

Cutting waste on farm: ways to reduce losses in crop stores

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AHDB Potato Council



Outline

Scale of food waste issue

On-farm systems for potato storage

Size/quantity

How they contribute to losses

Challenges & known solutions

Costs & efficiencies

R&D, education and future



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Food waste

30-50% wasted globally

Farmer/producer losses in developing countries. More due to market standards in developed nations?

Land, energy, fertiliser & water used

UN: 9.5 billion people by 2075

Source: Institution of Mechanical Engineers, 2012



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UK

Consumer culture seeking specific size and appearance adds 30% to waste



Source: Institution of Mechanical Engineers, 2012



Measures to address

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wtop Material change for a better environment
Retail Programme - Food Waste
Helping Consumers Reduce Fruit and Vegetable Waste: Summary Report

BBC NEWS LIVE BBC NEWS CHANNEL
Page last updated at 16:10 GMT, Wednesday, 12 November 2008
EU slices up 'ugly fruit' rules
The European Commission has scrapped controversial rules on oddly-sized or blemished produce

The Telegraph
HOME NEWS WORLD SPORT FINANCE COMMENT BLOGS CULTURE TRAVEL LIFESTYLE
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Recipes Wine Wine Shop Healthy Eating Restaurants Pubs Food and Drink Picture
HOME » FOOD AND DRINK » FOOD AND DRINK NEWS
Supermarkets to stock 'ugly' vegetables this Christmas
It is the one meal in the year people slave for hours over to make perfect.

Green Food Project Conclusions
July 2012
www.defra.gov.uk

BRITISH RETAIL CONSORTIUM
The Business Services Association
OXFORD MARTIN SCHOOL
NFU
WWF
RSPB
defra
AHDB
CLD
Country Land & Business Association



Storage & processing

Relatively efficient in developed countries

Potatoes: 5.5-6 million tonnes grown in GB

3.5-4 million tonnes stored

1-1.4 million tonnes not consumed

Store for up to 10 months for continuity of supply and to maximise processing capacity

High energy user: 9th in food production

Significant room for improvement

Source: AHDB Potato Council Market Intelligence 2011-12



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Bulk potato storage



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Box potato storage



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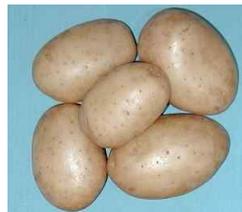
Living & perishable crop



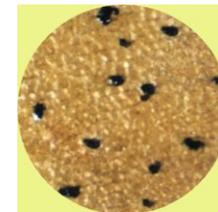
Environment

**AVOID
CONDENSATION**

Potatoes



Disease

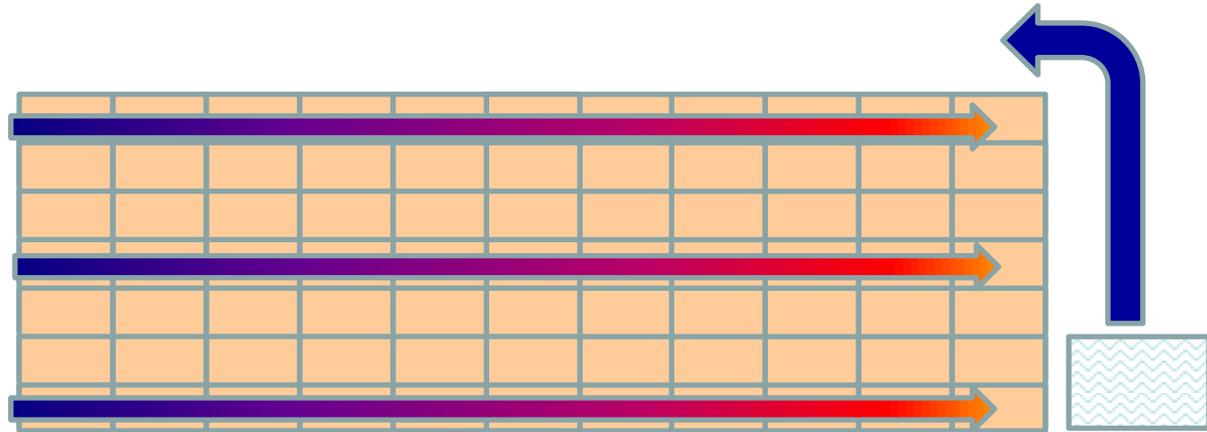


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Store control



Air is key to regulating store condition but increases crop weight loss - so must be used as efficiently as possible



