



Silvo-Pasture Traditional Orchards of the Three Counties

Geoff Newman

Traditional Orchards vs Silvo-pasture system

- Silvo pasture is the practice of integrating trees, forage, and the grazing of domesticated animals in a mutually beneficial way
- Traditional Orchards:
- Open grown fruit trees with grass cover on orchard floor
- Grazed grassland
- Low intensity management
- Other features
 - Boundary hedges, scrub, ridge & furrow, diverse wildlife



Traditional Orchards

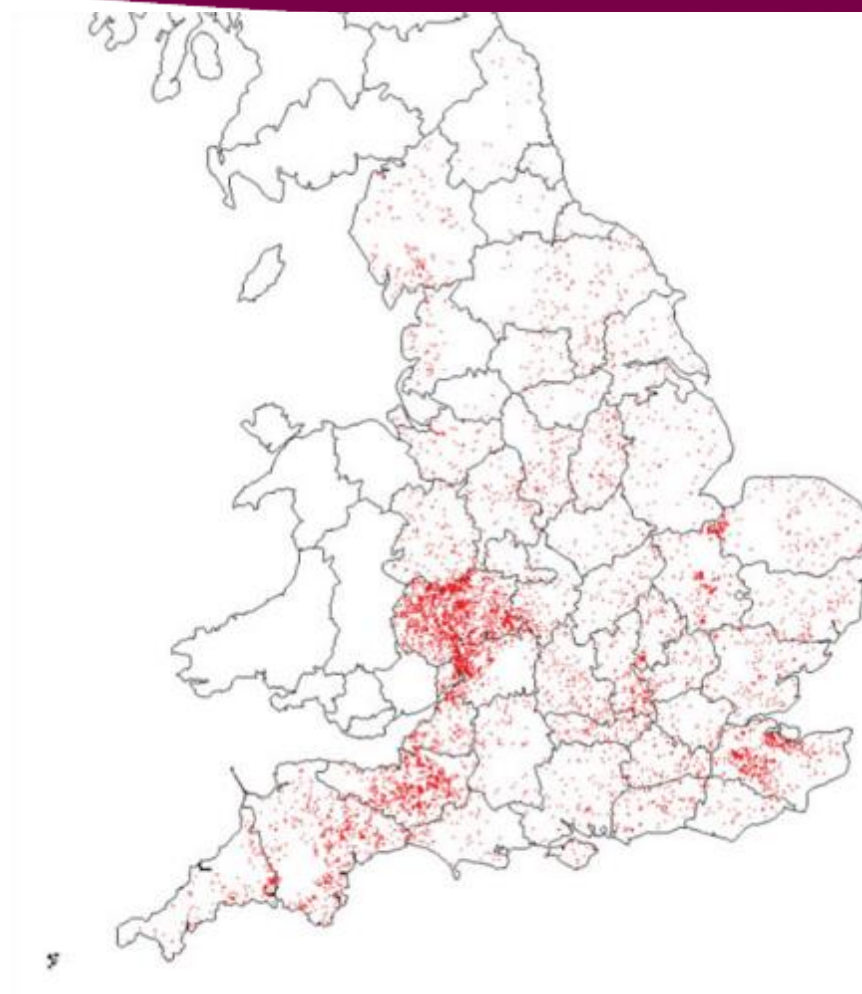
Silvo-pasture system



- **Planting densities similar:**
- **Apples:** M25, M111-half standard or Seedling rootstock
 - Spacing **8-10m** **100-150/ha**
- **Pears:** Wild Pear Rootstock *Pyrus Communis*
 - Spacing **10-20m** **25-125/ha**
- **Plums:** Brompton, Myrobalan B, St Julian- half standard
 - Spacing **6-8m** **185-260/ha**
- **Cherries:** F12/1 or traditionally Mazzards (wild cherry rootstocks) or *Prunus avium*
 - Spacing **10-15m** **70-125/ha**

