TASMANIAN SEED POTATO CERTIFICATION SCHEME

Contents

Introduction

Sustainable production of quality fit for purpose potatoes relies upon provision of high quality seed. The Tasmanian Seed Potato Certification Scheme is designed to meet this requirement.

The Standards outlined in this document are based upon those from the 2007 National Standard for Certification of Seed Potatoes and additional Requirements from the **TasSeed** Manual, but also draw upon information from the 2015 review of the Standard and from the recent comprehensive Risk Analysis of potato pest and **Defect**s by Biosecurity Tasmania to ensure alignment with the new Import Requirement for Potatoes into Tasmania (*Link to IR9*).

The **Rules** of the **Scheme** ensure that seed potatoes grown under **TasSeed** are of the highest quality and equal or exceed those of other Australian and International Schemes. **TasSeed** is housed within the Tasmanian Institute of Agriculture, a joint venture agreement between the Tasmanian State government and the University of Tasmania.

The operational and governance model is based upon the 2015 Report by RMCG that produced an options paper for governance for a national Scheme and industry feed back from the workshop which reviewed this paper.

Purpose

This foundation document describes for all potential users of Tasmanian certified seed potatoes both the requirements and the operation of the **Scheme**. It is a 'living document' that is owned by Tasmanian potato producers and as such the **Scheme** includes the mechanism by which this is to be achieved.

Using This Document

This document purposely departs from the format typically found in other standards to make it more user friendly for all parties with five major sections for each component of the Tasmanian Seed Potato Certification Scheme (**TasSeed**):

1. General Requirements
2. Growing Requirements
3. Micro-propagation and Laboratory Requirements
4. Management and Governance
5. Training

Whilst all person's using the **Scheme** are expected to be familiar with its entirety users of the Scheme can access all they need to know from the relevant section without needing to read the whole document. All Applicants must be familiar with Sections 1 and 2 and their relevant Appendices.

Each Section has its own numbering system for the **Rules** pertaining to that section.

Information provided under the heading of Advice whilst not a compliance issue is provided as part of developing a best practice approach to seed production.

Tolerances are placed in Appendices 2 & 4

Text in bold are defined terms as per Appendix 1


TasSeed
TASMANIAN
CERTIFIED SEED POTATO SCHEME

(1) General Requirements

Certification Entry Rules

1. To be eligible for **certification** under **TasSeed** all plants and tubers must have been produced under the conditions of the TCSPC detailed herein.
2. Under this Scheme potatoes can be certified up to a maximum of five field generations
3. Seed tubers that have failed certification due to physical **Defect**, poor shape, minor insect damage, mechanical damage but meet other certifiable tolerances for that generation, may, at the discretion of **TasSeed** stay within the Scheme but only for planting on land owned by the **Applicant** who produced the tubers.
4. Generation five harvested seed produced in the field may be sold as Certified seed directly for commercial use but is not eligible for subsequent multiplication under the Scheme unless there are exceptional circumstances and is approved by the manager of **TasSeed**.

Table 1 *Multiplication of Certified seed*

Planting source material	Growing crop	Seed harvested generation
Minitubers, micro tubers or plantlets (G0)	1	G1
Generation 1 (G1)	2	G2
Generation 2 (G2)	3	G3
Generation 3 (G3)	4	G4
Generation 4 (G4)	5	G5

Record keeping

5. **Applicants** must keep proper records, including whole farm plans which show:

- paddock boundaries with paddock numbers or names
- where all potatoes are planted each year
- fence line/boundary changes.

Hygiene management and biosecurity measures

6. TasSeed reserves the right to refuse certification where in its opinion a premises fails to meet appropriate hygiene requirements.
7. Access to seed crops should be limited to personnel authorised by the **Applicant**
8. All operations to be performed on seed crops of different generations should be undertaken such that work commences on the crop of the highest health status (i.e. G2 before G4 or from apparently healthy G4 before G4 with poor emergence). Personnel and machinery should never move from a crop of lower status to a crop of higher status without hygiene precautions being implemented.
9. Travelling irrigators should be avoided where they would pass from seed crops sown with G3, G4, or G5 seed to seed crops sown with G1 or G2 seed, unless sufficient unplanted area (see Isolation requirements) is left for the irrigator to pass through without contact by wheels or hoses
10. The grading and packing shed should have a concrete floor
11. Lighting over the grading table should be sufficient to enable accurate assessment of tubers
12. Agricultural chemicals and produce are not to be stored in the same area as Certified seed potatoes

13. Sprout suppressants are not to be used or stored in or near the potato grading or storage areas
14. The shed surrounds are to be kept tidy, free of rubbish and weeds and not used for storage of chemicals
15. Soil and crop debris is not allowed to accumulate in sheds. Waste potatoes, soil and crop debris are to be regularly removed from the shed and surrounding areas and disposed of in a dedicated pit or waste disposal facility
16. Waste should not be returned to potato paddocks used to produce Certified seed
17. All containers used for storage (i.e. bins) of seed should be washed and disinfected between seasons, or more frequently as required
18. Machinery should be cleaned with a hospital grade disinfectant (approved sterilant) as required
19. A designated area should be provided for cleaning and disinfection of machinery and equipment
20. Packing and grading sheds and machinery should be thoroughly cleaned between seasons.
21. Biosecurity best practices should be implemented to minimise pest and **Disease** spread

Reporting suspected exotic pests

22. Biosecurity is a shared responsibility. Any **Applicants**, **Seed Handlers,** or associated industry personnel must report suspected exotic pests immediately.
23. Potato **Certification Officer**s will follow internal TIA procedures in relation to suspected exotic pests or **pathogens** detected in the course of their work. In participating in the **TasSeed** certification Scheme, **Applicants** acknowledge that **TasSeed Certification Officer**s are bound by a General Biosecurity Duty and bound to report unknown or suspicious pests and **pathogens** to Biosecurity Tasmania.

