

Cereal field margins



Cereal field margin © Scottish Natural Heritage

Introduction

Cereal field margins are strips of land lying between cereal crops and the field boundary, which are deliberately managed to create conditions which benefit key farmland wildlife species such as Grey partridge. They are also extremely important areas of invertebrate habitat. They support invertebrates important for ecosystem services, such as pollinators (e.g. bees, hoverflies, beetles, butterflies and moths), pest control (e.g. ants, beetles, hoverflies, spiders, harvestmen and centipedes) and waste disposal and soil maintenance (e.g. beetles, millipedes, woodlice, springtails, earthworms and symphylans), as well as providing food for birds, mammals, reptiles and amphibians of conservation concern. Many of these invertebrates are suffering major declines.

Cereal field margins can take a variety of forms, the principal types being:

- A **Wildlife Strip** 6m wide adjacent to a cereal crop, together with a 1m **Sterile Strip** between the Wildlife Strip and the crop. The wildlife strip is cultivated once a year but not cropped; the Sterile Strip is maintained so as to prevent

aggressive arable weeds spreading into the adjacent cereal crop.

- A **Conservation Headland** of 6m or wider, forming the outer margin of the crop and separated from an adjacent field boundary or other vegetation by a 1m **Sterile Strip**. The Conservation Headland is cropped with cereals, but is managed with reduced inputs of pesticides so as to favour wild arable plants and invertebrates.
- A **Combined Wildlife Strip and Conservation Headland**, separated by a **Sterile Strip** and managed as described as above.
- **Game crops, stubble or grassland fallows** lying between annually cropped land and the field boundary.

Various agricultural grant and subsidy schemes incorporate forms of cereal field margins, including Single Farm Payment Scheme, (SFPS) Cross-compliance and Scotland Rural Development Programme (SRDP) Rural Development Contracts (RDC). A summary of these (at time of publication) can be found at the end of this document.

Threats

Intensification of cereal production

This includes the use of herbicides to ensure a weed free monoculture, and summer use of insecticides, which kill beneficial invertebrates.

Changing cultivation times

The shift to winter cropping with the associated loss of winter stubbles and the reduction in the undersown area.

Changes in traditional management

The reduction in rotation of cereal crops with other land covers (including grass leys and fallows), resulting in uniform habitat structure.

Habitat management

Maintain a mosaic of habitats

Areas which have a range of habitat niches will be more attractive to invertebrates and will support greater numbers and variety. Cereal field margins adjacent to ancient hedgerows, grassy banks, woodlands or other semi-natural habitat frequently support a richer or more valuable invertebrate fauna, emphasising the need for management to retain such boundary features. Thick hedges and tussocky marginal vegetation will provide valuable shelter to invertebrates such as spiders, ground beetles and bumblebees. Invertebrates such as grasshoppers are important food items for farmland birds, while many insects such as ground beetles and hoverfly larvae are valuable predators of aphids and other crop pests.

Arable margins should generally be situated at the top edge of fields where possible or where better drainage and greater exposure to the sun tend to allow more weeds and weed-feeding invertebrates to persist.

Support for managing habitat mosaics on in-bye farmland is available through SRDP.



Create beetle banks

Beetle banks provide shelter for species such as ground beetles and spiders that prey on cereal pests such as aphids, thus reducing the need to spray. Providing beetle banks within the cropped area enables these beneficial invertebrates to colonise the cereal field more quickly. Beetle banks are sown strips (approximately 2m wide) of native grasses, including tussock-forming species such as cocksfoot, that run across a cultivated field. The headlands at each end can be cultivated so that the field is not completely divided in two. Beetle banks should not be sprayed and can be mown every 2-3 years to allow the tussocks to regenerate. SRDP offers support for creation of beetle banks.

Create Conservation Headlands

Conservation Headlands are areas that have been sown with the crop but are subject to reduced spraying in order to allow broadleaved weed species to grow. These provide food for seed-eating invertebrates as well as pollen and nectar sources for insects such as bumblebees. SRDP offers support to Land Managers to manage Conservation Headlands.

Encourage diverse, flower-rich vegetation

Allowing native wild flower species to grow in field margins will increase the plant species diversity, providing pollen, nectar, seeds and prey for a variety of invertebrates. Under SRDP Rural Priorities, support is available for encouraging, creating and managing species-rich grassland.

Maintain early succession habitat

Many invertebrates such as the *Harpalus affinis* (a seed-eating ground beetle) feed on the seeds of ruderal plants that grow on disturbed soil, such as daisies. Cereal field margins provide a continuing resource for such habitats as long as they remain unsprayed.

Manage short sections on rotation



Rotational management such as cutting should only be carried out in short lengths of field margin to create a range of vegetation heights and to allow recolonisation of the less mobile invertebrate species from other sections of the margin. Support for biodiversity cropping is available through SRDP.

Reduce pesticide applications

Spraying cereal field margins with pesticides and selective herbicides destroys the invertebrate species and the native plant species such as Charlock (*Brassica kaber*) and Fat hen (*Chenopodium album*) on which they depend. An unsprayed margin of 6m should be retained around the field and care should be taken to protect the field margins from pesticide drift. Under new regulations, these margins can now be included in set-aside; and support is also available through SRDP.



Common red soldier beetle
(*Rhagonycha fulva*) ©
Chris Cathrine

Adopt spring cultivation

The shift from spring to autumn cultivation in many arable fields has had an effect on invertebrate groups such as ground beetles, favouring smaller species at the expense of some larger species. Seed-feeding beetles as a whole appear to have declined more than other groups of ground beetles, and this probably reflects the reductions in weed populations in arable fields.

Agricultural scheme grants and subsidies

A variety of agricultural grant and subsidy schemes offer support for management described in this document. At the time of publication, these include:

- Single Farm Payment Scheme (SFPS) rules allow field margins to be used for set-aside.
- Cross-compliance (GAEC-15: Field Boundaries) requires a 2m protection zone around field margins, dykes, hedgerows and watercourses (including drainage ditches).
- Scotland Rural Development Programme

(SRDP) Rural Development Contracts (RDC) Land Managers Options (LMO) Axis 2 Option 14: Management of Grass Margins and Beetlebanks in Arable Fields.

- SRDP RDC-LMO Axis 2 Option 16: Management of Conservation Headlands.
- SRDP RDC-RP Axis 2 Option 17: Management of Habitat Mosaics (on in-bye farmland).
- SRDP RDC-RP Axis 2 Option 35: Grass Margins and Beetle Banks.
- SRDP RDC-RP Rural Priorities Axis 2 Option 36: Biodiversity Cropping on In-bye.
- SRDP RDC-RP Axis 2 Option 40: Arable Reversion to Grassland.
- SRDP RDC-RP Axis 2 Option 43: Conservation Management for Small Units offers support for planning how to incorporate multiple Options.
- SRDP RDC Package 7: Supporting Biodiversity offers support for specific species or more general biodiversity management.
- SRDP RDC Package 8: Arable Fields and Hedgerows.

Applicants for SRDP RDC-RP Options must demonstrate how the Option will contribute towards the priorities for the particular region. Not all Options are compatible with each other, and eligibility criteria may apply. Further information is available on the SRDP website. (details at end of document).



Early mining bee (*Andrena haemorrhoa*) © Roger Key

Further Information

Scottish Government agricultural grant and subsidy schemes:

www.scotland.gov.uk/Topics/farmingrural/Agriculture/grants

Scottish Executive. 2005. *Cross Compliance: Notes for Guidance*. Scottish Executive.

Scottish Rural Development Programme: www.scotland.gov.uk/Topics/farmingrural/SRDP

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