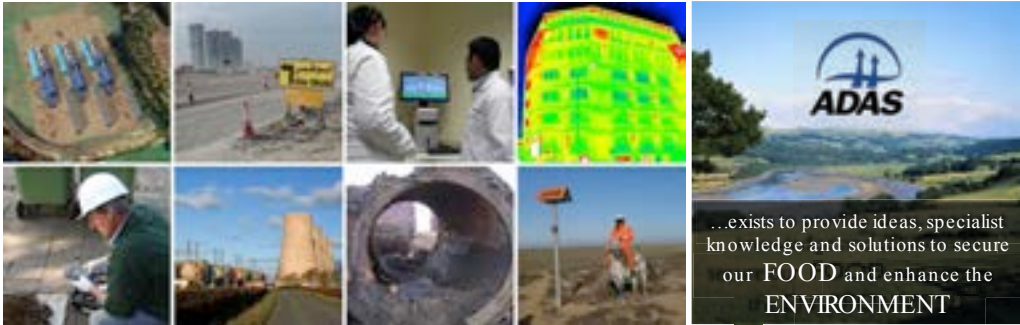

 Environmental services for Nuclear, Oil, Gas, Renewables, Transport .. and now Agriculture ...



...exists to provide ideas, specialist knowledge and solutions to secure our **FOOD** and enhance the **ENVIRONMENT**

Baltic Agro conferences, Estonia, January 2020



ADAS Crop Performance Team ...





Yield Enhancement:

Roger Sylvester-Bradley
Head of Crop Performance, ADAS, UK



Estonia, January 2020

'Share to Learn'



Conventional Farm Knowledge Generation:

1. Science .. provides the principles
2. Experimentation .. decision rules
3. On-farm observations & modifications

'Best practice'





Multiple modifications



RECOMMENDED LIST S

AHDB Recommended Lists for cerea[s and oitseeds 2018/19
Summer edition



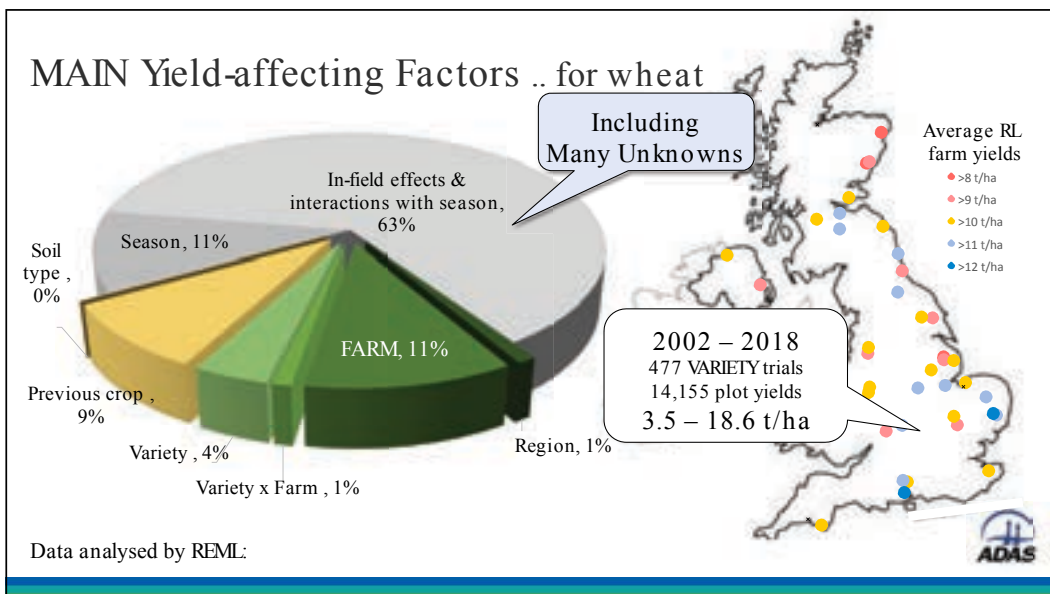
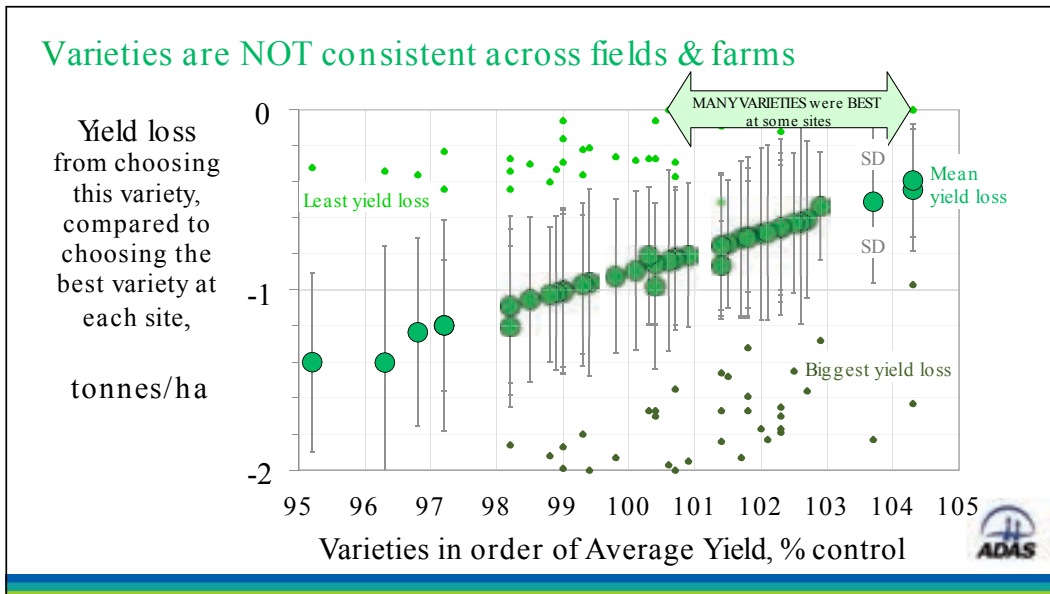


