Certified Seed Potatoes - Certification Officers Training Workshop

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Victorian Certified Seed Potato Authority Inc

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PT10011

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April 2011

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Certified Seed Potatoes - Certification Officers Training Workshop
Purpose of the Project

The purpose of the workshop is to facilitate the uniform application of standards to produce quality certified seed potatoes for all Australian domestic and export markets

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Media Summary

Certified seed potatoes underpin the multi-million dollar Australian potato industry (fresh/table and processing sectors) including the increasing export markets. Total value of annual potato production in Australia is around $470 million (ABS). In 2005–06, Australia exported 52,000 tonnes of potatoes or potato products, or about 4% of annual production, at a value of $39m.

Seed potato certification contributes to the increased production of potatoes in Australia despite declining areas of production. The potato yield per hectare has continued to increase since the implementation of seed certification schemes in 1937. It is therefore, reasonable to assume that certified seed potatoes will continue to lend stability to a crop that shares a part of our diet and economy.

The function of certification is dependent on the skill and capabilities of the certification officer. It is therefore, vital that the certification officers have the latest information about diseases and pests and their identification. Furthermore, bring together officers from across the various state seed schemes fosters the uniform application of the National Standard for the official certified seed potato schemes which is important for both the domestic and export industries.

Certification officers were trained in skills in seed certification including:-

- National seed scheme rules
- Plant disease identification
- Plant botanical identification (cultivars of potato)
- Occupational Health and Safety
- Collecting plant specimens for laboratory identification
- Conducting field inspection
- Conducting Tuber inspections
- Traceability and completing reports

Technical

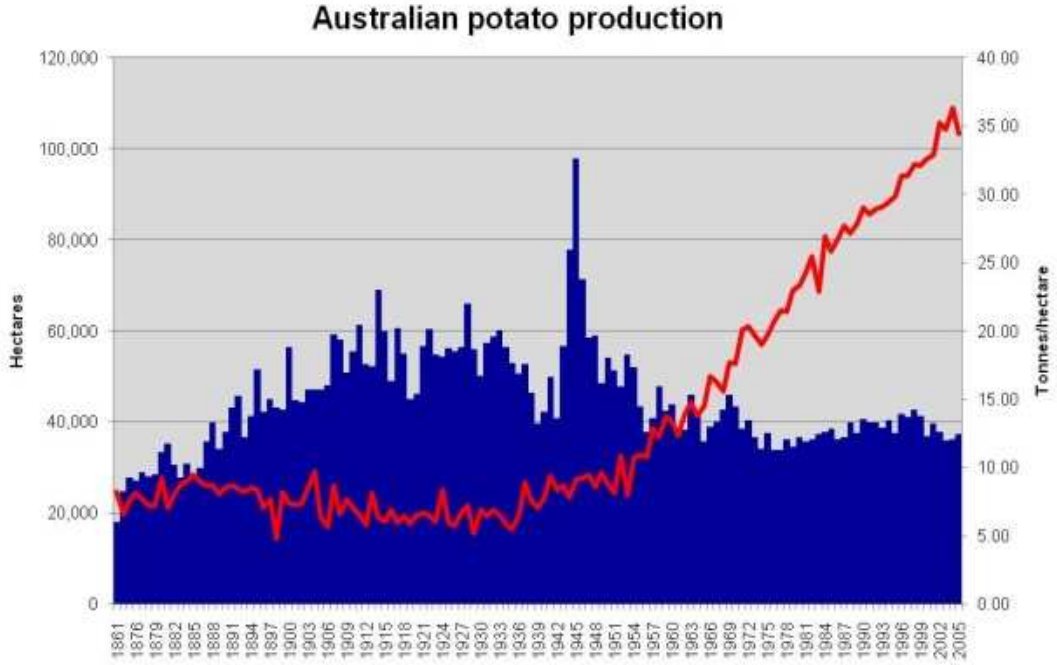
Background

Certified seed potatoes underpin the multi-million dollar national potato industry, including the increasing export markets. Total value of annual potato production in Australia is around $470 million (Australian Bureau of Statistics). In 2005–06, Australia exported 52,000 tonnes of potatoes or potato products, or about 4% of annual production, at a value of $39m.

