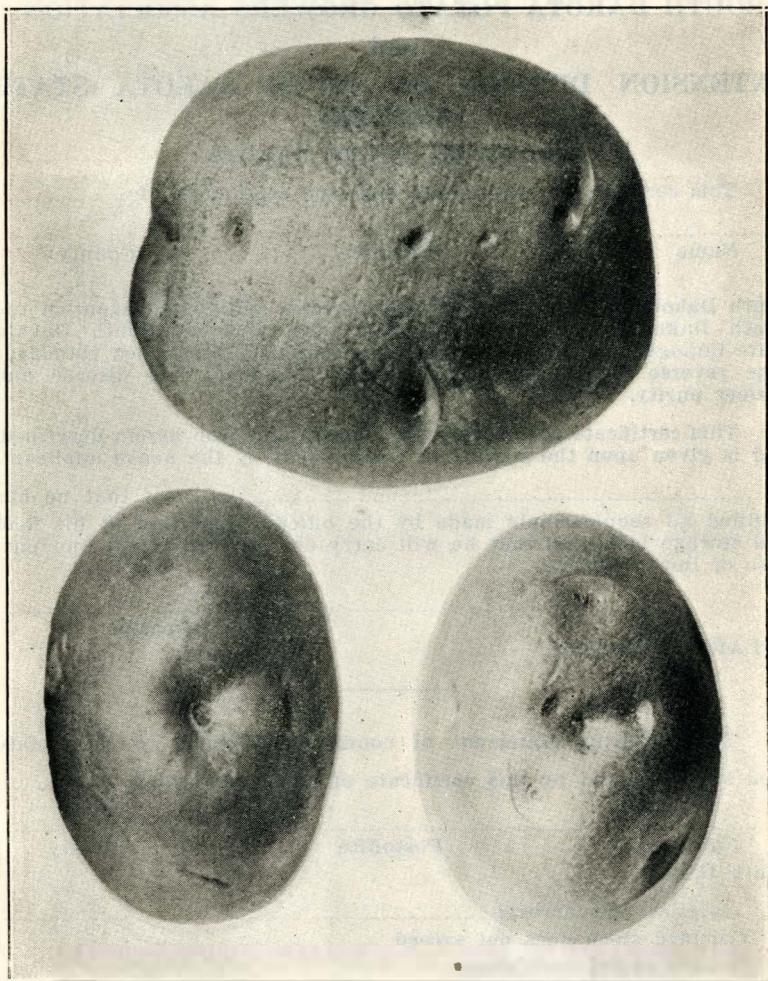
Name

Postoffice

County

South Dakota.

1. Varieties and acreage
 Certified stock does not exceed
2. Results of field inspection:
 A. Varietal purity
 B. Freedom from disease
3. Results of bin inspection:
 A. Varietal purity
4. Market conditions and quality
5. Yields and other statements



RURAL NEW YORKER

NAMES OF GROWERS RECEIVING CERTIFICATES IN 1919.

Brown County

Name, Town	Variety
Frank Bowles, Claremont	Early Ohio
J. A. Barnes, Claremont	Early Ohio
C. A. Beever, Amherst	Early Ohio
W. J. Kelly, Claremont	Early Ohio
Geo. Pierson, Claremont	Early Ohio
H. J. Lockington, Aberdeen	Early Ohio

Codington County

Name, Town	Variety
Vernon Belke, Henry	Early Ohio, R. N. Y.
Mrs. F. M. Stone, Watertown	Early Ohio
H. M. Rogers, Watertown	Irish Cobbler
Robert Schull, Watertown	Early Ohio
J. G. Vanderlinder, Henry	Early Ohio

Clark County

Name, Town	Variety
Robert Beatty, Elrod	Early Ohio
A. E. Plagens, Garden City	Early Ohio
Ed. Wilson, Clark	Early Ohio
W. C. Waddell, Henry	Early Cobblers

Hamlin County

Name, Town	Variety
David Sour, Hayti	Early Ohio
Jesse Meyer, Vienna	Early Ohio
E. C. Stemwedel, Hayti	Early Ohio

Marshall County

Name, Town	Variety
Chas. Jarrett, Britton	Early Ohio, Triumphs
D. L. Printup, Britton	Early Ohio