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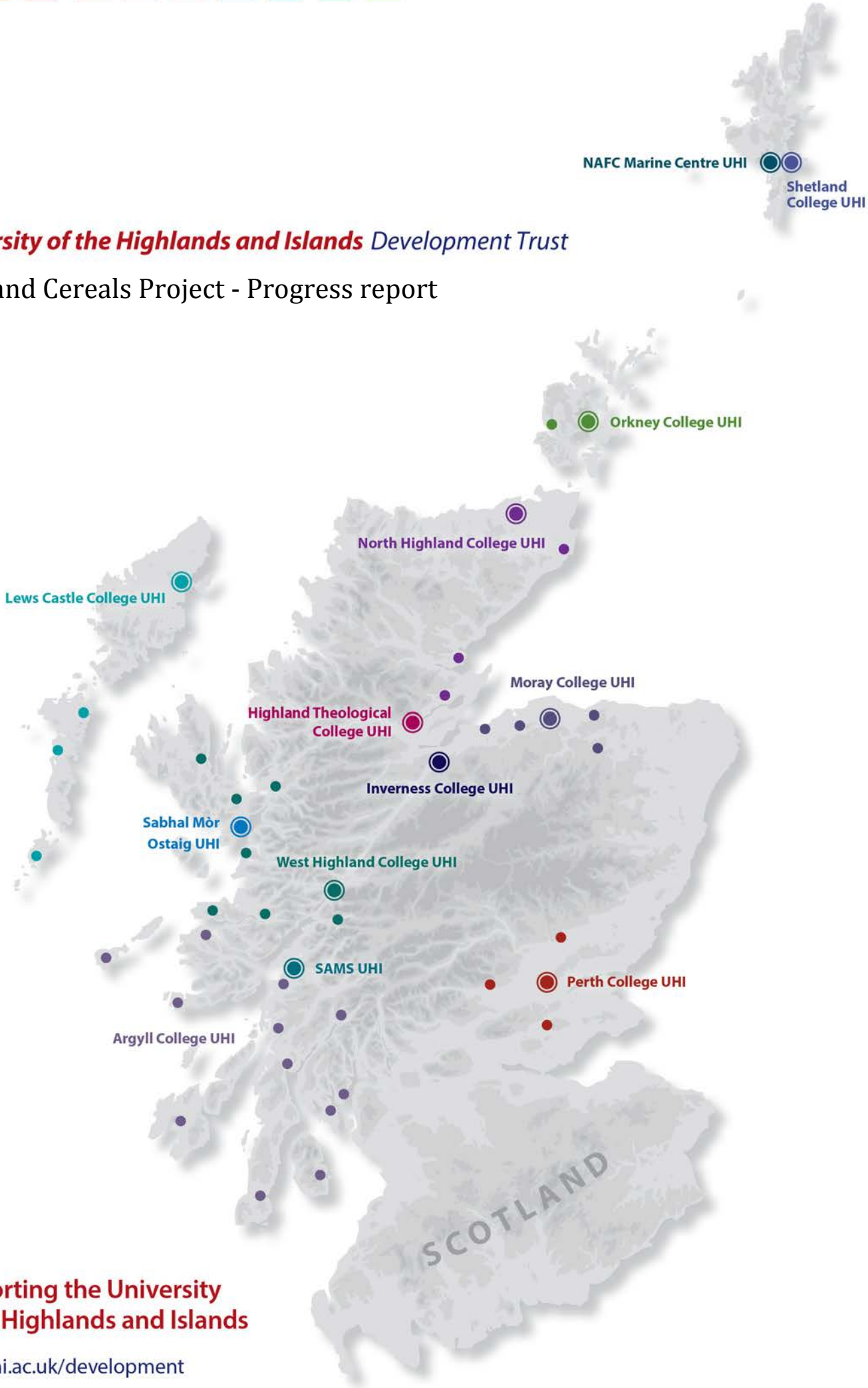
Shetland Cereals Project - Progress report



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PROGRESS REPORT TO THE MAINS OF LOIRSTON CHARITABLE TRUST ON CEREAL RESEARCH AND DEVELOPMENT ACTIVITIES IN SHETLAND (JULY TO DECEMBER 2014)

(By Peter Martin, Agronomy Institute, Orkney College, University of the Highlands and Islands)

Introduction

The project started in January 2014 and is aimed at promoting cereal growing in Shetland as a means of reducing dependence on imported cereals and creating opportunities for using locally grown cereals for higher value end-uses. The project has four main work packages:

- Analysis of the current cereal growing situation in Shetland
- Testing and demonstrating a number of early maturing cereal varieties
- Developing guidelines for cereal growing in Shetland
- Reporting and disseminating results and information about cereal growing

The project is being implemented by the Agronomy Institute (AI) at Orkney College UHI. This report summarises the progress in the second 6 months of the project.

