

Welcome to



Herefordshire **O**rchards **N**etwork of **E**xcellence

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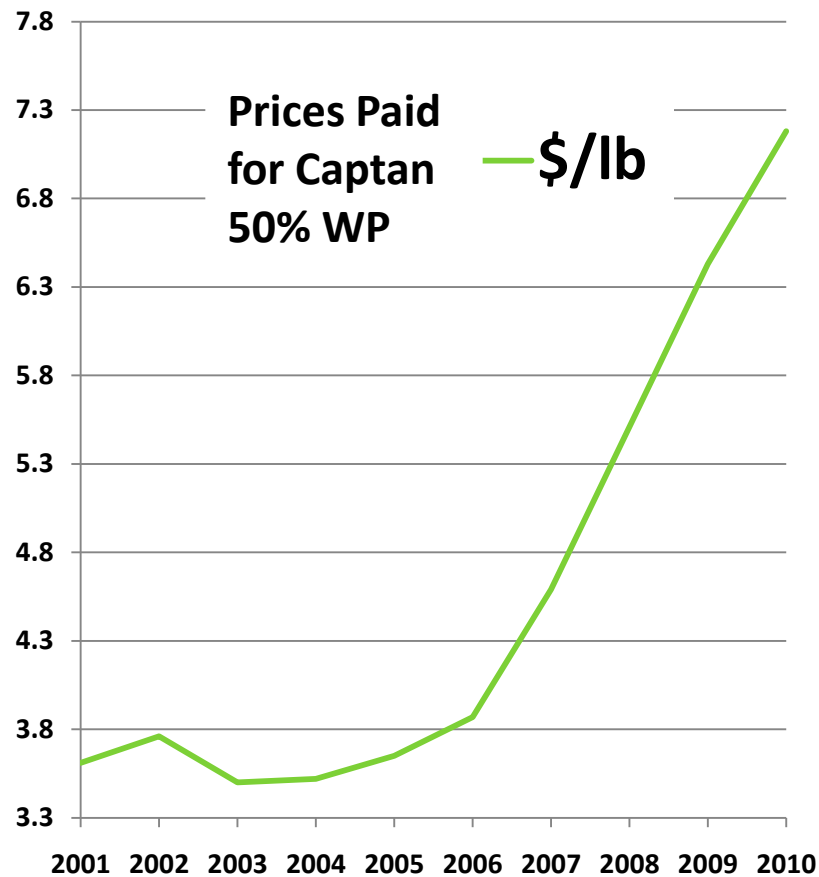
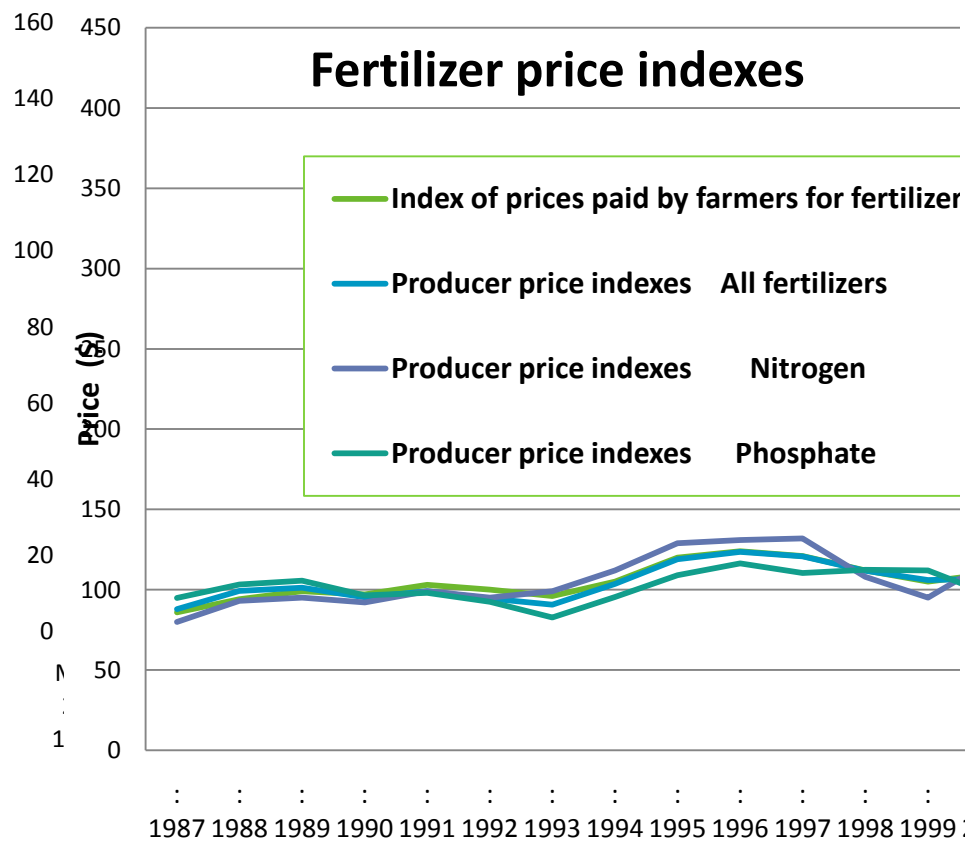


