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National Biodiversity Data Series No. 11.

Businesses:

actions to help pollinators

Technical appendix

All-Ireland Pollinator Plan 2015-2020

Implementation coordinated by the National Biodiversity Data Centre

National Biodiversity Data Centre
Documenting Ireland's Wildlife

Origin Green IRELAND
An initiative by Bord Bia Irish Food Board

BUSINESS IN THE COMMUNITY IRELAND

www.pollinators.ie

This Technical Appendix is brought to you by the All-Ireland Pollinator Plan. It provides all of the instructions and information needed to effectively carry out each of the 18 pollinator friendly actions suggested in our business guidelines. These actions are split into two sections, one for outdoor space actions and one for indoor space actions.

Once you've taken pollinator friendly actions, log your efforts on our publically available mapping system, 'Actions for Pollinators.' Actions for Pollinators (www.pollinators.ie) is an online mapping system that allows everyone across all sectors to share their efforts to make the island of Ireland pollinator friendly. Adding your actions will help us track the build-up of food, shelter and safety for pollinators in the landscape.

Relevance of pollinator actions to ISO 14001:2015

ISO 14001:2015 Clause	Relevance of pollinator friendly actions
5.2 Environmental policy	Standard requires that your Environmental Policy includes a commitment to the protection of the environment
6.1.2 Environmental aspects	Standard requires identification of environmental aspects of organisation's activities. May include positive or negative impacts in relation to pollinators
6.2 Environmental objectives and planning to achieve them	Standard requires that your environmental objective be consistent with the environmental policy. A measure to address your commitment to the protection of the environment could be establishing/developing an area for protection of biodiversity, habitats and ecosystems, e.g. pollinator friendly area
7.2 Competence and 7.3 Awareness	Requires relevant staff to have appropriate competency to meet specified requirements of the EMS. May include training/ awareness-raising concerning pollinators amongst employees
7.4 Communication	Actions concerning pollinators should be communicated to internal and external stakeholders
8.1 Operational planning and control	Operational controls should be introduced where necessary to ensure specified pollinator management actions are implemented/maintained
9.1 Monitoring, measurement, analysis and evaluation	Performance indicators to meet the requirements in this clause could include: Land area set aside for wildlife habitat; Development of the area compared to the conservation plan; Number of plant species changed/added e.g. new trees/plants for pollination introduced; Investment

Outdoor Space Options

Food & shelter

A. Identify and protect existing areas that are good for pollinators

Your business's outdoor space may already have areas that are providing food and shelter for pollinators. The easiest and most important thing you can do is identify and protect these spots.

Action 1:

Protect areas that are already providing food and shelter for pollinators

If the following already occur in your outdoor space, protect and keep them free from pesticides: 1. Patches of wildflowers or "weedy" plants (food); 2. Flowering hedgerows (food); 3. Bare soil (shelter); 4. Long grass (shelter) 5. Dry stone walls (shelter).

1. Create a map or diagram marking existing areas of food and shelter for pollinators. This kind of map is perfect to include in any of your sustainability work or environmental initiatives.
2. If you use contractors to mow or manage your land, give them a copy of your map and make them aware that you want these spaces left undisturbed (also see our website for professional pollinator friendly planting code).

Food

B. Reduce the frequency of mowing of grassy areas

If your business's outdoor space has areas of grass, reducing mowing is the most cost-effective way to provide food for pollinators. This allows wildflowers to grow naturally in the longer grass. Native plants are best for our pollinators, and reducing mowing is an excellent way to encourage them to grow.

Action 2:

Mow 1/3 of all grassy areas under a pollinator friendly regimen

Mowing under a pollinator friendly regimen is simple:

1. Do the first cut on or around the 15th of April, and then cut on a 6 week rotation.
2. Cuttings should always be removed.

The late first cut allows Dandelions to flower, but not to set seed. Dandelions are a vital food source for pollinators in spring. Subsequently mowing on a 6-weekly rotation allows wildflowers to grow naturally and provide food. The clovers that will bloom in June or July if grass is managed this way are particularly important to bees. Areas of grass managed in this way tend to be colourful and still look tidy.