Traditional orchard coverage nationally

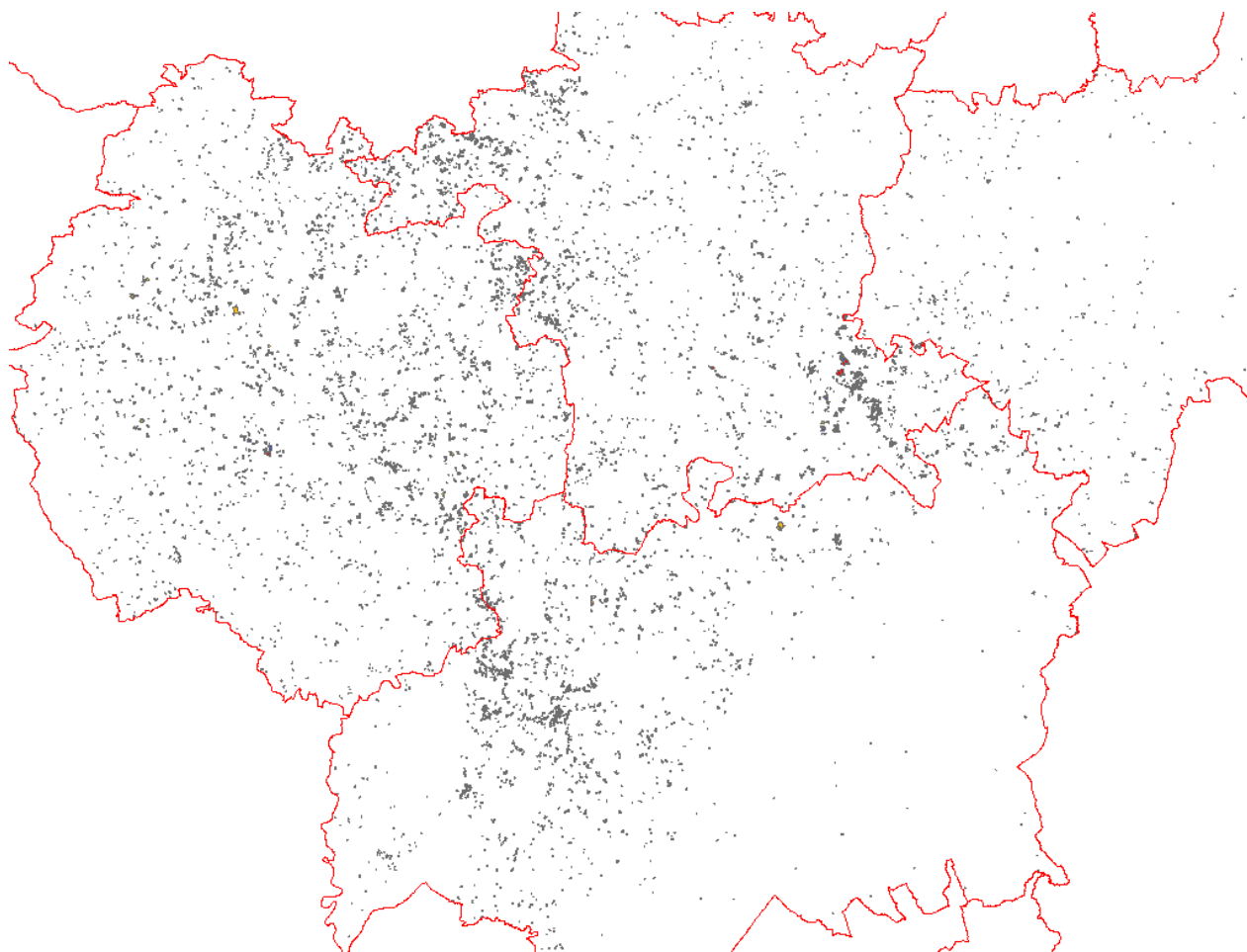
16,990ha traditional
orchards nationally