Shifting external Landscape – i.e. Doing away with comfortable assumptions



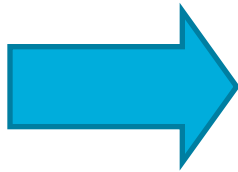
Oil, in particular

RB RTE Europe Brent Spot Price FOB (Dollars per Barrel)



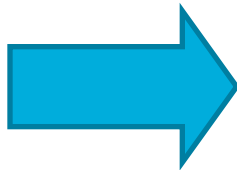
How do these translate?

Peak oil/oil
price high



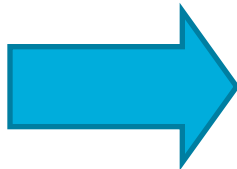
- **Cider apples get approx. 30 tractor passes per year**
 - Major cost factor as oil price increases
 - Significant CO2 emissions
 - Increasing oil price will drive up costs of both fertilisers and pesticides

Climate
change -
temperature



- **Unavoidable climate change will impact aspects of tree growth, particularly warmer, wetter winters**
 - Warmer winters mean no dormancy period, leads to fewer buds
 - Start-stop springs lead to sporadic blooming and poor fruit set
 - New pest & diseases emerging

Legislative
environment



- **Around 75% of the variable cost of an orchard is spraying for apple scab**
 - Legislation - 91/414/EEC directive - restrictions are getting tighter
 - New products slow – Precautionary Principle and high R&D costs

So how

Agricul

Six Indic

- ❖ Ecolog
- ❖ Toxicit
- ❖ Global
- ❖ Eutrop
- ❖ Water
- ❖ Labou

Full Repor

http://randc

Module=Mo

tID=14405



ARE HERE

2010-2011 RANKINGS NOW RELEASED
ANALYSIS, DATA, INSIGHTS, INSTITUTION
PROFILES AND SCORECARDS



POWERED BY
THOMSON REUTERS

HOME

CONTACT

COMMENT

NEWS

CULTURE

RANKINGS

EXTRAS

ADVERTISE

Final harvest at Long Ashton



0

1 October 1999

Natasha Loder

Why might a research station that has won annual grants of Pounds 5m be closed? Natasha Loder reports

Earlier this summer a quiet catastrophe unfolded in the village of Long Ashton, on the outskirts of Bristol. About 200 scientists discovered they were to lose their jobs at Long Ashton Research Station.

Having lost its core grant of Pounds 3 million from the Biotechnology and Biological Sciences Research Council, it looks possible that LARS will close during its centenary year in 2003.

4.9)

Get's worse

Better





Cider fruit orchard development

2005 – NACM Sustainable Development Committee

2008/2009 - BioDiversity International, the Bulmer Foundation,
Heineken UK Ltd release key “**SCOPING STUDY**”, *led to launch of*
‘More Sustainable Orchards Project’ (SOP)

Heineken raw materials:

1st wants **100%** secure supply

2nd wants to say **100%** sustainably sourced

Also decided it will start **measuring sustainability** on farms

– what will this mean for their suppliers?

- Other companies are also committed; **Westons, Thatchers**, etc.

