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Seed Potato Growers Association of Manitoba Members

A & M Farm Ventures
Adriaansen Farms Ltd.
ESPO Farms Ltd.
Haskett Growers Ltd.
Kroeker Farms Ltd.
Randy & David Baron Seed
RTR Farm Ventures
Southern Potato Co. Inc.
Spruce Drive Farms Ltd.
Spud Plains Farms Ltd.
Spud Valley Farms
Swansfleet Alliance

BENEFITS OF BUYING MANITOBA GROWN SEED POTATOES

- All seed potatoes produced in Manitoba originate with pathogen-free nuclear seed stocks.
- All classes receive a minimum of 2 field inspections during the growing season.
- All Elite 2, Elite 3, Elite 4 and Foundation Classes of seed produced in Manitoba are post-harvest 2017- tested in the laboratory for Bacterial Ring Rot before it is sold.
- Many seed lots produced in Manitoba are post-harvest tested during the winter in a southern climate or lab tested. (The results of this test are available from the grower in late February.)
- Most of the Manitoba grown seed potatoes are produced under an abbreviated generation system. (i.e. Elite 3 and Elite 4 seed have become the main classes of seed planted for commercial potato production.)
- Seed potato growers in Manitoba have extensive experience producing seed potatoes.

THE CANADIAN SEED POTATO CERTIFICATION PROGRAM

Seed potato certification in Canada is a national program, which is implemented and administered by the Canadian Food Inspection Agency of Agriculture and Agri-Food Canada.

The regulatory authority for the certification of seed potatoes is contained under Part II of the Seeds Regulations. (Registration SOR/97-118).

Canada's seed potato certification program is designed to regulate both the varietal purity and health of seed stocks. The most important features of the program are:

- DISEASE-FREE NUCLEAR SEED: All seed potatoes produced in Canada originate with nuclear stocks which are produced under sterile conditions from plant tissue cultures that have been subjected to laboratory tests and found free of disease causing pathogens.
- 2. LIMITED FIELD GENERATIONS: Seed potatoes CANNOT be propagated in the field for more than seven generations (seven years). The first field generation, which is produced from nuclear stock, is eligible for certification at the Pre-Elite class. Subsequent field production must move downward through the classification system. This "limited generation system" minimizes the risk of disease build-up. (In Manitoba most of the seed potatoes produced for commercial planting is Elite 4 or fifth generation seed, limited amounts of six or seven-generation seed is produced.)

The seed classes from the youngest to the oldest are listed below:

| FIELD GENERA -TION | SEED CLASS PRODUCED | SEED CLASS PLANTED | | | | |
|--------------------------|------------------------|---|--|--|--|--|
| 1 | PRE-ELITE | Nuclear (produced in a greenhouse) | | | | |
| 2 | ELITE 1 | Pre-Elite - or any of the previous seed potato classes | | | | |
| 3 | ELITE 2 | Elite 1 - or any of the previous seed potato classes | | | | |
| 4 | ELITE 3 | Elite 2 - or any of the previous seed potato classes | | | | |
| 5 | ELITE 4 | Elite 3 - or any of the previous seed potato classes | | | | |
| 6 | FOUNDATION | Elite 4 - or any of the previous seed potato classes | | | | |
| 7 | CERTIFIED | Foundation – or any of the previous seed potato classes | | | | |

THE POST HARVEST TEST

At least 400 randomly selected tubers from each qualifying seed potato lot are collected and sent to Hawaii to be grown out and examined by Canadian Food Inspection Agency Seed Potato Inspectors.

Alternatively, tubers would be sent to a lab for grow out and virus testing.

The main emphasis of the Post-Harvest test is the detection of viral infections that may have occurred during the production season through their transmission by insects or farm machinery. Infections of this type infect the new tubers but rarely express visual symptoms until the following growing season. The Post-Harvest test attempts to identify where and to what extent these infections have occurred.

The main diseases for which readings are taken include: Potato Leaf Roll virus and Mosaic Virus

The Post-Harvest test also reports on the presence of foreign varieties in seed lots. Results of the Post-Harvest test are published in February and can be obtained from the grower.

DISEASE AND VARIETAL PURITY STANDARDS:

Disease freedom and varietal purity is maintained through a program consisting of multiple growing crop inspections, laboratory testing, post-harvest testing and sound cultural practices.

The Pre-Elite, Elite I, II, III, IV, Foundation and Certified classes of seed must undergo and pass two growing crop inspections. All field inspections are made during a time most opportune for the visual detection of disease symptoms and foreign varieties in the growing crop.

