

SASA



High Health Seed Potatoes

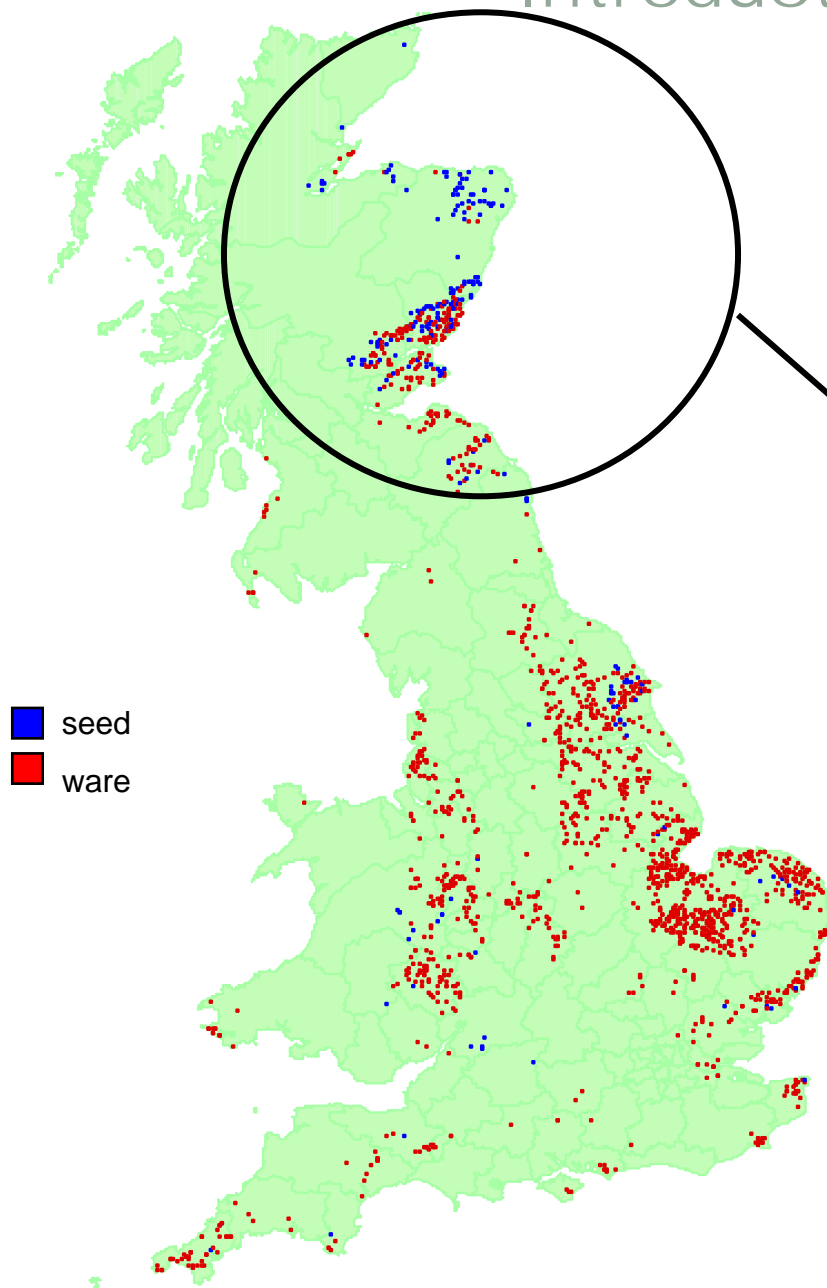
Official Classification
Phytosanitary Control

Prof. Gordon Machray

SASA

A Division of the Rural Payments & Inspections
Directorate of the Scottish Government