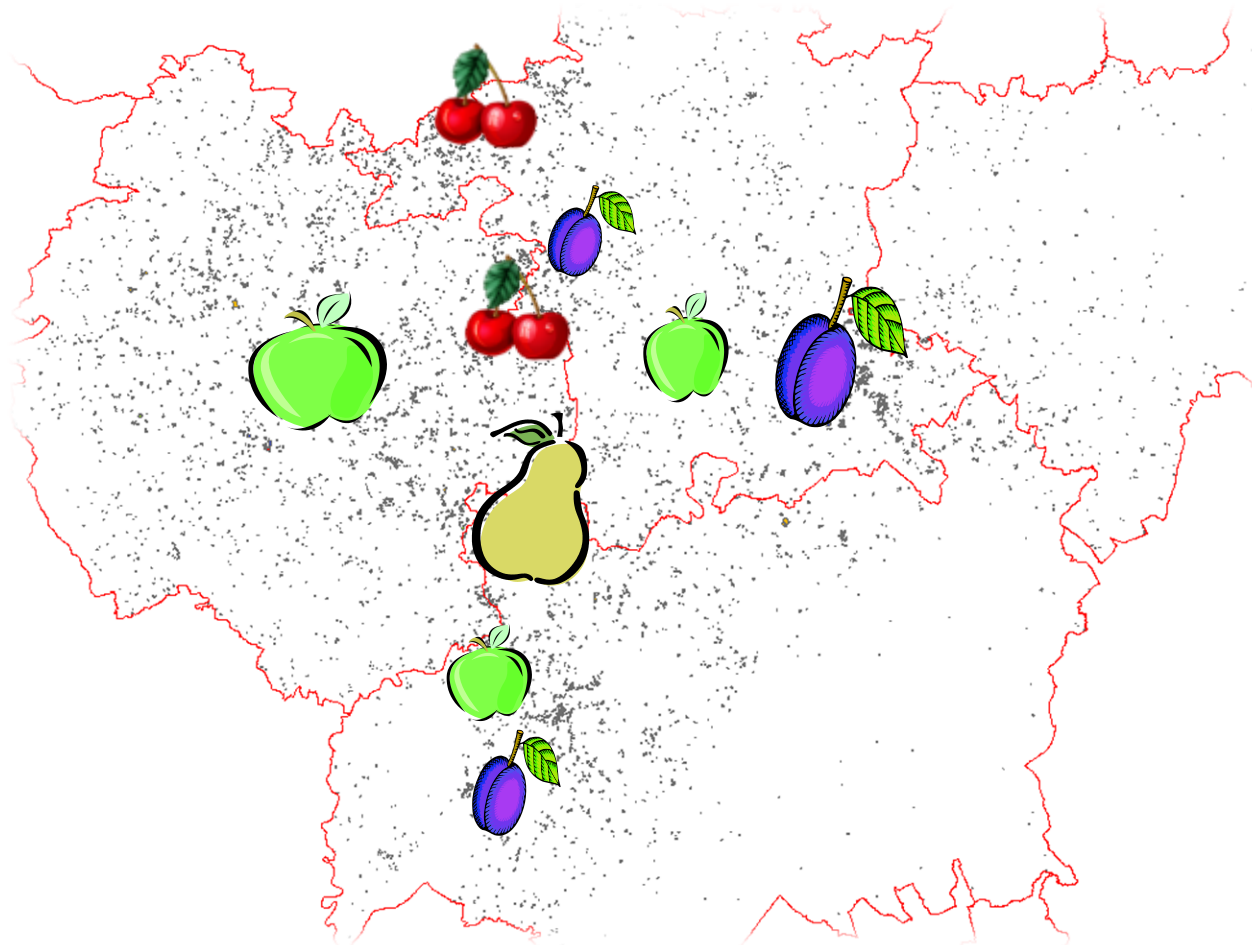
Orchard landscape of the 3CS

Gloucestershire Herefordshire & Worcestershire

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Specialities

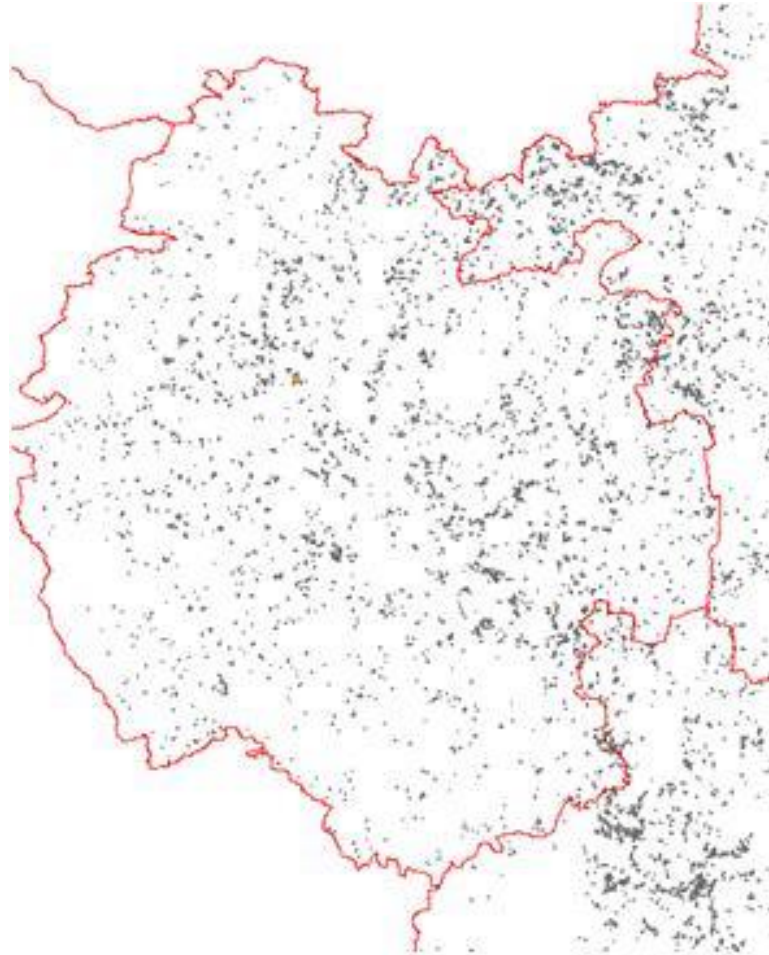


Herefordshire Orchard landscape

3360 Traditional
Orchards

PTES survey
2481Ha

28% under agri
environment
schemes

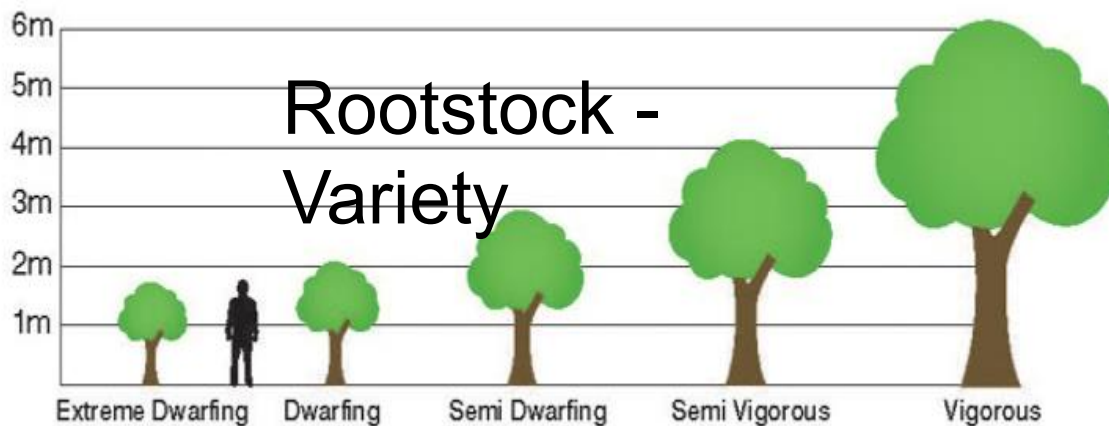


Why so many orchards in Herefordshire?



- **Herefordshire & Cider**
- ***Terroir** low rainfall and loamy soils over sandstone*
- Thomas Andrew Knight *Pomona Herefordiensis* 1811
- **Bulmers Industrialisation** of the cider industry
- Trial Orchards late 30's e.g. Adam's Hill - Gillian Bulmer
- **Orcharding department**; planting methods; Nursery; Rootstocks and Stem builders developed; Advisory sheets
- Large Plantings 50's - Hereford Cider Museum Archives

Planning and planting



Planning and planting

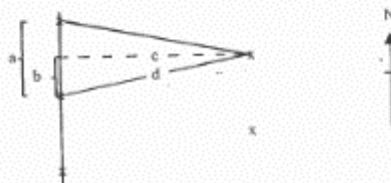


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Web Site: www.bulmers.com

MARKING OUT. Bulmers

Triangular Plant

x = Tree
= Tree Row



To calculate the length of wire (normally better than string because it does not stretch) required use the diagram above:

$$\text{Distance between trees in row} = \frac{a}{2} = \frac{b}{2}$$

Width of row = c

$$\sqrt{(b^2 + c^2)} = d$$

To construct wire you will need a length $(2 \times d) + \text{extra for knots and hand loops}$.

