

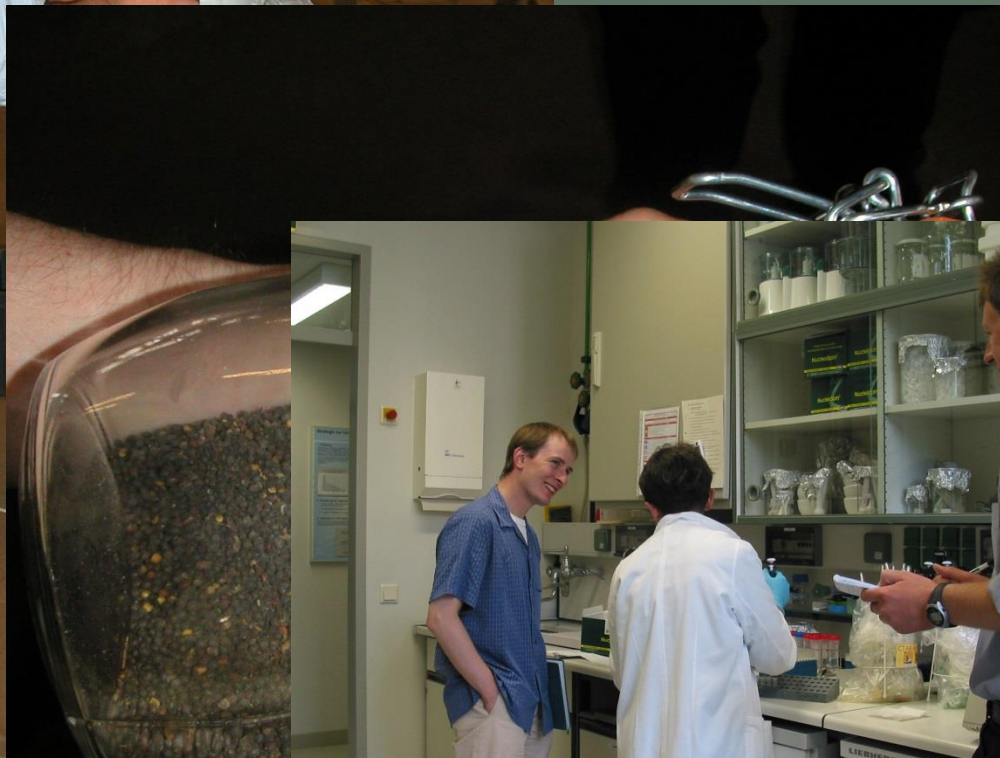
Traceability of Seeds

Dr John Kerr

Specialised Section on Seed Potatoes



Traceability issues in Commodities

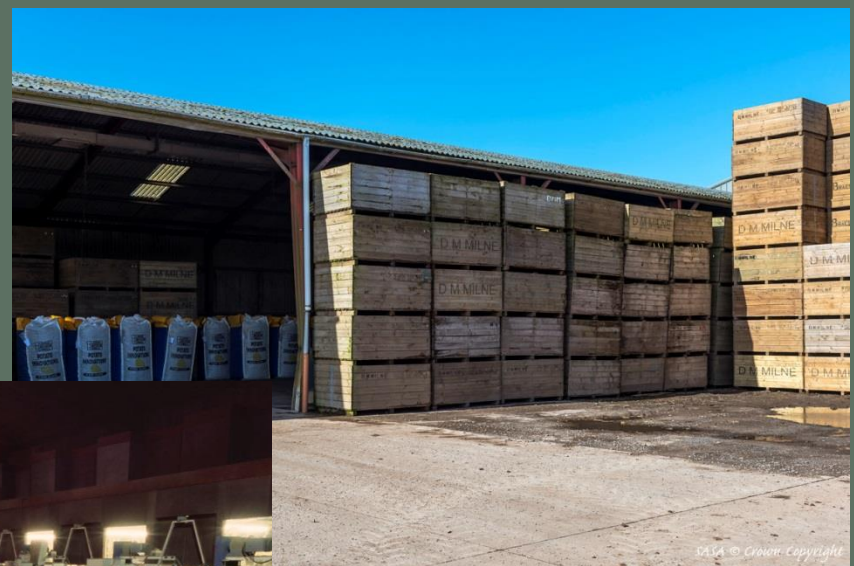


Commodities



The Seeds Context





The Seeds Context



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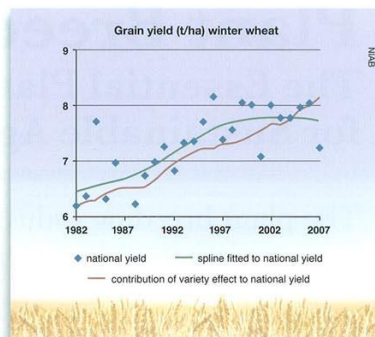


Who is it for?