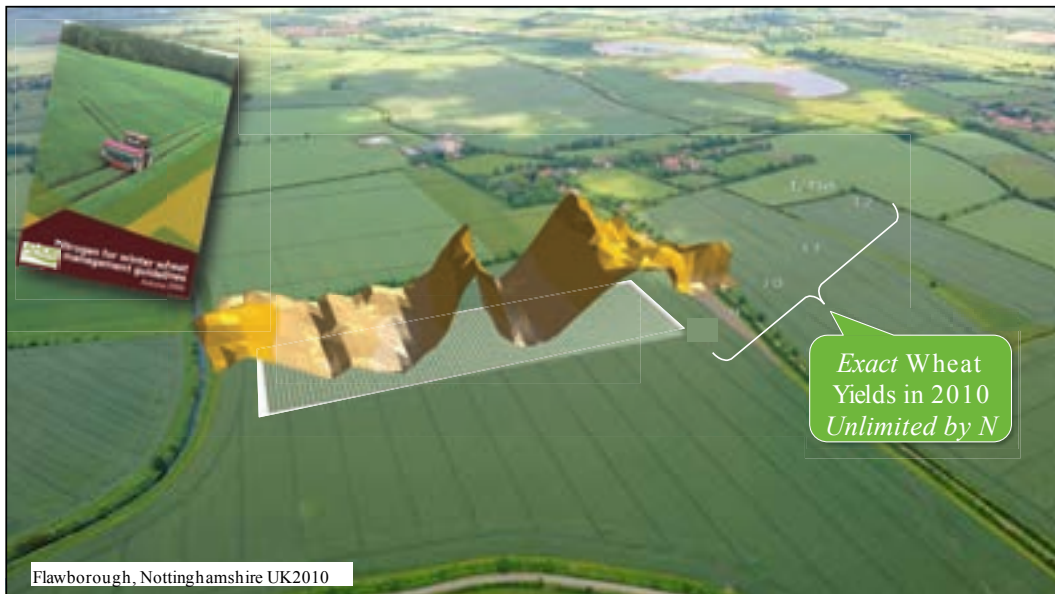
© 2018 AHDB

Page 8

Winter wheat 2018/19 – nabim Groups 1–3 and Soft Group 4 – Market options, yield and grain quality

End user group	Subline Group 1					Subline Group 2					Subline Group 3					Soft Group 4																			
Scope of recommendation	UK	IE	DE	FR	IT	UK	IE	DE	FR	IT	UK	IE	DE	FR	IT	UK	IE	DE	FR	IT	UK	IE	DE	FR	IT	UK	IE	DE	FR	IT	UK	IE	DE	FR	IT
Example finished grain price (at harvest) (€/t)	192	190	188	187	187	192	190	187	187	187	192	190	187	187	187	194	194	193	192	192	192	192	192	191	191	192	191	191	190	190	192	191	191	190	190
UK breakdown	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
UK milling	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
UK feed	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
UK export	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y		
Grain quality																																			
End users (t/ha)	11.8	11.8	11.8	11.8	12.2	11.2	11.2	12.1	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2		
Protein content (%)	12.8	13.1	12.8	13.0	13.6	12.9	12.9	13.1	12.1	12.8	13.4	13.4	12.1	12.2	12.2	12.3	12.2	12.3	12.2	12.3	12.2	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3	12.3			
Harvesting Index	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274	274			
Specific weight (kg/hl)	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5	78.5			
Chopin elongation (mm)	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98	98			





Conclusions on UK wheat yields

.. from conventional small research plots

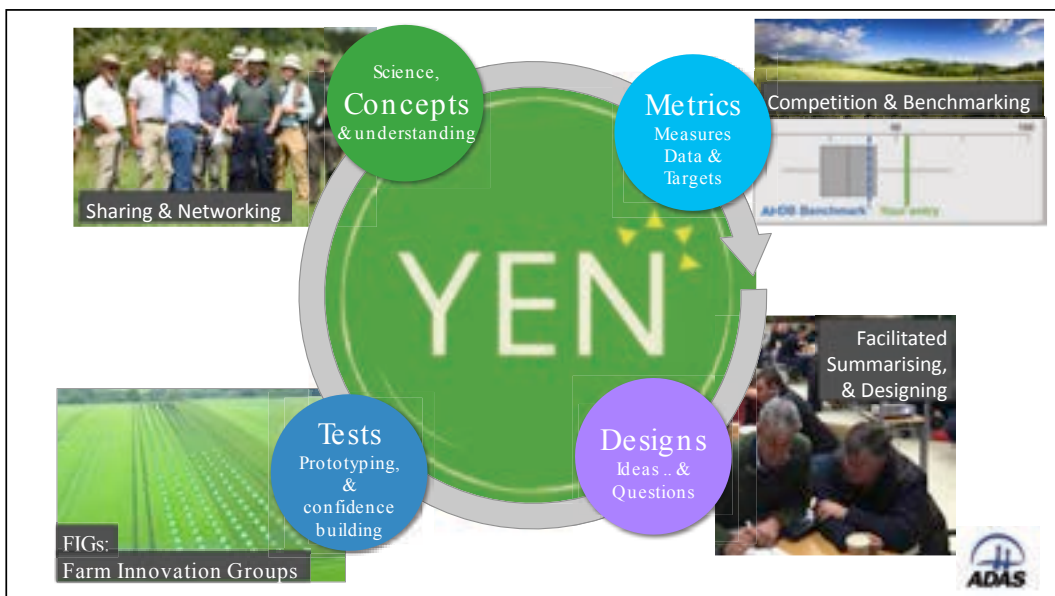
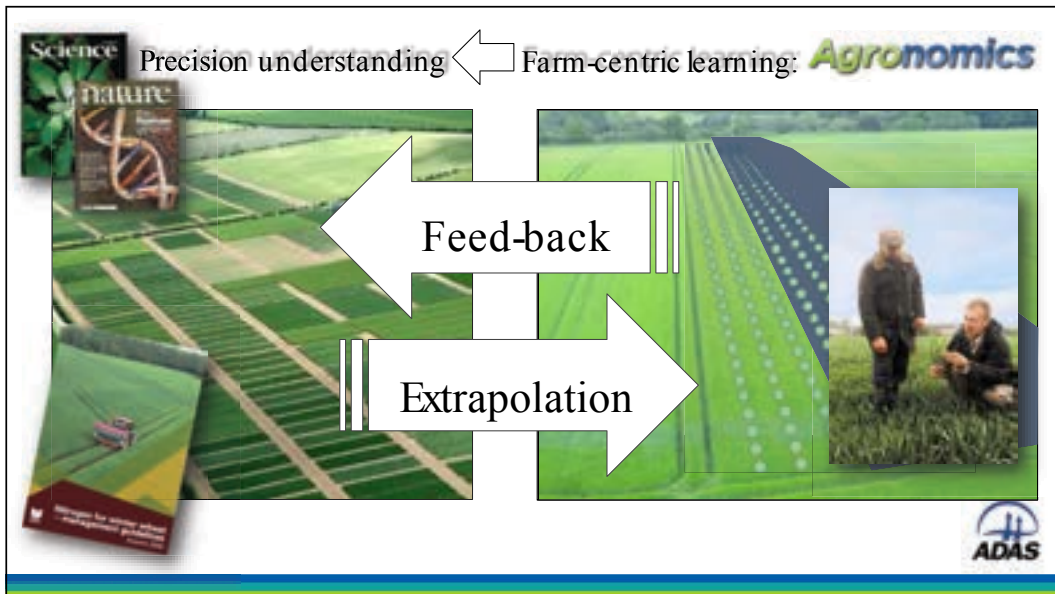
HUGE VARIATION!

