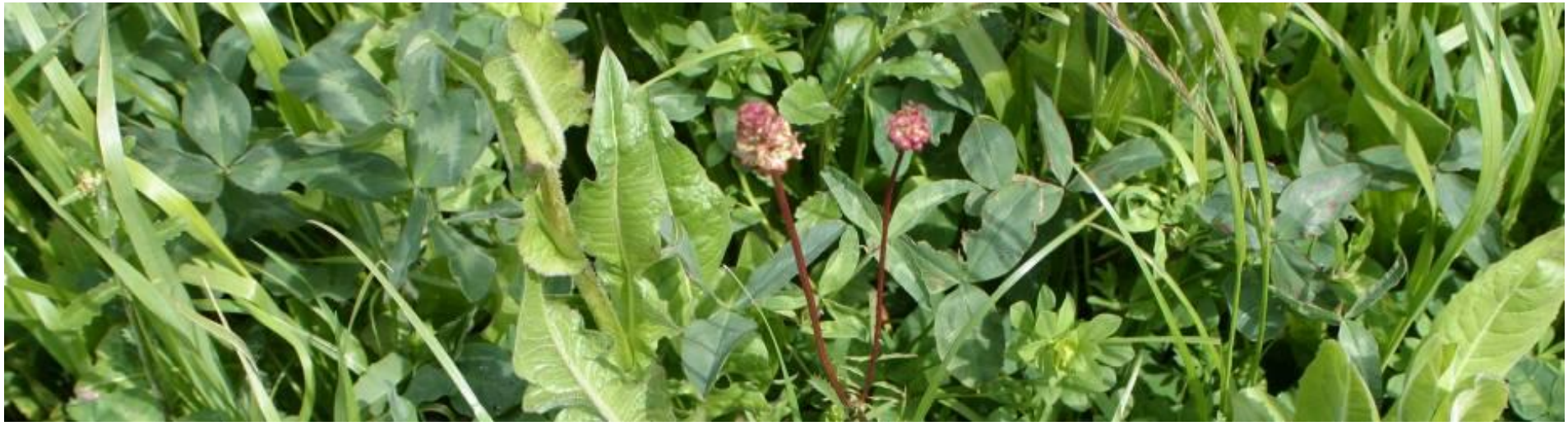
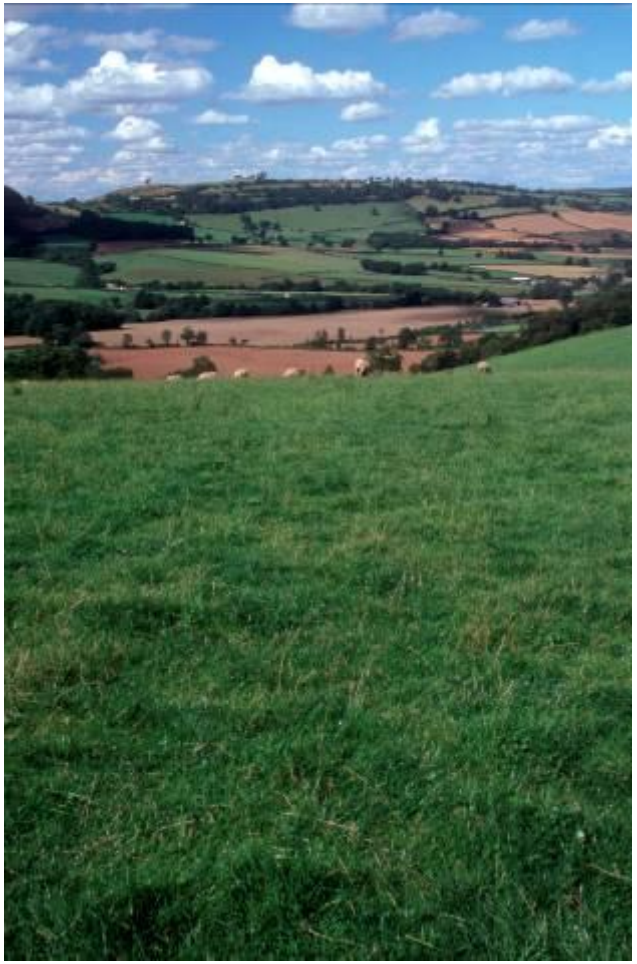
Diverse Swards, Diverse Benefits