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Potato storage: scale

Large scale storage units

Typically 1000-1500 tonnes per building

Around 3000 stores in GB, range: 0-50 years old



Typical storage

Fresh market

Boxes

2 – 10 months

Stored at 2-4°C

Refrigerated

Losses 4-10%

2 - 6p/kg

Processing (fry)

Bulk

2 – 8 months

Stored at 6-10°C

Ambient

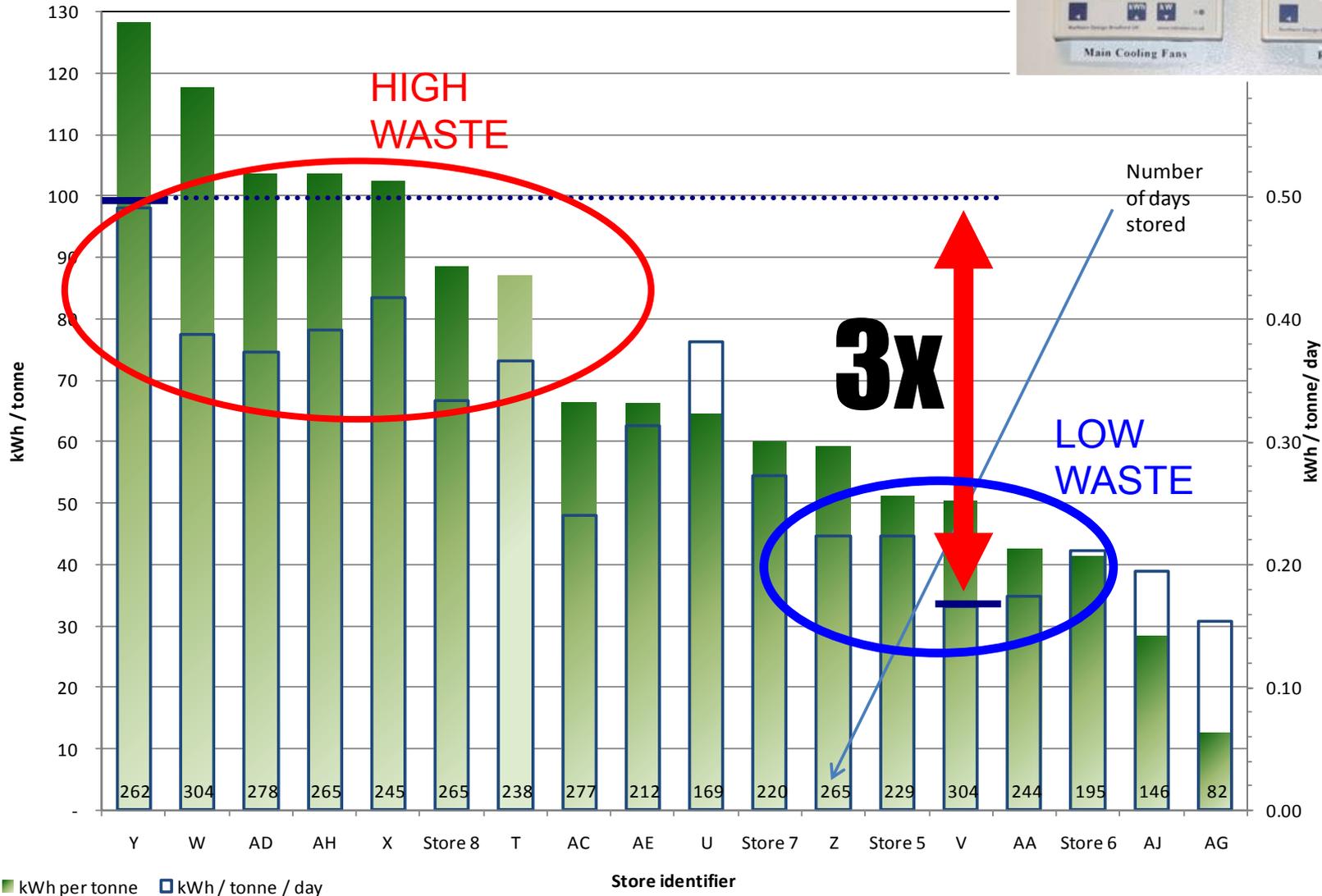
Losses 7-20%

1½ - 4½p/kg



Store energy use: awareness

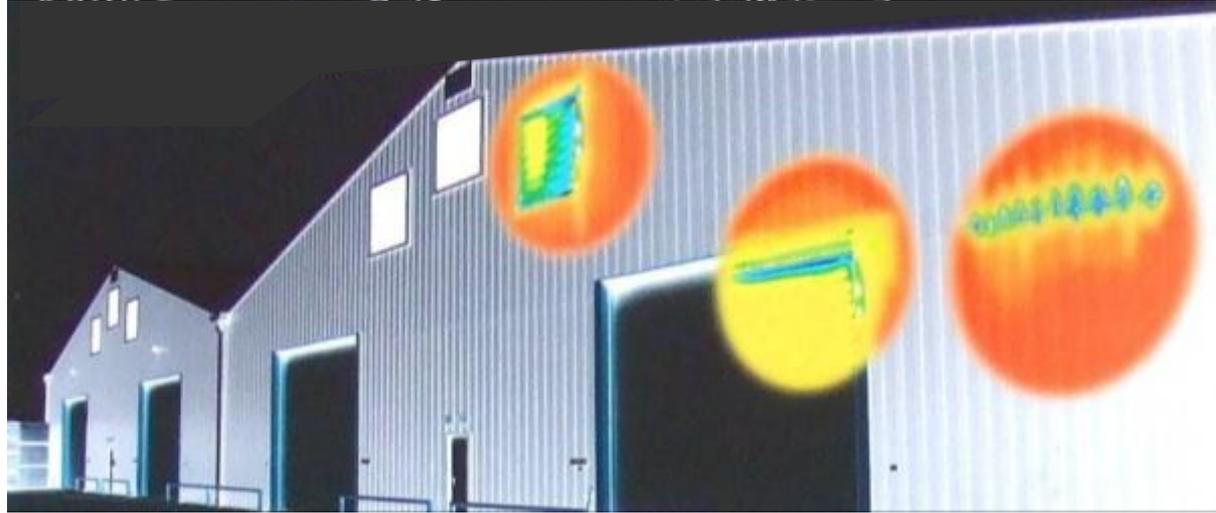
18 commercial cold stores



