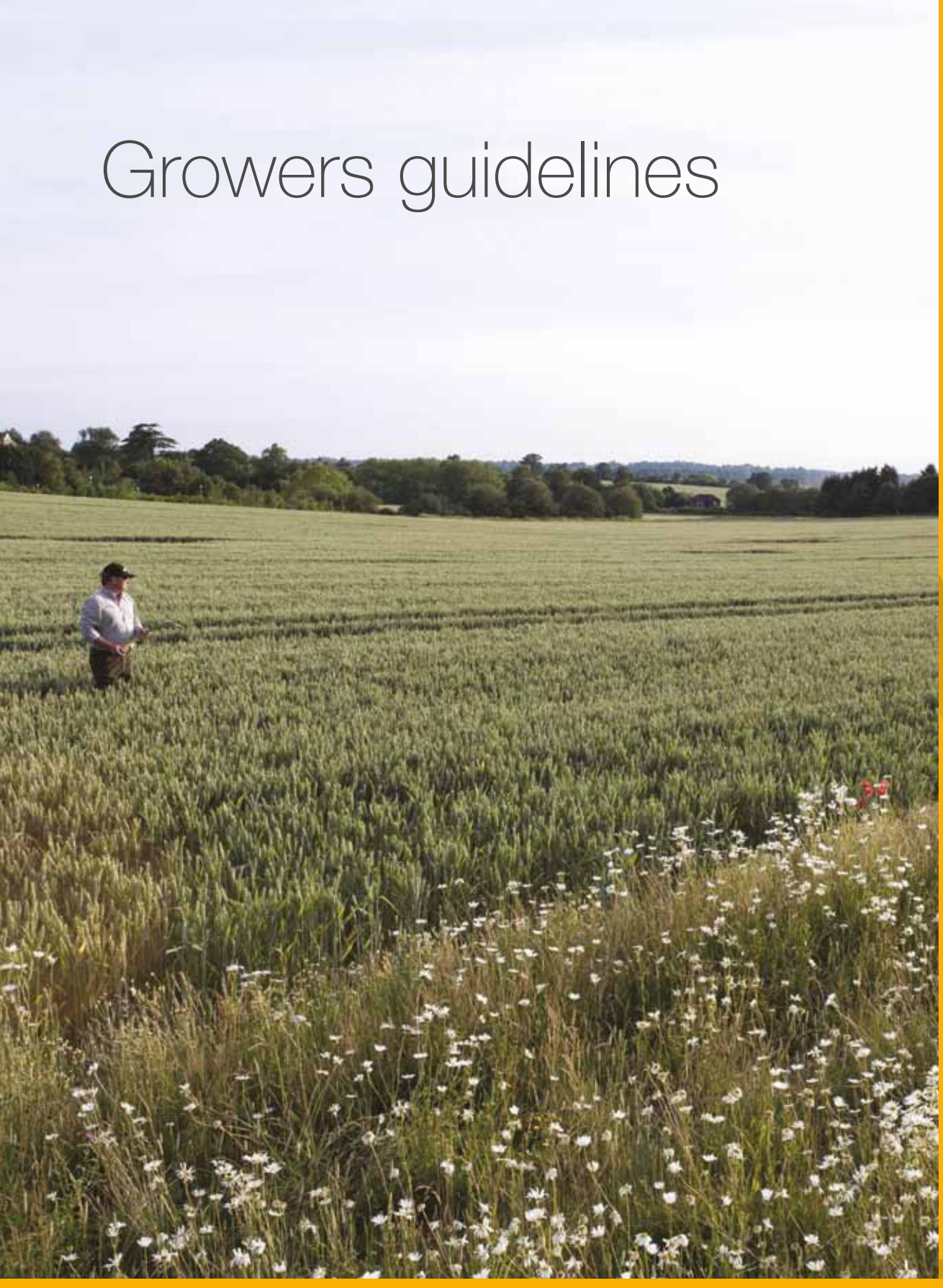
Growers guidelines



OperationPollinator
Multifunctional Landscapes

syngenta®

™

Contents

Get in touch with us

- To join OPERATION POLLINATOR please contact Belinda Bailey: belinda.bailey@syngenta.com or Tel. 07436 030 365
- For further information visit: www.operationpollinator.com
- On-line tutorial videos are available in the media section of www.syngenta.co.uk
- For technical enquiries: Tel. 0800 169 6058 or email customer.services@syngenta.com

Syngenta is one of the world's leading companies with more than 27,000 employees in over 90 countries dedicated to our purpose: Bringing plant potential to life. Through world-class science, global reach and commitment to our customers we help to increase crop productivity, protect the environment and improve health and quality of life. For more information about us please go to www.syngenta.com.