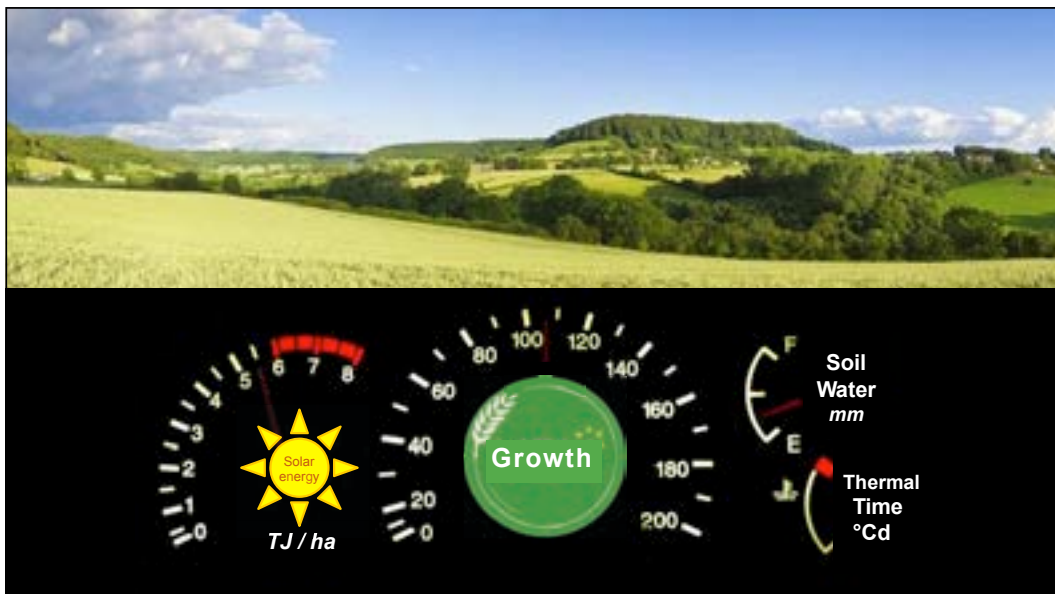
A big FARM +/- or FARMER effect

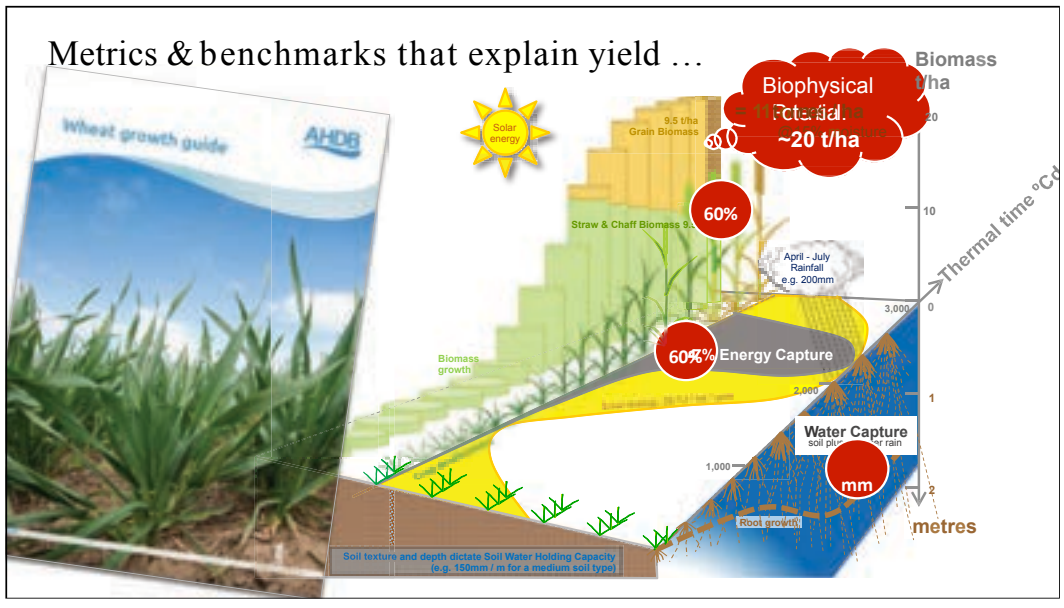
More Farm-Centric Learning required

'Seasonal fog'

'Input' & Genotype effects are small







YEN = better than 'best practice'

The graphic features the YEN logo (a green circle with 'YEN' and three stars) and the text '= better than "best practice"'. Below this are several smaller YEN logos of different designs. To the right is an illustration of a plant with a lightbulb above its roots, symbolizing innovation or a new idea.

Why join YEN?

- Gauge crop performance and potential
 - Benchmark crops against everyone else
 - Compete for yield and % of potential
- Technical information
 - 20 page report for each crop
 - Soil and grain analyses (UK: 60 metrics)
 - Technical sessions
 - Newsletters, Website, etc.
- Help to try something new
- No cost to the farm

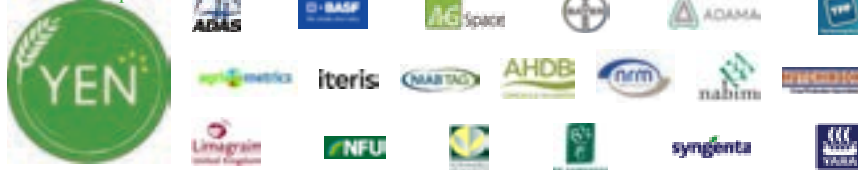


www.yen.adas.co.uk



YENs would not exist without their sponsors:

Cereal YEN sponsors



Oilseed YEN sponsors



For further information see: www.yen.adas.co.uk



Samples & data provided by farms .. for each YEN entry

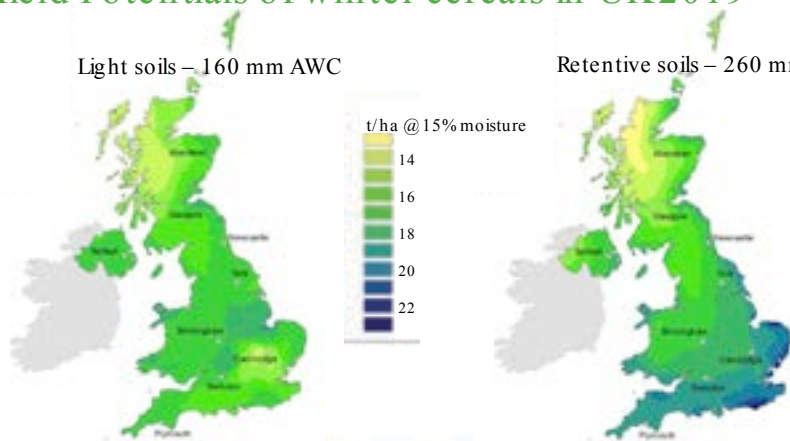
- Soil sample
- Husbandry records & Inputs
- Dates of Growth Stages: 31, 61 & 87
- Leaf samples
- Overhead photo after heading
- 100 shoots from whole-crop at harvest
- Grain sample after harvest
- Grain yield – with weight and area ..signed by a witness.

