Meet the Team

In the last newsletter we introduced the project team at EFRC. One of the partners collaborating with Elm Farm is NIAB. They aim to:

•Look at whether seed-borne diseases increase in organic seed production

•Investigate potential organically acceptable seed treatments

•Investigate the resistance of varieties to seedborne disease

Below are those involved in this part of the project:



Jane Thomas – Seed pathology and Head of Pathology Group



David Kenyon – Pathologist looking after seed testing



Bruce Napier – Pathologist working on seed treatment trials and variety resistance to seed-borne diseases

Results from NIAB

Seed-borne diseases

NIAB tested the harvested grain for several seed-borne diseases. These included: seedling blight (*Microdochium nivale*); glume blotch (*Septoria nodorum*); ear blight (*Fusarium* spp.); and bunt (*Tilletia tritici*).

From these tests, NIAB have reported that the health status of the seed was good over all sites and varieties. They said that all the grain tested could be used as farm-saved seed.

Seed treatments

Several seed treatments suitable for organic use were tested, including hot air, micronutrients, biological controls and garlic oil. These were compared with a conventional treatment and untreated seed.

None of the organic seed treatments were particularly effective at controlling seedborne diseases, but some did result in small yield increases. As a result, the garlic oil treatment is being tested at one of the farms this season.





Cereal varieties for organic production: Developing a participatory approach to seed production and varietal selection.

Project Newsletter Autumn/Winter 2004

Project Aim: To develop a robust system for identifying, testing, multiplying and marketing cereal varieties, lines, mixtures and populations best suited to organic production in different parts of the country.



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Harvest Results

Despite a difficult harvest we managed to collect yield and quality data. Thank you very much for your cooperation with the interviews and harvesting.

<u>Yields</u>

On average, the variety that yielded the best overall was Hereward (4.2 t/ha), followed by Solstice (3.9 t/ha), then the variety mixture and Xi19 (both 3.8 t/ha).

However, these varietal differences were much smaller than the differences between sites, which ranged between 2.3 and 5.8 t/ha.



There also seemed to be a big difference between yields achieved on farms on different sides of the country with the sites in the west generally achieving higher yields than those in the east.

These higher yielding crops in the west were generally on lighter land and the straw was shorter than those in the east. The crops in the 'short' sites also had a much greater number of ears per m^2 .



However, the difference in the number of ears per m^2 between the 'tall' and 'short' sites was proportionally much greater than the difference between yields of the two types of sites. This suggests that there may be fewer grains per ear or a smaller thousand grain weight at the 'short' sites.

Quality

On average, none of the varieties achieved the 250s Hagberg falling number, 13% protein and 76 kg/hl specific weight required by millers, although some individual sites did achieve one or more of the milling requirements.

There were differences in Hagberg falling numbers between varieties, with Hereward obtaining the highest (245s) and Xi19 the lowest (212s). However, unlike with yields and plant measurements, there were no differences in quality parameters between the western ('short') and eastern ('tall') sites.

Conclusions

From the results analysed so far (from just a single year), it seems that the environment, including soil type and climate, is a much more important determinant of plant growth and yield than the variety grown. More analysis is being done and experiments are being repeated this year to try to explain these effects.

If you would like more information, please don't hesitate to contact us. There will also be a more detailed article in December's issue of the Bulletin.