

Growing flax for regenerative textiles

The project is coordinated by facilitator Colleen McCulloch in collaboration with the James Hutton Institute and Edinburgh College of Art at the University of Edinburgh; with support from Fantasy Fibre Mill and Heriot Watt University, and trial seeds provided by seed specialists Elsoms Seeds.

Context

Flax was once grown widely across the UK, before the advent of synthetic fibres and cheap overseas labour. A renewed appetite for more sustainable, natural textiles is driving a new wave of flax growing, to supply a sustainable and regenerative textile and fashion industry based on the principles of circularity and social and environmental responsibility. Since 80% of the world's flax is grown in Belgium, France, and the Netherlands, there is an opportunity to test new varieties in UK conditions and re-establish commercial production in the UK.

Take home messages

- Fibre flax (*Linum usitatissimum*) has the potential to become an attractive addition to arable, horticultural and mixed rotations.
- There is a growing demand for UK-produced fibre crops, and a small but growing capacity for processing.
- Flax also grows well without chemical inputs and irrigation and is an attractive food source for pollinators.
- All three trial varieties performed well in terms of yield and straw height, although 'Tango' was not quite as good, being shorter across the board. Yields of all varieties could likely be further improved with better weed control.



Trial design

Three new Dutch varieties of fibre flax (*Linum usitatissimum*) – Avian, Delta and Tango – were trialled at three Scottish sites to compare their straw height (cm) and yield (t/ha).

Each site grew three replicates of each variety in 10m² strips, sown in rows (8 rows per metre) either by hand or with a Jang seeder. The crop was harvested before it was fully ripe to obtain the best fibre quality, at which point crop density, height, and weight were measured.

Findings

When compared by variety, both the average height (cm) and average weight (t/ha) were similar for the Avian and Delta varieties, and lower for Tango. However, variation between sites was high, particularly for yield (weight).



Weed pressure will account for some of this variation; Site 1 was weed-free and recorded consistently taller crop heights, and most of the biggest weights. However, the crop of Avian at Site 3, which was weedy across all plots, returned the highest yield – 13t/ha compared to 9t/ha at (weed-free) Site 1 and 8t/ha at (weedy) Site 2.

Harvesting was done by hand with teams of volunteers due to lack of access to specialist machinery – fibre flax needs to be pulled rather than cut. This worked well on a small scale and was a great way to engage people with the idea of regenerative fibre production, but harvesting on a commercial scale would require specialist equipment.



Recommendations & next steps

- In the short term, the retted crop has been sent to project partners to be processed over the winter.
- Samples will also be lab-tested by colleagues at Herriot Watt University for fibre length, strength and quality.
- Beyond this, plans are underway to refine the trial for 2024, and expand it to six sites, testing the same three varieties.

Research Institution: James Hutton Institute
Co-ordinator: Colleen McCulloch

Farmer comment

The trial has prompted conversations about sustainable fibre, regenerative farming and clothing, and the impacts of food and fibre production on the environment.

Finding the seeds that work here will help contribute to the wider aim of bringing this industry back to the local area. We are also interested to see how it could fit within our vegetable rotations, given its short growing season.

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