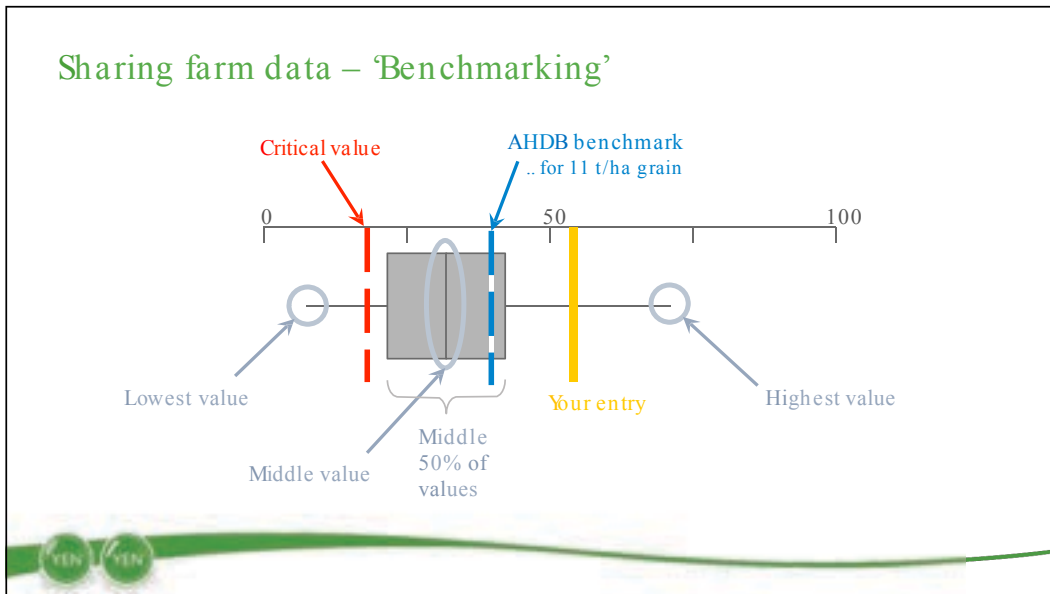


Yield Potentials of winter cereals in UK 2019

Light soils – 160 mm AWC

Retentive soils – 260 mm AWC





7th annual cereal YEN awards meeting ...November 2019



Farm Innovation Groups - FIGs



SILVER:
Richard
Wainwright,
Yorkshire

Cereal gold award



Innovator award

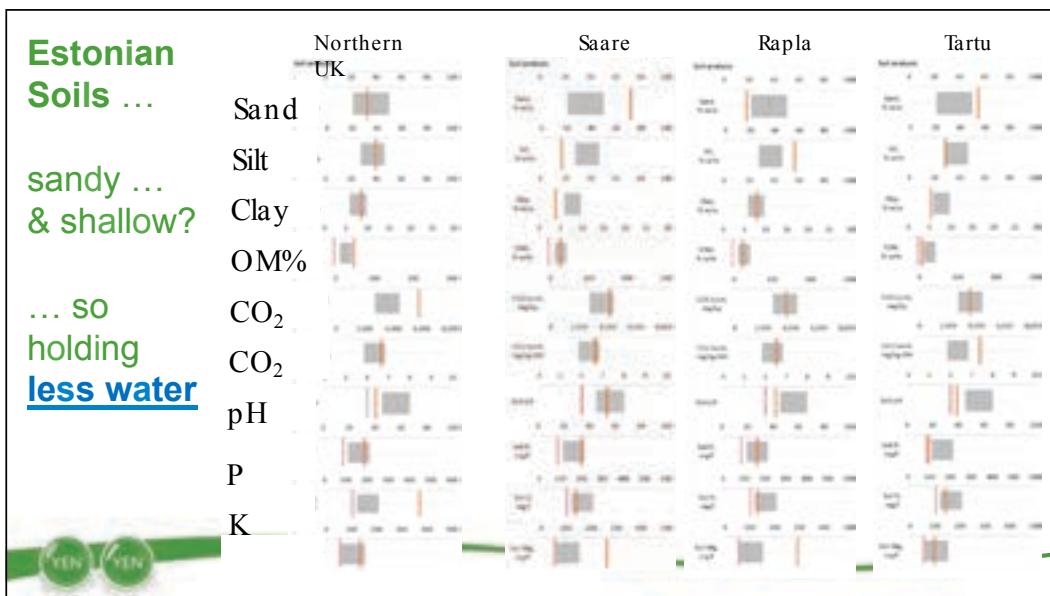
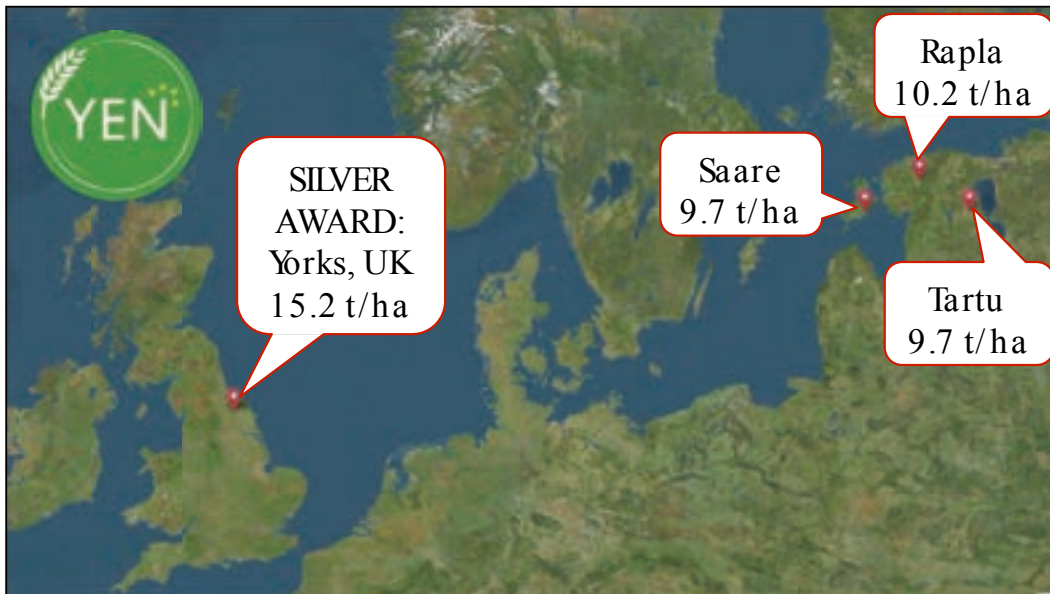


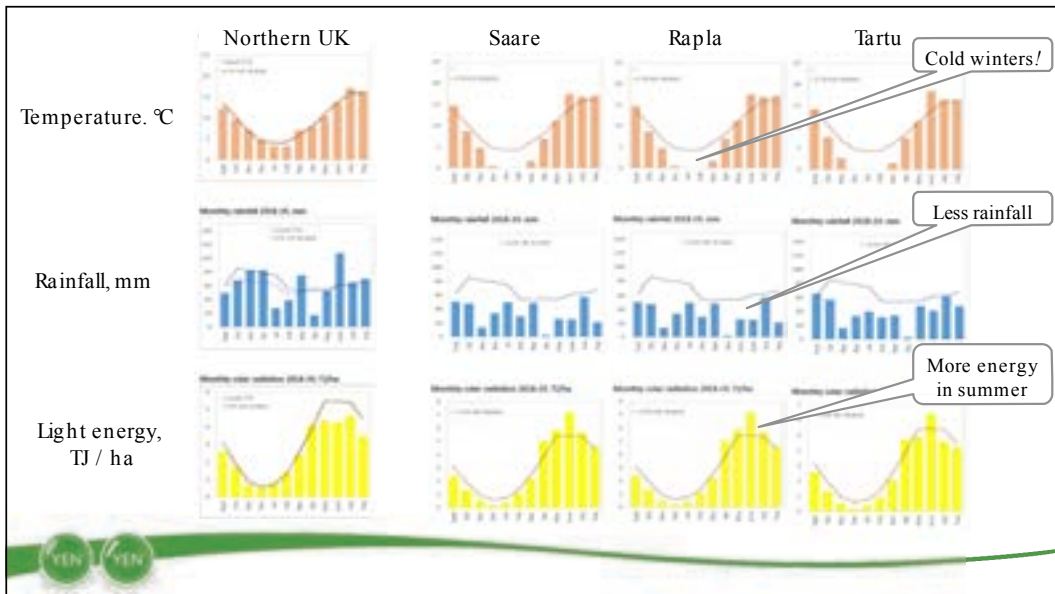
Regional winners



Estonia's 'agronome'





