Current and future trends in UK arable cropping

Jim Orson
Current cropping patterns
Highest yielding countries use high inputs to exploit their soils and climate.
Wheat dominates UK cropping

Figure 4: Crop areas in the UK between 1984 and 2016

Source: Defra
UK Yields stagnant

Figure 5: UK crop yields between 2000 and 2016

Source: Defra
UK competitiveness based on technology

Average wheat yields (t/ha)

Source: faostat3
Has the UK passed peak wheat?

• Pesticide resistance and availability has resulted in farmers being less able to follow the market, hence:
  – increase in spring-sown cereals at the expense of winter-sown cereals
  – neonicotinoid seed dressing ban reducing area of winter oilseed rape
  – search for alternative profitable break crops
  – significant increases in winter wheat yields or price may not necessarily mean more hectares of wheat sown

• Technologies that remove rotational restraints and/or increase potential financial margins for individual crops may influence future cropping patterns
Brexit – an anxious wait

The level and emphasis of UK government support for farming businesses?
Will tariffs affect UK trade with the EU?
UK arable farming is losing money

Source: AHDB
Why do farmers continue to crop?
Retention of productive capacity and variable product prices

Wheat Monthly Price - Pound Sterling per Metric Ton (last 15 years)

Sugar Monthly Price - Pound Sterling per Pound (last ten years)
EU are not alone in supporting agriculture

Source: AHDB
UK is a net exporter of wheat and barley

Source: AHDB
Most of UK cereal exports and imports from the EU

Source: AHDB
UK trade balance in oilseeds

Source: AHDB
UK trade with the EU

Source: AHDB
Other trends in UK crop production?

- Integrated crop management (i.e. rotations!) – including later drilling of w. wheat
- Cover crops – reduced overwinter nitrate leaching, in the short term?
- Further reducing labour and machinery costs - no-till
- Precision farming, controlled traffic and site-selective farming
- Bio-energy crops – locally important
Labour and machinery costs (£/ha)

Mainly cereals farms in the Eastern Counties
(cost data not available for 1997 or after 2005)

Source: University of Cambridge and UK Office for National Statistics
Site selective farming
How to increase average yields
UK crop areas used for biofuels; 2008-2015

Table 3: Total UK crop areas used for biofuels (biodiesel and bioethanol) supplied to the UK road transport market, 2008/09 - 2014/15

<table>
<thead>
<tr>
<th>All UK crops used as biofuels (RTFO Year)</th>
<th>Total volume of biofuels from UK grown crops (million litres)</th>
<th>Tonnage of crop implied ('000 tonnes)(^{(a)})</th>
<th>Area implied '000 ha and % of UK total arable area(^{(b)})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1: 15 April 2008 - 14 April 2009</td>
<td>67.6</td>
<td>471</td>
<td>25.0 (0.4%)</td>
</tr>
<tr>
<td>Year 2: 15 April 2009 - 14 April 2010</td>
<td>95.5</td>
<td>700</td>
<td>30.5 (0.5%)</td>
</tr>
<tr>
<td>Year 3: 15 April 2010 - 14 April 2011</td>
<td>202.9</td>
<td>1 039</td>
<td>64.4 (1.1%)</td>
</tr>
<tr>
<td>Year 4: 15 April 2011 - 14 April 2012</td>
<td>52.6</td>
<td>295</td>
<td>16.8 (0.3%)</td>
</tr>
<tr>
<td>Year 5: 15 April 2012 - 14 April 2013</td>
<td>111.8</td>
<td>733</td>
<td>32.0 (0.5%)</td>
</tr>
<tr>
<td>Year 6: 15 April 2013 - 14 April 2014</td>
<td>138.2</td>
<td>787</td>
<td>41.6 (0.7%)</td>
</tr>
<tr>
<td>Year 7: 15 April 2014 - 14 April 2015 (prov)(^{(c)})</td>
<td>271.3</td>
<td>1 226</td>
<td>82.5 (1.3%)</td>
</tr>
</tbody>
</table>

Source: Defra
UK areas used for bioenergy crops

Table 1: Total agricultural area in the UK and areas used for bioenergy crops

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total utilised agricultural area (UAA) (a)</td>
<td>17 703</td>
<td>17 325</td>
<td>17 234</td>
<td>17 172</td>
<td>17 190</td>
<td>17 259</td>
<td>17 240</td>
</tr>
<tr>
<td>UAA as a proportion of total UK area</td>
<td>73%</td>
<td>71%</td>
<td>71%</td>
<td>70%</td>
<td>70%</td>
<td>71%</td>
<td>71%</td>
</tr>
<tr>
<td>Total arable area (b)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wheat of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>used for bioethanol (c)</td>
<td>0</td>
<td>0</td>
<td>42</td>
<td>6</td>
<td>20</td>
<td>26</td>
<td>53</td>
</tr>
<tr>
<td>Barley</td>
<td>1 032</td>
<td>1 143</td>
<td>921</td>
<td>970</td>
<td>1 002</td>
<td>1 213</td>
<td>1 080</td>
</tr>
<tr>
<td>used for bioethanol (c)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Oilseed rape of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>used for biodiesel (c)</td>
<td>19</td>
<td>22</td>
<td>10</td>
<td>8</td>
<td>3</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Sugar beet of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>used for bioethanol (c)</td>
<td>6</td>
<td>8</td>
<td>12</td>
<td>3</td>
<td>10</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Maize (fodder and grain) of which:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>used for anaerobic digestion (England only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
UK maize area for AD plants

Figure 3: Maize by intended usage, England

- **2014**
  - Maize for AD: 17%
  - Fodder maize: 79%
  - Grain maize: 4%

- **2015**
  - Maize for AD: 19%
  - Fodder maize: 76%
  - Grain maize: 5%

Source: June Survey of Agriculture

Source: Defra
Future trends in UK arable cropping

• Difficult to see an increase in the area of winter wheat and there may be a further decrease (black-grass control and farmers with low yields)
• More spring cropping and perhaps a continued increase in the area of cover crops
• Has oilseed reached its lowest point this autumn; technology to the rescue? Area may fluctuate from year to year, depending on weather conditions around crop establishment
• Brexit an unknown ‘spoiler’ but may, along with low market prices, open the opportunity for more area to be managed for environmental benefit. Quality of management paramount.
• Keep a look out for new technologies, particularly those that will enable ‘sustainable intensification’
  – insect control in oilseed rape
  – new and effective black-grass control methods in winter wheat