Managing resistant blackgrass (*Alopecurus myosuroides*) in the UK – the Agrii perspective.

Will Foss, Agrii
## Agrii - statistics

<table>
<thead>
<tr>
<th>Accounts</th>
<th>Agronomists</th>
<th>Staff</th>
<th>Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>25,000</td>
<td>280</td>
<td>830</td>
<td>43</td>
</tr>
</tbody>
</table>

- 280: 29% of all practicing agronomists
- 22,000: 40% of farms engaged in cereal production
- 1.4m ha: 33% of primary combinable crop advice
- 16k ha: 55% of primary fruit crop advice
- 57kt: 17% of certified cereal seed market
- 94k ha: 19% of certified OSR market
- 457kt: 14.7% of fertiliser application market

### Key Figures

- 3,100kt: 14.7% of fertiliser application market
- 54,000: 40% of farms engaged in cereal production
- 495k ha: 19% of certified OSR market
- 4.2m ha: 33% of primary combinable crop advice
- 950: 29% of all practicing agronomists
- 495k ha: 19% of certified OSR market
- 25,000: 29% of all practicing agronomists
- 280: 29% of all practicing agronomists
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Agrii - R&D and Technology Transfer

5 TECHNOLOGY CENTRES

60,000 TRIAL PLOTS across the UK representing all regions and crops

460 REPLICATED TRIALS NATIONALLY

28 DEMONSTRATION IFARMS putting R&D into practice

• 5 main Technology Centres
  – Replicated trials
  – Stow Longa (blackgrass)

• 28 iFarms
  – Knowledge exchange

• Established across all main arable sectors

• iFarms on non combinable crops:
  – Forage iFarm - Dorset
  – Fruit iFarm – East Malling
  – Vegetable iFarm – Spalding, Lincs

[iFarms] = iFarms
[H] = Technology Centres
Of all the current farming challenges...

- **Blackgrass & other resistant weeds**
  - (Resistance, loss of actives)

- **Minor Crops**
  - (Lack of CP options)

- **Disease e.g. Septoria**
  - (Increasing resistance, loss of actives)

- **Nutrients in Water**
  - (Nitrogen & Phosphorus)

- **Pests e.g. Pollen/Flea Beetle**
  - (Resistance, loss of actives)

- **Potato Nematodes**
  - (Loss of nematacides)

- **Farming Challenges**
  - (Today & increasing into the future)

..this is the biggest
(confirmed in customer & agronomist survey in 2012)
Stow Longa Technology Centre - investigating Integrated Weed Management

- Cultivations
- Drill date
- Varietal selection
- Seed rate
- 100 blackgrass ears/m² = 1t/ha lost
- Visual differences change farmer behaviour!!
Stow Longa – 5 year cultivation / drill date experiment

- Winter Wheat - Year 3 (Year 4 & 5)
  - Claydon late drill
  - Plough early drill
  - Plough late drill
  - Two pass
  - Deep one pass
  - Deep one pass (shallow drill)
  - Claydon late drill

- Claydon late drill
- Plough early drill
- Plough late drill
- Two pass
- Deep one pass
- Shallow one pass
- Deep one pass shallow drill
- Claydon late drill

- Earlier drilled 27th Sept
- Later drilled 1st November

PLOUGHED
Year 2
WOSR

DIRECT DRILLED
Year 2
WOSR

Property of Agrii subject to copyright
Delaying drilling date

% blackgrass control

**TAKE-HOME POINTS**

- Blackgrass control moves from **60%** to **90+%** by delaying drilling
- More competitive crop where ploughed
Competitive variety vs non Competitive
Varietal Screening

Every year Agrii ‘screen’ numerous cultivars to produce a hierarchy of varietal competitiveness against blackgrass to aid variety choice and field selection on farm.

Crop Competition Trials (2006-2012) - Yield and Blackgrass Ears in Untreated

Yield

- Variety
  - P(Variety) = <0.001, LSD(Variety) = 0.315 t/ha.
  - LSD(SeedRate) = 0.315 t/ha.
  - cv = 15.7%.

- SeedRate
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  - cv = 15.7%.

Blackgrass Ears

- Variety
  - P(Variety) = <0.001, LSD(Variety) = 40.4.
  - cv = 25.8%.

- SeedRate
  - P(Variety) = <0.001, LSD(Variety) = 40.4.
  - cv = 25.8%.
Winter Wheat performs better than Winter Barley when drilled late
Agrii BLACK GRASS CALCULATOR

RESULTS

INPUT

Baseline Parameters

Y1 Y2 Y3 Y4

Crop: Wheat
Variety: Claire **
Cultivation: Direct drilling
Sowing date: Early (first 3 weeks of Sep)
Herb. (pre-em): No pre-em herbicide
Herb. (post-em): 30% control
Seed rate: Average

www.agrii.co.uk
Conclusions

Main findings from Agrii R&D

+ Cultivation strategy impacts on blackgrass AND crop performance. The drill is also a cultivator!
+ Later drilling is a ROBUST strategy to help control blackgrass (stale seedbeds & improved herbicide performance).
+ Variety choice and seed rate contribute to the cultural control of blackgrass.
+ Development of Agrii Blackgrass Calculator – to be improved as data becomes available.
+ Spring cropping contribution to IWM requires further understanding.
+ Catch & cover cropping contribution to IWM requires further understanding.

Knowledge transfer onto farm / farmer behaviour

+ Move away from direct drilling / strip drilling? BUT cultivation principles not necessarily well understood. Interest in minimal soil disturbance drills.
+ Later drilling has been adopted and it WORKS! Last autumn was conducive to later drilling…value of ‘flexi’ wheats.
+ More time is spent considering varietal choice including impact on blackgrass. Move away from ‘canopy management’ techniques.
+ Utilised on farm to stimulate discussion rather than to produce absolute management strategies.
+ Many farmers have adopted spring cropping in the last 2 or 3 years (success has been variable).
+ A huge area of interest on farm also driven by BPS ‘greening’ requirements.

N.B. The Stow Longa Technology Centre hosted numerous open days for farmers in 2015 (and in previous years). In many cases more than 100 farmers attended per day in 2015.