

THE POTENTIAL OF HERITAGE WHEAT AS A CROP FOR ORGANIC CULTIVATION

GRASSROOTS WORKSHOP JULY 29TH 2025

VENUE: KNOCKNAGEE ORGANIC FARM & SHANKILL CASTLE

ORGANISER PhD RESEARCHER: GRACE MAHER SETU

The research explores if heritage wheat varieties grown under organic conditions are suitable for milling for the growing artisan bread sector in Ireland. A core aspect of the research focuses on conducting field trials on three commercial organic farms. The Grassroots Workshop took place on the farm of Reuben Cope (one of the farmers participating in the research project). Reuben's organic farm is located at Knocknagee, Co. Kildare.

This participatory research examines if heritage wheat varieties are suitable as a crop for organic farmers in Ireland. In organic agriculture in Ireland the main arable crop grown is oats, which are processed for human consumption. This research aims to explore if heritage wheat has the capacity to offer an alternative to oats, and therefore build more resilience into arable rotations. This can potentially not only increase farm incomes for organic farmers but also reduce our dependence on imported organic flour for the artisan baking sector. The research looks at the economic viability of growing heritage wheat and the potential market demand for the end product. The three field trials (taking place on farms in Meath, Kildare and Tipperary), offer the opportunity to gather extensive data on a wide range of variables with regard to crop agronomy. This includes subjects such as yield, pest and disease resistance, optimum seeding rates, and soil nitrogen use efficiency. Each year the harvested grain from each farm undergoes laboratory analysis to determine grain quality in terms of meeting specifications required for milling quality wheat. This is predominantly grain nitrogen levels, beta glucans and starch, and a test called the Hagberg Falling Number which ascertains the fermentation properties of the grain.

The field trials are taking place for three consecutive years (2024-2026) and to assist in communication and dissemination the supervisory team felt it was important to host a workshop on one trial site during the three year period. This is primarily to stimulate interest in the research among relevant stakeholders such as farmers, millers and bakers and to enable discussion of the research project, trial site and overall market potential. Having a mix of participants present on the workshop was essential to share knowledge and engage in discussions about the development of local supply chains where organic farmers could

potentially grow heritage grains for milling for the artisan bread sector. The Grassroots Workshop funding made it possible to host the workshop.

Speakers at the Grassroots Workshop included the following;

- Grace Maher SETU PhD researcher
- Dr. Stephen Whelan SETU (PhD Supervisor)
- Reuben Cope organic farmer and farm host
- Sean McGloin National Organic Training Skillnet
- John Geraghty SETU.

For many present it was their first time to see organic heritage wheat varieties growing in a commercial setting. The discussion focused on the specific wheat varieties used in the project, the design of the field trial, methodology employed in the project, crop agronomy including seeding rates, disease monitoring, weed control, analysis for grain quality post harvesting and baking properties. The audience was very engaged with the workshop and over one hundred people attended (Figure 1).



Figure 1: Grassroots Workshop July 29th Field Trial at Knocknagee Organic Farm

Market opportunities

Over 95% of the wheat used for bread production in Ireland is imported (Irish Grain Network, 2024). While Ireland currently produces large volumes of wheat, it is grown for

animal feed (Central Statistics Office, 2024). This research project endeavours to explore if heritage wheat can be grown organically for milling to produce artisan breads. Currently artisan bakers are importing organic flour predominantly from the United Kingdom and this project seeks to examine if that flour could be produced regionally in Ireland.

Workshop engagement

In order to gather more information about the current state of play in the sector a questionnaire was circulated via a QR code to workshop participants. The objective of the questionnaire is to gain insights into the sourcing and purchasing behaviour of bakers and millers present and to enquire if farmers attending the workshop are interested in growing heritage wheat as a commercial organic crop. The results from the questionnaire will be collated and included in the final PhD thesis (Figure 2).