Introduction

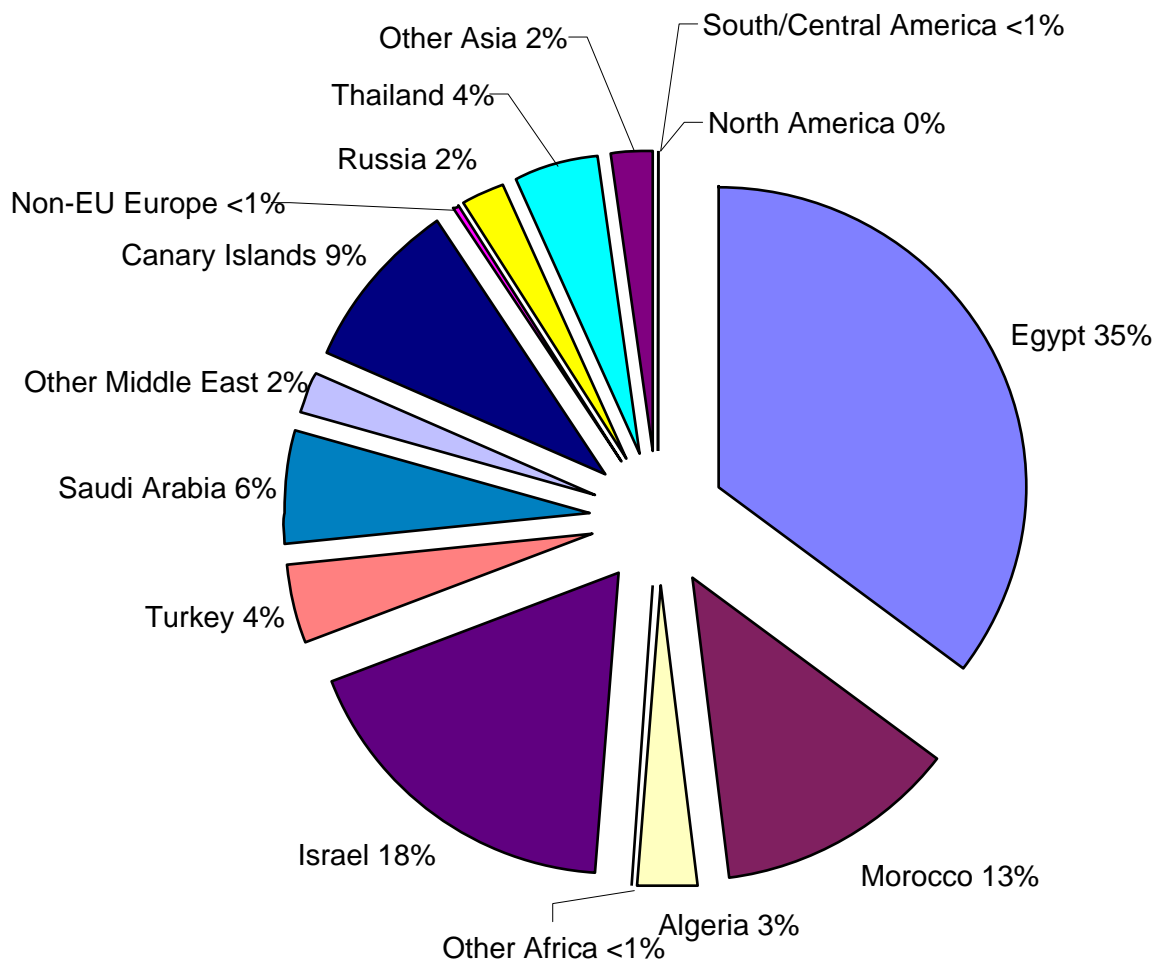


UK Potato Market >£1 billion

- 75% of UK ware crop originates from Scottish seed
- 90% of UK seed crop exported (ex EU) originates from Scotland

Scottish Seed Potato Crops (2006)

No. of producers:	237
No. of registered crops:	3,999
Area planted (ha):	10,736
Approx. yield (tons):	268,397
of which were export (ex EU) (tons)	63,325
No. of varieties:	170



Northern exposure - Scottish Seed Potatoes



- Seed Potato Classification Scheme (SPCS)
- Scotland is a high quality seed area, producing only Pre-basic and Basic seed
- EU Community Grade Region
- Very limited import of seed potatoes from elsewhere, maintaining high health status
- Ensures high quality by setting strict rules on:
 - initial plant material
 - number of field generations
 - pest and disease prevalence
- Seed certification in Scotland is conducted by government officials



Nuclear Stock (microplants)



Pre-basic TC (mini-tubers)

CE



Pre-basic FG1 - 4



Basic Super Elite - SE

FG1 - 3



Basic Elite - E

FG 1 – 3



Basic A

FIELD



Ware

CE - Nuclear stock (microplants)



EC Breeders
EEC Passport

UK Breeders
Approved stocks

Other Importers
UK Quarantine
Unit at SASA

SASA Nuclear Stock

Initiation

Maintenance

Propagation

Disease Testing

Ring rot, Brown rot

Dickeya sp.

PSTV

Viruses – PLRV, PVX, PVA, PVS

PVY, PVM, PVV,

Potato Latent Virus,

and many more.....