Higher crop yields mean better performance

Plant breeding companies develop varieties with higher yield potential, more durable pest and disease resistance, and market-relevant end-use quality, making plant breeding the single biggest contributor to productivity gains in our major crops.



More physical yield

Plant breeding gains have added 0.5t/ha/decade to national wheat yields over the past 50 years and 0.5t/ha/decade to oilseed rape since 1980. Genetic gain in new varieties developed by breeding companies has produced annual increases of 0.1t/ha in forage maize and sugar beet over the past 30-40 years.



Quality adapted to market needs

Improved milling and malting quality are key selection criteria in wheat and barley, with associated benefits for reduced wastage and enhanced processing efficiency. Breeders have also improved digestibility in oats, introduced healthier oil profiles in oilseed rape, and reduced anti-nutritional factors in pulses, and increased starch and energy content in forage crops.



Better standing ability

Varieties that stand better protect their yield potential, making standing ability an important breeding objective for most crops. Breeding success has come from identifying height genes and developing molecular markers to improve selection for optimal height, stem strength and rooting.



Stronger, more durable disease resistance

Plant breeders strive to identify, understand and introduce disease resistance genes as the first line of defence for the crop, reducing harvest losses and protecting yield potential. All commercial UK sugar beet varieties now carry rhizomania resistance genes, major progress has been made in understanding the genetics of yellow rust resistance and *Septoria tritici* in wheat and deploying new durable genetic defences, and new varieties of oilseed rape have been launched with better resistance to light leaf spot and canker.



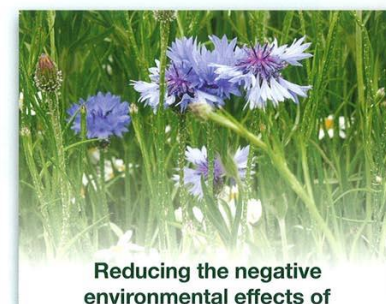
Preventing loss to pest attack

Varieties resistant to pests have reduced harvest losses. Breeding companies have succeeded in commercialising varieties with resistance to orange wheat blossom midge, turnip yellows virus in oilseed rape and beet cyst nematode in sugar beet. Work is underway to introduce aphid resistance in cereals, stem nematode resistance in field beans, and European corn borer resistance in maize.



Promoting more efficient resource use

Specific breeding targets to increase resource use efficiency have focused on improving plant uptake and use of resources, principally water and nutrients such as Nitrogen and Phosphorus.



Reducing the negative environmental effects of food production

Using higher yielding varieties to increase productivity on existing farmland leaves uncultivated land for biodiversity. Crop varieties with improved resilience to climate extremes such as flooding, drought, frost and heat stress can help mitigate the effects of climate change for crop production. Innovation in plant breeding has led to wheat with better rooting and new herbage crops that can improve soil structure. Selection for improved pest/disease resistance and resource use efficiency can improve water quality by allowing reduced pesticide or fertiliser applications.

Plant Breeders

Who is it for?



Growers

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Who is it for?



Retailers

Who is it for?



Consumers

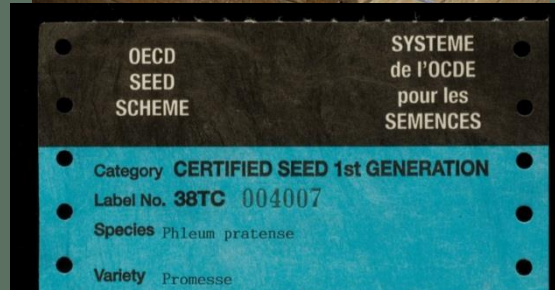
Ultimately it is for all of us



How is Traceability assured?

- National seed schemes apply
- backed by International Standards
- Harmonised guidance is needed
- A shared common understanding

How is Traceability assured?



By Process

<http://www.sasa.gov.uk/spcs-label-finder>

What does the Label Say?