Introduction

Background

Pollinating insects are an essential component for the pollination of many crops. Over many years, however, the numbers of some pollinating insects have declined significantly in many areas of the world, through a combination of changing environmental and land use factors. Restoring habitats and providing resources valuable to pollinating insect species can help to reverse the decline in their numbers. Furthermore, increasing populations of pollinating insects has been shown to increase yield and quality of crops, including fruit, vegetables and oilseeds where insects provide a pollinating service.

What is OPERATION POLLINATOR?

OPERATION POLLINATOR demonstrates that environmental management and productive agriculture are not only compatible, but can be positively beneficial for both biodiversity and farm profitability.
It helps growers to make use of field margins and areas of low productivity, by sowing a targeted seed mixture of wildflowers and grasses to improve biodiversity and agri-ecosystem services, including pollination, natural pest control and soil management.
Instigated by Syngenta in 2001 and supported by universities, governmental bodies, food producers and NGOs, OPERATION POLLINATOR has helped thousands of growers across Europe and the USA to successfully establish and manage essential habitat for pollinating insects on commercial farms.

What can OPERATION POLLINATOR deliver?

- **Increased numbers of beneficial pollinating insects**
- **Potential to improve crop yields and quality through better pollination**
- **Habitat for a diversity of other insects, birds and animals**
- **Protection buffers to shield soil and water from erosion effects**
- **Compliance with environmental objectives and attractive visual feature**

A practical guide for growers

These guidelines are a practical guide to help growers implement and manage high value habitat using conventional farming techniques. The following pages provide detailed information on what to do, how and when.
OPERATION POLLINATOR habitat can be established in spring or in autumn. Below is a brief overview of the required steps.

	Spring planting	Autumn planting
Planning	July-December	February-April
Preparation	February/March	July/August
Planting	April-early May	August-mid September
Mowing in establishing year for weed control	June & late September	Early May and Late September
Annual end of season mowing	Late September	Late September

On-line tutorial videos are available in the media section of www.syngenta.co.uk

Site planning

Carefully select the right site on the farm to ensure the margins establish well and are easy to manage, provide maximum wildlife value and it fits with overall farm management. Make sure plans are compliant with EU requirements to gain support payments.

1 Identify low productive areas

- Look for uncropped areas
- Use areas of the farm, which are low in fertility or have poor growth
- Take out difficult areas to farm (e.g. field corners, field pockets)
- Plan well ahead: January for spring planting and June for autumn planting

2 Look for the best sites

- Ideally margins need to be a minimum width of 3m but need to fit machinery size. Check details for inclusion into environmental schemes for margin width and area requirements
- Consider placing them against features such as hedges, banks, woodland edge, ditches or watercourses
- Flower mixes need sun and shelter so are best on:
  - the South side for an East/West hedge
  - the West side for an North/South hedge
- Where possible choose a dry, well-drained site as establishment may be easier than on a heavy soil site
- Avoid areas next to roads and lay byes as margins can attract unwanted trespass

3 Fit with the farm

- Select environmental options that can be practically achieved within the farm system
- Ensure access to these areas for management
- OPERATION POLLINATOR is an environmental commitment that needs to be integrated as a long-term element of the farm strategy

4 Order seeds

- Get in touch with us to select your OPERATION POLLINATOR seeds

> **“We can design and develop an OPERATION POLLINATOR habitat to suit the soil type, the climatic conditions and most critically of all, the pollinator species we are aiming to encourage.”**
>
> Geoff Coates, *Senior Agronomist for Sustainable Agriculture*

Preparation and establishment

A fine firm stale seed bed is required to help establishment and minimize weed pressure.

1 Remove all existing vegetation

- Spray off and/or cut existing vegetation to create clean bare ground. Repeat if necessary.

2 Prepare seed bed

- Plough and press or disc followed by a power-harrow to create a firm fine seed bed. A seedbed with an optimum crumb size 5mm is ideal for small seed legumes, wildflowers and grasses.
- If slug presence threatens establishment, consider control options subject to regulatory and legislative restrictions.

3 Sowing dates

- Ideally sowing should take place during mid-August to early September. Alternatively there is an opportunity to sow in April through to early May when soils are warming up and still have moisture.

4 Sowing and pressing

- If the seed bed is soft or open, ring roll (Cambridge roller) to firm up before sowing. Broadcast the mixture ON THE SOIL SURFACE. Leave drill coulters raised or use a seed box, spinner or other suitable technique to evenly spread seed on the surface.
- Be aware that small seed can settle in the bag or drill; regularly mix as you drill. A final roll after sowing should firm the seed soil contact.

> **For pesticide application rates and timings contact your local Syngenta Area Manager or call our Technical Enquiries Tel 0800 169 6058.**
>
> Geoff Coates, *Senior Agronomist for Sustainable Agriculture*

Margin management

OPERATION POLLINATOR margins like any other crop need management. Effectively managed margins will last for many seasons.