Trueness-to-type

450 cultivars



CE – Pre-basic TC (minitubers)



- Commercial activity (10 companies)
- Only officially approved laboratories
- Microplant multiplication – in e.g. hydroponics or peat – to produce minitubers
- Protected, pest and disease free environment

Field (field identification system)

Pre-basic FG1 - 4



Basic Super Elite

SE FG1 - 3



Basic Elite

E FG1 - 3



Basic A



Land free of pests & disease

- Found, by official testing, to be free from PCN before planting
- Potato wart disease never found

Rotation interval

- 7 years for Pre-basic and 5 years for Basic seed crops

Official inspection

- All crops (incl. ware) notified
- Seed crops inspected twice

Field – growing crop inspections

*Minimum standard for growing crop inspection
(% diseased plants allowed)*

Disease	Class SE	Class E	Class A
Leafroll	0	0.1	0.4
Severe mosaic	0.01	0.1	0.4
Mild mosaic	0.05	0.5	0.8
<i>Total virus</i>	<i>0.06</i>	<i>0.5</i>	<i>0.8</i>
Blackleg	0.25	0.5	1.0

Pre-basic FG1 - 4



**Basic Super Elite -
SE FG1 - 3**



**Basic Elite - E
FG1 - 3**



Basic A

- Strict tolerances for varietal purity (<0.05%), aphids, virus diseases and blackleg
- The virus health of Scottish basic seed classes Elite and A (*basic seed*) is far **superior** to that of class A (*certified seed*) from most other seed exporting countries in the EU.

Field – growing crop inspections



Pre-basic FG1 - 4



Basic Super Elite - SE

FG1 - 3



Basic Elite - E

FG1 – 3



Basic A

EC – Plant Passport
Solanum tuberosum L.

Scotland (UK)
Basic Seed Potatoes

Crop Identification Number 12 3456 78 90

Variety DESIREE

Grade EC2 **Class** SE **FG**4

Registration No. UK/S 3456

Size 35 x 55 mm

Date of Closing

12/12/06

Declared Net Weight

50 kg

EC rules and Standards

ZP-a6, ZP-d1

- If all criteria are met, a crop inspection report is issued
- Harvested seed can then be officially labelled and presented for tuber inspection before marketing

Tuber inspection

Nil-tolerances at tuber inspection



<i>Diseases and pests</i>	<i>Tolerance</i>
Wart disease (<i>Synchytrium endobioticum</i>)	0
Potato tuber eelworm (<i>Ditylenchus destructor</i>)	0
Potato cyst nematode (<i>Globodera pallida</i> & <i>Globodera rostochiensis</i>)	0
Ring rot (<i>Clavibacter michiganensis</i> ssp. <i>sepedonicus</i>)	0
Brown rot (<i>Ralstonia solanacearum</i>)	0
Potato tuber moth (<i>Phthorimaea operculella</i>)	0
Colorado beetle (<i>Leptinotarsa decemlineata</i>)	0
<i>Potato spindle tuber viroid</i>	0

Export – tuber inspection

*Minimum standard for the export of **basic seed** to Non-EU countries*



<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>	<i>Column 4</i>	<i>Column 5</i>
<i>Diseases, pests, damage, and defects</i>	<i>Individual tolerances</i>	<i>Group tolerances</i>		<i>Allowable % surface area cover</i>
Rots (blight, blackleg, other)		0.2%		
Skin spot	0.5%	1.5%		12.5%
Surface diseases (black scurf, common scab, powdery scab)	1.5% each			12.5% per disease
External blemishes (damage, misshapes etc.)	1.0%		4.7%	
Superficial necrosis by PVY	0.1%	3.0%		
Necrosis by other viruses	2.0%			
Dirt or other extraneous matter	0.5%			

Export

Scottish seed potatoes are:

- always pre-basic or basic
- grown in a country where some important pests and diseases are absent
- all originally from disease tested nuclear stock and never multiplied through clonal selection
- inspected by government officials to high health standards throughout the production chain



Resources

advice and support covering a range of disciplines:

virology, bacteriology, pathology, entomology,
morphology, genotyping, regulatory compliance,
standard setting, diagnostics and variety testing.

trained inspectorate

germplasm repository and working collections



Issues

Pests and pathogens:

- Climate change

Global trade:

- Import harmonisation – UNECE standards

The very general use which is made of potatoes in these Kingdoms as food for man is a convincing proof that the prejudices of a nation with regard to diet, however deeply rooted, are by no means unconquerable.

Adam Smith
1723-1790

Scottish Government Potato Export Contact

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