Mowing Regime	Approx. Cost Per Ha (2016)
22 Cuts per year, grass mulched back in	€2,464.00+Vat Cost inclusive of equipment, labour and fuel
5 Cuts per year (6 week cycle) with cuttings lifted	€2,437.00+Vat Cost inclusive of equipment, labour, fuel and waste disposal

The above costings are based on prices from a large landscaping company in ROI in 2016. Prices are based on flat ground accessible with ride on equipment and within a 40km radius of Dublin, rates reduce for larger areas.

Info Box:

Action 2 is a **cost neutral** option. Grass is often cut from mid-February on a 22 cuts per year cycle with the grass mulched back in. This may look tidy, but it creates a sterile grassy desert for pollinators. Cutting every 6 weeks with cuttings lifted costs the same.

Action 3:

Create a long-flowering meadow

Identify areas of grass that could be transformed into a longer flowering meadow. Grassy areas managed in this way allow wildflowers to bloom throughout the pollinator season and provide space for nesting. Over a number of years, the meadow will naturally become more flower-rich – **all without spending money on wildflower seed.**

1. Cut these areas once in early September, then let the grass grow until the following September.
2. If grass growth is very strong and the vegetation is falling over under its own weight, for the first few years cut sooner (e.g. July) and again in September.
3. Always remove the cuttings to reduce soil fertility over time.
4. Cutting paths through the middle of wildflower meadows allows staff or visiting school groups to enjoy the space. You can also keep a small mown border to make these spaces look tidier.
5. If you don't have enough grassy area to create a whole meadow, follow the same mowing regimen in a strip or small patch. It will still be very useful for pollinators.

If you want to increase the diversity of plants in your meadow, see our How-to-Guide for collecting and using pollinator friendly wildflower seed, available on our website: www.pollinators.ie

Top Tips:

- Fertilisers promote grass growth; avoid using them in areas where you want wildflowers
- Consider using signage to indicate to staff and the public why the grass is allowed to grow. **An English and bilingual signage template** is available for download from the Pollinator Plan website (www.pollinators.ie), and space has been left for the inclusion of company logos. The bilingual version meets the language criteria for use on land in the Republic of Ireland

Food

C. Pollinator friendly planting

In order to survive, pollinators need flowers that produce a lot of nectar and pollen. To make your property pollinator friendly, avoid 'hunger gaps,' or times when no nectar or pollen-rich flowers are in bloom. ***Try to have pollinator friendly plants in flower the whole time pollinators are active, from March all the way through October.*** *There is a huge variety of affordable plants to choose from that are attractive, low maintenance, and provide pollinators with food.*

NOTE: The suggested planting lists in this document are NOT exhaustive. Many other plants that are also good for pollinators can be found in our professional **pollinator friendly planting code,** available on the Pollinator Plan website (www.pollinators.ie).
*Never plant ornamental plants in natural or semi-natural habitats. Wherever possible, purchase and plant native, locally sourced stock.

Action 4:

Plant a clover lawn

Identify small areas where grass could be entirely replaced with a permanent clover mix. Red and white clovers are a very important food source for bees. This can be a good action for areas that have undergone other works as an alternative to normal reseeding.

Action 5:

Pollinator friendly containers

Incorporating some pollinator friendly plants in window boxes or containers can be done on any property, but it is particularly useful for urban businesses with little outdoor space.

Five annuals for containers	Five perennials for containers
Sweet alyssum	Calamintha nepeta
Flossflower	Dianthus barbatus
Cosmea	Lamium pink chablis
Poached egg flower	Thyme lemon variegated or other Thymes
Garden heliotrope	Marjoram golden

Action 6:

Plant pollinator friendly bulbs

Many commonly planted bulbs, like Daffodils and Tulips, are not the best for pollinators. Increase the amount of flowers for pollinators in spring by planting pollinator friendly bulbs this autumn.