Failure to observe requirements of the Tasmanian Seed Potato Certification Scheme

24. **TasSeed** will investigate issues where there is concern around non-compliance with the rules of the **Scheme** and will determine an appropriate course of action.
25. An **Applicant**, or **Seed Handler** who is suspected of failing to observe the requirements of the **Scheme** must provide to **TasSeed** documentation in their possession as required by TasSeed. This may include but not limited to, documents including the following:
    - Seed summary sheets for the total seed production for the current season including seed sold and kept for own use.
    - A summary of all non-seed production and sales with documentary evidence from the purchaser detailing **Variety** and tonnage.
    - Crop maps that include GPS data.
    - Any other relevant information as required
26. Failure to provide this documentation to the satisfaction of **TasSeed**, or where evidence is found of non-compliance, may result in **TasSeed** suspending any further inspection activities, ceasing any further processing of applications for production of seed potatoes, withdrawal of official **Label**s and cancellation of inspections.

27. **Applicants**, **Seed Handlers** or **TasSeed** Officers who fail to observe the requirements of the **Scheme** or, who act in any way against implementation of the **Scheme** may be excluded and be subject to other actions.
28. **Applicants** whose crops fail to meet the required standards for certification either partly, or wholly, in two successive years may also be excluded from the Scheme.

Fees and Charges

29. Fees applicable to **Certification** are detailed in the separate contract between the **Applicant** and Tasmanian Institute of Agriculture that is requirement for entry to the **Scheme**.

(2) Growing Requirement Rules

In entering this **Scheme** an **Applicant** is agreeing to produce seed under the **Rules** defined in this document.

Pre-planting

1. **Applicants** must register with **TasSeed** and registration forms must be received by **TasSeed** within 21 days of planting. Failure to do so could exclude the **Applicant** from the certification Scheme for that season. If an individual's crop is planted over several weeks, multiple paddock information sheets may need to be submitted, prior to emergence of the first planted.
2. **Applicants** are encouraged to register their production areas intended for Certified seed production, each year, at least 60 days prior to planting and to engage **TasSeed** to do a pre-planting paddock check.
3. **Applicants** must disclose to **TasSeed Certification Officer**s all potato crops grown on their land, or land under their control.
4. Seed crops must be planted on land that has not been planted with potatoes or other solanaceous crop for at least 5 years from date of last harvest.(**Applicants** should be aware of the risk posed by volunteer potatoes in the years preceding any seed potato crop, irrespective of the paddocks use.)
5. The growing site must be free of ground keepers and visually free of soil borne pests.
6. **Applicants** must co-operate with any tuber or soil testing program which seeks to ensure Tasmania's ongoing freedom from Potato Cyst Nematode (PCN) and other pests/diseases as required.
7. **Applicants** must allow reasonable access to a seed potato growing site.

Advice

(A) Soil testing using Predicta PT pathogen DNA sampling is advised prior to final site selection. This test can identify potential risk associated with growing a certified seed potato crop at that site for black dot (*Colletotrichum coccodes*), verticillium wilt (*Verticillium dahliae*), powdery scab (*Spongospora subterranea*) and root knot nematode (*Meloidogyne fallax, M. javanica, M. incognita, M. arenaria*). Details can be found on the Predicta Pt website:

(B) https://www.pir.sa.gov.au/research/services/molecular_diagnostics/predicta_pt

(C) Caution is required with old fence lines where they have been removed as they can be harbours of pathogens allowing undisturbed populations of nematodes and fungal pathogens such as verticillium and rhizoctonia to flourish. Tubers grown in this area may jeopardise certification.

(D) Beware of the risks from residual herbicides for brushy weeds especially along old fence lines

(E) Drainage and seep areas - ensure high risk wet areas are identified and not planted.

(F) Irrigator and centre pivot tracks are high risk areas. Wherever practicable these areas should not be planted. Should excessive damage or **Disease** be present in these pathways, the **Applicant** must harvest and remove these areas prior to the main harvest - or risk rejection of the entire crop.

(G) Be aware that a number of crops can also host potato pathogens

At Planting

8. **Applicants** must disclose to **TasSeed** all potatoes grown on their land or land under their control. Where land is leased from another property TasSeed must be informed as to the production and location of any potatoes on that property.
9. **Applicants** must provide reasonable access to all seed production sites.
10. In participating in the **Scheme, Applicants** acknowledge that **TasSeed Certification Officer**s are bound by a General Biosecurity Duty and bound to report unknown or suspicious pests and **Pathogens** to Biosecurity Tasmania.
11. All **Varieties** and generations must be clearly labelled and marked for the entirety of the crop

Generation requirements

12. **Applicants** may choose the seed generation they intend to grow from any of the following
13. **Minitubers**, **microtubers**, plantlets or other approved planting material available from **accredited laboratories (see section 3)**
14. Certified seed of generation 1, 2, 3 or 4 (G1, G2, G3, G4) which they have produced themselves or purchased from another Certified seed **Applicant**.
15. At the discretion of **TasSeed** generation five (G5) harvested Certified seed can be used to produce a sixth generation of Certified seed.
16. **TasSeed** will assess applications on a case-by-case basis where exceptional circumstances can be demonstrated.
17. The G5 seed source must achieve a crop rating one or two.
18. 'Generation six' (G6) must be printed on the seed **Label** for any seed produced from G5.
19. When planting multiple generations then order of planting will be from low to high (i.e. 1 > 4).

Isolation Requirements

20. The following isolation/separations will be observed.
21. Different varieties in the same row must be separated by at least 2 metres unless they can be separated by skin colour such as red or white.
22. Any seed generation is to be separated from other managed potato crops by 20 metres.
23. Any seed generation is to be separated from volunteers by 50 metres.
24. There must be a minimum of two (2) blank rows between different generations.
25. There must be a minimum one (1) blank row different varieties.

Table 2 I*solations of seed generations from other potatoes*

	G1	G2	G3	G4	G5
Separation of seed generations		2 blank rows	2 blank rows	2 blank rows	2 blank rows
Other potato	20 metres	20 metres	20 metres	20 metres	20 metres
Volunteers	50 metres	50 metres	50 metres	50 metres	50 metres

During Crop Growth

Rules

26. **Applicants** must be prepared to maintain a high degree of crop health during the growing period, meet the requirements of these guidelines and conform to

inspection directives. **Applicants** will be expected to cooperate with any soil or plant testing program that seeks to maintain Tasmania's ongoing freedom claims for various pests and **Diseases** including, but not limited to, PCN, Virus Y and *Dickeya* spp.

