Annual Project Report
October 2014 to September 2015

<table>
<thead>
<tr>
<th>Project title</th>
<th>Supporting UK malting barley with improved market intelligence on grain skinning</th>
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<tr>
<td>Project number</td>
<td>RD-2012-3804</td>
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<tr>
<td>Start date</td>
<td>01 October 2013</td>
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<tr>
<td>End date</td>
<td>30 September 2016</td>
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**Project aim and objectives**

The aim of the project is to guide the barley industry on varietal, regional and agronomic factors that contribute to grain skinning. This will be supported with field and laboratory testing assessment procedures to identify vulnerable varieties and risk factors, such as management and/or climatic factors.

1) To coordinate industry knowledge on the extent of grain skinning across regions and seasons.
2) Evaluation of grain samples from AHDB Recommended List (RL) trials, industry barley intakes and an experimental 100-line screening trial undertaken by SRUC.
3) To develop field trials to screen for susceptible and resistant varieties, including the influence of agronomic factors on grain skinning.

**Key messages emerging from the project**

1) The weakness to skinning in several main UK spring barley varieties has been confirmed.
2) To date, there is no evidence that changes in agronomy, including use of fungicides and plant growth regulators, influence the level of grain skinning.
3) Limited evidence suggests that skinning increases by a small % when crops are grown under a higher nitrogen supply.
4) Late sown or late harvested crops are likely to be at higher risk of grain skinning.
5) Combine settings (e.g. drum speed and concave setting) influence grain skinning. This has been reported at a BBSRC CIRC meeting in May 2015 and AHDB – SRUC workshops and agronomy events.
6) In developing a protocol for assessing grain skinning, it was apparent that labs and operators vary in their scores. Generally, there was good agreement in the rank order of skinned samples. Bias between labs and operators and improving accuracy are two aspects the project will continue to address.
Summary of results from the reporting year

Grain skinning results from the Scottish Micro-malting Group, National List (NL) spring barley trials, harvest 2014, indicated variation among new varieties.

Scoring of samples from a series of agronomy trials undertaken by SRUC and Scottish Agronomy indicated high levels of skinning in Concerto and Propino, compared to Optic.

Figure 1 shows data from an agronomy trial carried out at SRUC. Here, Concerto and Propino had significantly higher levels of skinning than Optic. There was no significant difference in skinning between crops treated with +/- fungicide (F) or +/- PGR. There was an increase in skinning of 2–3% in crops treated with a high level of nitrogen fertiliser (170N) compared to a normal level of nitrogen (120N).

Figure 2 shows data from two trials carried out by Scottish Agronomy. This highlights the general trend for lower levels of grain skinning in Optic, compared to Propino and Concerto.

The results described in this summary report are interim and relate to one year. In all cases, the reports refer to projects that extend over a number of years.

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Key issues to be addressed in the next year

- Collation of grain skinning data for agronomy trials in 2014 and 2015.
- Revision of skinning scoring protocol with input from AHDB and SMMG.
- Sourcing of grain samples from AHDB/BSPB funded RL and NL spring barley trials.
- Collate industry responses to revisions to protocol and present to AHDB.
- Provide evidence that AHDB data are being reported to the BBSRC’s Crop Improvement Research Club Steering Committee.
- Prepare draft manuscript of agronomic and crop handling effects on grain skinning.

Has your project featured in any of the following in the last year?

<table>
<thead>
<tr>
<th>Events</th>
<th>Press articles</th>
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<thead>
<tr>
<th>Conference presentations, papers or posters</th>
<th>Scientific papers</th>
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### Other

3) Getting the most out of barley, a technical update covering the management of grain skinning, nitrogen and varieties. AHDB/MAGB Malting barley breakfast on Insight to enhance your business, 4th February 2015.


4) Spring barley skinning in the light of the current Scottish harvest conditions, The Farmers Guardian, October 2015