Five pollinator friendly bulbs
Snowdrop
Crocus
Allium
Grape Hyacinth
Single flowered Dahlia, especially Bishop series

Action 7:

Plant pollinator friendly trees and shrubs

For future tree and shrub planting, select from pollinator friendly species. Planting pollinator friendly shrubs that flower early in the year is an excellent way to provide bees with crucial spring food sources. Try to choose native species where possible.

Five pollinator friendly native trees	Five pollinator friendly ornamental shrubs (flowering times)
Willow	Laurustinus (winter)
Rowan	Darwin's barberry (spring)
Hawthorn	Oregon grape (spring)
Wild cherry	Russian sage (summer)
Crab apple	Firethorn (summer)

Apple orchard planted at Country Crest

Barberry

Action 8:

Create a pollinator friendly flower bed

Traditional bedding plants like Begonias, Busy Lizzy, Polyanthus, Geraniums and Petunias have virtually **no pollen and nectar**, so are of little value to pollinators. Try incorporating some pollinator friendly perennial options to create a pollinator friendly flower bed.

Five pollinator friendly plants for a perennial bed
Nepeta 'Walkers Low'
Rudbeckia 'Goldstrum'
Stachys 'Byzantina'
Calamintha
Sedum 'Autumn Joy'

Action 9:

Plant a native wildflower meadow

Meadow at Wyeth Nutritionals Ireland Ltd.

Create a native wildflower meadow using commercially purchased seed. This would be more flower-rich than the meadow Action 3 but it is more costly and requires expertise. Please be aware that most sites will be unsuited to the immediate creation of a wildflower meadow due to high soil fertility.

If you decide to take this action, it is very important to buy pollinator friendly seed mix that has been grown in Ireland from native wildflowers and is suitable for your site.

See our website for a How-to-Guide on creating and managing a native wildflower meadow: www.pollinators.ie

Top Tips:

- Ideally your property should have at least three pollinator friendly plants (of any type) flowering in each season, spring, summer and autumn
- Aim to have 75% of new ornamental planting be pollinator friendly
- We suggest mixing pollinator friendly perennials with traditional bedding options, as perennial plants can look less attractive when they finish flowering

Shelter

D. Provide wild pollinator nesting habitat

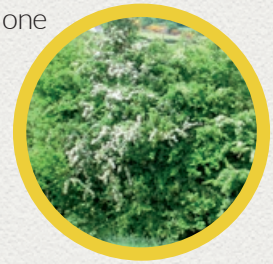

Solitary mining bee nest

Nesting habitat for wild pollinators is safe, unobtrusive and easy to create. Wild bees (bumblebees and solitary bees) live in small colonies and are entirely focussed on finding enough pollen and nectar to feed themselves and their offspring. They are not aggressive, have no interest in interacting with humans, and do not present any risk to the public or employees. Bumblebees nest in long grass, often at the base of a hedgerow. Solitary bees nest in bare ground, or less commonly, existing cavities.

Action 10:

Hedgerows for pollinators

Businesses with larger outdoor spaces can plant flowering hedgerows or manage existing hedgerows for pollinators by following these steps:



1. Cut hedgerows every three years (outside the bird breeding season) to encourage flowering for pollinators and fruiting for birds. Avoid cutting all hedges in the same year; instead cut one third of the hedge annually so some will always bloom and fruit.
2. Make sure the base of hedgerows are not sprayed. This will allow flowering plants like Clovers, Vetches and Knapweed to provide additional food throughout the season and ensure nesting bees are safe.
3. If vegetation needs to be cut, do so between September and February to allow bumblebees to nest during the summer.
4. When planting new hedgerows or filling gaps, use pollinator friendly native species, e.g. Willow, Blackthorn and Hawthorn. Bramble will provide food for pollinators in summer and Ivy in autumn.