Fold the wire in half and tie a hand loop with a tight knot to prevent it slipping then measure the length d from this middle knot along both lengths and tie two knots with hand loops.



Using this wire to mark out from your existing baseline (which should be sighted in with poles and a long wire, and the distance between the trees measured with a tape and a cane push in at the desired interval) will take 3 people. 1 & 3 place their knots on the outside of the canes in the baseline, then 2 pulls the triangle taut and pushes a cane in on the inside of the knot (it may be skewed to check the first 2 canes by measuring the row width and distance between the trees). Proceed down the row repeating the operation. Work off the canes you have just pushed in to mark out subsequent rows, and measure in any extra trees in off the end of the row sight in.



Canopy spread: Long Ashton research centre

TABLE 6. DIMENSIONS OF CANOPY SPREAD OF WELL GROWN MATURE TREES OF PERRY PEAR VARIETIES

Small 15-25 ft.	Medium 25-35 ft.	Large 35-55 ft.
Brandy Chaceley Green Judge Amphlett Oldfield Red Pear Thorn Turner's Barn	Arlingham Squash Barnet Gin Hellens Early Hendre Huffcap Red Longdon	Blakeney Red Brown Bess Butt Flakey Bark Green Horse Gregg's Pit Moorcroft Newbridge Parsonage Rock Taynton Squash Winnal's Longdon Yellow Huffcap

