

Cover crops

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The Hot Topic



- Reasons for growing green cover crops
 - Soil health – structure, improve organic matter
 - Scavenge nutrients from previous crop
 - Reduce the risk of soil erosion
 - Grazing
 - Meeting EFA requirements
 - Agri–environment climate scheme
 - Provide wildlife cover & feed in winter (partridge, pheasant, deer).





Regional lessons learned in 2015/16



- EFA options can be an asset
- Variation in drilling dates after harvest make a big difference
- Grain quality has not been affected in year 1
- There is much more benefit to be had from green cover when well planned.



ATLANTIC OCEAN

Stromness

ORKNEY ISLANDS

Autumn cover crop trials

Stornoway

WESTERN ISLES

Dornoch

Inverness

Elgin

Aviemore

Aberdeen

Fort William

Kinlochleven

Pitlochry

Isle of Mull

Arbroath

Perth

Andrews

Stirling

Glasgow

Edinburgh

Isle of Arran

Ayr

Melrose

Dumfries

ENGLAND

NORTH SEA



Cover crop considerations

- Rotation - oilseed rape or peas
 - Sowing time and method
 - What do you wish to achieve?
 - Grazing
 - Biomass
 - Soil health
 - EFA
 - Destruction
 - Next crop planting
 - Cost.
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Crops to consider

Oil radish/Forage rye



- Good combination of rooting activity
- Deep rooting from the radish and top soil rooting from the rye
- Can be foraged, if required
- EFA green cover option
- Sown at 30kg/ha.



Crops to consider

Oil radish



- Quick growing brassica
- Combines an extensive tap root with fibrous lateral roots
 - Very efficient scavenger of available nutrients
- Club root resistant
- Added to the EFA cover crop list
- A good forage crop
- Sown at 18/20kg/ha.



Crops to consider

Turnip rape

- Excellent, winter hardy option
- Good for later sown areas
- Very efficient scavenger of nutrient
- Significant grazing crop
- Be wary of club root risk.



Crops to consider

Mustard and oats

- Low cost but be wary of club root risk
- Effective combination
- Oats are an efficient nutrient scavenger
- EFA green cover option.



Crops to consider

Soil Vitality Mix



- Designed to increase soil biota
- Combines a range of rooting with nitrogen fixing berseem clover and vetch
- Radish will scavenge available nutrients
- A good mix to use where you wish to cover all bases



The EFA Opportunity



EFA green cover between 1st March – 1st October – 0.3

- Fertility and structure? Radish and vetch
- Structure? Radish and forage rye/oats
- NOTE – no cutting or grazing

EFA fallow option 15th January – 15th July in Scotland

- However a wild bird seed or nectar source is allowed and can be established within this period
 - Nectar - long term clover mix
 - Wild bird seed - structure mix (WBS) radish, oat, phacelia
 - Perfect way to manage poor fields.
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Phacelia





Agri-environment scheme (AECS)



Winter stubbles followed by a green manure

- Green manure crop to be established after 1st March following winter stubble (hold drilling of until early May if possible)
- Maintain crop until 15th August
- Establish green manure that must contain one annual