Advice

It is expected that crops are grown with adequate nutrition and irrigation to prevent development of unthrifty plants. For example, calcium additions are known to improve peel strength, reducing harvest injury. Boron is generally low in Tasmanian soils; deficiency can lead to internal brown spot of tubers and impaired root development. Excessive nitrogen is known to reduce tuber dormancy and create apical dominance.

Inspection Requirements

27. There will be a minimum of three inspections of the growing crop by Potato **Certification Officer**s from **TasSeed**.
28. The first crop inspection will be made after emergence.
29. The second inspection will be made at flowering.
30. The third crop inspection will be conducted pre-senescence.
31. Inspections will be performed such that there is minimum crop disturbance to avoid potential **Disease** spread. This will involve the use of disposable booties and utilising paddock boundaries and irrigation runs or pivot tracks wherever possible.
32. **Applicants** must ensure the **TasSeed** Officer has completed these inspections and collected all samples required, prior to top removal or crop spray off.
33. At each crop inspection, a **Certification Officer** must assess at least the minimum number of plants:
    i. 500 plants per hectare; and
    ii. a minimum of 2000 plants per plot or
    iii. if less than 2000 plants in the plot all plants must be inspected.
34. At the time of inspection, crops must not exceed the listed permitted tolerances for **Diseases** as outlined in Appendix 2. Observations are recorded by the Seed **Certification Officer** in the format shown in Appendix 3.
35. Crops submitted for inspection may be rejected at any stage of growth.
36. Crops may be rejected if they show poor establishment, unthrifty plants, significant growth of weeds, severe hail or frost damage, severe damage caused by, or suspected to be caused by chemicals, or are too advanced for inspection.
37. Self-sown plants are treated as foreign plants regardless of **Variety**.
38. Rogueing levels shall be at the discretion of the Certifying Authority. However, as a general guide, 1 per cent above the defined tolerance would be considered as the maximum Rogueing level achievable in a certified crop. *(eg,1% of a crop with 60,000 plants/ha = 600 plants)*
39. Rogueing is not to be undertaken without prior consultation with **TasSeed** and must be carried out in accordance with the requirements of the **TasSeed Certification Officer**
40. All rogued material (tops and tubers) must be removed from the field and destroyed. In certain circumstances **Certification Officers** may order destruction of foliage to avoid **Disease** transmission to other plots on the same property or other properties.

41. Where only a part of a crop is accepted as certifiable, then the rejected plants must be removed from the property before the harvest of the remaining crop.
42. **Certification Officer**s may require plant samples to be collected and sent for laboratory testing for pathogens. These samples may be at the client's expense and results of these tests may be used as the basis for crop rejection.

Defect surveillance and Standards

43. All Generation 1 planted plots (G2 harvest) will be laboratory tested for *Dickeya* and *Pectobacterium* spp., Potato Spindle Tuber viroid, Tomato spotted wilt virus, Potato leaf roll virus, Potato Mop Top virus, Potato virus Y by Polymerase Chain Reaction (PCR) and others as may be required by **TasSeed**.
44. Where virus levels are detected at the first inspection, and rogueing is considered achievable, a second set of samples may be tested at the **Applicant**'s expense to verify rogueing has been successful.
45. Irrespective of the generation, crops will be rated from 1 to 3, according to the tolerances for foreign varieties, viruses, and other **Diseases** and **Defects** (see Tables 3 & 4).
46. Seed potatoes cannot receive a higher field rating than as deemed at the previous certification. For example, a crop sown with seed with a field rating of 2, cannot be upgraded to a rating of 1 for the subsequent generation.
47. Any seed having a field rating of 3 cannot be further multiplied for Certified seed.
48. The highest number rating in any category shall determine the overall rating for that crop (e.g. for a foreign **Variety** rating of 1, virus rating of 2, and other **Defect** rating of 3, then the overall rating is 3). Crops exceeding tolerances for Rating 3 will be rejected for certification.

Table 3 *Field crop ratings*

% of plants	Rating 1		Rating 2		Rating 3	
At inspection	1st	2nd	1st	2nd	1st	2nd
Foreign varieties	0.05	0.00	0.10	0.01	0.10	0.10
Virus	0.10*	0.01*	0.25*	0.10*	1.00	1.00
Defect	0.25	0.10	0.50	0.25	2.00	2.00
Total **Defect** plants	0.25	0.10	0.50	0.25	2.00	2.00

*all ratings must be 0% for Potato Virus Y (PVY)

*0.10% = 1 plant in 1,000.

Table 4 *PLRV tolerance x generation*

Any PLRV detected visually must not exceed the levels x generation below following final inspection				
G1	G2	G3	G4	G5
0%	0.01%	0.1%	0.25%	0.25%

PLRV = Potato leaf roll virus.

At Harvest

49. **Applicants** must notify **TasSeed** at least five days prior to crop burn-off
50. **TasSeed** must receive five days' notice prior to harvest.
51. Harvesting shall be in the order of lowest Generation to high (i.e. G1 first then G2 etc) or if this is not possible then all harvesting equipment must be cleaned prior to harvesting the earlier generation.

52. Harvesting shall be performed such that the identity of each individual **Lot** shall be preserved.

Grading

Tuber inspections are a means of determining whether seed tubers meet the certification standards set out in these rules. Tuber inspections will only be carried out by **TasSeed** authorised officers.

53. Seed graded on a harvester may be presented for inspection for **Certification** only if the tubers are practically free of soil. Samples for assessment will be selected by or under the auspices of **TasSeed**
54. **Applicants** are responsible for contacting **TasSeed** before grading and packing, to request printing of seed **Label**s and to schedule inspection for the seed **Lot**s to be certified. Five days' notice is required for the **Label**s to be printed.
55. It is the **Applicants** responsibility to ensure that all seed potatoes produced under the auspices of the **TasSeed Scheme** retain their integrity and traceability.
56. Although post-harvest treatments such as, but not limited to, storage practices and fungicide applications as suggested for good practice, **TasSeed** certification does not include any assurance as to post-harvest treatments.
57. For fresh market sales and seed for sale outside Tasmania a label must be attached to each seed container.
58. Grading and tuber inspection of a seed **Lot** will have one of five outcomes depending upon both its origin and assessment.