Figure 2: Questionnaire circulated to the Grassroots Workshop Participants

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RESEARCH OBJECTIVES

Heritage wheat is becoming increasingly popular for bread making due to its flavor, versatility and nutritional profile. Modern wheat varieties dominated by farmers led to mass production in both conventional and organic systems. However, heritage varieties may offer agronomic and ecological benefits such as disease and insect resistance. In Ireland their role in organic farming systems remains under explored making this research particularly relevant. The following objectives are being examined over the course of the research project.

1. An assessment of the agronomic performance of heritage wheat varieties grown under organic conditions
2. An evaluation of the suitability of heritage wheat varieties for organic farming in Ireland
3. An evaluation of grain quality parameters suited to bread making
4. An investigation of consumer preferences in the Irish baking sector.



Figure 1: Heritage wheat made using traditional stone milled flour.
 The recent surge in popularity of heritage wheat varieties has led to a renewed interest in traditional stone milled flour. This is due to the perceived health benefits of stone milled flour, which is believed to contain more nutrients and antioxidants than roller milled flour. Additionally, stone milled flour is often considered to have a better flavor profile. This research project aims to explore the potential of heritage wheat varieties for organic cultivation in Ireland, with a focus on the use of traditional stone milled flour.



Figure 2: Field view of heritage wheat.



Figure 3: Close-up view of heritage wheat plants.

Figure 4: Hagberg Falling Number.
 The Hagberg Falling Number (HFN) is the most common method to determine grain quality. It is a measure of the starch content and is a key indicator of bread making quality. Industry specifications require the HFN to be at least 300 units. Values below 200 may indicate a high risk of poor bread making results. Figure 4 shows the HFN results for the four varieties tested in the study.



Figure 4: Hagberg Falling Number 2020.



REFERENCES

- Basic Bread Design**
- 1. [Heritage wheat and baking: from the traditional to the modern](#) by Dr. Stephen Whelan, SETU Wexford.
 - 2. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 3. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 4. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 5. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 6. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 7. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 8. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 9. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.
 - 10. [The role of heritage wheat in organic farming](#) by Dr. John Carroll, SETU Wexford.



Figure 5: Research methodology.

PHOTOGRAPHY

The field trials are currently in their second year. The heritage wheat varieties are being grown in a field in Wexford, Ireland. The field is located in the heart of the county and is a beautiful sight. The heritage wheat varieties are being grown in a field in Wexford, Ireland. The field is located in the heart of the county and is a beautiful sight.

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Figure 6: Yield per Hectare 2020.

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Figure 3: Research poster board stationed at the Grassroots Workshop on the farm

Refreshments

The workshop took place on a working farm and following the workshop participants went to Shankill Castle which is also owned by the farmer Reuben Cope. Here further discussions took place on the growing opportunities for using Irish grain to supply a range of products for local markets and the overall potential for developing a more diverse local grain network in Ireland.

Food was prepared by Grá Pizza and the chef used Irish grown flour and other local ingredients for his pizzas, thus giving a practical demonstration of the capacity to produce grains that meet market specifications for quality and flavour (Figure 4).

Grassroots Workshop Funding

This event was kindly sponsored through the ESAI/EPA Grassroots Workshop programme (Figure 5). It is a fantastic opportunity to host a workshop to engage with stakeholders interested in the research. It ensures that the research impact is multiplied and targeted.

In summary the opportunity to bring interested stakeholders together to discuss diverse grains and the inherent possibilities both from an agronomy and market perspective was hugely beneficial. The workshop was important not just to the research project and advancing its main objectives but also to the relevant stakeholders who are keen to adopt the use of Irish organic heritage wheat varieties in their businesses.



Figure 4: Pizzas prepared by Grá Pizza and salads by the team at Shankill Castle



Figure 5: Funding bodies for the Grassroots Workshop Programme

“The EPA/ESAI Grassroots Workshop Support Scheme provides funding to postgraduate and postdoctoral researchers to organise stand-alone workshops, in the broad environmental research area, that fall within the remit of the ESAI and EPA.

Contact <https://www.esaiweb.org/funding---awards/grassroots-funding/> for further information”