The standards for certification of all classes of seed are set out in Sections 47.11 – 47.8 of the seed regulations. The maximum levels of detectable disease on the final inspection of the growing crop for the main commercial classes are summarized below:

| Disease | Elite 3 | Elite 4 | Foundation | Certified | |
|---|---------|---------|------------|-----------|--|
| | | | | | |
| Bacterial Ring Rot | 0.00% | 0.00% | 0.00% | 0.00% | |
| Potato Spindle Tuber Viroid | 0.00% | 0.00% | 0.00% | 0.00% | |
| Total All Viruses | 0.20% | 0.30% | 0.50% | 2.00% | |
| Total of Blackleg, Wilts and Viruses | 0.30% | 0.50% | 1.00% | 2.00% | |
| Varietal Mixtures | 0.05% | 0.10% | 0.20% | 0.50% | |

Note: Inspection for the purpose of certification is made either visually or through laboratory testing of samples or both. Certification does not constitute a warranty by either The Canadian Food Inspection Agency or the grower that the seed potatoes meet the applicable standard set out in Sections 47.2 to 47.11 of the Seed regulations.

BACTERIAL RING ROT PREVENTION

Every effort is made to prevent contamination of seed stocks by ring rot bacteria. The following mechanisms each contribute to reducing the risk of Bacterial Ring Rot contamination and keeping Manitoba grown seed potatoes healthy:

- Maintenance of pedigree records on all seed lots certified. (Records are maintained from generation to generation on all seed stocks produced in Canada. This enables a complete trace back of all seed sources when BRR is reported.)
- 2. All seed potatoes produced originates from disease free Nuclear Stocks.
- 3. Strict adherence to a limited field generation production system. (Flush-through production)
- 4. Inspections of the growing crop for Bacterial Ring Rot disease symptoms.
- 5. Tuber inspections at harvest or in the bin shortly after harvest.

- 6. Frequent tuber inspections at shipping point.
- 7. Investigations of seed sources of Bacterial Ring Rot disease occurrences in commercial potato production.
- 8. Bacterial Ring Rot testing in the laboratory of all seed lots
- 9. Total rejection of all seed produced on a farm where a seed lot is determined to be infected with Bacterial Ring Rot.
- 10. Seed grower diligence in preventing ring rot bacteria introductions. This includes frequent cleaning and disinfection of all equipment and buildings used in the harvesting, handling and storage of seed potatoes.

TUBER QUALITY STANDARDS

All seed potato classes are subject to the same tuber standards (i.e. there is only one quality grade for Canada Seed Potatoes). The total allowable disease and defects permitted in a graded seed potato lot are set out in sections 48.1 (2) to (10) of the seed regulations. A summary of the shipping point tolerances are listed below:

| Disease or Defect | Tolerance | | |
|--|-----------|--|--|
| Soft rot or wet breakdown | 0.10% | | |
| Dry rot and late blight | 1.00% | | |
| Scab or Rhizoctonia - light | 5.00% | | |
| Scab or Rhizoctonia – moderate | 10.00% | | |
| Stem-end discoloration due to: top killing, frost, heat, or drought with a penetration from 6 – 13 millimeters. | 4.00% | | |
| Tubers malformed or externally damaged | 2.00% | | |
| Total number of tubers affected by disease and defects, not including slight scab and rhizoctonia and stem-end discolouration. | 5.00% | | |

In addition, the tolerance for foreign varieties is as follows:

| Elite 3 class of seed | 0.05% |
|--------------------------|-------|
| Elite 4 class of seed | 0.10% |
| Foundation class of seed | 0.20% |
| Certified class of seed | 0.50% |

In any lot of graded seed potatoes at least 98% of the tubers shall be firm and well-shaped.

SEED CLASS, VARIETY AND PRODUCER IDENTIFICATION

Bagged seed is identified by official tags issued by the Canadian Food Inspection Agency. The following tag colours identify the respective seed classes.

ORANGE tags identify the ELITE classes of seed tags identify the FOUNDATION class of seed tags identify the CERTIFIED class of seed

Bulk seed sales are identified by Bulk-movement Certificates, which are also issued by the Canadian Food Inspection Agency.

To be valid the tags and bulk movement certificates must identify the seed by:

Variety, Class, and an official eleven-digit Certification number.

COMPARISON OF MANITOBA'S SEED CLASS DESIGNATION WITH THOSE OF THE UNITED STATES

LIMITED GENERATION CERTIFIED SEED POTATOES

 The purpose of this table is to express equivalency of terms used by various certification agencies for seed potatoes harvested from a series of successive field plantings. For specific criteria relating to disease tolerances and other requirements, the reader is referred to the certification regulations of the agency in question. 2. The first field planting utilizes laboratory-tested stocks, which may be tissue-cultured plantlets, greenhouse-produced minitubers, stem cuttings, or line selections. Contact agencies for detail as to types of stocks planted in their programs.

