



## **Viability of Small-Scale Grain Machinery Rings in Scotland**

**A study prepared by Tom Booth for the Gaia Foundation's Seed Sovereignty Programme, commissioned by the James Hutton Institute**

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There is increasing interest in machinery sharing for small-scale grain producers in Scotland, indeed the whole of the UK, as the sector gradually expands and producers come up against difficulties with access to appropriately scaled machinery. Difficulty is especially acute for new arable growers without access to on farm machinery or capital to invest.

The crunch point is for growers farming on what would have historically been small mixed farm-type scales, anywhere from a hectare to around 20 hectares. Many growers start off with very small plots that can be harvested by hand, often with volunteer help, but are then scaling up to multiple acres where potential yields are larger and the work not possible to be done by hand, but modern contracting equipment is either too large, too expensive or too busy to be able to help with relatively small contracts compared to producers in the commodity market.

To understand the small-scale Scottish grain network better and what their current needs are for machinery, the Seed Sovereignty Programme undertook a survey of Scottish grain producers during the first half of 2025. The results can be summarised with the following headlines:

- Big range of responders, from estates growing 200ha of grain to 4m<sup>2</sup> community plots
- Good geographic spread with representation from all regions of Scotland
- All major cereals covered – wheat, rye and barley the most common. Oats, beans, spelt and buckwheat mentioned too
- Baking primary intended use, but also malting and feed
- Best reported yield is 6 tonnes/ha, smallest 20kg from microplot – very wide range
- Mostly people want equipment to make life easier, not expand operations
- 67% of respondents identify harvesting machinery as required, that's the biggest individual response. All the possible processing options are identified by a majority of responders (drying, sorting, etc), as is drilling equipment
- Peer-to-peer training most preferred method of skilling producers in using machinery
- Transport of equipment and/or harvest is feasible for most respondents

It's significant to highlight from the above that wheat for human consumption is the most popular crop from our respondents. The implications of this then filter through the machinery needs required for these producers and highlighted in the responses to the survey.

We had sessions on the topic of machinery rings and arable/grain equipment at the Scottish Seed Fest and Common Grains meet ups in the summer which confirmed that there's a lot of appetite out there for folk to work out how to share equipment and that

many farmers are already embedded in communities where resources suitable for small-scale growing may be available, if a fair system was established. However, much of this is vintage gear, privately held, which presents its own issues, particularly relating to;

- insurance for machinery as well as the users of the machinery;
- fair payment for access to machinery;
- how to cover accidental damage and wear and tear;

The Common Grains day really highlighted the need for small scale drying equipment, suitable for bread-making cereals, and the group is taking it as an action to research appropriate technology for this specifically. There are existing manufacturers of mobile small-scale dryers and a collective purchase of this equipment might be the most impactful, and in a way easiest, win for the movement in Scotland.

These findings were presented to the JHI in the summer of 2025 and at the same meeting a strategy was discussed to see if it was possible to get any small-scale equipment out into the network to help initiate machinery sharing discussions as well as assist in small-scale grain production. Three laboratory threshers were subsequently released out to key figures in the movement who were part of the RISE Bere Barley project or already warm contacts to the JHI;

- Seeds of Scotland near Dingwall;
- Lauriston Farm in north Edinburgh;
- Julien Moreau, crofter on Lewis

These small threshers were released to these three key hubs, operating in distinct regions of Scotland and with different scales and intended uses, to see if they can work as catalysts for small scale grain machinery sharing in different regions of Scotland as well as being useful machinery for the host farms.

What also came out of the discussion with JHI is the chance for the Seed Sovereignty Programme to continue supporting this work by conducting research and a feasibility study into machinery sharing in Scotland, including getting further data from the network on what their needs are. Further work is needed, but we can share some of our initial findings and reflections below.

A significant part of this research has been looking at best practices in parts of the world where machinery sharing is more common, and France in particular has an extremely well-developed machinery sharing culture, based on the network of Coopérative d'Utilisation de Matériel Agricole (CUMAs). French CUMAs are farmers' groups sharing equipment, infrastructure, best practices, ideas and knowledge and sometimes staff. They also are very local economic players, 'championing the values of solidarity, helping

to strike a balance between food and energy production, farmers and their families' way of life, and rural communities.'

Below are some key facts about the CUMA system in France;

- There are around 10,000 CUMAs in France with 182,000 individual members, almost 50% of all farms are members of a CUMA;
- On average there are 23 members per CUMA;
- 80% of CUMAs have harvesting equipment within their holdings;
- CUMAs are run as cooperatives, with a one person one vote principle and cooperation between members a key principle;
- They are managed by an elected Board of Directors who appoint an Executive committee – typically president, vice, secretary and treasurer - CUMAs therefore must be at least 4 members;
- To become member and use services shares must be purchased in a particular CUMA which the farmer desires access to;
- Share capital has two roles;
  - Self-financing – the share capital contributes to financing investments made by the CUMA
  - Members have financial responsibility up to twice the value of their shareholding
- The CUMA federation provides a support network to individual CUMAs across departmental, regional and national levels helping to promote their work, seek policy and political support and share best practices;
- The CUMA federation has found that sharing equipment with a CUMA allows for savings of up to 20% in a farm's overall operating costs
- Additional financial benefits of CUMAs include:
  - Reducing public spending – funds can be spent once on the right equipment which can be shared than multiple times
  - Promotes financial restraint – avoids over-equipping and over-indebtedness