Heineken

Bulmers

BAJC Supplier

One
scenario
S

S = Single
One HQ
One PO

HQ

PO

HQ =
Head Quarters
Bulmers

PO = Apple
Purchasing Org.
Bulmers

UBL

O C

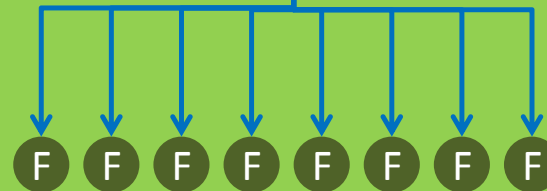
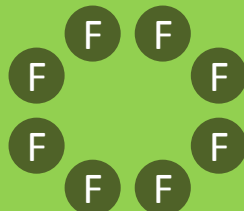
Apple Supplier

Two
scenario's

The PO
purchases
from suppliers
O and C

O =
direct from
eight own
orchards

C =
direct from
contracted
orchards



F = Farmer
Sustainable Apple
Production Unit

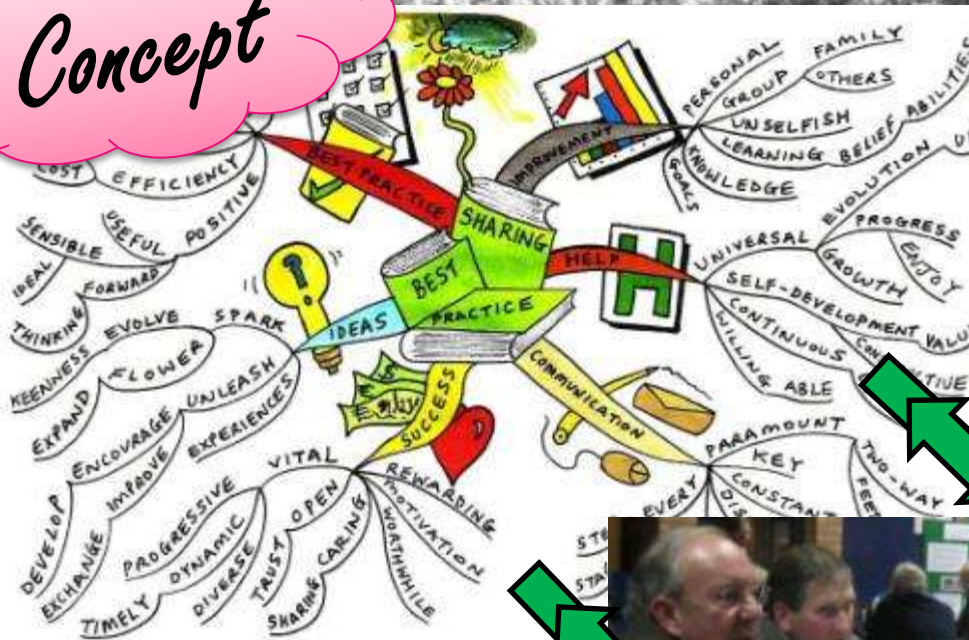
- Defra & EU funded project
- Hosted by the Bulmer Foundation
- Jan 2011 – Dec 12 (2 years)
- a network for **Herefordshire cider apple growers** to trial and **share new ideas** and techniques, as well as **best practice**



© Paul Foreman <http://www.mindmapinspiration.com>

It's early days

Concept



SG

Launch

29th
Nov

TO
REALITY



The Launch

PRESENTATION:

Climate
Change –
H2O & Temp

Peak
oil/unstable
oil price

Legislative
environment

Research and results

VISIONING

GENERATING
IDEAS

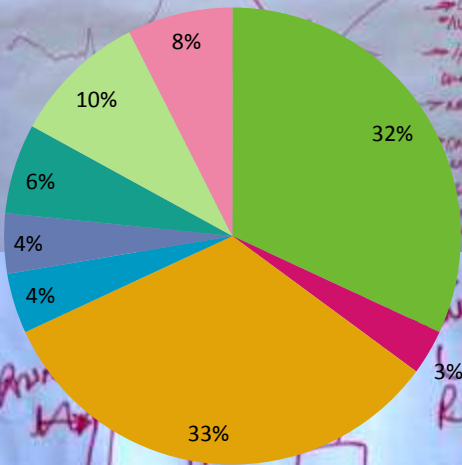
PRIORITISING



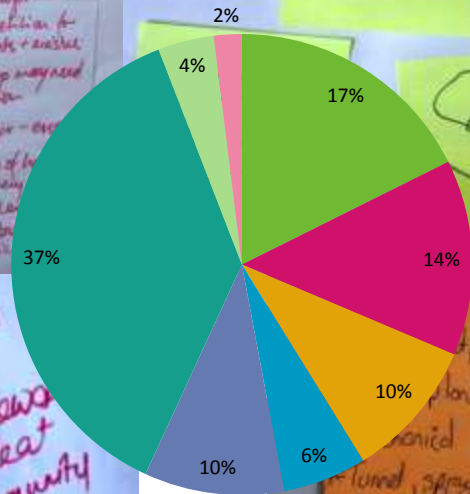
Biggest results:

- 57 head count at highest point
- High level of participation
- Hot debate and diversity of opinions

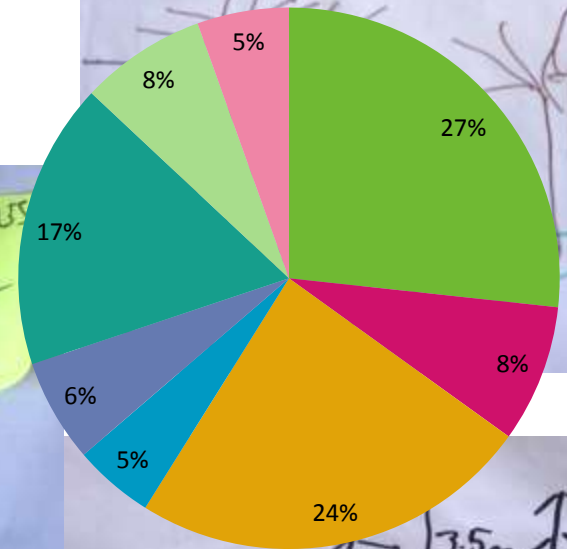
Opportunities



Challenges



Challenges and Opportunities (ALL)



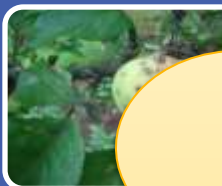
- Disease/Env legislation
- Water & Climate Change
- Waste, energy and oil
- Natural Resource Costs/Supply (exc. water)
- Skills, Labour and Mechanisation
- Social landscape factors

THEMES for the Network



Income stability and diversity

- Indicator reference



Climate Change & Water

- Indicator reference
- *Natural resource use*
- *Environmental pollution*
- *Social and cultural wellbeing*

Ecology
1 mention!

TRIALS/STUDIES

Garlic Tree Wash

Nitrogen Rates

Twin N

InCa

Leaf sanitation

Decompaction

Paraplow/similar

Sheep in orchards

Orchard birds study

Soil structure change

Pharma in alleys

Wildflower strips

Density Vs Size

Prunings/pruning waste

Precision Ag

Hyper-diverse orchard

Irrigation

Planting design

Title	Description	Trial/study?	Started?	Growers	Partners
Garlic Tree Wash	Tree Wash is a tree tonic, the benefits of using Tree Wash are said to include control of most fungal diseases, repellent to insect pests, reduced requirements for foliar feed (seaweed component).	Trial	✓	5	Aston Horticulture, H-UK
Nitrogen Rates	Growers have reported increases in yield from applying nitrogen to their orchards. Over the last 15 years applications have increased. This trial will determine the optimum rate of nitrogen fertilizer application for cider apple trees on three soil types in the West Midlands	Trial	✓	3	Hutchinsons, Yarra, H-UK
Twin N	This trial runs parallel to the Nitrogen rates trial and aims to test the efficacy of nitrifying bacteria (Twin N by Mapleton International) as a supplement	Trial	✓	3	Hutchinsons, Yarra, H-UK
InCa	InCa aids transport of micronutrients. The trial aims to determine whether InCa will result in increased uptake and retention of micronutrients, particularly Calcium, in comparison to untreated control plots and PitStop.	Trial	✓	4	Plant Impact, H-UK
Leaf sanitation	A trial of two key cultural management techniques aimed at reducing scab infection from the previous season's leaf litter. After leaf fall, the grower shredded leaves on the orchard and sprayed with weak urea solution, leaving an adjacent orchard untreated for comparison. Spores are being counted by EMR.	Trial	✓	1	EMR/NACM
Decompaction	This trial is under a non-disclosure agreement.	Trial	✓	1	Terravent, Wisdom Systems, H-UK
Paraplow/similar	Repeated tractor runs cause ruts and compaction. Apples get stuck in the ruts and the harvester cannot pick them up. Intensification exacerbates the problem; narrower alleys mean even less chance of spreading-out damage by tractors. Paraplow lifts the soil under the rut at an angle and lies in back down.	Study	-		
Sheep in orchards	Sheep can be utilised as a management tool to maintain the sward and have been allegorically linked to reduced scab infection as a result of foot fall. They also have the potential to provide another income stream.	Study	P	1	
Orchard birds study	TBC - A study to assess if hole nesting sites are a limiting factor and help improve breeding success. This might prove an easy conservation measure for orchard owners/cider producers to implement and demonstrate their green credentials. It also has a potential added benefit in that work in the Netherlands shows great tits reduce caterpillar damage when breeding in nest boxes in commercial apple orchards. Other insectivorous passerines may also help limit pesticide use.	Study	P		Woodpecker Project, H-UK
Soil structure change with new orchard	A five-year observational study of key soil quality parameters in new orchards, with varying recent planting history, to be carried-out in order to assess the relative efficacy of each.	Study	P	1	Hutchinsons
Pharma in alleys	TBC – Daffodils or similar planted in alleys. A local contact has been made but largely still in concept stage, awaiting final Reading report.	?	-		
Wildflower strips	A BBSRC/CASE PhD project looking at putting wildflowers strips in apple orchard alleys and observing how this impacts bio-control and pollination	Trial/Study	✓	1	Lancaster University, Syngenta, BBSRC/NERC, H-UK
Density Vs Size	Apples of different variety are collected at harvest and analysed for the following characteristics: <i>a. Mean apple density (g/cm3) per sample, b. Mean apple diameter (mm) per sample, c. Mean apple sugar content (BRIX) per sample, d. Mean apple dry matter (%) per sample.</i> The results of the study will be used to improve our understanding of varietal variations in apple quality and cost implications.	Study	P		UBL, H-UK
					Biomass