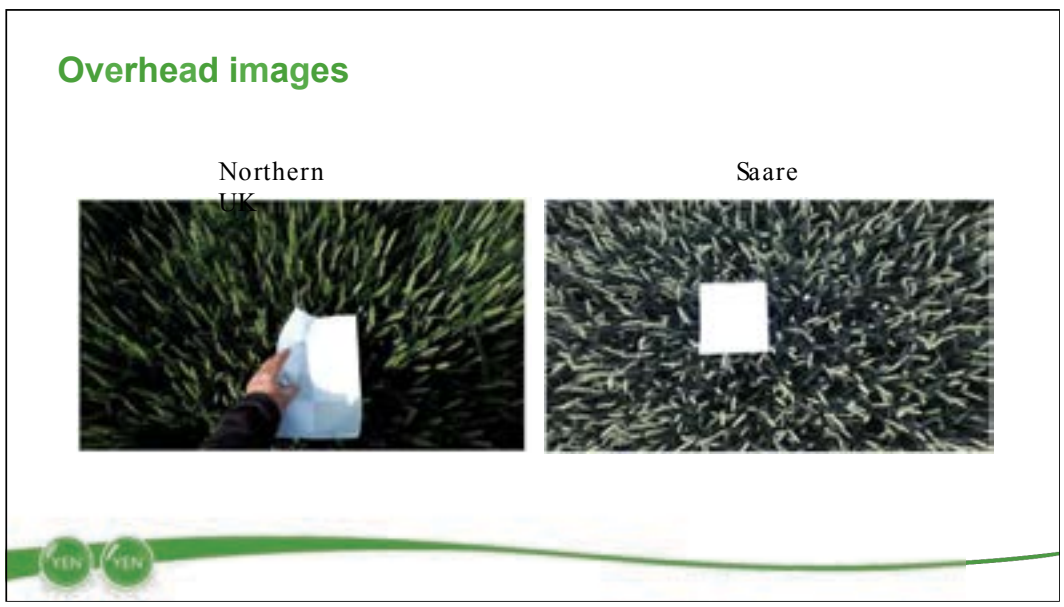
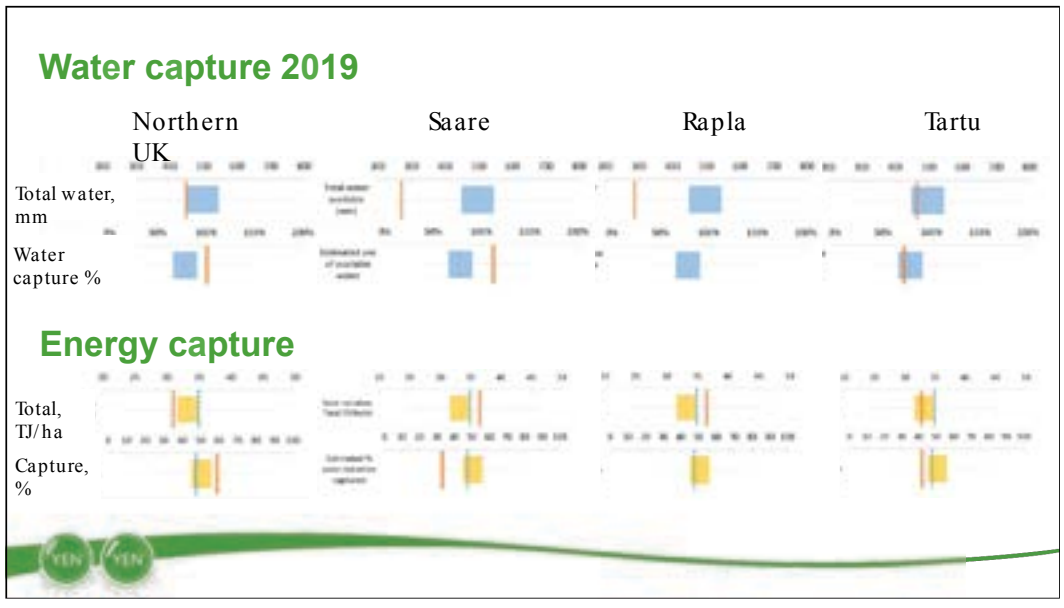


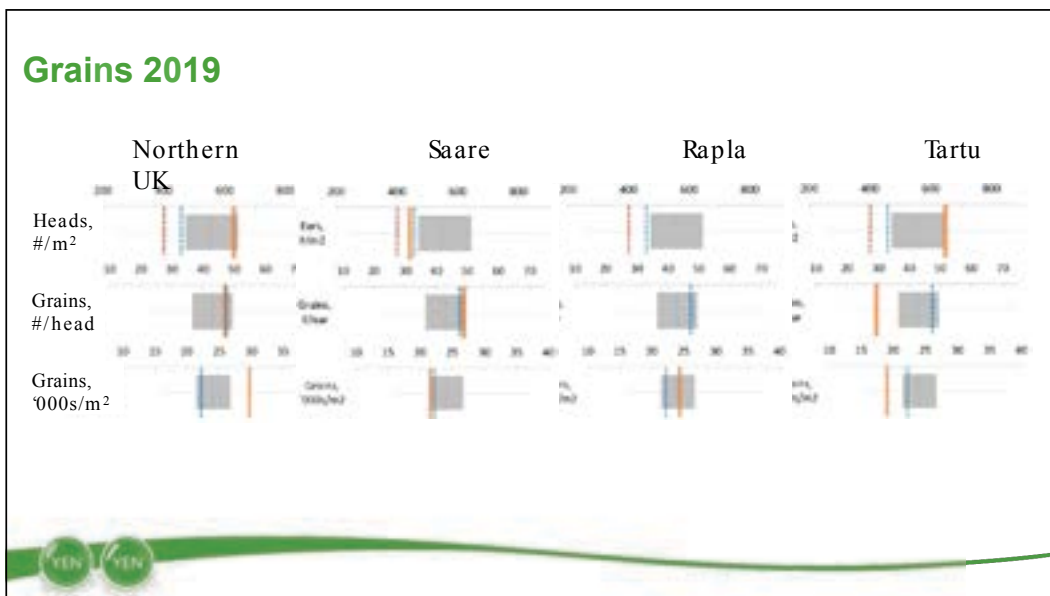
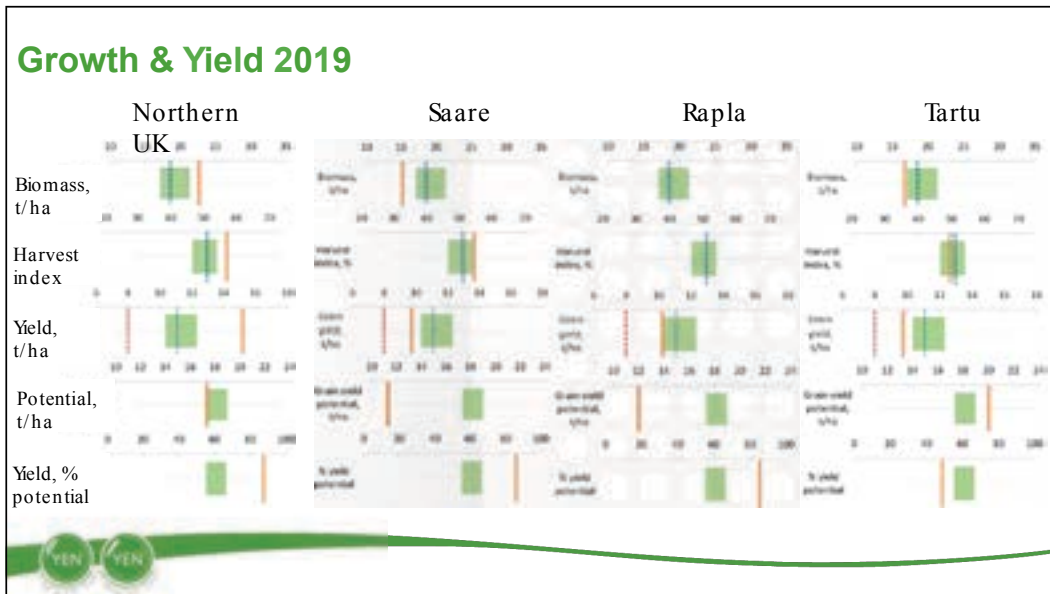
Sowing ... later in UK, with fewer seeds