The key takeaway is that CUMAs are at the most basic level a collective finance operation, to make equipment affordable for farmers who couldn't afford it alone. This is achieved both by collective financing using farmers' available capital, but also in providing safer and more secure investments for banks providing loans due to the broader base of collateral provided by a group of farmers and greater assurance that repayments can be made, as financial commitments are being met by a group rather than an individual. CUMAs also typically operate with financial reserves, further protecting financial investments or obligations. However CUMAs have never been solely financial bodies; flourishing out of them is a whole way of farming more collaboratively with your neighbours. CUMAs have stated core values of solidarity, humanism and

creativity and operate as vehicles for collaboration for farmers across France. Knowledge sharing, collective decision-making and sharing resources and staff are all key parts of the CUMA system, resulting in a more connected, less isolated farming industry. CUMAs are very local, essentially on the village or local district scale, which is not immediately translatable to the small-scale grain network in Scotland which is more spread out in more regional groupings. Focussing on key, relatively easy to transport equipment is then a key approach for any cooperative groups. CUMAs are clearly a very mature system, having been in operation since the 1940s, and has contributed to the quite different structure of French agriculture from their counterparts in Scotland, but surely this model is something to aspire to in Scotland.

The disbursement of JHI's laboratory threshers have acted as a real catalyst for discussion around machinery sharing and appropriate machinery in the small grain network and we have gathered some immediate feedback from the three farms who received the donations. Common amongst them is that these specific tools only have limited use in terms of unlocking small and medium scale grain production, when considering the equipment needed to make this production viable. They are excellent for processing small batches of experimental or trial cereals; Seeds of Scotland have utilised them a great deal for this, they have been trialling different bere barley and Hebridean oat successions, as well as other large seeded vegetable crops. Lauriston Farm plan to use them for trials and outreach in schools and communities, for instance with their 'History of Wheat' demonstration plot, but what all three participants have highlighted is the need for machines that can be used to process grain yields produced from 4 acres and above, typically this means handling tonnes of grain at a time. Further consultation suggested the following goals for the network in terms of machinery that could be shared;

- Dryers and cleaners and polishers are the top priority equipment needed;
- Centralised storage for a machinery sharing;
- Shared mini plot harvester would be very useful and for the North; SoS could be sensible first place to get it;
- Pearler or an oat dehuller very pertinent in Scotland since oats are such a traditional crop;
- There's interest in how a machinery cooperative could utilise a shared driver/contractor to operate shared machinery within an appropriate region of Scotland.

Where are we now? There's a lot of energy and a lot of conversations happening around the country and the task will be understanding how we can learn to think collaboratively, to engage in sharing economies and also find the right financial set-ups to help acquire the correct machinery. A key lesson from the CUMA system in France is

that the culture around machinery cooperatives – that of collaboration, openness and sharing – is something that has to be fostered and developed alongside financial, technical and legal structure. This will require outreach in farming communities, but also education and support for farmers willing to enter into cooperative working. In terms of what machinery rings might, at least initially, look like there appears to be two strands to pursue;

- Groups formed to access equipment already privately held, on farms, in vintage collections or institutions or;
- Groups formed to collectively purchase, use and maintain equipment.

Both options will have to tackle the issue of insurance. For machinery owned by third parties that is then used by a machinery cooperative, how insurance works is particularly an issue in need of further research and any arrangement developed would need to minimise risk and cost for the holders of any such machinery. For cooperatives or new groups looking to access existing equipment a number of potential partners have been identified, who may be in possession of appropriately-scaled machinery. These include;

- Highland Folk Museum;
- SRUC, with a number of campuses around the country;
- University of Highlands and Islands; and,
- Local vintage tractor clubs.

For collectively owned machinery insurance solutions should be more commonplace and easier to resolve, as the cooperative will be its own constituted body capable of insuring its possessions when used by its members. For both kinds of groups membership fees would likely need to be applied to assure commitment and to generate operating reserves. There is also the issue of maintenance and repairs. In the French CUMA model, repair work and costs required for a piece of machinery whilst being used by an individual member of the cooperative is the responsibility of the individual member, but this may not be feasible for a new cooperative with limited reserves. The Scottish Government's introduction of the Small Producer's Fund should be an excellent opportunity for new machinery cooperatives to access capital for purchasing shared equipment. The pilot fund is now closed, but there is a commitment for a new £1.5m fund to be released. The fund is specifically looking to prioritise collaborative projects so this should be a key target for any small-scale grain producers when the new round of funding is announced.

From the initial findings of the feasibility study it would appear that there are three main avenues of further research or actions for the small-scale grain network in Scotland:

- Further research is needed on how equipment that's already owned by individuals, institutions or clubs would be insured to be used by the members of

machinery cooperatives. It may be that is already possible and the exact legal framework simply needs to be clearly defined, but this research could also have the benefit of leading to policy change recommendations in order to make this machinery available.

- Further research into best practice in machinery sharing around the world. Contact has been made with the CUMA federation in France and they are open to having dialogue with the grain network in Scotland to share their knowledge. Similar contacts in Finland, the United States and elsewhere could also be drawn in for this. There is a great deal of synergy with work currently being undertaken across the Seed Sovereignty Programme and with allies in the South West Grain Network in England.
- Groups within the small-scale grain network in Scotland should be incorporating into geographically workable groups (this may be much larger 'regions' compared to the much more local scale of CUMAs) in order to be able to access funding and raise capital for machinery purchases.