Wide spacing where necessary



Complex planting: Triangular, Quincunx & tree removal

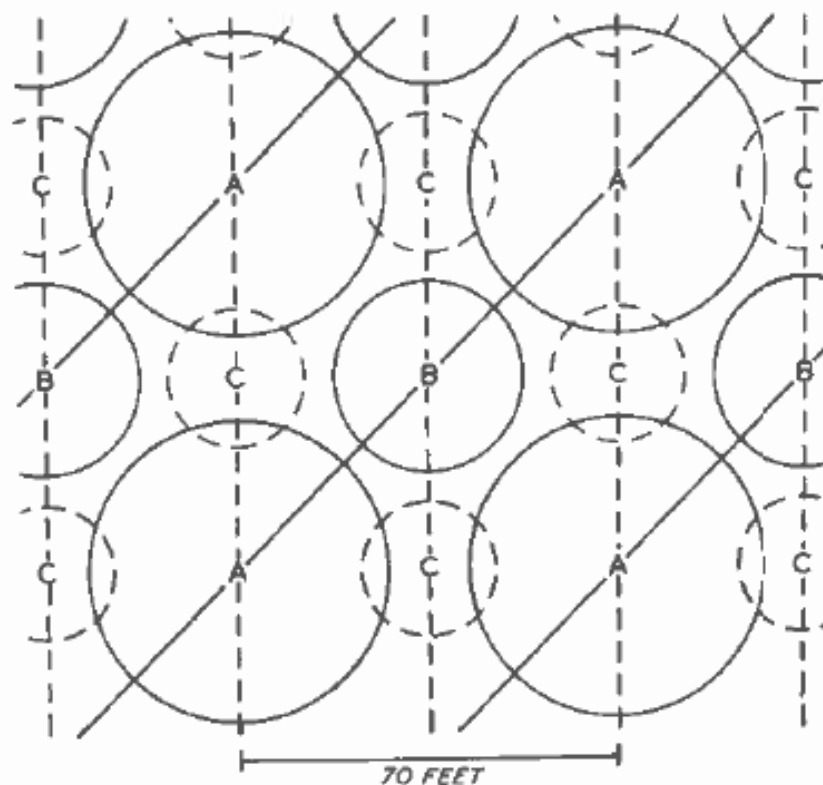


Fig. 11. Suggested lay-out for a perry pear orchard using trees of three different sizes. After thinning the small trees (C) one is left with diagonal rows of alternating trees of A and B at a spacing of $49\frac{1}{2}$ ft

Correct guard for the correct tree



Robust
-Fit for stock
-Fit for tree
Accessible
-Manage tree
-And grass

Nothing is perfect.

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60-90% of standard trees don't reach maturity

(Chris Fairs- Bulmer's)



Inadequate guards

Vole damage

Plant Maidens (small) or 2 year old standards?

Support- High staking / Low staking?

Formative pruning

Wide angles strong - Narrow angles weak

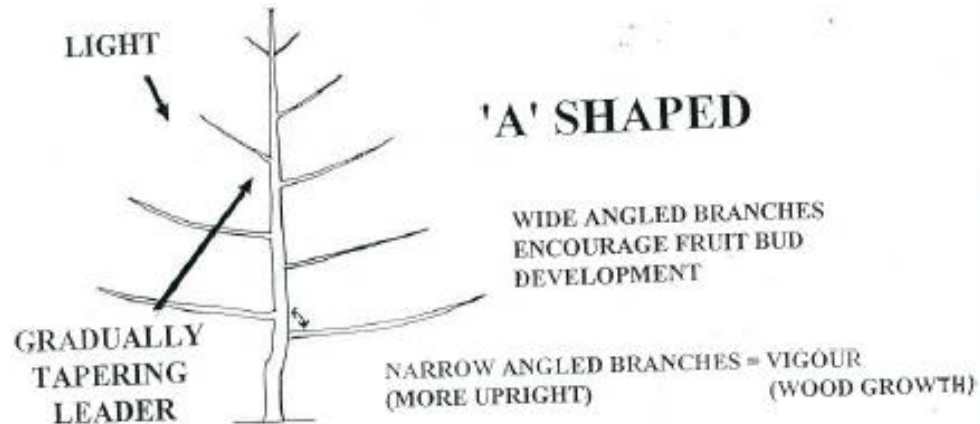
Central leader / Delayed central leader / Open centre



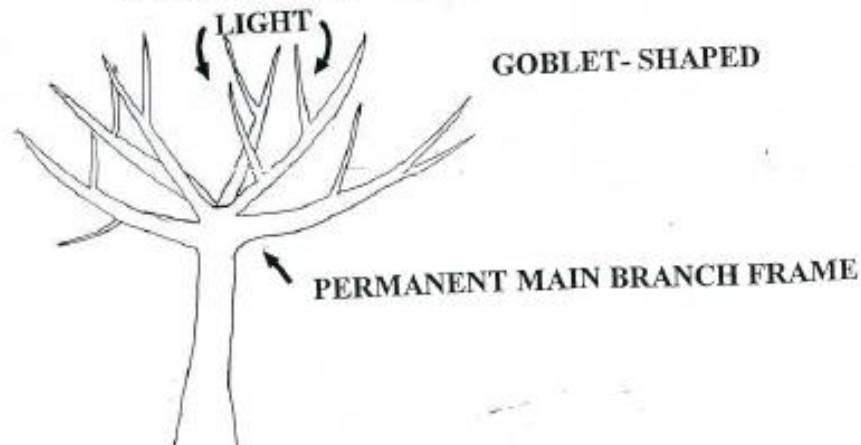
Tree Form

10 years to
formatively
prune

THE CENTRE-LEADER TREE



THE OPEN-CENTRE TREE



Upright or Spreading? Variety & Pruning



Livestock Benefits: Silvo Pasture-Traditional Orchards



- “Every livestock farm should have an Orchard”
John Powell Castle Farm Yarkhill
- **Dual System Grass and Fruit** less disease in fruit & more grass in a lower density system.
- **Protection of livestock** (Jo Smith Organic research Centre)
- **Shade** - reduces energy regulating body temperature
- **Shelter** – wind reduction increase minimum temperatures
- **Young stock** - young calves in an orchard