A black and white photograph of a sheep standing in an orchard, with its head and front legs visible. The sheep is facing the camera. The background shows the branches and leaves of trees.

SHEEP!

- **Outlined research needs**
- **Julie Decouzon** – *“Sheep and orchards: a promising association for more sustainable cider apple production”*
- **Why? Mow less, spray less? Additional income?**

Key conclusions:

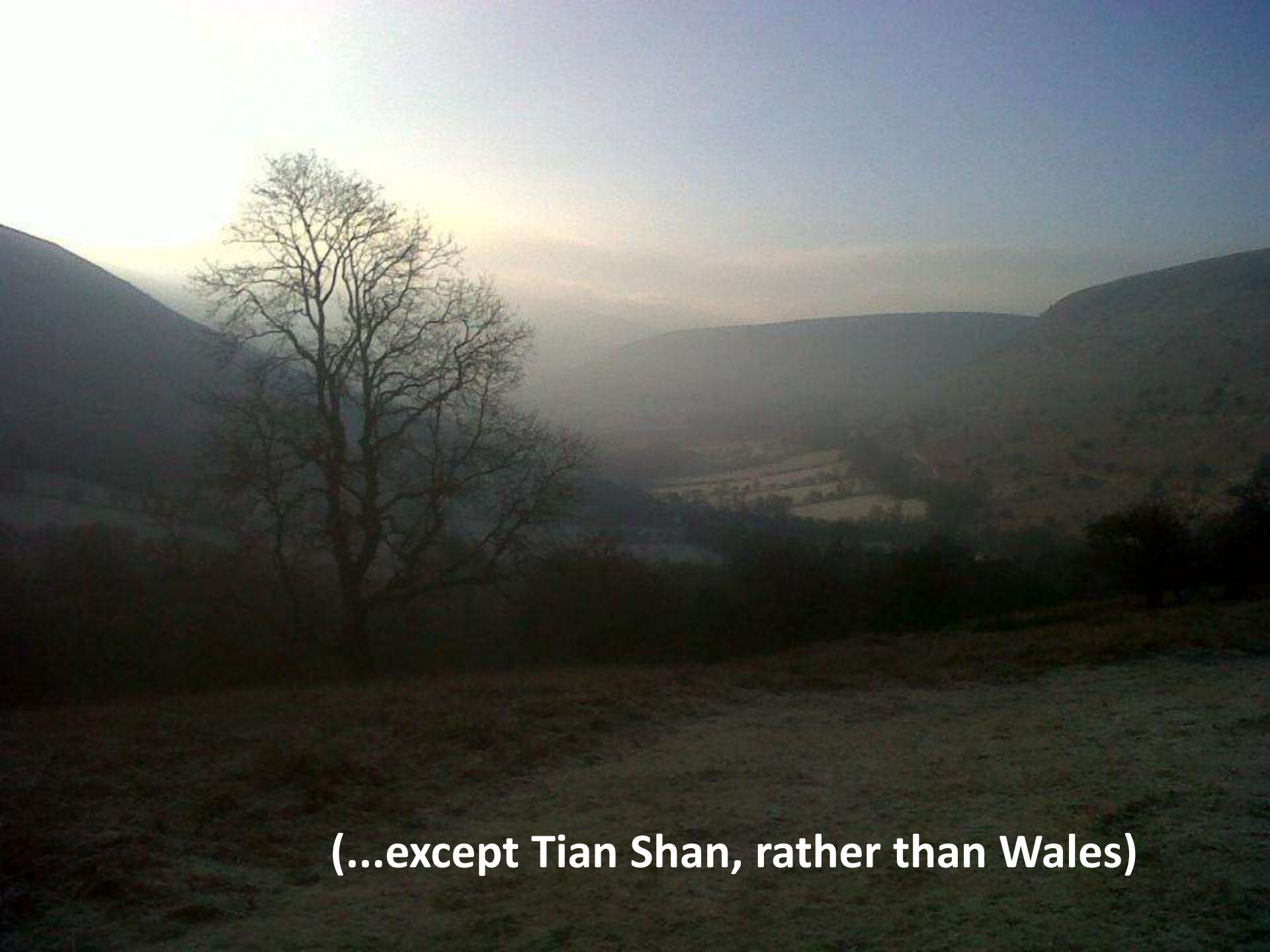
- **Good management is ESSENTIAL**
 - ➔ **3 management models to consider**
 - **Flock of sheep as additional income stream to grower (meat, fleece?!)**
 - **Few sheep for use as a management tool**
 - **Flying/local shepherd – grower contractual relationship**
- **No one size fits all**