Progress

Analysing the current cereal growing situation

Most of this part of the project was completed in the first 6 months.

Testing and Demonstrating Early Maturing Varieties

A trial with early maturing varieties of barley and oats was planted at Bigton Farm in South Mainland Shetland at the end of April 2014. The trial consisted of 5 different types of barley (Bere from Shetland; Vilde and Tiril from Norway; Iskria from Iceland; Saana from Finland) and one type of oats (Haga from Sweden). The trial was the focus of a very successful open event on 14 August which was attended by about 20 growers (Photo 1) as well as staff from SAC Consulting and Shetland Livestock and Marketing Group. The event was also covered by Radio Shetland.

The trial was purposely not sprayed with a fungicide so that the susceptibility of the varieties to disease could be assessed. Disease assessments in August showed high levels of disease on the leaves of several varieties but especially on Tiril.

Table 1 summarises data obtained from the trial. The table also includes data for the barley variety Waggon which was the main variety grown by Bigton Farm and was planted in the field adjacent to the trial. However, the data for Waggon are only included for reference purposes and comparisons with the other varieties need to be treated with caution since the Waggon had the advantage of being planted two weeks earlier than the trial. All of the early barley varieties had a shorter period from planting to harvesting (121-137 days) than Waggon (149 days) but there was a clear yield penalty to this and Waggon had a higher yield (5.27 t/ha) than the highest yielding of the early varieties (Vilde, 4.55 t/ha; Photo 2). Waggon also had a higher Thousand Grain Weight than any of the early varieties. In contrast, however, the straw yields of Iskria and Vilde were slightly more than that of Waggon. All of the early varieties, except Tiril, yielded better than the Shetland /Scottish landrace Bere. Bere also had the major disadvantage of serious lodging and brackling (Photo 3) although this may have been exaggerated by the level of nitrogen used in the trial which was more than would normally be applied to Bere. Oats normally take longer to reach maturity than barley and so it is not surprising that Haga was the last of the early varieties to be harvested. This may partly explain

its higher straw yield compared with the other barley varieties but it is also worth noting that it had a similar number of days from planting to harvesting than Waggon but a considerably higher straw yield.

Considering the earlier planting date of Waggon, the trial has demonstrated that the early barley variety Vilde and perhaps Iskria have potential for growing in Shetland. Although earliness comes with a yield penalty (almost 14%) , this may be acceptable in Shetland if it is accompanied by greater security of harvest. The oat variety, Haga, is also thought to have potential for Shetland. Although it was not harvested because of bird damage, this is considered to be the result of a random attack by birds rather than a shortcoming in Haga – the same variety was grown and harvested successfully further north on Shetland. Haga produced a very good straw yield and did not have a lodging problem, even though it was not harvested until 1 October – the strength of its straw would be attractive in Shetland.

Table 1. *Summary of harvest data from the Bigton Farm cereal trial.*

Variety	Days from planting to harvesting	Grain yield (t/ha) @ 15% mc[1]	Thousand grain weight (g) [1]	Straw yield (t/ha) dry weight[1]	Straw length (cm) [1]
Bere	137	2.59 b	32.8 a	3.79 a	94.3 a
Tiril	121	1.96 b	32.3 a	4.09 a	86.9 b
Iskria	121	4.48 a	25.7 b	4.55 a	75.2 d
Saana	137	4.01 a	19.6 c	4.13 a	73.5 d
Vilde	125	4.55 a	27.8 b	4.61 a	83.0 c
Haga	149	-	-	5.48 a	94.6 a
Waggon[2]	149	5.27	34.9	4.33	63.5

[1] Variety means followed by the same letter are not significantly different at P<0.05.

[2] Waggon data are for reference only. This variety was not part of the trial and was planted two weeks before the trial.

Photo 1. *Open event at Shetland cereal trial on 14 August 2014. A plot of the oat variety Haga is in the foreground.*

Photo 2. *The early barley varieties Vilde (left) and Tiril (right) at Bigton on 14 August.*

Photo 3. *The Scottish landrace Bere (left) growing next to the oat Haga (right) at Bigton on 14 August. Note the extensive lodging and brackling of the Bere.*

Conclusions

Overall, the project is running according to schedule and the results from the trial are promising.

Peter Martin

15 December 2014