- Gold **Label** seed
- Silver **Label** Seed
- Bronze **Label** Seed
- Red **Label** Seed
- Rejected

Seed specifications associated with each type of **Label** are found on page 16 under **Label**s.

Tuber Inspection Requirements

59. The **Certification Officer** will inspect unwashed tubers for **Disease** and **Defect**s by examining random samples from each **Lot** of potatoes presented for inspection as per the *"TIA Seed Potato Certification Sheet 2021*. Appendix 4*)*
60. In the instances of direct trading between a **Applicant** and a fresh market producer, Tuber inspections must be undertaken for Certified seed that is to be sold, before leaving the property or cool store on which they were grown/stored.
61. The **Applicant** must notify the Certifying Authority three working days prior to the tubers requiring inspection.
62. Tubers shall be assessed for **Disease** and **Defect**s. Irrespective of the generation assessed, seed shall be certified providing it does not exceed the maximum tolerance levels in Appendices 2 and 4. An **Applicant** may apply for a re-inspection after a lot has been re-graded after initially failing an inspection.
63. At least 5% from each tuber sample shall be cut and inspected for internal **Defect**s.

64. Tuber samples may be taken by the **Certification Officer** for diagnostic testing in the laboratory. This testing may be at the **Applicant's** expense. Results from these laboratory tests may form the basis for seed **Lot** rejection.
65. If the seed **Lot** passes the tuber standards at the time of inspection, it will be approved for final certification. The tuber inspection result is only valid for 28 days from the date of inspection. Movement or sale after this period (28 days) will require a re-inspection for **Certification.**
66. Cut seed is not eligible for tuber inspection and **Certification**

*Note: Tuber inspections are not required for seed **Lot**s to be retained by the seed **Applicant** for further multiplication as Certified seed. Inspection or a quality check of retained seed by the **Applicant** is highly recommended to identify any potential issues prior to planting.*

Tuber sample size Requirements

65. The number of tubers to be inspected is proportional to total seed **Lot** weight of all bags, bins, or containers.

67. Samples are randomly selected at receival
68. To calculate the minimum number of tubers per sample to be assessed, use the following formula:

For seed **Lot**s less than 100kg, the entire **Lot** will be assessed

Lots Up to 15 tonnes	one sample of 200Tubers
Lots >15 tonnes up to 30 tonnes	one sample of 400 tubers
Lots >30 tonnes up to 45 tonnes	one sample of 600 tubers

Tuber inspection standard requirementss

68. Three groups of **Defect**s/**Defect**s are recognised for the purposes of tuber inspections:

- Group 1 Exotic quarantine **Diseases**
- Group 2 Established **Diseases** and nematodes
- Group 3 Insect damage and **Defect**s.

A full list of tolerances for **Diseases** and **Defect**s is in Appendices 2 & 4.

69. The maximum total permitted tolerances for all **Diseases** in Group one and Group two is 2 per cent unless negotiated otherwise for the **diseases** noted in paragraph 69
70. The level of silver scurf (*Helminthosporium solani*), black dot (*Colletotrichum coccodes*), undersized or oversized tubers may be negotiated between the buyer and the seller and documented, these will be included as **Defect**s.
71. Tubers are to be practically free of soil
72. Tubers must be of good characteristic shape for the cultivar

Note: The standard method of grading Certified seed potatoes is based on size dimensions using a square hole template. Unless agreed to between buyer and seller prior to delivery, seed

shall be graded to a standard of 30mm to 75mm. If grading is to be by weight, then tubers will usually be graded within the limits of 35g to 175g.

Tuber laboratory testing

73. Laboratory testing may be undertaken in a number of circumstances such as, but not limited to:
    - samples collected by **Certification Officer**s during routine inspections
    - as part of an industry survey
    - when requested by **Applicants** for market access
    - through incident surveillance.

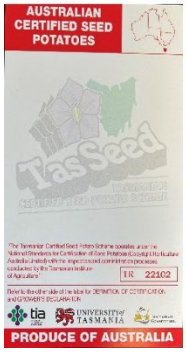
74. The results from any laboratory tests relating to certified crops or seed **Lot**s, may form the basis for rejection or reversal of certification where the results exceed the tolerances for **TasSeed**. There may also be Biosecurity actions taken dependant on the situation.

Labels

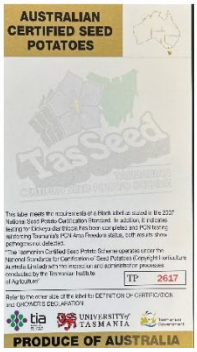
Rules

75. **TasSeed** issues four types of certification **Label**s according to the field rating results from inspection and laboratory testing for Gold label (Appendices 2 & 4) and these can only be issued by a **Certification Officer**.
    - Gold **Label** – To qualify for Gold **Label** status for a **Lot** must meet or exceed Rating 1 at all stages during the certification process. This is higher than the AuSPICA black **Label** in that the seed crop has met field standards, the tubers are within certifiable tolerance and supported by laboratory testing. This additional rigour reinforces Tasmania's Area Freedom Status for PCN, and virus Y as well as confirming the status and freedom of *Dickeya dianthicola* in seed **Lots** from Tasmania.
    - Silver **Label** - This seed has met all visual and rating 1 requirements but has not had laboratory testing.
    - Bronze Label This seed has one or more field ratings of 2
    - Red **Label** - This seed meets certification requirements, but one or more criteria have only met Rating 3 standards. Red **Label** seed can only be planted for harvest as ware and cannot be planted for a further seed crop.

Examples of **Label**s



Red Label
the seed crop has met field standards, and the tubers are within certifiable tolerance.



Gold label
the seed crop has met field standards, the tubers are within certifiable tolerance backed up by clinical testing.