All sectors (fresh/table and processing) of the Australian industry rely upon certified seed production. An effective seed certification scheme ensures the efficient production of a stable food product to consumers.

Seed potato certification contributes to the increased production of potatoes in Australia despite declining areas of production. Although the area of land under potatoes has declined about 26% in the last 100 years, potato production has risen five-fold (1). In fact, the potato yield per hectare has continued to increase with the adoption of modern farming practices including the implementation of seed potato certification schemes around 1937. It is therefore reasonable to assume that certified seed potatoes will continue to lend stability to a crop that shares a significant part of our diet and economy.

"Good seed potatoes produce larger yields, tubers usually more uniform in size and shape, and the demand for such stock is better and consequently brings higher prices than that raised from common seed. It never pays to plant poor seed for such is always dear at any price. ***Walter M. Peacock 1925 The Potato News Bulletin VOL. II. NO. 2 FEBRUARY, 1925***



Objective of seed potato certification

Seed potato certification programs are designed and administered as a means to provide reasonable assurances of seed quality.

The reference to seed is not true botanical seed. It is a reference to potato tubers which serve as vegetative units for propagation of plants which will produce the new potato crop (2). Many potato diseases are systemic in potato plants and can be carried in or on the surface of such "seed" tubers.

Monitoring of seed crops for disease is largely by visual inspection supported by laboratory testing using ELISA or PCR technology. The following diseases are monitored in the National Seed Potato Certification Scheme:

- Blackleg and related soft rots caused by *Erwinia* spp.
- Bacterial wilt, caused by *Ralstonia solanacearum*
- Ring rot, caused by *Clavibacter michiganense* pv. *sepodonicum*
- Powdery scab, caused by *Spongospora subterranea*
- Black scurf, caused by *Rhizoctonia solani*
- Silver scurf, caused by *Helminthosporium solani*
- Gangrene, caused by *Phoma exigua*
- Wilt, dry rot, caused by *Fusarium* spp.
- Wilt, caused by *Verticillium* spp.
- Black dot, caused by *Colletotrichum coccodes*
- Late blight, caused by *Phytophthora infestans*
- Common scab caused by *Streptomyces* spp.
- Potato leafroll virus (PLRV), potato virus A (PVA), potato virus M (PVM), potato virus S (PVS), potato virus X (PVX), potato virus Y (PVY), tomato spotted wilt virus (TSW), and potato spindle tuber viroid (PSTV)
- Calico, caused by Alfalfa Mosaic Virus

The tolerances of these diseases for seed certification vary from zero tolerance to an acceptable rating determined by incidence and severity.

The successful operation of the seed potato certification scheme allows the Australian potato industry to have :

- ✓ Reliable high health seed production that meets national seed standards.
- ✓ Increased yield and product quality of commercial crops in the fresh & processing industries.
- ✓ Enhanced efficiency in the use of natural resources, including land and water.
- ✓ Management of tuber borne diseases, including many viral diseases that severely limit yield & quality.
- ✓ Reduced reliance on pesticides to manage pest problems and a high adoption of integrated pest management practices.

Role in Biosecurity

A seed potato certification scheme has a considerable role in the biosecurity of the National Potato Industry for exotic pests such as Potato Cyst Nematode (PCN).

Purpose of seed certification

The following has been taken from an article by John Tucker 1939 in the American Potato Journal

"The quality of seed planted is one of the most important factors in the production of profitable crops, good seed means tubers that are free from disease, free from variety mixtures, from a high yielding strain, grown under favourable climatic conditions, and firm and sound at planting time.

The value to the potato industry in having a trained staff of seed certification inspectors who are keenly appreciative of their problems, is also evident. The inspection services have been termed the "watch dogs of the potato industry," and this is true in many ways. The inspectors must contact at least twice each season, the seed growers who are naturally observant where potato troubles are concerned, and anything out of the ordinary is brought to the attention of the inspector.