Source: AHDB Potato Council Research Project R401 www.potato.org.uk



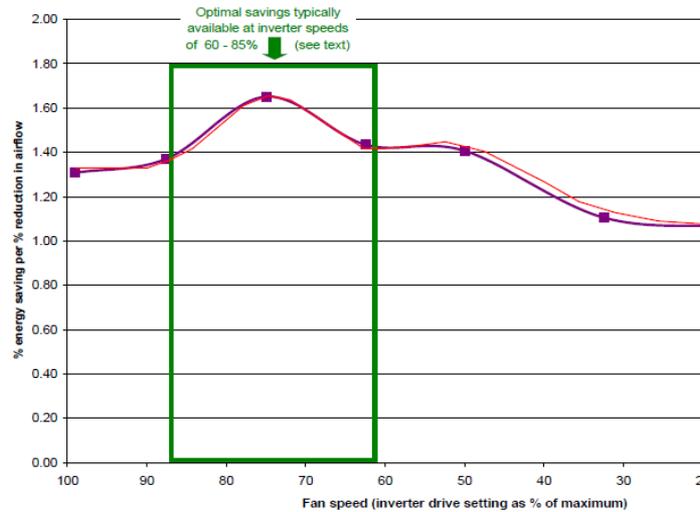
Energy efficiency



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Energy efficiency



Inverters (electronic speed regulators for motors) and computerised control have enhanced potato storage efficiency – but adoption has still been quite slow in the agricultural sector

Source: AHDB Potato Council Research Project R402 www.potato.org.uk

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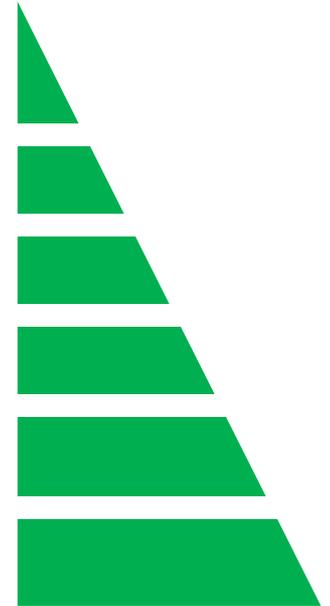
Air leakage