For more information see our website for a How-to-Guide on managing hedgerows for pollinators: www.pollinators.ie

Action 11:

Create earth banks for solitary mining bees


Earth bank

Most of Ireland's solitary bees (more than 60%) are mining bees. They need bare soil in order to dig their nests. Creating an earth bank for these mining solitary bees on your property could not be easier:


Bare ground for mining bees

1. Choose an open, well drained, sunny location. The soil should be gently packed, and south facing slopes are preferred.
2. Using a spade, gently clear off any vegetation on the area. Remove bits of moss, grass, and anything that blocks the bee from getting to the soil. The area can be just about any size, but aim for a minimum of 10 by 10 cm.
3. Once a year in late autumn, clear any vegetation that has grown by manually scraping back the area to bare soil. Never use pesticides of any kind (including herbicides) on an area meant for solitary bee nesting.

For more information see our website for a How-to-Guide on providing wild pollinator nesting habitat: www.pollinators.ie

Action 12:

Drill holes in wood

A small number of Ireland's solitary bees are cavity nesters that prefer to live in existing holes in wood, stone or other materials. You can create nesting habitat for these bees by drilling small south or east facing holes in wooden fences.

1. Ensure wood is free from treatment or preservatives (no varnish, stain, paint); alternatively, attach untreated wood blocks to existing structures.
2. The holes should be 10cm deep and range from 4-8 mm in diameter. Create holes of different diameters to attract different types of bees. Make sure not to drill through the structure. Try to drill with the grain to avoid cracks.
3. Holes should be as smooth inside as possible to attract nesting solitary bees. Use a countersinking drill bit or sandpaper to ensure the holes are splinter-free.
4. Make sure the holes are at least 1.5-2m off the ground and not blocked by any vegetation. The entrance holes should ideally face east or southeast, so they get the morning sun.

For more information see our website for a How-to-Guide on creating wild pollinator nesting habitat: www.pollinators.ie

Holes drilled in wood © Bryan Pinchen

Action 13:

Install a bee hotel

Incorporate a small number of bee hotels on your property for cavity nesting solitary bees. Bee hotels are good awareness raising tools, but actions 10-12 will benefit biodiversity more.

See our How-to-Guide on creating wild pollinator nesting habitat before creating/ purchasing a bee hotel: www.pollinators.ie

Top Tips:

- Several small bee hotels are preferable to one large one, because nesting bees are less likely to suffer from disease or predation
- Many commercially available bee hotels are not the right size for Irish bees. Make sure to check the dimensions with our nesting How-to-Guide before purchasing, or build your own
- If you do install a bee hotel, don't forget to provide nesting habitat for ground nesting bees too

E. Reduce the use of pesticides

Pesticides include insecticides, fungicides and herbicides. All of these can be harmful to pollinators, either directly, or by damaging the plants and habitats they depend on. Sometimes the use of pesticides is critical to a company or product, and cannot be avoided. But we have also grown used to using pesticides to "tidy" outdoor spaces and keep them looking neat. This has serious negative consequences for pollinators and biodiversity in general. It is therefore important that pesticides are used sustainably, and only when absolutely necessary.

Action 14:

Eliminate the use of herbicides

Herbicides indirectly harm pollinators by killing wildflowers that could otherwise provide food. Try physically removing unwanted weeds from your outdoor space instead. In particular, avoid spraying the base of trees and edging along sidewalk; strim these areas instead, or let the grass grow long if appropriate.

Strip of long grass_SECAD

Long grass and flowers at tree bases

Action 15:

Adopt our pollinator friendly pesticide code

If there are areas on the property that must be treated with pesticides, adopt our pollinator friendly pesticide code (see page 15) to ensure the least possible harm to pollinators. Always follow the manufacturer guidelines exactly when applying any pesticide.

Indoor Space Options

F. Raise Awareness

You can support the Pollinator Plan by raising awareness in your Supply Chain, Local Community or Workplace, i.e. at your offices and on-site. More people are starting to understand how important pollinators are and what we can do to help them, but we need to keep spreading the word. To help, we've published ***pollinator friendly guidelines*** *for a number of sectors, including local communities, schools, gardens, farmland and more. All of these different guidelines are available to download on our website.*

The actions in this section will help your business contribute to the conservation of pollinators and biodiversity beyond your own property.