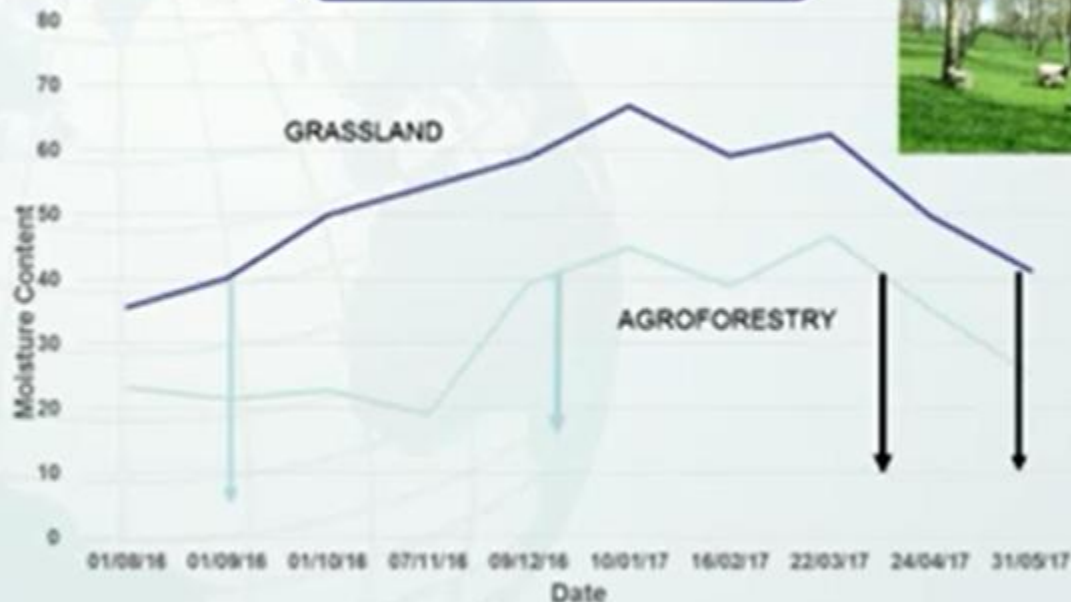
Scientific Study Jim McAdam from QUB

200 Ash trees/ha 17 weeks extended grazing

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Extended grazing season

Thanks to Prof.
Jim McAdam, QUB



Assuming 40% soil moisture content as a cut off, we have
17 weeks longer "grazing season" under agroforestry
-5 in spring, 12 in autumn.