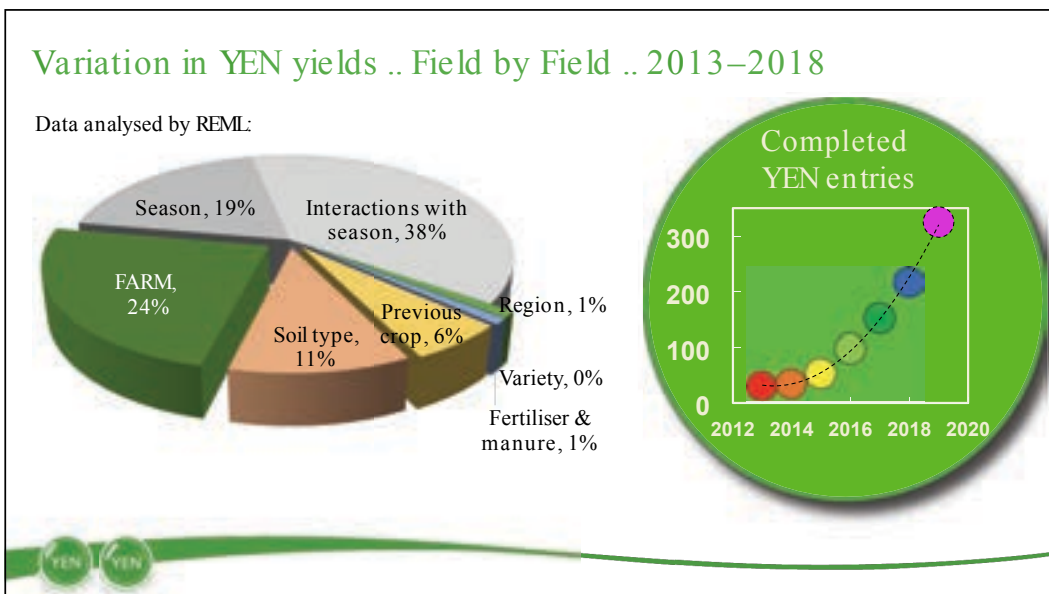
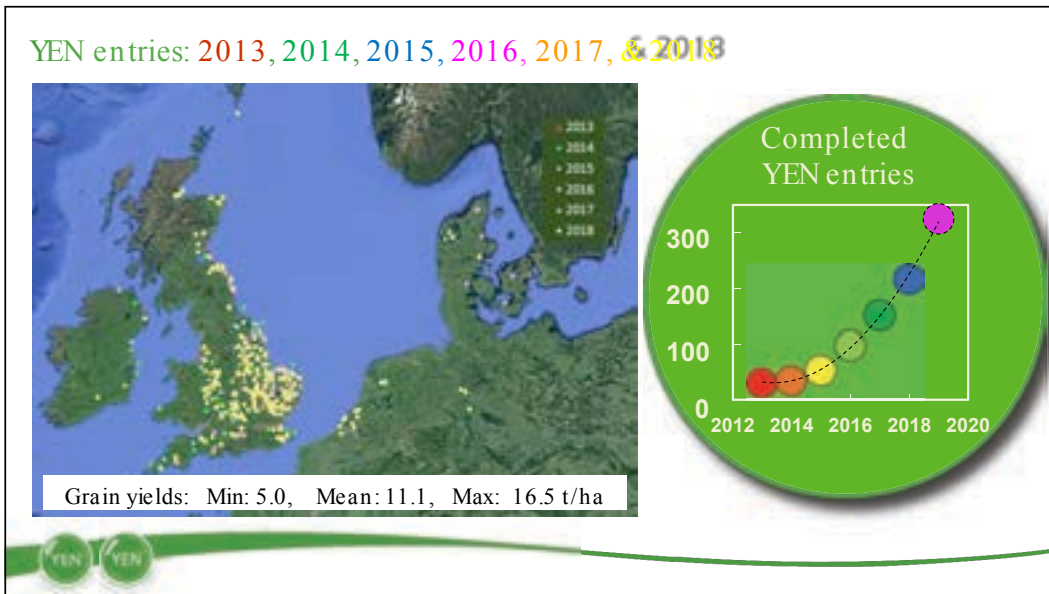


Fertilisers ... similar in UK

Fungicides, etc. ... similar in UK







Messages from YEN database analysis ...2013 – 2018



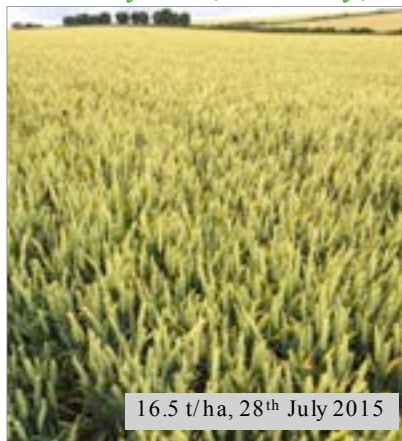
- 15 t/ha is possible ... almost anywhere
- It's less about what you spend, more about ...
‘Attention to Detail’
- Large yields come from large crops
 - With more ears than average
... and tending to be taller, with greater straw N%
 - So important associations include good nutrition,
and control of disease & lodging risks
 - Husbandry factors associated with high yields included:
 - ... following a break crop
 - ... narrow row widths
 - ... applying slurry
 - ... adequate N use ...but liquid N (straight) was questionable
 - ... and several PGR applications.