76. **Applicants** are responsible for the safe storage and correct use of official **Label**s.
77. The use of official **Label**s for other purposes than those intended may result in exclusion of the **Applicant** from the certification process. It is also fraudulent.
78. For each seed **Lot** that passes tuber inspection, official printed **Label**s may be issued for attachment to each container.
79. These **Label**s can be attached either by **TasSeed** or by the **Applicant**. In both cases, the **Label**s are attached on the understanding that the **Applicant** guarantees the contents of the container to be product of the crop which passed field inspection and complied at the time of tuber inspection with the standards prescribed for the **Scheme**.
80. Until the produce from a certified crop passes a tuber inspection, the **Lot** is not recognised as Certified seed.
81. When a **Lot** of seed is rejected or is required to be re-graded, it is the **Applicants** responsibility to remove the previously attached official **Label**s. Where **Lot**s are rejected, **Label**s must be returned to the Certifying Authority.
82. Any unused labels must be returned to **TasSeed.**
83. Generations 1 to 4 can be transferred and/or traded between Certified seed **Applicants** and/or contracted producers for the purpose of further production of Certified seed. Such seed will have a field rating of 1 or 2, pass tuber inspection standards and have a Gold, Silver or Bronze label.

Export Labelling

Labels used for export seed must comply with the Australian Commonwealth standards and include the following details:

- EXPORT SEED Produce of Australia
- seed **Lot** code
- **Variety**
- generation
- registered area number
- serial (**Label**) number
- month harvested
- month packed
- size range
- mass of container
- approved Certifying Authority
- endorsement by the Certifying Authority
- definition of **Certification**, and **Applicant**'s declaration

Storage & Despatch

84. **Applicants** and Potato **Certification Officer**s must ensure that a level of hygiene is adopted which will facilitate the production of high-quality Certified seed.
85. Official certification **Label**s must be securely attached to prevent loss during transport.
86. Records must be kept of **Label** numbers used for each seed **Lot**.
87. Seed may only be packed and transported in new bags, bulk bags or appropriately cleaned containers.

88. Seed will not be recognised as Certified seed unless all containers are clearly Labelled to maintain the identity and integrity of the seed as approved by **TasSeed**.
89. Export seed must comply with the phytosanitary requirements of AQIS and the importing country
90. Seed that has been repacked will not be recognised as certified seed unless such packing maintains the integrity and identity of the seed to the satisfaction of **TasSeed**.
91. Each generation of seed must be separated to prevent lines from being mixed
92. Seed potatoes must be separated from ware potatoes and in situations where the latter have been treated with an anti-sprout they must be in a separate room.
93. Where the same equipment is used for non-certified or ware potatoes and seed potatoes, the equipment must be thoroughly cleaned before seed is handled.
94. Seed **Lot**s, (generations and varieties) must be clearly and accurately Labelled.
95. **TasSeed** does not recognize the use of any term implying seed fitness other than those used in this scheme and implied by the **Label.** Non-recognition includes, but is not restricted, to the use of terms such as “Provisional seed” and/or “Approved seed”. This is to remove any doubt as to the quality and fidelity of **TasSeed** certified seed potatoes. Historically these names have generally been associated with product that has either been rejected or uncertified from the Scheme.

Appendix 1

Definition of Terms

Terms imparting the singular also imply the plural and vice-versa

Accreditation

Accreditation means the official process in which laboratories are approved by **TasSeed** to produce planting material for further multiplication.

Accredited laboratory

A laboratory approved by **TasSeed** to produce **Minitubers**, micro-tubers and plantlets for further multiplication.

AuSPICA

The Australian Seed Potato Inspection Authority.

Certification

Certification of seed potatoes is strictly limited to the act of endorsing that the seed potatoes have been produced in accordance with the **Rules** and conditions specified by the Tasmanian Seed Potato Certification Scheme. The method of determining compliance with these standards is visual inspection of the growing crop, inspection of random samples of the graded product, and where required laboratory testing for presence of **Pathogens. Certification** by TasSeed does not constitute a warranty by the certifying authority regarding the quality or freedom from **Disease** of the seed potatoes beyond the express representation that the seed potatoes were produced and inspected under the **Scheme** and qualified at the time of inspection that the seed potatoes meet the **Schemes Rules**.

Certification Officer

A person authorised by **TasSeed** to perform the functions prescribed by the **Scheme**

Defect

Means a non-infectious tuber abnormality caused by such things as insects, mechanical damage or stress

Disease

A condition caused by an infectious agent such as a fungus, bacterium, nematode, or virus.

Defect Free

Plant material **Pathogen Tested** and found to be free of pathogens of concern to **TasSeed**

Destroy and Destroyed

This means deep burial

Disease/Defect tolerances

The maximum permitted incidence of **Defect**, or plant **Defect** present in either the growing crop, or on harvested tubers, to meet a defined quality standard.

Applicant

A person or entity registered with **TasSeed** and producing or handling seed potatoes under the auspices of **TasSeed**

Label

The official certification tag attached to each unit of certified seed.

Lot

A discrete collection of potatoes differentiated by physical separation based on **Variety**, generation and certification status.

Minituber

A tuber produced from a plant grown in an insect proof greenhouse approved by **TasSeed** and derived from **Disease** free tissue culture material.

Microtubers

Small potato tubers produced through tissue culture using in vitro axillary bud

Pathogen

Pathogen means a **Disease** causing agent (eg. fungus, bacterium, nematode, virus).

Pathogen Tested

Potatoes tested for and found to be free of **Disease** causing agents as prescribed in this **Scheme**.

Rules

The conditions which must be met to fulfill the requirements of **TasSeed.** For clarity this includes all the numbered provisions in this document.

Scheme

Scheme means the provisions of the Tasmanian Seed Potato Certification Scheme (TSPCS)

Seed Handler

Any person or entity, other than the **Applicant** who may be involved in the handling or dealing with certified seed potatoes produced under this **Scheme.**

TasSeed – Tasmanian Seed Potato Certification Scheme

Variety

Under the TSPCS a **Variety** is deemed to be the name of the potato supplied by the seed producer and for which a description exists such that a **Certification Officer** can confirm varietal purity.