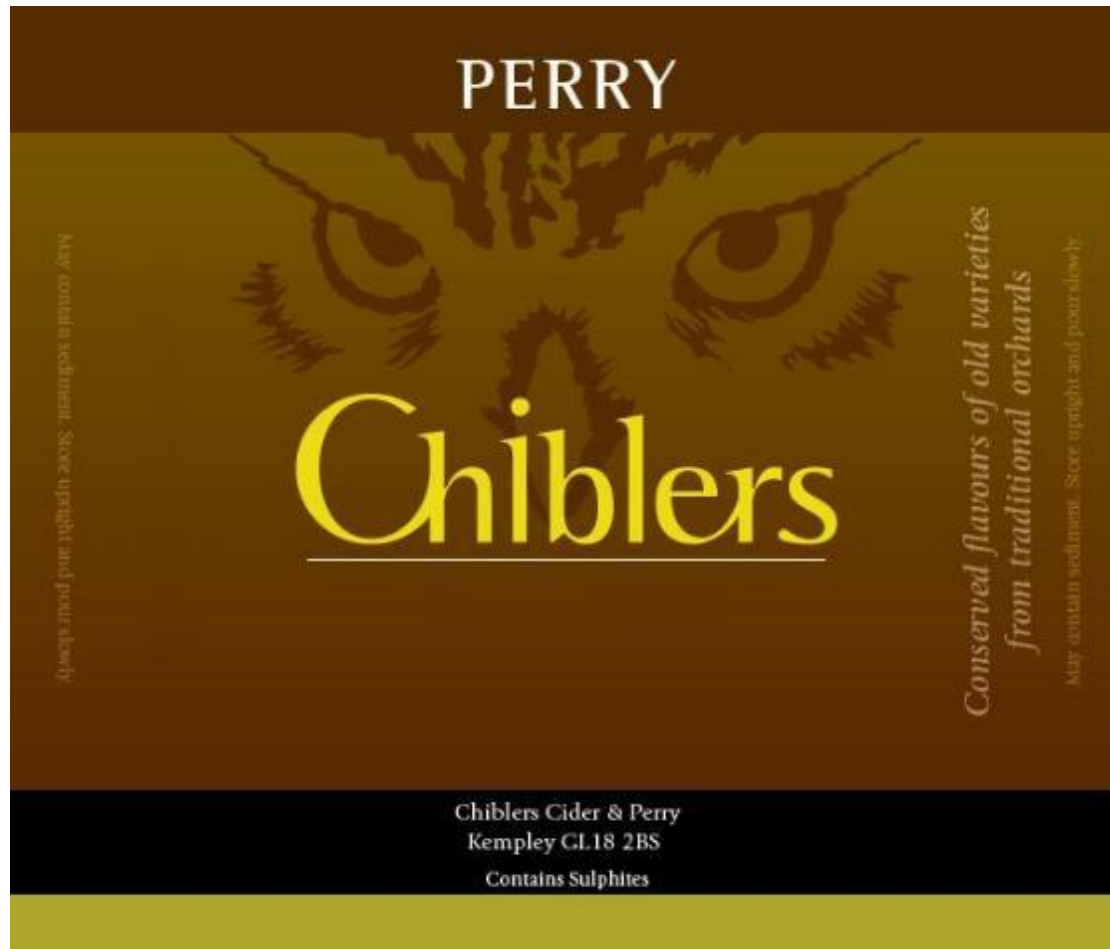
Fruitfulness Cider & Perry



- 10-15 years before fruiting
- Standard Cider Orchard 5- 10t/ac (Bush Orchards 20t/ac)
- Fruit price- organic premium –std orchards £100/t (base price £95/t) Westons
- Independent cider makers may offer up to £130/t if lucky!
- Perry pear premium?

Cider and Perry

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Calculated incomes ?

I sell 20l bag in box to trade Cider £30 and Perry £35

Craft Cider/Perry limited at **7000L per year** before you pay duty

Sales figures

Draft £12,250 k

Halfpenny Green cider company calculations:

Bottles – 9k to 30k

Sparkling- £33k to 71k source: (worked out from trade to direct sales)

Wildlife Value



**Wood-pasture
Habitat Mosaics: Trees,
Scrub, species rich
grassland, hedgerows...**

Key wildlife value:
Deadwood



PM 2:06 4/JUN/2015

USP Orchard Biodiversity = Deadwood

Deadwood Invertebrates

- Apple-tree Lace Bug *Physatocheila smreczynski*
- Noble Chafer *Gnorimus nobilis* Heartwood decay 40+ yrs



Wildlife Value

Lichen

Teloschistes Chrysophthalmus

Golden eye lichen



Fungi

Inotus hispidus

Shaggy bracket fungus

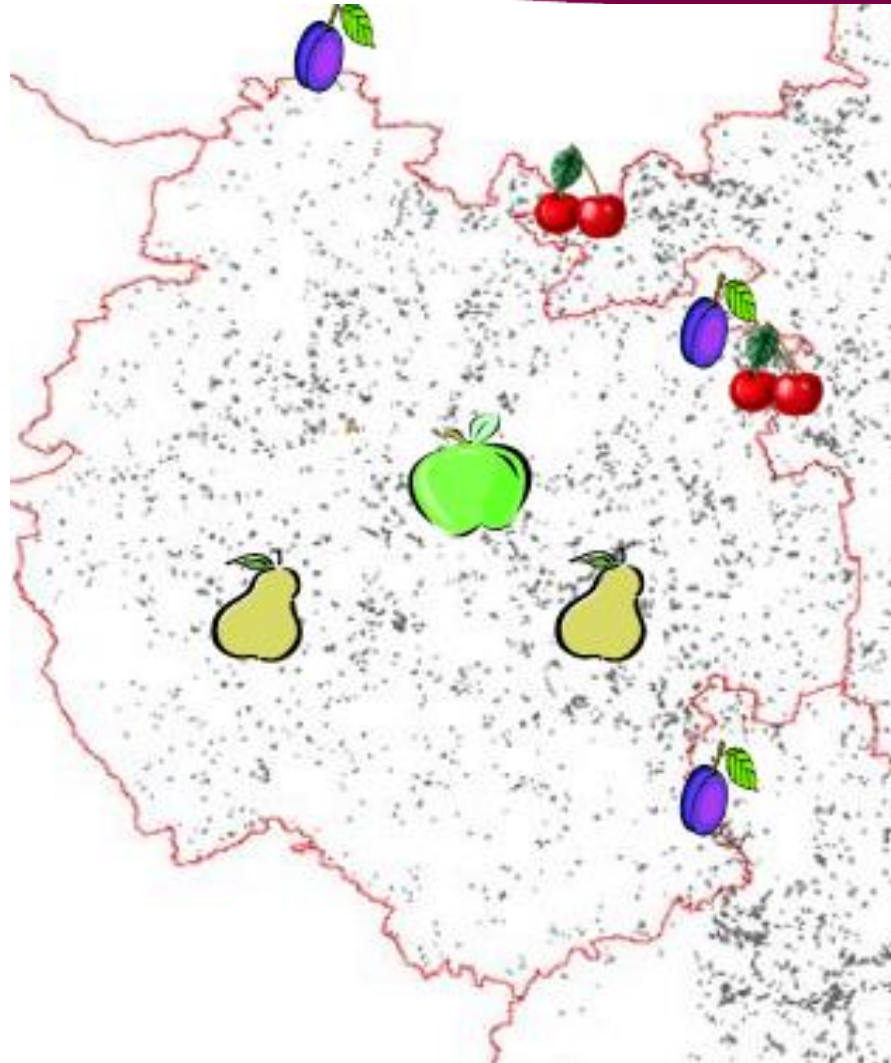


- **Create, Manage and Link**
 - **Prime Traditional Orchard Habitat**
- Fruit trees of **varying age** structure (i.e. old orchard requires **new planting**)
- Abundance of **standing and fallen dead and decaying wood**
- Trees managed to reach **veteran** stage
- **Low intensity** management
- **Grazed** grassland