Serial Wheat Winner: Tim Lamyman, Worlaby, Lincs.

- 2013 did not enter
- 2014 1st of 46, 76% potential, 14.5 t/ha
- 2015 1st of 85, 79% potential, 16.5 t/ha
- 2016 did not enter
- 2017 1st of 167, 72% potential, 15.3 t/ha
- 2018 1st of 204, 90% potential, 16.2 t/ha
- 2019 11th of 331, 72% potential, 13.9 t/ha




Serial Wheat Winner: Tim Lamyman, Worlaby, Lincs.







Farmer Innovation Groups (FIGs)


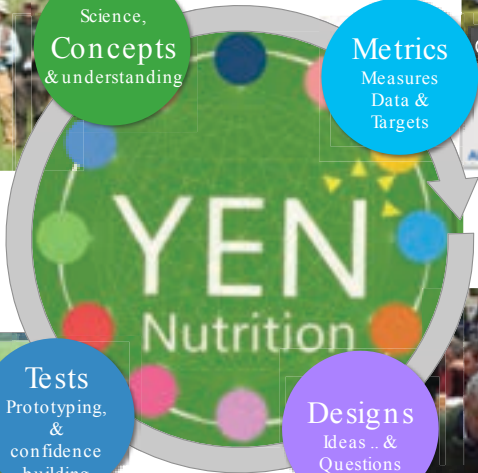
- Address issues & questions raised by YEN
 - Farmer-led
 - Facilitated by researchers / industry
- Demonstrate that farmers can answer questions on their own farm
- Use **Agronomics** software
 - Analyses yield-map data from tramline tests
 - Accounts for spatial variation within the field.






The European Agricultural Fund for Rural Development Europe Investing in rural areas







Sharing & Networking

Science, Concepts & understanding




Competition & Benchmarking

Metrics Measures Data & Targets




FIGs: Farm Innovation Groups

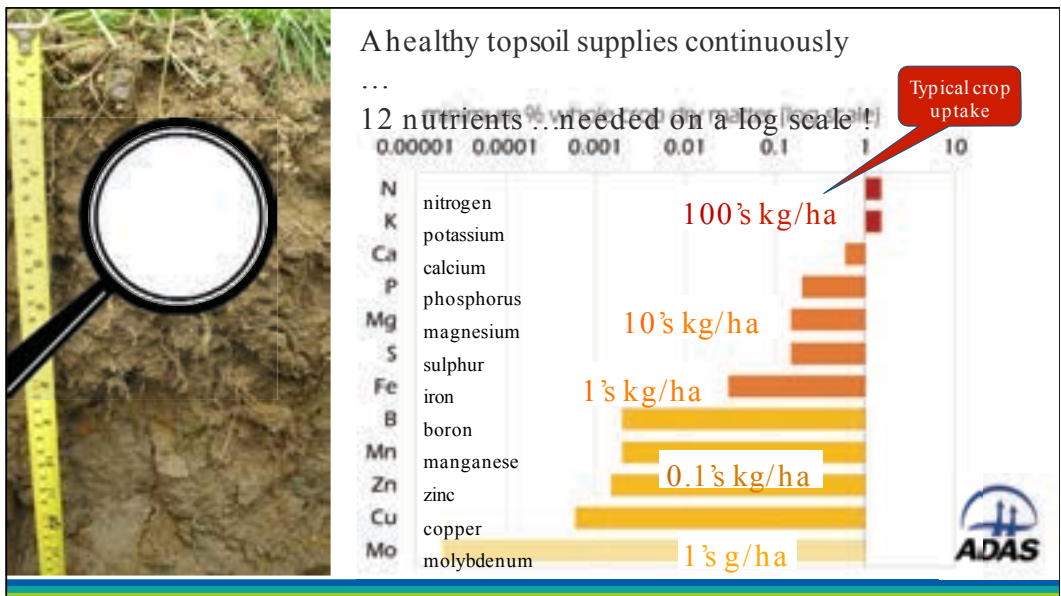
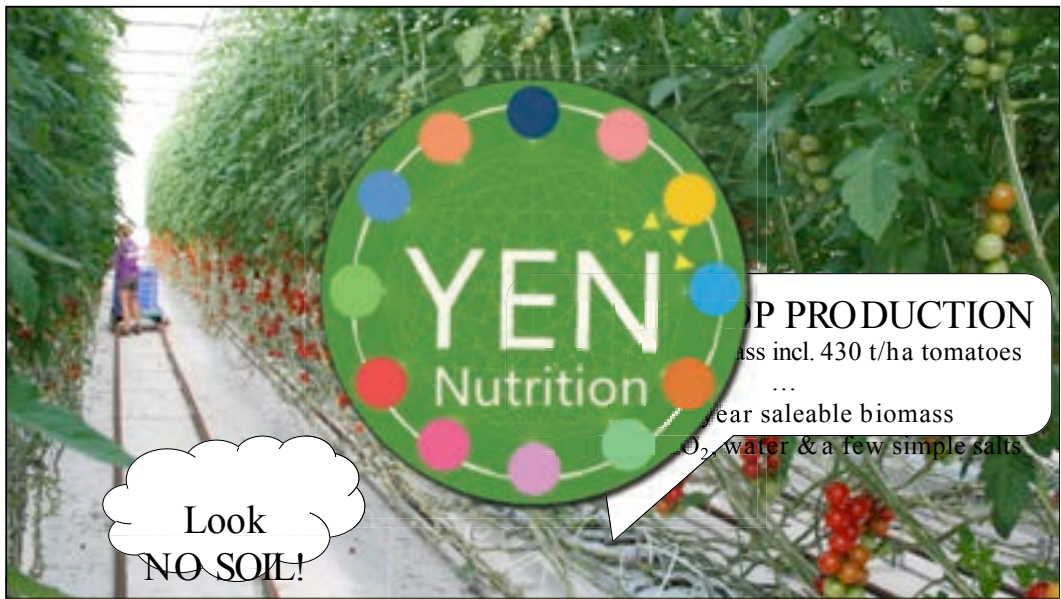
Tests Prototyping, & confidence building