Zero Tolerance

When **Zero Tolerance**s are applied, certification does not mean that the **Lot** is free of **Defect**, but that none was visually observed or detected during the inspection procedures detailed in this document.

Appendix 2

Field Inspection Tolerances

Zero Tolerance Diseases

Common name	Scientific name	Status in Tasmania
Bacterial Wilt (brown rot)	*Ralstonia solanacearum*	Absent
BCTV	Beet curly top virus	Absent; all Australia is pest free
Dickeya spp.	*Dickeya*	Absent
Late blight (A2 mating strains)	*Phytophthora infestans*	Absent; all Australia is pest free
Mop head or mop-top	Potato mop-top virus	Absent; all Australia is pest free
Phoma leaf spot	*Stagonosporopsis andigena*	Absent; all Australia is pest free
Potato cyst nematode	*Globodera pallida*	Absent
Potato cyst nematode	*Globodera rostochiensis*	Absent
Potato tuber nematode	*Ditlenchus destructor*	Absent
Potato wart	*Synchytrium endobioticum*	Absent; all Australia is pest free
PSTVd	Potato Spindle Tuber viroid	Absent
PVM	Potato virus M	Absent; all Australia is pest free
PVS (Andean strain)	Potato virus S	Absent
PVT	Potato virus T	Absent
PVV	Potato virus V	Absent; all Australia is pest free
PVDV	Potato yellow dwarf virus	Absent; all Australia is pest free
PVY all strains	Potato virus Y	
Ring rot	*Clavibacter sependonicus*	Absent; all Australia is pest free
Rubbery rot	*Geotrichum huidobrensis*	Absent
Purple top Wilt	*Phytoplasma spp.*	Absent; all Australia is pest free
Skin spot	*Polyscytalum pustulans*	Absent
Smut	*Thecaphora solani*	Absent; all Australia is pest free
Tobacco rattle virus	Tobacco rattle virus	Absent
Zebra chip	*Candidatus Liberibacter solanacearum*	Absent

Tolerated Fungal and bacterial Diseases

Potato **Defect**	Causal organism	Final inspection rating		
Fungal Defects		**R1**	**R2**	**R3**
Fusarium wilt	*Fusarium spp.*	0.1%	0.25%	2.0%
Verticillium wilt	*Verticillium dahlia.*	0.1%	0.25%	2.0%
Bacterial Defects				
Blackleg	*Pectobacterium spp.*	0.1%	0.25%	2.0%
Vine rot	*Pectobacterium spp.*	0.1%	0.25%	2.0%
Total fungal and bacterial Defects*		**0.1%**	**0.25%**	**2.0%**

* Fungal and bacterial **Diseases** are treated in the same category and have a maximum allowable tolerance.

Notable fungal and bacterial **Defect**s

Notable **Defect**s will be recorded on field inspection records. They will not necessarily result in crop rejection or downgrading. These **Defect**s are assessed at tuber inspection. **TasSeed** reserves the right to reject the paddock based on poor crop performance because of these **Defect**s.

Notable **Defect**		Noted at	Assessed at
Fungal Defects			
Rhizoctonia	*Rhizoctonia solani.*	Field inspection	Tuber inspection
Pink Rot	*Phytophthora erythroseptica.*	Field inspection	Tuber inspection
Leak	*Pythium spp.*	Field inspection	Tuber inspection
Sclerotinia	*Sclerotinia sclerotiorum.*	Field inspection	Tuber inspection
Target spot	*Alternaria solani.*	Field inspection	Tuber inspection
Bacterial Defects			
Common scab	*Streptomyces scabies.*	Field inspection	Tuber inspection

Virus Incidence tolerances

If virus **Diseases** are noted or suspected in the field, the results may be confirmed by laboratory testing.

Potato virus	Final inspection rating		
	R1	R2	R3
Potato leaf roll virus (PLRV) see below	0.01%	0.1%	1.0%
Potato virus S (PVS)*	0.01%	0.1%	1%
Potato virus X (PVX) **	0.01%	0.1%	1.0%
Potato virus Y (PVY)***	0.0%	0.0%	0.0%
Tomato Spotted Wilt virus (TSWV)	0.01%	0.1%	1.0%
Tobacco mosaic virus****	0.01%	0.1%	1.0%
Potato yellow dwarf virus****	0.01%	0.1%	1.0%
Total virus allowed	0.01%	0.1%	1.0%
Total permitted defective plants including other fungal and bacterial **Defects**	0.1%	0.25%	2.0%

PLRV tolerances are generation dependant as follows:

G1 0

G2 0.01%

G3 0.1%

G4 0.25%

G4 0.25%

*Unless it is to enter another certification scheme, no crop will be rejected due to detection of PVS. An independent virus test will be supplied that may be at cost to the **Applicant** should there be any dispute as to virus diagnosis in field.