New Plantings- essential link to older generation

Bridge the GAP

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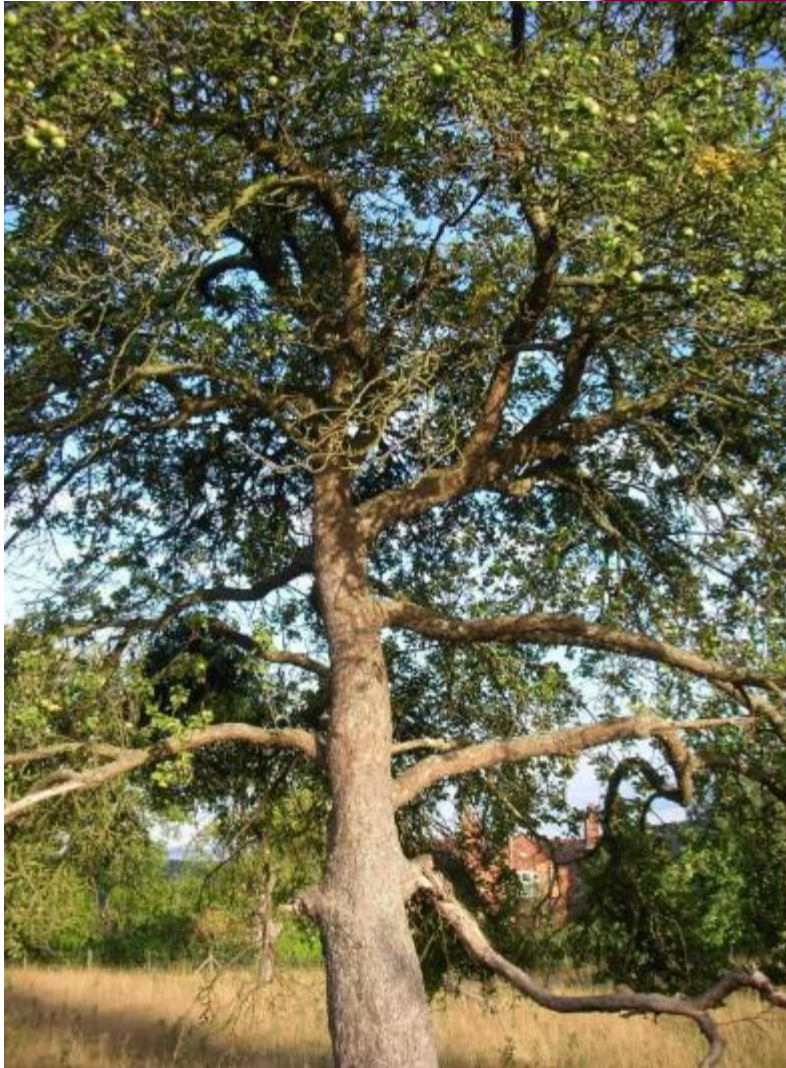
Plum/ Damson Orchards: Significant Deadwood from 40 years old

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Apple Orchards: Deadwood from 60 years old

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Cherry Deadwood from 60yrs old

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Perry Orchards: Deadwood 100 - 300 years old

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3CS is a tree'd environment

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AM11:33 1/MAY/2014

Countryside Stewardship values



- **Options:**
- **Creation of traditional orchards (BE5) £281/Ha**
- **Management of traditional orchards (BE4) £212/Ha**
Base Plan Advised
- **Capital Works:**
- **Supplement for restorative pruning of fruit trees (BE7)**
£62 per tree (over 3 years)
- **Planting fruit trees (TE3) £22.50 per tree**
- **Tree guard (tube and mesh) (TE6) £4 per guard**
- **Tree guard (wood post and rail) (TE7) £59.50 per guard**
- **Tree guard (wood post and wire) (TE8) £84 per guard**
- **Identification of orchard fruit tree varieties (TE14) £29/variety.**

Cultural value / Community value?

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WINDCROSS MAGAZINE

DYMOCK - DONNINGTON - PRESTON - KEMPLEY

The Four Churches of Windcross within the
Leaden Vale Group of Parishes

60pence

August

2019



with

REDMARLEY D'ABITOT - BROMSBERROW
PAUNTLEY - UPLEADON - OXENHALL

200 years ago the
villagers of Gorsley
planted an orchard, a
school and a church.
Now the school,
church and
community are
planting a new
orchard for everyone
to enjoy.



Summary



- Traditional Orchards are a valuable form of Silvo Pasture
 - Valuable lessons for other silvo pasture systems
- *Values include:*
 - Livestock and Fruit
 - Wildlife benefit- Mimic wood-pasture, valuable stepping stones in the landscape, in age and place- agri environment payments
 - Cultural value

Questions

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