Action 16:

Raise awareness of the Pollinator Plan in your Supply Chain

Encourage your suppliers and contractors to support the Pollinator Plan. We have suggested some potential options below- you can combine these or expand on them.

Option 16.1 If you are a food producer that sources Irish-grown ingredients, see if the farmers you work with are aware of our farmland guidelines (available on the Pollinator Plan website). Encourage them to support the Pollinator Plan and take simple pollinator friendly actions on their farms, such as managing hedgerows for pollinators or planting pollinator friendly native trees.

Option 16.2 Promote our pollinator friendly business guidelines to your Irish suppliers and contractors, and encourage them to sign up as supporters. Share the benefits your business has experienced to help us increase the number of businesses supporting the Pollinator Plan.

Action 17:

Raise awareness of the Pollinator Plan in the Local Community

Many local communities across the island are already doing their part to protect our pollinators. There are several ways you can support them. We've provided options below, but you can also coordinate with individual groups to find out what would be best for them. Work with groups you have an existing relationship with, or visit our website (www.pollinators.ie) to find more resources for connecting with local groups interested in pollinators.

Options for Supporting the Pollinator Plan in the Local Community (NOTE: If you want to sponsor a print run of any of our documents, email ufitzpatrick@biodiversityireland.ie to request high resolution versions ready for printing)

Option	Description	Groups to reach out to	Approximate Costing (2016)
17.1- Print run of Garden or Local Community Guidelines	We've created a guideline documents for gardeners and local communities. Fund a print run of these booklets to be distributed to a group in your community.	-Community Gardens -Tidy Towns (ROI) or Keep Northern Ireland Beautiful groups -Local Libraries	100 booklets < **€500**
17.2- Print run of Junior Pollinator Plan	Fund printing of the Junior version of the Pollinator Plan for a local school or class.	-Local primary or secondary schools	Cost for 1 class of 30: **€140** Cost for 1 primary school with 8 classes: < **€1000**
17.3- Sponsor signage	For local communities that are taking pollinator friendly actions, your company can sponsor the printing of signage. There is a high resolution copy of a signage template with room for company logos to be added available for download on our website. The bilingual version complies with Irish language regulations for signage in ROI	-Tidy Towns (ROI) or Keep Northern Ireland Beautiful groups -Schools -Community Gardens	< **€100** (for A3 sized cardboard signs; higher quality signs will cost more)
17.4-Sponsor pollinator friendly planting in local communities	Community groups and schools are often interested in doing pollinator friendly planting, but don't have the resources to purchase trees/shrubs/perennials. Offer to help offset the costs of a planting project.	-Tidy Towns (ROI) or Keep Northern Ireland Beautiful groups -Schools -Community Gardens	< **€500** would sponsor: -Planting a pollinator friendly flower bed -Planting a herb garden in a local school yard -Pollinator friendly bulb planting
17.5- Fund construction or purchase of bee hotels	Bee hotels can be excellent awareness raising tools for the community. You can purchase a premade hotel, or the materials needed for groups to build their own.	-Tidy Towns (ROI) or Keep Northern Ireland Beautiful groups -Schools -Community Gardens	< **€100** *REMEMBER several small hotels are preferred over one large one- this minimizes the risk of disease and predation for the bees. Large hotels are also more expensive (€500-€1000)
17.6- Sponsor a pollinator friendly award	Offer to sponsor a pollinator friendly award in your local community. Examples include a pollinator friendly garden award, photo competition or school award.	-Community Gardens -Tidy Towns (ROI) or Keep Northern Ireland Beautiful groups -Schools	At your discretion

Option	Description	Groups to reach out to	Approximate Costing (2016)
17.7-Purchase wildflower seed	If planting your own wildflower meadow (Action 9), consider doubling the amount of wildflower seed and donating it to a local community group.	-Community Gardens -Tidy Towns (ROI) or Keep Northern Ireland Beautiful groups	**€1000** +, depending on size of site Bee mix with grasses sown at 4 grams per square meter: £0.34 per sq meter Pure bee mix sown at 3 grams per sq meter: £0.59 per sq meter *pricing based on 2016 quote from company Ecoseeds
17.8- Sponsor an expert for a school visit	Sponsor an expert from Heritage in Schools to come talk to primary and secondary school classes about the Junior Pollinator Plan.	-Local schools/classes	**< €500**
17.9-National sponsorship	You can also support the Pollinator Plan by sponsoring national projects.	Get in touch with us if you're interested	ufitzpatrick@biodiversityireland.ie