** PVX. Any crop exceeding 1% of PVX at final inspection will be rejected.

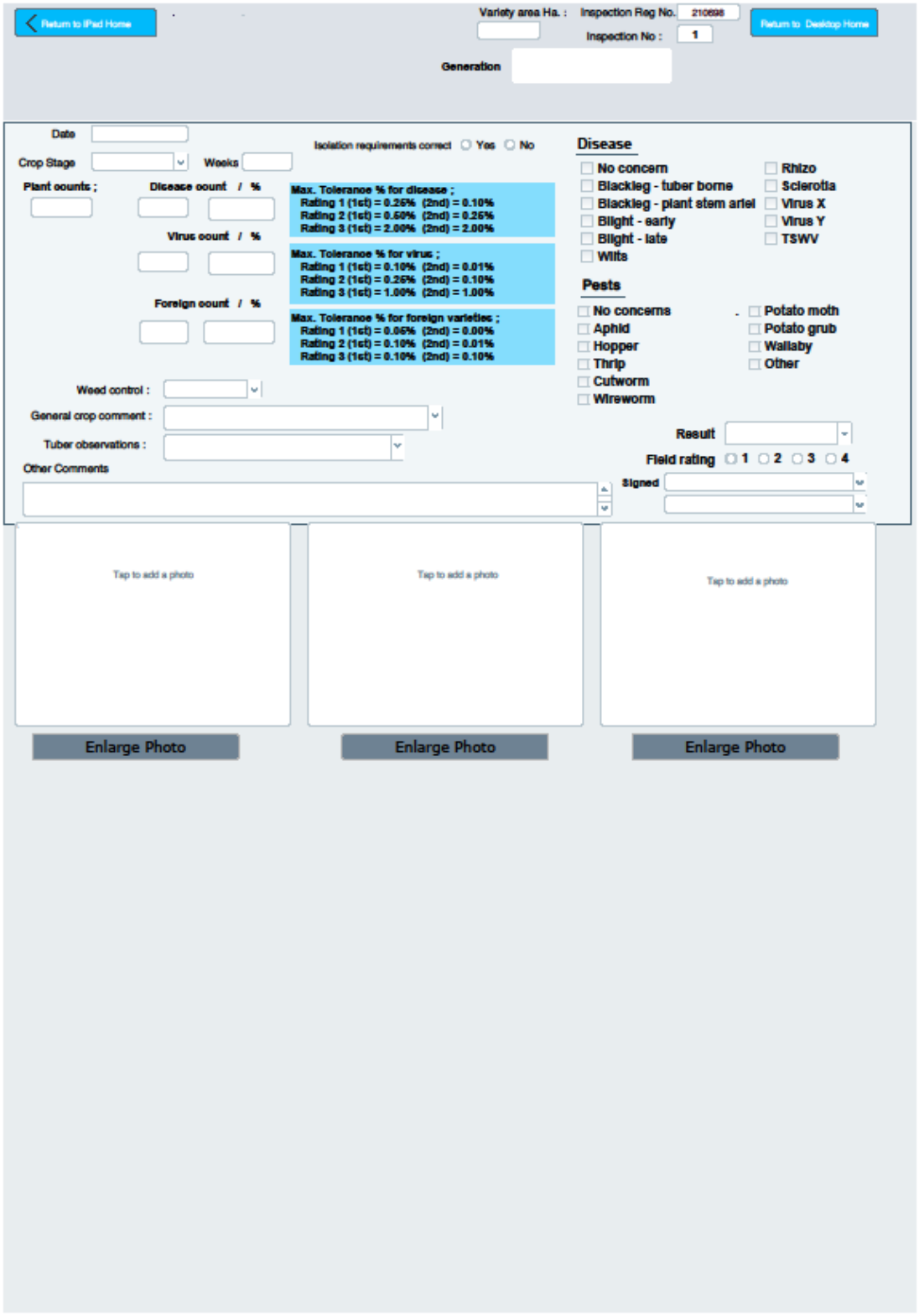
*** There is **Zero Tolerance** of PVY. If any level of PVY is detected by visual examination or through clinical testing after final inspection, then all material of that **Variety** and generation planted in that plot must be processed such that all possibility of live virus is removed or **Destroyed**

**** Serological testing **Rules**

Potato Mop Top Virus has recently been discovered in Tasmania and deemed Non Eradicable in Australia. As a result there are no tolerances allocated to the presence of Potato Mop Top Virus at this stage. **TasSeed** will test for the presence of this virus at G2 harvest within the scheme, but by grower request thereafter. All growers, seed/ ware and processing are asked to make best efforts around management decisions involving this virus.

Appendix 3

Example of Seed Certification Paddock Inspection Form



Appendix 4

Tuber inspection pest and **Defect** tolerances

Three groups of **Defect**s/**Defect**s are recognised for the purposes of tuber inspections:

Group 1	**Zero Tolerance** pest and **Diseases**
Group 2	Tolerated Tuber **Diseases** and nematodes
Group 3	Insect damage and **Defect**s

Group 1 Zero Tolerance Diseases

Detection of any of the following at any point during the certification process will preclude certification

96.	Blackleg caused by	*Dickeya dianthicola*
97.	Brown rot	*Ralstonia solanacerum*
98.	Potato Cyst Nematode (PCN)	*Globodera rostochiensis* or *G. pallida*
99.	Potato Spindle Tuber viroid	PSTVd
100.	Potato virus Y	PVY
101.	Potato wart **Defect**	*Synchytrium* endobioticum
102.	Ring rot	*Clavibacter michiganensis sepedonicus*
103.	Zebra chip complex	*Candidatus* Liberibacter solancearum

Group 2. Tolerated Tuber Diseases and pests

Tolerances are based on the sample when inspected. Assessment of these Group 2 **Diseases** is by visual inspection of unwashed tubers.

Fungal or bacterial **Defect** and nematodes		% x tuber count "A"
Fusarium dry rot	*Fusarium spp.*	2%
Gangrene dry rot	*Phoma spp.*	2%
Late blight	*Phytophthora infestans.*	2%
Pink rot	*Phytophthora erythroseptica.*	0.25%
Rhizoctonia*	*Rhizoctonia solani.*	2%*
Powdery scab	*Spongospora subterranea.*	2.0%
Silver scurf*	*Helminosporium spp.*	*
Black dot*	*Collectorichum spp.*	*
Soft rots	*Pythium spp.* *Pectobacterium spp,*	0.25%
Common scab**	*Streptomyces spp.*	4%
Root-knot nematode	*Meloidogyne spp.*	2.0%

*The tolerance for these **Diseases** may be negotiated by the **Applicant** and buyer.