Ian Wilkinson
Managing Director, Cotswold Seeds



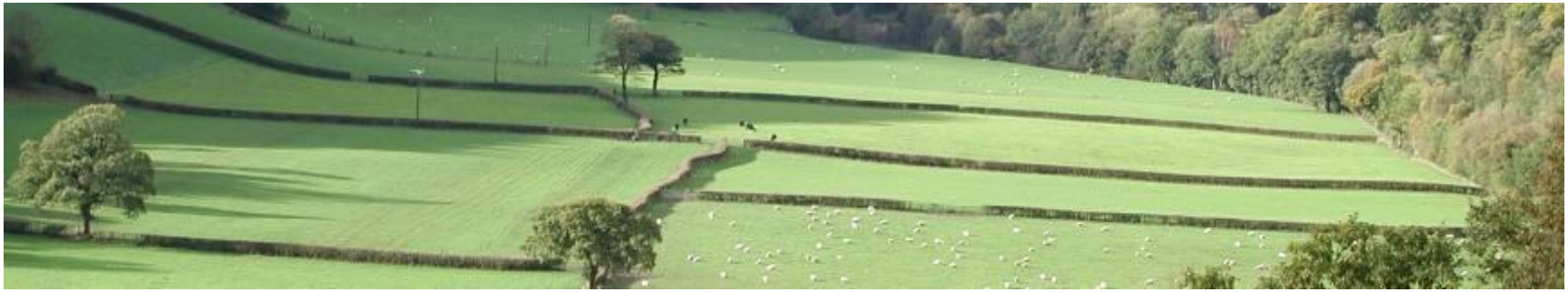
Diverse swards, diverse benefits

- The grass crop in UK agriculture
- Historical perspective
- Grass seed sales
- Nitrogen sources and mixed swards
- Biodiversity advantages
- ‘Healthy hay’
- Seed mixtures
- Herbal leys
- Role of policy makers



The grass crop

- ‘Managed’ grass covers 42% of UK croppable area
  - Permanent pasture = 6 million ha
  - Temporary leys (< 5 years old) = 1.26 million ha
  - This does not including rough hill/moorland grazing
- Grass farmers can therefore influence biodiversity:
  - Diverse swards
    - Easy to grow
    - Diverse benefits for the farmer
    - Deliver biodiversity



The grass crop

- Main source of forage for livestock
- Grass ley increases soil fertility
- Historically more important
- Use an existing resource to deliver biodiversity
- Temporary leys offer the main opportunity

Historical perspective

- 200 years ago farming was much more diverse
- Rotations included: Wheat, barley, oats, pulses, grass leys, clovers, trefoils, medicks, sainfoin, permanent grassland and brassicas
- Mixed farms the norm across the country
- Impact of the agricultural and industrial revolutions
- Biodiversity decline coincided with intensification and the increasing use of N fertiliser post WWII
- ‘Plough up’ policy impact on permanent pasture
- N fertiliser and herbicides led to monoculture approach to grass farming

Grass seed sales

- 80% of sales are ryegrasses
- In the past timothy, fescues and cocksfoot just as popular
- Ryegrass most responsive to N, leading to a ryegrass ‘bonanza’
- Massive increase in yields
- Swards got as much as 450kg N/ha
- Now around a ⅓ of that applied (rising costs and NVZ restrictions)
- Costing ≈ £100/ha
- Biggest variable cost of production
- Italian Ryegrass….

Nitrogen

- High yielding ryegrass swards now expensive
- N costs continue to rise – oil prices
- Farmers very cost aware – and inventive
- Alternative sources of N sought
- Opening the door for fodder legumes
  - Fix N
  - High protein feeds
  - Costs of bought-in protein. Issues around soya.
- Significant swing towards legume-containing seed mixtures
  - Red and white clover, lucerne, sainfoin, vetches, trefoil and medicks

Biodiversity advantages?