Field Planting Equivalency Table¹

| YEAR IN THE FIELD | | | | | | | | |
|-----------------------|-------------------|----|----|----|----|----|----|--------|
| Agency | 1 ² | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Manitoba | PE | E1 | E2 | E3 | E4 | F | С | |
| Alaska | G1 ³ | G2 | G3 | G4 | G5 | G6 | G7 | G 8 |
| California | N | G1 | G2 | G3 | F | С | | |
| Colorado | G1 | G2 | G3 | G4 | G5 | G6 | | |
| Idaho | N | G1 | G2 | G3 | G4 | G5 | G6 | |
| Maine | N1 | N2 | N3 | N4 | G1 | G2 | G3 | G 4 |
| Michigan | N | G1 | G2 | G3 | G4 | G5 | | |
| Minnesota | N | G1 | G2 | G3 | G4 | G5 | С | |
| Montana | N | G1 | G2 | G3 | G4 | | | |
| Nebraska | N | G1 | G2 | G3 | G4 | G5 | | |
| New York ⁴ | (Uihlein Farm) | | G1 | G2 | G3 | G4 | G5 | G 6 |
| North Dakota | N | G1 | G2 | G3 | G4 | G5 | С | |
| Oregon | N | G1 | G2 | G3 | G4 | G5 | | |
| Utah | N(G) | G2 | G3 | G4 | G5 | G6 | | |
| Washington | N | G1 | G2 | G3 | G4 | | | |
| Wisconsin | E1 | E2 | G1 | G2 | G3 | G4 | С | |

- Terms used by agency for seed potatoes for a particular year in the field: C=Certified, E=Elite, F=Foundation, G=Generation, N=Nuclear, PE=Pre-elite.
- 4. If lots originate at Cornell-Uihlein Farm, the first three generations
 - (G1 G3) are also designated by a "U" to denote source

FOOD SAFETY ASSURANCE POINTS

PRODUCTION SITE:

- Production site(s) are chosen carefully to ensure that no past land use or adjacent land use can be a source of contamination to seed potatoes.
- All agricultural chemicals used are appropriate for the intended crop and manufacturer's label instructions are followed when applying chemicals.
- Agricultural chemicals, cleaning agents, etc. are stored in a designated area separate and away from where seed potatoes are stored or are graded.
- Records are kept for the application of all agricultural chemicals.
- Employees operating equipment for chemical/pesticide application are properly qualified to do so.

EQUIPMENT:

- All equipment used for planting and harvesting is washed and sanitized before use in the seed potato field.
- All transportation equipment/shipping trucks are cleaned and sanitized regularly and are only used for hauling potatoes.
- All food contact surfaces (harvester, grading line, etc.) are non-abrasive, non-toxic, and can withstand repeated cleaning.
- Records are kept for all equipment cleaning and maintenance.

STORAGE AND GRADING:

- All storages have pest control systems in place that are regularly monitored.
- All storages are monitored for temperature and humidity control.
- Sanitary foot dips are used before employees enter storage and grading areas.
- All storages are disinfected before seed potato storage occurs.
- Records are kept for all cleaning and maintenance of the storage and processing area.

NOTICE TO BUYER:

LIMITED WARRANTY AND LIMITATION OF DAMAGES AND REMEDY

The seller warrants that any seed potatoes sold or agreed to be sold to the buyer by the seller are of the grade specified upon the tag attached to each container thereof as required by Statute, within recognized tolerances. The inspection certificate(s) of the Canadian Food Inspection Agency (unless superseded) shall be conclusive evidence of the purity, quality, grade or any other matter respecting such seed potatoes, and such certificate(s) shall be binding upon the buyer and the seller. IT IS EXPRESSLY AGREED THAT NO OTHER WARRANTIES, CONDITIONS OR REPRESENTATIONS, EXPRESSED OR IMPLIED, STATUTORY OR OTHERWISE, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, PRODUCTIVENESS, ABSENCE OF DISEASE, OR OTHERWISE, ARE MADE BY THE SELLER.

LIABILITY OF THE SELLER for damages arising from any cause, including breach of contract, breach of warranty and negligence, with respect to any sale of seed potatoes is LIMITED TO A REFUND OF THE PURCHASE PRICE OF THE SEED POTATOES, WITHOUT INTEREST. THIS REMEDY IS EXCLUSIVE AND IS ONLY AVAILABLE IF A CLAIM IS MADE WHILE THE SUBJECT CROP CAN STILL BE EXAMINED IN THE FIELD BY THE SELLER.

NO AGREEMENT COLLATERAL HERETO SHALL BE BINDING UPON THE SELLER UNLESS ENDORSED HEREIN IN WRITING.

IN NO EVENT SHALL THE SELLER BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFITS.

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NOTE:

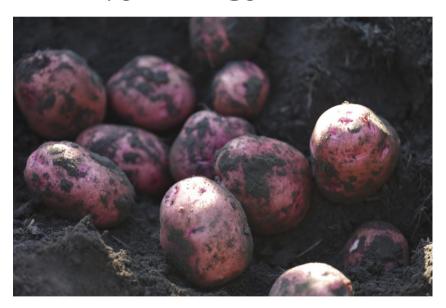
All varieties may not be listed.

Please call for any other enquiries.

Royalties may apply to some varieties.

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