The object [of seed certification] is to make available to the potato industry a plentiful supply of good, vigorous, disease-free seed at a reasonable price rather than spend as much or more in trying to control diseases after they have become seriously established throughout the country. Not

only the certified seed growers but the whole potato industry, and through them all consumers, benefit from the services of seed potato certification."

The National standards for seed certification in Australia

The National standard for seed certification (which a copy has been provided) is a *minimal* standard for all seed potato certification schemes in Australia. Certification of seed potatoes is undertaken by the current certification authorities in each state. The National standard provides

- ✓ Minimum standards for the presence of disease and tuber quality
- ✓ Common/generic terminology
- ✓ Uniform national labelling for both domestic and export certified seed potatoes
- ✓ Uniform rules and guidelines for seed production, including rotations, hygiene, seed grades, crop inspections, tuber inspections, crop isolation, packaging and transport procedures

In addition to the National standards are regional standards that are managed by the respective seed certification authority. Eg Tasmania has a 4% tolerance for common scab; Victoria and South Australia have a soil PCN test requirement.

Certification Officer Training Workshop

The program of the workshop was conducted over 3 days and involved a array of practical and classroom style learning's. The participants (Figure 1) had a range of experience from those newly associated with seed certification and those with 20 years plus experience. At the end of the program participants were evaluated for their understanding of the seed certification scheme and their practical skills in cultivar identification.

Figure 1 *Back Luke James (ViCSPA), Douwe Anema (The Netherlands), Keith Blackmore (ViCSPA), Nigel Crump (ViCSPA), Andrew Hayton (ViCSPA) Front: Dale Spencer (, Joe Smith, Sharon Elphinestone, Russell Bell*

To provide a practical basis to the workshop, demonstration plots were established at the Toolangi Research Station (see plan below Figure 2). These plots were flowering at the time of the workshop and provided excellent resource

