



Twite, © Tom Marshall, rspb-images.com

Reaper-binder, © RSPB Machair LIFE+

This Uist seed is unusual in that it is almost purely a small oat crop but it does include seeds of arable wildflowers. © RSPB Machair LIFE+

BENEFITS FOR WILDLIFE

Arable crops grown on the Uist machair are based on indigenous varieties of cereals, usually grown as a mixed cereal crop to be fed to cattle. They are generically referred to as 'corn':

ENGLISH NAME	GAELIC NAME	BOTANICAL NAME
Small / black oat ¹	Coirce beag / dubh	<i>Avena strigosa</i>
Rye	Seagal	<i>Secale cereale</i>
Bere ²	Eòrna	<i>Hordeum vulgare</i>

¹*Avena strigosa* may also be known as bristle oat, lopsided oat, sand oat and Shetland oat/ait, Orkney traditional black oat or Tiriee oat (now extinct).

² A type of barley

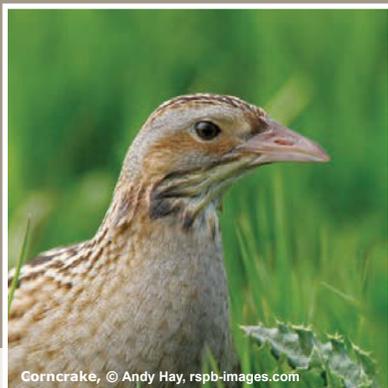
These local seed mixtures are vital to the traditional practice of cropping on the machair. They are ideally adapted to the growing conditions on the Hebrides, being able to:

- Extract the nutrition they require to grow from poor sandy soils (especially low in manganese)
- Withstand the Uist climate (dry spells and windy)
- Tolerate competition with arable wildflowers
- Grow with less inputs of fertiliser and pesticides than mainland varieties

Mainland varieties such as the common oat *Avena sativa* do not grow well on the machair and require high inputs, which increases costs.

Bere, a type of barley and pronounced 'bear', is especially important as a heritage seed and is probably Britain's oldest cereal in continuous cultivation. It is rare as a pure crop but can be a valuable addition to fodder crops as it has a high protein content.

These indigenous cereals have been grown in the Uists for generations with many crofters saving their own seed each year. As a result there is a high level of genetic diversity in these plants as well as the proportions of different cereals in each mixture shown. This genetic and cultural diversity may provide resources to help agriculture globally adapt to a changing climate in future years.



Corncrake, © Andy Hay, rspb-images.com



Mixed cereal crop, © RSPB Machair LIFE+



Toiteans at Howmore, © RSPB Machair LIFE+



Batch drier for seed, © RSPB Machair LIFE+

BIODIVERSITY BENEFITS

Growing indigenous cereals helps to maintain the traditional practice of cropped machair rotations (typically a 2-year cropping and 2-year fallow cycle) providing a small-scale mosaic of habitats for a wide range of wildflowers, invertebrates and birds.

Corn seed crops are harvested later than grass or corn silage, providing cover for corncrake in late summer at a time when silage fields have been cut making juvenile birds vulnerable to predation.

Later cutting of seed crops also increases the opportunity for arable wildflowers in the crop to flower and set seed.

Seed stacks can also provide some winter food for small farmland birds when they are thrashed/threshed, such as corn bunting and twite.

HARVESTING SEED

There are generally two options for harvesting and processing seed for winter storage.

1. Reaper-binding and making stacks for seed

Harvesting with a reaper-binder and building a stack requires a greater input of labour, but provides good conditions for seed storage throughout the winter months. Once the stack has been built it will require minimal intervention until thrashing. However, bere is more vulnerable to dropping from the ears when ripe than other cereals so a stack for bere seed is not usually practical.

See the advisory leaflet **Stacking** for more information.

On Barra, crofters remember pulling ragwort from the corn to make a base on which the stacks were then built, thereby removing this poisonous weed from the crop and deterring rodents in the stack.

“The entire plant has a very strong, bitter smell when crushed and, in the Hebrides, corn stacks were sometimes layered with ragwort to deter mice and rats.”

Hatfield’s Herbal: *The Curious Stories of Britain’s Wild Plants* (Gabrielle Hatfield, 2007)

2. Combine harvesting seed

Seed is harvested directly from the field with a combine harvester. Reaping and thrashing are efficiently combined into one operation, which can help to maximise the seed harvest by reducing losses through handling.

However, combine harvested seed will often contain too much moisture for winter storage and must be dried to remain viable the following year. Seed starts to ferment before it is dried, especially if it is held in bulk/tote bags. Any seed that feels warm should be dried as soon as possible or aerated by turning it out and allowing it to cool.

Seed can be dried by spreading it on a shed/barn floor and turning it regularly. However, the Machair LIFE+ drier and moisture meter are available for crofters to borrow throughout the Uists for drying seed. The batch drier is mounted on a trailer and requires only a shed with a 16 amp power source and diesel to power it. For storage of seed through the winter a moisture content of approximately 12-14% is recommended. Seed can be dried further than this, although it is not necessary for storage from one season to the next and seed will inevitably reabsorb some moisture from the air.

Combine harvested seed should be:

- Stored in small quantities in breathable sacks, not bulk/tote bags or oil drums
- Stored in a cool, dry, airy place. A weatherproof barn or shed is ideal
- Raised off the ground so that air can circulate around it

Take appropriate action if rodents are a problem.

MACHAIR LIFE+ ACTIONS

The Machair LIFE+ project, running from 2010 - 2014, has:

Purchased a modern reaper-binder to support traditional harvesting practices, cutting:

- 12 hectares in 2011
- 19 hectares in 2012

Refurbished ten traditional reaper-binders in 2013.

Purchased a mobile batch drier that crofters can use to dry their seed.

Safeguarded seed crops against damage from geese through a crop protection scheme.

Provided financial incentives for crofters to harvest seed and to make stacks saved for seed.

KEY POINTS

- Traditional cropping rotations provide a small-scale mosaic of habitats for wildlife
- Seed crops are cut later, which benefits corncrake and arable wildflowers
- See the advisory leaflet *Crop Protection* if geese threaten un-harvested seed crops

Wherever seed is stored, keep an eye out for:

- Vermin and take appropriate action if rodents are a problem
- Stored seed that is getting damp or ‘fusty’, which can be dried again if necessary

USEFUL CONTACTS

The Scottish Rural Development Programme

www.scotland.gov.uk

RSPB Uists

Jamie Boyle: 01876 560287

Scottish Natural Heritage

www.snh.gov.uk

Comhairle nan Eilean Siar

www.cne-siar.gov.uk/biodiversity

Science & Advice for Scottish Agriculture

www.scottishlandraces.org.uk



Conserving Scottish Machair LIFE+ is a four year project running from March 2010 - 2014, aiming to demonstrate that traditional crofting practices have a sustainable future. The project is helping to secure the conservation value of the unique global machair habitat, 70% is found in western Scotland.

More information is available at: www.machairlife.org.uk