- Grass & legume mix – move away from monocultures
- Precludes use of selective herbicides
- Increases sustainability and more complex rotations
- Once farmers diversify, they rarely revert
- Our relationship with over 8,000 farmers backs this up
- Challenge for farmers to ‘relearn’ how to grow once common forage crops
- Full potential of all grass and legume species not yet realised
  - Research into agronomic practices
  - Benefits for animal nutrition and, ultimately, human health
  - Plant breeding efforts need to be spread across the whole range
- ‘Summit’ of ryegrass potential now reached

‘Healthy Hay’

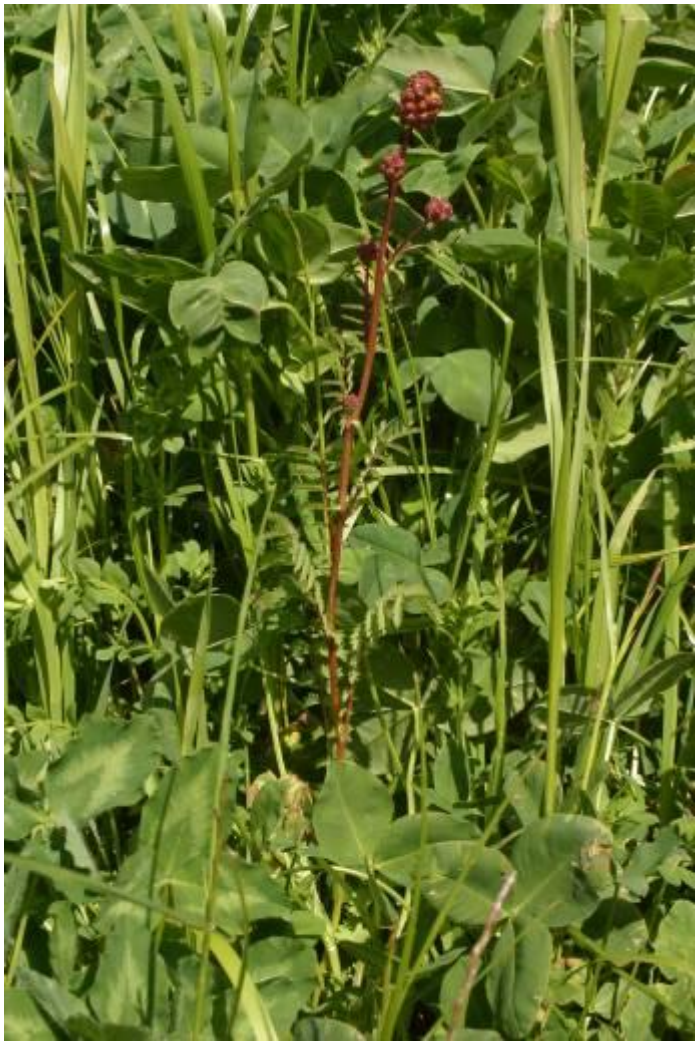
- Four year Marie Curie/EU research project
  - 12 European research institutes inc NIAB and Reading
- Reinvent role of sainfoin as a fodder crop, once 1 in 7 fields
- N fixing legume, high protein content, no bloat issue, anthelmintic properties
- Meat and milk produced economically and healthily
- Henry Edmunds, Cholderton Estate….

Seed mixtures

- Research looks at single species
- However the seed trade mixes species for sale
- Recent past has seen the widespread use of simple mixtures of ryegrasses with clover
- Historically mixes were much more complex: grasses, legumes and herbs
  - Clifton Park, Cockle Park, Friend Sykes, Robert Elliot extolled the virtues of complex leys
- Grass leys used in arable rotations provided good forage crops, soil fertility and, no doubt, biodiversity

Herbal leys

- Increase biodiversity by definition
- Grazing possibly detrimental to this
- Must be better than monoculture ryegrass
- Farmers must produce food
- Herbal leys….