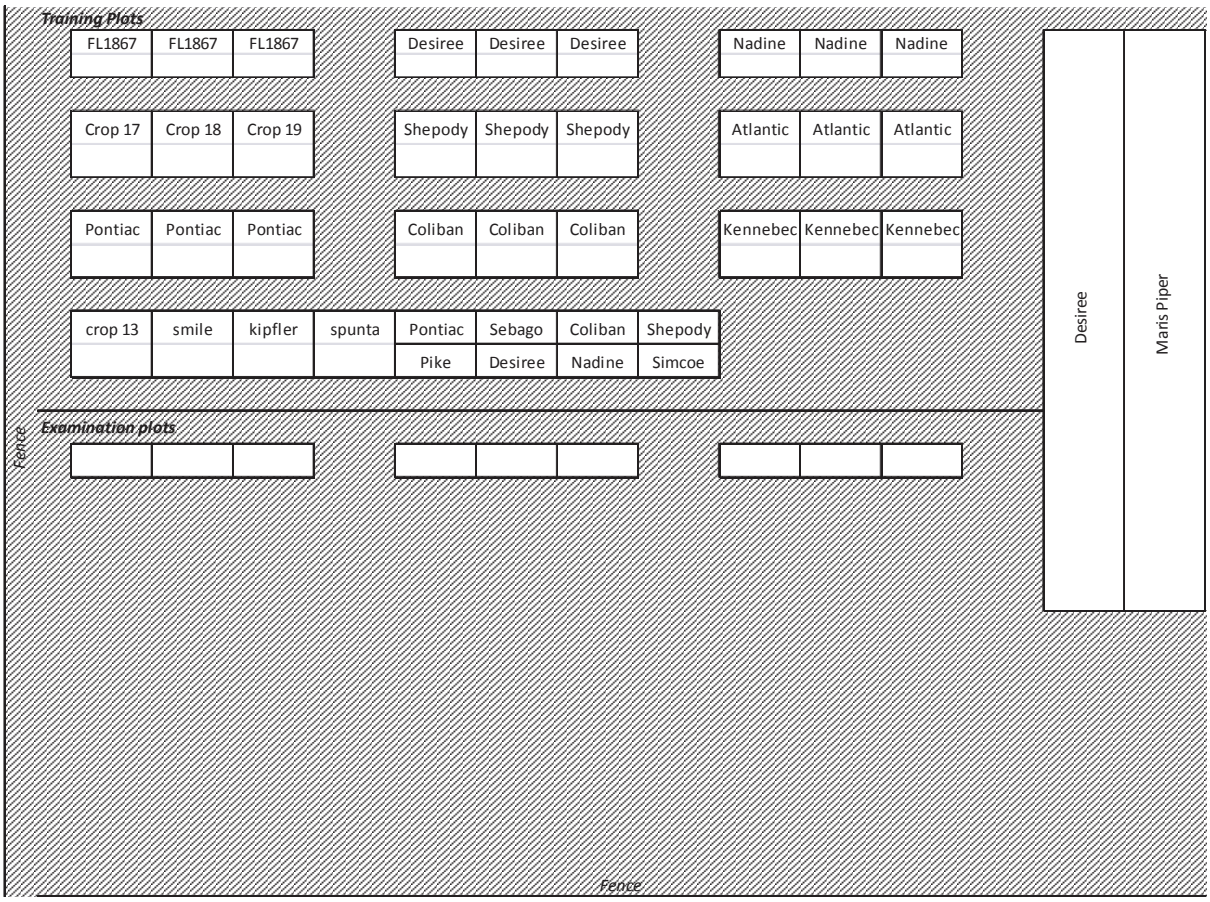


Figure 2 Plots layouts used to facilitate potato cultivar identification

Program

Program Day 1

Interstate delegates arrive mid morning at Melbourne. Transport will be provided from Melbourne airport. We suggest that all delegates that are flying in aim for arrival about 9.30 am. Please contact Kerrie Hollis re arrangements for travel 03 5962 0000 (Kerrie is in office T,W,T)

Travel to Toolangi Research Station.

11.00	Introduction
12:30	*Lunch & Welcome*
1.00	Basic concepts of Certification
1.20	Diseases of potato – field identification and overview
2:30	PCN
2:45	*Afternoon Tea*
3:00	Accredited labs (discussion and tour)
4.00	Key variety differences - Field practice variety Identification

Program Day 2

8.45	Field work in variety plots
9.30	Field inspections: Application forms, equipment, hygiene, timing of inspections, causes of rejections, use of Laboratory diagnosis
10.30	Tuber inspection - to the National Standards
11.30	Tuber inspection workshop with "hands on" exercises
12:00	*LUNCH*
1.00	Tuber inspection Competency Assessment
2.00	Virus sampling
	- Gibbs and Gower (sampling and variations)
2.30	Occupational Health & Safety (discussion)
3.30	Field work in the variety plots
7:00	*Workshop Dinner at Healesville*

Program Day 3

9.00	Variety identification practice
9.30	Variety test plots. Testing the knowledge gained
11.00	Competency Assessment for scheme rules and field inspection methods
12.00	Evaluation of course & close
1:30	Distribution of Competency Certificates & close of course

Participants in the classroom and in the “shed”

Participants in the field plots assessing botanical features of potato cultivars

Workshop Handbook

The workshop handbook is attached as a supplement to this report.

Workshop evaluation

All workshop participants were invited to complete a short evaluation of the workshop. All participants rated the program very highly. All participants would attend a similar training and would recommend attending to others. The most informative sections of the workshop were; the practical aspects of variety identification, tuber inspection and accredit lab tours. The participants all enjoyed the discussion style learning.

All participants of the workshop satisfied the assessment criteria and therefore received a certificate of attendance (see next page)

Certificate of Attendance

This is to certify that

Has successfully completed the
ViCSPA Seed Potato Certification Workshop

February 2011

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Dr Nigel Crump

General Manager ViCSPA