1 Establishment in the first year

- Do not use any fertiliser. As the more impoverished the ground becomes, the better the floristic character of the habitat will be.
- Cutting / mowing will remove annual weeds. Newly established wildflower habitats are likely to need cutting to aid establishment and remove undesirable weed species. Mowing should ideally take place when the weeds start to compete with the sown plant species.
- Actual timing of cuts will depend on soil types fertility, growth and constraints from environmental schemes. Typically autumn sown mixtures may be cut around late-April in the following year, whilst spring sown mixtures may need cutting in June of the first year. If in the first season growth is excessive, be prepared to cut again, possibly within five to eight weeks.
- Cut to a height of 10 - 15 cm.
- To control invasive grass weed burden, spot-treatment with a selective herbicide may be required. If the new habitat is in an environmental scheme a derogation from your local stewardship officer prior to application may be required. Recommendations and rates are available from Syngenta Technical Enquiries Tel 0800 169 6058, but always follow your scheme guidelines.
- At the end of the season (September-early October) margins should be cut to a height of 15cms with the cuttings removed. This removes the seasons growth and makes way for next seasons flowers

2 Management in subsequent years

- A cut to 15 cm at the end of the flowering season will improve the habitat in subsequent years.
- To provide overwintering habitat for butterflies, cut only 50% of the grass and wildflower margin and alternate in the following year.
- For legume margins a cut of half the margin in late May/June will prolong flowering and maintain food supply for bees over an extended time.

3 Removal of cuttings

- Is recommended for grass based mixes, as it helps light to reach the smaller, shyer perennial species and stops the sward getting too dense. If the cuttings cannot be removed endeavour to spread the cutting as thinly as possible or multi chop to avoid smothering the plants below.
- For clover based mixes removal is not so necessary as the cut sward will wilt away.

> **“Remember, perennial plant structures do not die from cutting. While mowing will remove annual weeds the perennial flowers in the OPERATION POLLINATOR will be strengthened.”**
>
> Geoff Coates, *Senior Agronomist for Sustainable Agriculture*

Seed mixtures

Standard Mix (20 kg/ha)

This mixture provides a good source of pollen and nectar and some cover for many species. It attracts a wide range of insects. Successfully managed margins can last up to 10-15 years.

Flowers

Achillea millefolium (Yarrow)
Centaurea nigra (C. knapweed)
Daucus carota (Wild carrot)
Galium verum (Lady's bedstraw)
Knautia arvensis (Field scabious)
Leucanthemum vulgare (Oxeye)
Lotus corniculatus (Birdsfoot trefoil)
Malva moschata (Musk mallow))

Grasses

Cynosurus cristatus (Crested dogs tail)
Festuca ruba comm and juncea (Chewing & Slender fescue)
Pao pratensis (Smooth stalked, Meadow grass)

Legume + Wildflower only Mix (12 kg/ha)

This mixture provides a lot of pollen and nectar to attract Bumble bees and other bees. Successfully managed margins can last up to 3 years.

Flowers

Lotus corniculatus (Birdsfoot trefoil)
Malva moschata (Musk mallow))
Centaurea nigra (C. knapweed)
Trifolium pretense (Red clover)
Trifolium hydridum (Alsike Clover)
Onobrichus viciifolia (Sainfoin)

Tussocky with Flower Mix (20 kg/ha)

This mixture provides a denser and thicker margin, which provides good habitat for small mammals. It also provides some pollen and nectar to attract a wide range of insects. Additionally this mixture can be used to protect watercourses from agricultural runoff. Successfully managed margins can last up to 10-15 years.

Flowers

Achillea millefolium (Yarrow)
Centaurea nigra (C. knapweed)
Daucus carota (Wild carrot)
Galium mollugo (Hedge bedstraw)
Leucanthemum vulgare (Oxeye)
Ranunculus acris (Meadow buttercup)
Silene dioica (Red campion)
Stachys sylvatica (Hedge woundwort)
Trifolium pretense (Red clover)
Vicia cracca (Tufted vetch)

Grasses

Dactylis glomerata (Cocksfoot)
Festuca pratensis, rubra, arundinacea (Tall meadow and Red fescue)
Phleum pretense (Timothy)

> **"All of the above mixtures are based on many years of monitoring and practical experience. They fit with Environmental Stewardship."**
>
> Geoff Coates, *Senior Agronomist for Sustainable Agriculture*

OPERATION POLLINATOR
Ten years of practical experience

- Implemented in more than 15 countries
- Thousands of participating farmers
- Based on independent research

Proactive management of field margins delivers many benefits

Benefits	Natural regeneration	Grass buffer strip	Field margin
Biodiversity	●	●	● ●
Reduce soil erosion	● ●	● ●	● ●
Protect water courses	● ●	● ● ●	● ●
Enhance ecosystem services	●	●	● ●

Syngenta Crop Protection UK Ltd
Syngenta Seeds Ltd

CPC4, Capital Park
Fulbourn, Cambridge
CB21 5XE, United Kingdom

Reception +44 (0)1223 883400

Sustainable Agriculture and Stewardship: belinda.bailey@syngenta.com

www.syngenta.com