

Pembrokeshire Monitor Farm

Meeting title: Well sown is half grown? Establishing a good crop

Date: 28 November 2019

Speakers: Sarah Kendall (ADAS), Rob Fox (Leamington Spa Strategic Farm host)



Establishment

- Seed rate needs to be targeted to the situation
- It can be varied to compensate for areas of poor establishment and shy tillering, to compete against weeds and to reduce the risk of lodging
- Optimum seed rate varies from 100 – 600 /m² depending on many factors
- Later sowings require more plants because you get reduced establishment when soil temperature falls below 10°C
- Soil type - establishment tends to be highest on sandy soils and a lot lower in loams and clays
- Cultivation - Establishment can vary depending on whether you plough or not and can be a bit higher when rolled
- Other factors affecting establishment are previous cropping (e.g. tends to be higher after oats), variety (small effect), pests (including birds) and disease

Plant population targets

Data from the Yield Enhancement Network (YEN) indicate that in cereals high yields come from high ear numbers and high crop biomass

Wheat

- To make sure yield is not limited you need at least 400 ears/m² and for this you need at least 200 plants/m² (range 100 – 300 plants/m²)

Barley

- You need to maximise ear number. Target 300 plants/m² (range 100 – 400)

Oilseed rape

- Green area index (GAI) at flowering (which indicates the size of the canopy) needs to be 3 – 4 units to maximise light interception but you don't want it too thick
- Target 25 – 30 plants/m² (range 10 – 40)
- In areas where cabbage stem flea beetle pressure is low, as in Pembrokeshire, you can still take advantage of low populations

Nurturing a crop

What do we need to think about in Spring to maximise yield?

- We need to measure crop nitrogen requirement in season

- Micronutrients (non-NPKS nutrients) – we need to understand their benefits better; many crops don't have enough rooting, and we need a better understanding of what happens in the soil; important in building cracks and pores; healthy topsoil must contain adequate amounts of micronutrients, even very tiny amounts

Tillering in cereals

- At GS30, tillering can be increased by early sowing, high seed rate, high soil residual N, early N fertiliser (hence the benefits of being able to travel early in February)
- The crop needs 30 kgN/ha for each GAI unit
- Increased light interception is associated with higher yields
- A canopy with GAI 6 intercepts 95% of the light which can produce 500 ears/m²
- More N is needed for high yields but it is important to avoid lodging
- Assess canopy size after winter
- Tiller retention is key for high ear numbers

Nitrogen management for high yields

- YEN findings show that the key to getting more light intercepted is keeping the crop greener for longer by managing N better
- In 2019 grain set and fill in wheat were poor due to the cold wet June
- Oilseed rape crops benefitted from natural canopy management (open) due to restricted N uptake in the dry Spring conditions
- Weather in Pembrokeshire in 2019 was conducive to high yields
- 24% of the yield variation across the 2019 YEN data was accounted for by the “farmer factor”

Further information

- For more information on the effect of cultivation strategies on crop rooting at the Strategic Cereal Farm – West, see ahdb.org.uk/farm-excellence/squabhall
 - [Crop rooting trial overview: Strategic Cereal Farm – West](#)
- [Soil assessment methods](#)
- [Wheat growth guide](#)
- [Barley growth guide](#)
- [Oilseed rape guide](#)
- [Yield Enhancement Network \(YEN\)](#)
- [PR565: Exploiting yield maps and soil management zones](#)
- [Crop yields and how to maximise potential webinar](#)

AHDB resources

- Understand your business costs with AHDB's benchmarking tool Farmbench at ahdb.org.uk/farmbench
- Monitoring tools are available at ahdb.org.uk/tools
- Sign up to market information and research newsletters at ahdb.org.uk/keeping-in-touch
- Find out what's going on at other Monitor Farms and Strategic Farms at ahdb.org.uk/farm-excellence
- All AHDB events can be found at ahdb.org.uk/events
- For guidance on how Brexit will impact your business, see ahdb.org.uk/brexit

Contact details

For more information contact: Richard Meredith

E: Richard.Meredith@ahdb.org.uk

M: 07717 493015

 [@Cereals_West](https://twitter.com/Cereals_West)

AHDB
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2TL

T 024 7 669 2051
E info@ahdb.org.uk
W ahdb.org.uk
 [@AHDB](https://twitter.com/AHDB)



CEREALS & OILSEEDS

© Agriculture and Horticulture Development Board 2019. All rights reserved.