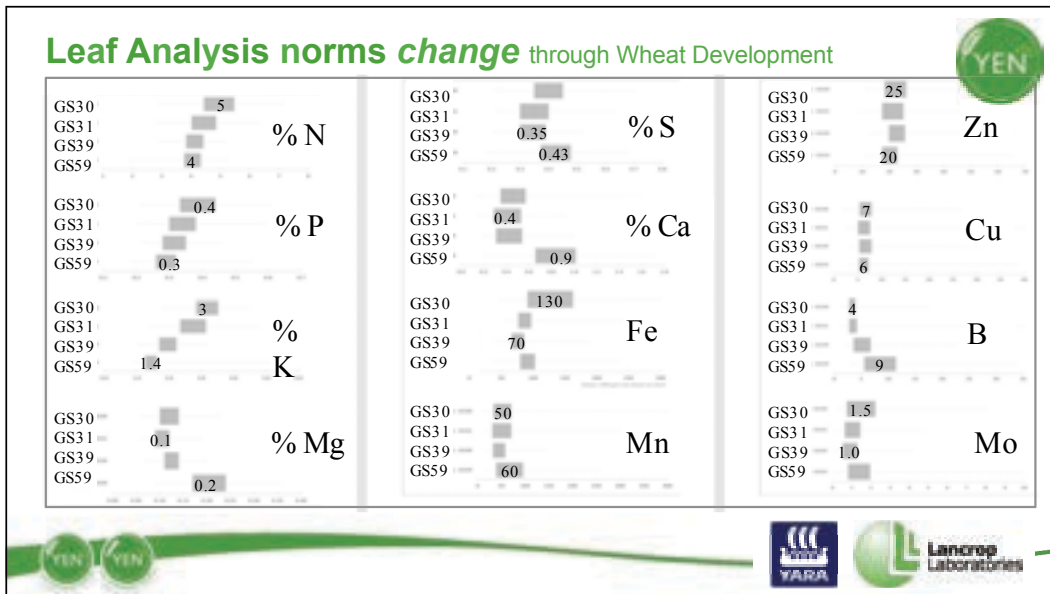


Facilitated Summarising, & Designing

Designs Ideas .. & Questions







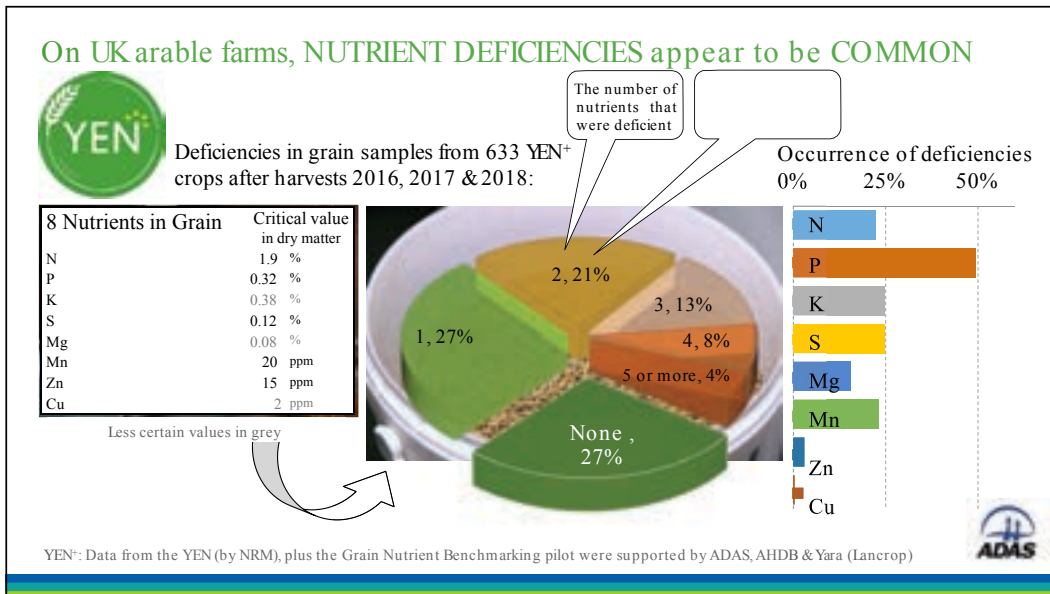
Analysing Grain for nutrients ... ?

- Easy & accurate representative sampling of whole fields





Three uses:

1. Measure P, K, etc. offtakes
2. Double-check soil analyses
3. Gauge all possible nutrient deficiencies.


Logos: YEN, ADAS



Nutrition diagnosis ...CONCLUSIONS 2020

- 
• SOIL analysis tells about availability
 - But is not fully reliable
 - Needs double-checking
- 
• LEAF analysis indicates immediate crop status
 - Can support corrective sprays etc.
 - Problematic to interpret ...weather effects ...'norms' change as crops age
 - Uncertain thresholds / critical values
- 
• GRAIN analysis tells about ultimate nutrient capture
 - Most accurate, precise & easy
 - Embraces rooting and seasonal soil moisture issues
- 
• Significant value in sharing results ...BENCHMARKING

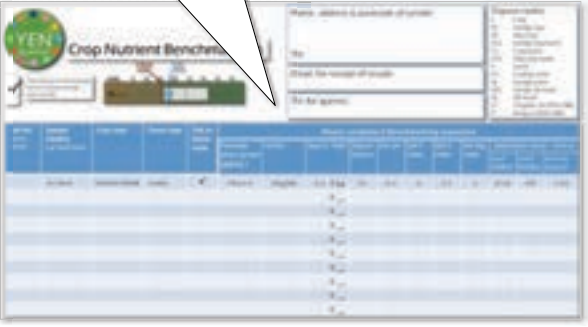
Planning Nutrient Analysis ...with Benchmarking



Grain Nutrient Benchmarking
2020 harvest



Analyse grain from each field to assess which nutrients are most limiting.

... a new way to monitor your crops' nutrition.


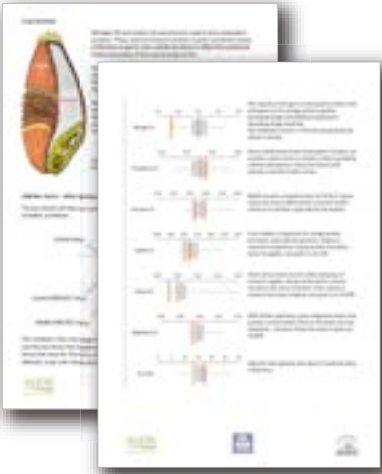


Input data required for Benchmarking



Also at: www.yen.adas.co.uk/projects/yen-nutrition



Interpreting Nutrient Analysis ...from Benchmarking



Facilitated Summarising, & Designing



Checking nutrient deficiencies ...with 'Hi-Lo Patches'

e.g. if grain P analysis is <0.3% ...apply TSP

50 kg TSP applied to this 24 x 24 m patch

Obvious evidence of P deficiency

...and in the following wheat crop

Example courtesy of Charles Tompkins, Orlingbury, Northants.

YEN Nutrition

ADAS

Setting up Hi-Lo Patches

Ideally patches need distinct edges

Best for several patches to be treated the same


Place them in uniform areas

Guide to farmers' crop trials

Free from www.adas.co.uk

YEN Nutrition

ADAS






Summary: ...we propose a new Crop Nutrition Network

1. Supporting understanding of crop nutrition
 - Website, Summaries & Guides
 - Standardising analyses & thresholds
2. Supporting Benchmarking of Nutrient analyses
 - Grain initially ... and any other harvested materials
 - Leaf ... and maybe
 - Soil ... field by field Leaf
3. Shared Deficiency Testing ... with Hi-Lo Patches
 - Establishing multiple patches in problem fields

& maybe an 'ENUF' award ...?

- Sponsored tramline-testing of new products & practices to find increased nutrient uptake efficiencies.


Interested?
 email us, or go to:
www.yen.adas.co.uk
 ...and complete our
 yen-nutrition survey

Thank you

Agromonics
'Share to Learn'

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