Managing late sown barley in 2018
Teagasc Tillage Specialist Service

The spring of 2018 has brought a new set of challenges for spring barley growers with planting taking place four weeks later than normal for many growers. Late planted crops are at risk of lower yield and are often referred to as ‘cuckoo barley’, as the crops are planted after the first cuckoo’s call. There is no mystery as to why planting did not take place in April as many of the tradition spring barley areas particularly Cork and Wexford had over twice their normal rainfall in April.

Table 1: April rainfall in Cork airport, Johnstown castle and Oak Park.

<table>
<thead>
<tr>
<th>April rainfall mm</th>
<th>Cork airport</th>
<th>Johnstown castle</th>
<th>Oak park</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>180.7</td>
<td>125.0</td>
<td>73.0</td>
</tr>
<tr>
<td>Mean</td>
<td>76.5</td>
<td>70.4</td>
<td>59.8</td>
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</table>

Source: [https://www.met.ie/climate/available-data/monthly-data](https://www.met.ie/climate/available-data/monthly-data)

The management of late planted spring barley is different to spring barley planted at the ‘normal’ time of late March-early April due to the shorter growing season leaving less time for grain fill. Later sown crops tend to have shallower roots as they have less time to grow which leaves them more vulnerable to reduced nutrient and moisture uptake especially in drying or compacted soils. BYDV presents a significant challenge and all growers will see increased levels this year.

**Crop establishment**

In general crop establishment is excellent with Teagasc advisors recording plant counts in excess of 90%, with the exception of some earlier sown crops that were sown in less than ideal conditions. For crops not rolled at sowing this is now a priority (for crops at the 1-3 leaf stage) as rolling will help to consolidate the soil will aid nutrient uptake and prevent the soil from drying out.

**Plant Growth Regulators**

In general trials have not shown a significant response to applications of CCC for tiller survival. The addition of pgr’s to the tank can complicate tank mixes, add stress to the crop and in most cases is not warranted.

**BYDV**

Late planted spring barley is at a high risk of BYDV this season due to increasing aphid numbers in response to increasing day length and temperature. Spring barley growers can expect elevated levels of BYDV symptoms in late sown crops even when insecticides are applied correctly. Teagasc research has shown that the best control of BYDV comes from a single aphicide growth stage 14 (4 leaf stage). Late planted crops, in high risk areas where there are new infestations (winged aphids entering crops) occur may benefit from a second application. The second application is not intended for controlling control failures/ aphicide resistant issues (the continued presence of a single species of aphid post spraying) but new aphids flying into the crop.

Rolling spring barley will help nutrient uptake and conserve moisture if soils dry out.
Weed control
Late sown barley offers opportunities to control weeds at an early stage. This is an opportunity to save money as reduced herbicide rates have been successful in Teagasc trials. Spray actively growing weeds at the 3-5 leaf stage, (include the aphicide). Delaying weed control until growth stage 30-31 will lose yield potential from early weed competition.

Wild oats and canary grass can emerge after the barley crop so ensure that they are emerged before treatment is applied. In light of recent resistance issues ensure that the rate is appropriate to the size of the weed and always use an adjuvant where specified.

The timing and sequences of applications to control weeds, aphids, wild oats, trace elements and fungicides is difficult when crops are growing so rapidly. There are many ways to go about it but a couple worth considering are:

- GS14 – aphids + weeds + trace elements followed in 21 days with wild oats + disease control
- GS14 – aphids + weeds + wild oats followed at GS30-31 with disease
- GS14 – aphids + wild oats + trace elements followed in 7 days with weeds + disease control

Always consult your agronomist/advisor before applying these mixes as factors such as weed densities, spray intervals, crop growth, etc. will all play a role in the final decision which option is most appropriate.

Fertiliser and trace elements
Nitrogen is the key driver of grain in spring cereal crops. Adjust N rate based on grain yield expectations (see table 2 below), field cropping history and manure applications. Complete N applications to spring feed cereals by early tillering.

Table 2: Nitrogen rates (kg/ha) for Spring Barley based on crop yield (t/ha)

<table>
<thead>
<tr>
<th>Grain Yield (t/ha) (t/ac)</th>
<th>6.0 (2.4)</th>
<th>6.5 (2.6)</th>
<th>7.0 (2.8)</th>
<th>7.5 (3.0)</th>
<th>8.0 (3.25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>N Rate kg/ha (units/ac)</td>
<td>125 (100)</td>
<td>135 (108)</td>
<td>145 (116)</td>
<td>155 (124)</td>
<td>165 (132)</td>
</tr>
</tbody>
</table>

Trace Elements
Late sown spring barley grows rapidly and demands nutrients at an accelerated rate. Trace element deficiencies are common in these crops and are influenced by soil type, seedbed and weather conditions. Check soil test results and where fields are low in trace elements apply at the 2 to 4 leaf stage of the crop (include with weeds & aphid treatments). Crops may require a follow up treatment up to stem extension (GS 31) where soil levels are low.
**Growth regulation**

Extreme caution is advised with the application of growth regulators (CCC) on spring barley. Late planted crops can suffer drought stress and growth regulators will escalate the problem. The best method to reduce lodging risk is to reduce the overall nitrogen paying particular attention to field history and previously applied organic manure. A growth regulator should only be considered where lodging is anticipated after a period of rapid growth in a variety with a low lodging score. Growth regulators will have little impact on brackling.

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**Fungicides**

Later planted crops will generally have lower disease pressure, especially at the first timing (GS30). While the time between the two fungicide timings will be closer than normal, Teagasc experiments still show a benefit of two reduced rate applications over one application. The first application can be slightly earlier than normal at mid tillering and the second application before the awns are fully emerged. Use a mix of at least two active ingredients and always include chlorothalonil at the final timing for the control of ramularia.

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As referred to previously there are different sequences as to how control measures are applied. To avoid large tank mixes that can have a negative effect on the crop and frequent passes through the crop the three essential timings are leaf 4, mid tillering and awn emergence.

**Table 3: Key timings for late planted barley**

<table>
<thead>
<tr>
<th>Key timing</th>
<th>4 leaf stage (GS14)</th>
<th>Mid tillering (GS 23)</th>
<th>Awn emergence (GS49)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Key input</strong></td>
<td>Insecticide</td>
<td>First fungicide</td>
<td>Second fungicide</td>
</tr>
<tr>
<td>+/-</td>
<td>Broad leaved weeds</td>
<td>Broad leaved weeds</td>
<td>Trace elements</td>
</tr>
<tr>
<td></td>
<td>Trace elements</td>
<td>Trace elements</td>
<td></td>
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<tr>
<td></td>
<td>Wild oats / Canary grass</td>
<td>Wild oats / Canary grass</td>
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Late planted barley comes with lower yield expectations so it is important to manage costs. It is often tempting to apply additional inputs to ‘chase yield’. Evaluate every input and assess if there is a there is a scientific basis for its application.

More details are available in the Crop Report which is available to many Teagasc clients. Commercial businesses can access this technical document thought he ConnectEd service.