Herbal ley

- The mix we sell includes over 15 species/varieties
- Cost of establishment v cost benefits
- Spread risk with variable growing seasons, eg this year
- Demand gone up three-fold in last four years, but still small overall acreage

'HERBAL' Grazing Ley
Four Year Ley
Ref. MIX20

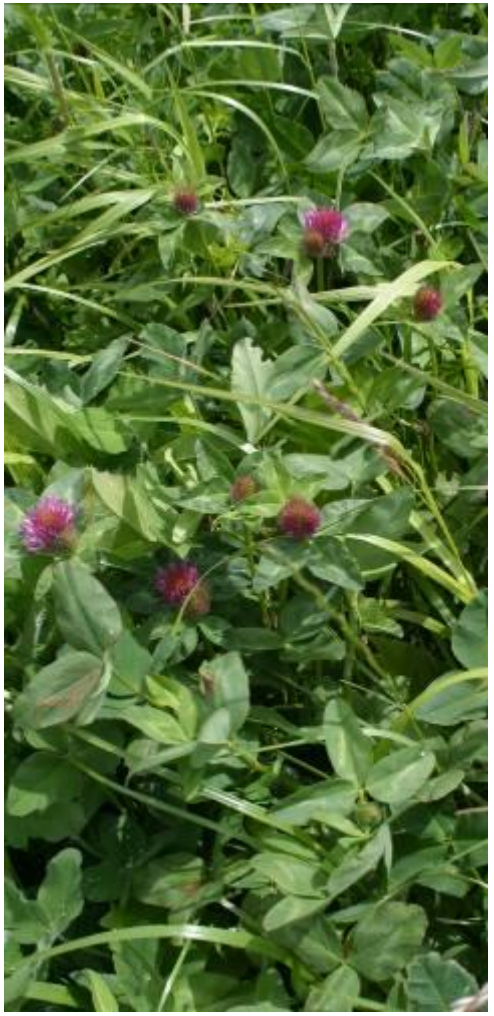
Based on Newman Turner's original recommendations this all round mixture provides wholesome and substantial forage for grazing and occasional cutting. It can provide grazing for early turnout and will continue to produce forage right through the summer and autumn. Containing deep rooting ingredients this ley not only improves soil structure but also draws essential vitamins and minerals for the ruminant animal.

1.50 kg certified **ABERDART** perennial ryegrass
1.50 kg certified **PRAIRIAL** cocksfoot
1.50 kg certified **PROMESSE** timothy
0.80 kg certified **COSMOLIT** meadow fescue
0.50 kg certified **STARLETT** or similar tall fescue
0.75 kg certified **ALTASWEDE** late flowering red clover
0.30 kg certified **ABERCONCORD** white clover
0.30 kg certified **ABERHERALD** white clover
0.25 kg certified **S184** or **ABERACE** wild white clover
0.50 kg certified **DAWN** alsike clover
0.50 kg certified **SANS GABRIELLE** birdsfoot trefoil
2.00 kg commercial **SAINFOIN**
1.00 kg commercial **SWEET CLOVER**
0.90 kg certified **PUNA** chicory
1.25 kg **BURNET**
0.25 kg **YARROW**
0.50 kg **SHEEPS PARSLEY**
0.20 kg **RIBGRASS**

14.50 kg per acre (36.25 kg/ha)

Herbal leys: livestock farmers

- Benefits for biodiversity:
  - Greater biodiversity of species in sward
  - Huge advantages for invertebrates, soil micro-organisms, birds and other wildlife
- Benefits for farmers
  - No N needed, low P & K
  - Self-sufficient leys
  - Cheap forage
  - Good yields
  - High protein content
  - Micronutrient content
  - Healthier animals, lower vet bills
  - Healthier milk and meat
  - Marketing message



Herbal Leys: arable farmers

- Arable and horticultural systems reliant on fertile soil
- Organic farmers attempting stockless systems
- Conventional farmers could follow suit
- Use herbal leys to provide soil fertility, structure and stability
- Rise in number of ‘beneficial’ insects could reduce pesticide use on farm
- ‘Grow your own fertiliser’ – green manure

Role of policy makers

- ELS/HLS payments a vital part of many farmers' incomes
- CAP reform likely to put more emphasis on 'environmental stewardship'
- Defra/Natural England should place more emphasis on soil management for long term sustainability
- Herbal leys best soil improvers (plus biodiversity benefits)
- Cover whole fields not just margins/corners around edges
- Suggest including these leys into ELS/HLS options, encouraging farmers to use them, and off-setting establishment cost
- Could even bring mixed farming back to arable parts of the country providing more sustainable and 'local' food

In conclusion

- Diverse swards bring diverse benefits to farmers and to biodiversity
- Small shift needed from farmers and policy makers
- Use grassland to up profits on farm
- Increase environmentally beneficial acreage hugely
- Whole field approach, not just round the edges