Tidy Towns helping pollinators


Community in Tuam planting a pollinator friendly flower bed


Limerick's Buzzing_Veronica Santorum

Action 18:

Raise awareness of the Pollinator Plan in the Workplace

You can also start by raising awareness of pollinators and the important service they provide within your own company. We've provided options below for how you can promote the Pollinator Plan among your employees. As an added benefit, these options serve as excellent forms of employee engagement and can help improve employee wellbeing.


Pollinator training day

Options for Raising Awareness of the Pollinator Plan in the Workplace

Option	Description	Supplies needed	Approximate Costing (2016)
18.1-Training sessions/ workshops for staff	Carry out pollinator awareness training sessions/ workshops for staff. Topics can include: pollinator friendly measures for gardens, recording pollinators, info on the Pollinator Plan, etc.	• Presenter There are presentations about the Plan available on our website that can be given by company staff at no cost (e.g. environmental officers). Alternatively contact us to inquire about the possibility of bespoke workshops.	**€500*** *Costing based on a 1-day bespoke workshop for max. 30 employees led by a Junior Ecologist. Includes staff time, travel (2016 rates), and workshop materials.
18.2-Print run of Garden Guidelines for staff	Print and distribute our guidelines for how gardeners can implement the Pollinator Plan.	• Printed copies of "Gardens: Actions to help pollinators" for employees	100 booklets **< €500**

Pollinator Friendly Pesticide Code

Pesticides include insecticides, fungicides and herbicides. Of these, insecticides pose the greatest direct hazard to insect pollinators. However, herbicides use is having a much greater negative impact on pollinators because it is so widely used.

Herbicides, Fungicides and Plant Growth Regulators typically have little or no toxicity to pollinators, but many of the plants we spray as weeds are vital sources of food for pollinators, especially in early spring. Pollinators need a range of flowers to feed on from spring through to autumn. The overuse of these chemicals is making it very difficult for them to find enough food to survive in our landscape.

Pesticides should be used sparingly and only when absolutely necessary, such as in the treatment of invasive species like Japanese Knotweed

Do's

- Check the label and select pesticides that are less harmful to pollinators
- Always read, understand and follow the product label instructions fully
- Treat only the target area
- Spot treat rather than use blanket sprays
- Follow the buffer zone instructions on the product label
- Leave areas of pollinator friendly habitat free from all pesticides. These include areas of clover or wildflowers, the base of hedgerows, and any natural areas
- Minimize spray drift to non-target areas by:
  - Using equipment that reduces drift
  - Checking the weather forecast before application and be mindful of changing conditions
  - Ensure that you spray when the wind is blowing away from beehives and pollinator-friendly habitat

Don'ts

- Do not apply pesticides to bees or other pollinating insects
- Do not spray flower-rich areas (including weeds) when flowers are in bloom and providing food for bees. Plants that we might consider weeds like dandelions, vetches, clovers, dead-nettles and knapweed are important food sources as they provide high quality pollen and nectar for bees
- Do not apply pesticides to areas that have been identified as important nesting areas for wild pollinators
- Do not apply pesticides to standing water

This pesticide code can also be found in our professional pollinator friendly planting code on the All-Ireland Pollinator Plan website: www.pollinators.ie

National Biodiversity Data Centre
Documenting Ireland's Wildlife

About the National Biodiversity Data Centre

The National Biodiversity Data Centre is a national organisation that collects and manages data to document Ireland's wildlife resource, and to track how it is changing.

Find out what biodiversity has already been recorded in your local area:
maps.biodiversityireland.ie

Help us to build up the knowledge of biodiversity in your local area by submitting sightings to
records.biodviersityireland.ie

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