Single hole equivalent for
1000/1500t store >



Source: AHDB Potato Council Research Project R439
www.potato.org.uk

1 m²

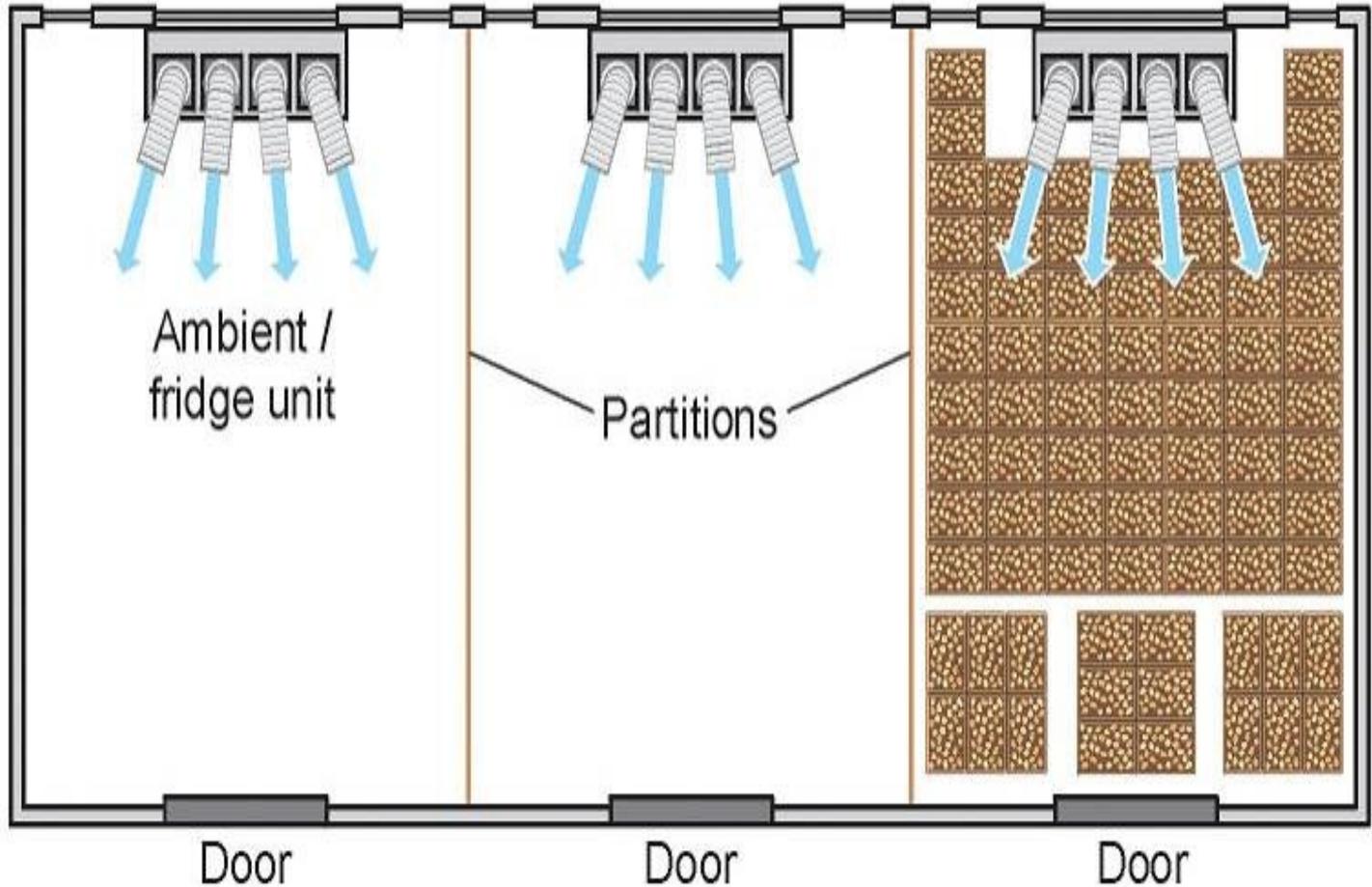


5.5 m²

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Store size



Source: AHDB Potato Council Case Study: 2400t store
www.potato.org.uk



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Research & KT

On-going programmes of applied R&D funded primarily by industry through AHDB levy or private work

Essential for knowledge gained to be translated into meaningful messages for farmers, store managers and consumers to move best practice into general practice



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Education

Potato Council has major role in knowledge transfer and training

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A sustainable future

Continued improvement to use what we grow & cut waste

Margin for investment is key

More research & knowledge transfer

Education to develop/maintain skills

Application to new production globally has huge implications for food security



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