Film...



Hyper-diverse hedge system

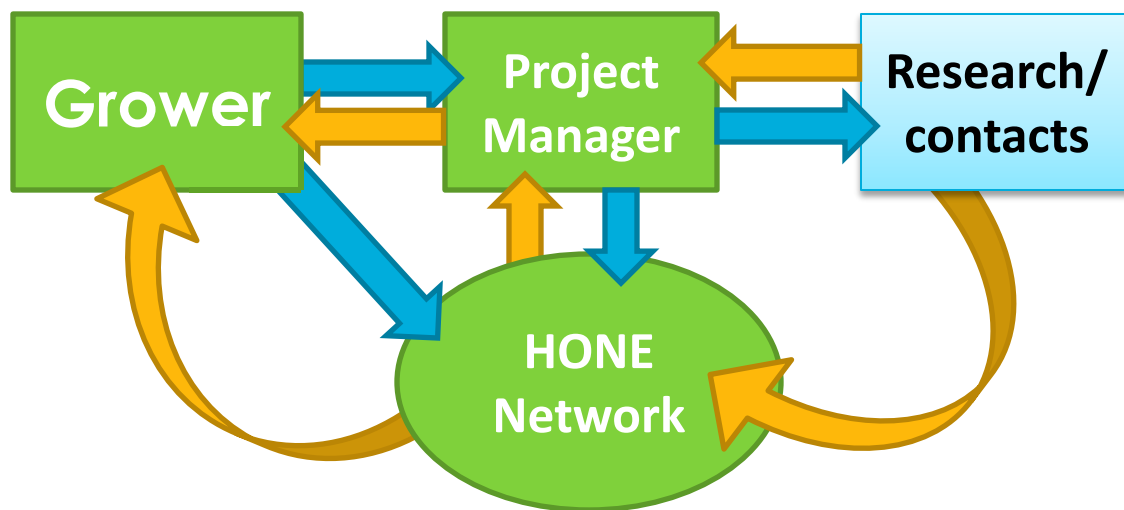
- **Domesticated apple varieties - traced back Tian Shan region of Central Asia: *Pyrus Sieversii* (now known as *Malus Sieversii*)**
 - Humid, hyper-diverse fruit forests
 - Un-glaciated mountain slopes and foothills
 - 1,500 and 7,200 ft
 - Apple – up to 80% of the tree density
 - Grow alongside fig, walnut, maple, pears, hackberry, hawthorn, cherry plum, pistachio, almonds, apricots (occasionally), buckthorn and grape
- Dr Barry Juniper*
- Recreate in Herefordshire?



(...except Tian Shan, rather than Wales)

Making the network work work work

- Shared database – similar to FCRN model
- **50 on network – 15 sharing**



Challenges:

- Getting permission- data protection
- Keeping it moving

- Seminars/events
- Shows
- Emails
- HONE Happenings
- Tips 'n' Tools
- Website

External 'drivers and influencers' – Oil prices, climate change, legislation, etc

White papers, policy, research
legislation, etc

H-UK, NACM,
other orgs, etc.

Product specifications, research
voluntary/compulsory
standards, etc.

HONE?





Lessons learned/conclusions?

Come back to me in 18 months and I'll have plenty





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