1. “UNECE Standard”, if appropriate
2. Nature of the contents: "Seed potatoes"
3. The Designated Authority (DA) or its recognized initials
4. Country and/or region of production
5. Reference number of the lot, including where appropriate the producer's identification number

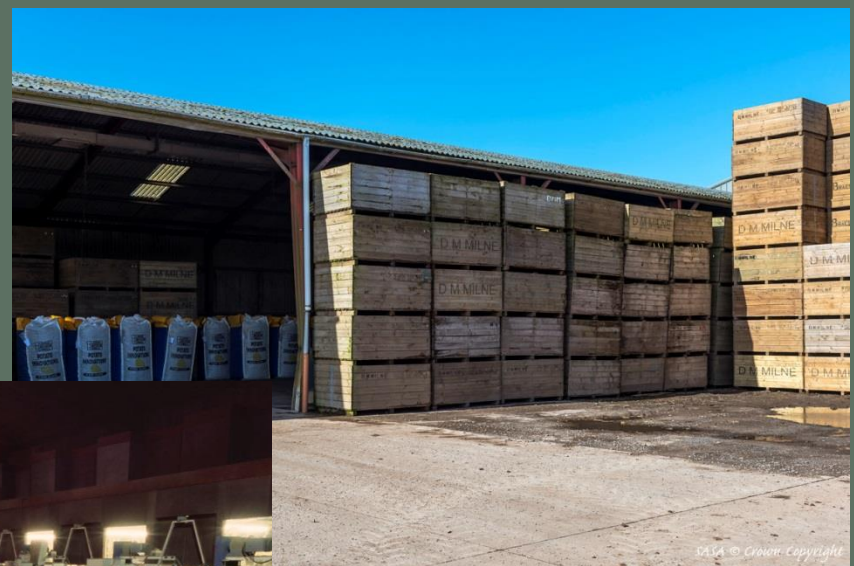
What does the Label Say?

6. Month and year of closing
7. Variety
8. Category and class and, where appropriate, record of field generation
9. Size
10. Declared net weight

How is Traceability assured?

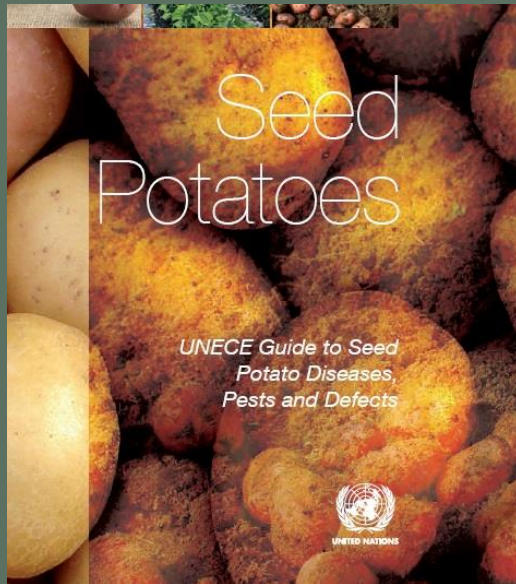


By People

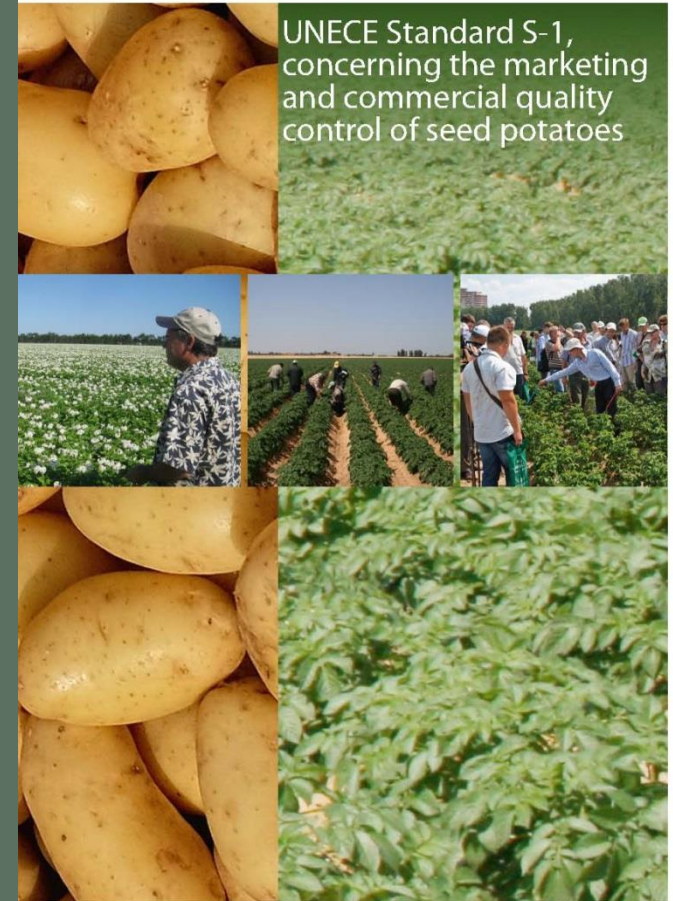


Traceability of What?

High Quality Product Of a Defined Standard



Guide to Seed Potato Field Inspection: Recommended Practices



UNITED NATIONS

The logo for SASA, consisting of the letters 'SASA' in a bold, black, stylized script font.

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