** Tasmanian allowed tolerance for common scab is 4.0%. Seed exported will have to meet the requirements of the importer

Group 3. Non-Pathogenic Tuber Defects

Defect	AA	A
Insect damage* (an additional 2% of tubers can show minimum feeding.	0.7%	1.5%*
Potato tuber moth	0.7%	1.5%
Malformed tubers	1.0%	2.0%
Enlarged or blown lenticels**	1.0%	2%
Mechanical damage — shatter, splitting, cuts, cracks, bruise (damage >3mm deep	1.0%	2.0%
Stem end browning (cut 5% of inspected tubers for internal **Defect**s)	1.0%	2.0%
Miscellaneous (e.g. sunburn, sprouting shrivelling)	0.5%	1.0%
Foreign cultivars	0.0%	0.0%
Miscellaneous eg hollow, black heart frost damage	1.0%	2.0%
Soil***		
Maximum tolerance for all **Defect**s in Group 3	2%	2.0%

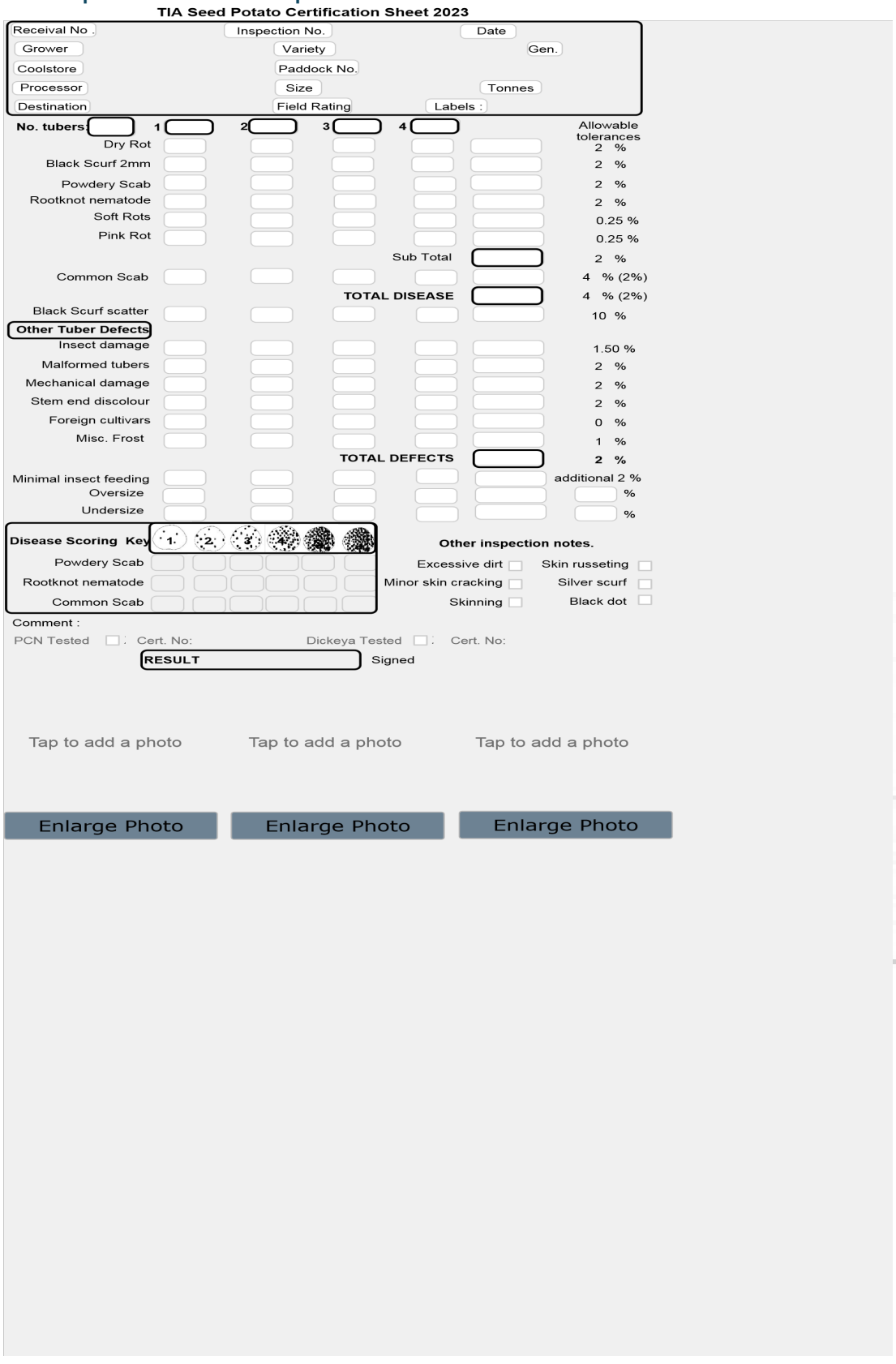
*Tolerance of oversize and undersize can be negotiated between seed **Applicant** and buyer.

** Large or blown lenticels occur when tubers are exposed to excessive moisture and act as entry points for **Diseases.**

*** Seed is to be practicably free of soil such as loose or adhering clods

Appendix 5

Example of Tuber Inspection sheet



TIA Seed Potato Certification Sheet 2023

Receival No . | Inspection No. | Date
Grower | Variety | Gen.
Coolstore | Paddock No.
Processor | Size | Tonnes
Destination | Field Rating | Labels :

No. tubers	1	2	3	4		Allowable tolerances
Dry Rot						2 %
Black Scurf 2mm						2 %
Powdery Scab						2 %
Rootknot nematode						2 %
Soft Rots						0.25 %
Pink Rot						0.25 %
				Sub Total		2 %
Common Scab						4 % (2%)
				TOTAL DISEASE		4 % (2%)
Black Scurf scatter						10 %
Other Tuber Defects						
Insect damage						1.50 %
Malformed tubers						2 %
Mechanical damage						2 %
Stem end discolour						2 %
Foreign cultivars						0 %
Misc. Frost						1 %
				TOTAL DEFECTS		**2 %**
Minimal insect feeding						additional 2 %
Oversize						%
Undersize						%

Disease Scoring Key 1. 2. 3. 4. 5. 6.

Powdery Scab
Rootknot nematode
Common Scab

Other inspection notes.

Excessive dirt ☐ Skin russeting ☐
Minor skin cracking ☐ Silver scurf ☐
Skinning ☐ Black dot ☐

Comment :

PCN Tested ☐ : Cert. No: Dickeya Tested ☐ : Cert. No:

RESULT Signed

Tap to add a photo | Tap to add a photo | Tap to add a photo

Enlarge Photo | Enlarge Photo | Enlarge Photo

Further Information