Mixtures

- Radish, vetch, berseem clover, oat and phacelia
 - Rye/vetch
 - Oats, mustard and phacelia.
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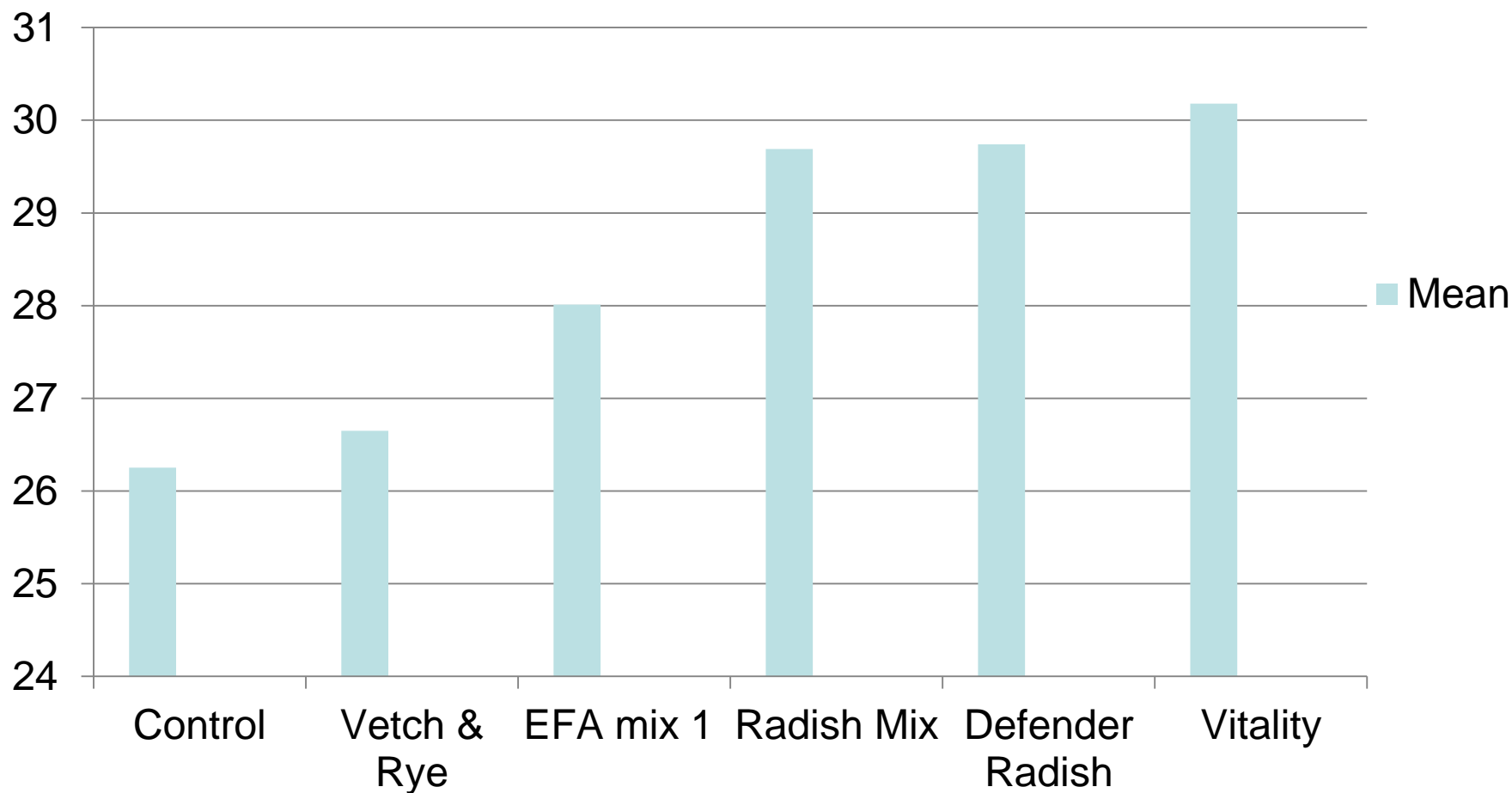
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Key findings to date

- Shear strength
 - Grain quality
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Shear strength - soil resilience



Grain quality – not affected



Treatment	Yield (t/ha)	Spec weight (kg/hl)	Grain nitrogen (%)
Control	7.7	65.6	1.4
Defender Oil Radish	8.0	66.1	1.5
EFA Mix	7.5	65.4	1.4
Jupiter Turnip	7.7	65.5	1.4
Radish Mix	7.9	65.7	1.4
Structure Mix	7.8	65.8	1.4
Vetch+Rye	7.4	65.4	1.4
Vitality Mix	7.7	65.3	1.4

Case study 1 – Summer sown cover crop



- Sown July
 - Location – Central Scotland - Blairgowrie
 - Radish sown in between vining peas prior to winter wheat
 - Purpose – Store any nutrients left over from peas
 - Minimum establishment
 - Outcome – Quick growth, lots of biomass and large amount of nutrient uptake.
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Observations

- Fresh weight results

Crop	Dry matter Tonne/ha	N kg/ha	P kg/ha	K kg/ha
Oil Radish	3.39	112	20	153



Grower observation

- Soil came up drier when ploughed
- Left a good seed bed prior to winter wheat
- Small added cost to top the crop before ploughing due to height.

Case study 2 – Summer sown cover crop



- Sown 10th July
 - Location – Brechin
 - Oil radish after carrots
 - Drilled with Vaderstad Bio Drill
 - No fertiliser.
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Summary

- Planning for 2017 post harvest should be in hand now
 - EFA's do provide a significant opportunity
 - Good, consistent advice is critical for successful integration
 - Optimise your resources and keep them on your farm.
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Thank You

