

SIMPLY SUSTAINABLE BIODIVERSITY

Six Simple Steps to help improve
biodiversity on your land





Protecting and enhancing biodiversity lies at the very heart of Integrated Farm Management (IFM). As custodians of the countryside, farmers have a critical role to play in managing our precious natural resources, our landscape and its wonderful wildlife. Proactive conservation management and constructive protection of natural resources is essential to allow healthy populations to flourish and enrich the environment.

Due to global climate changes, rising population levels as well as economic challenges, land is at a premium. This can sometimes lead to biodiversity being forgotten or forced to take a back seat, but in an Integrated Farm Management system, the ecosystem services delivered by the environment are inclusive and central to the whole farm management approach. Habitat management needs to be core within the farm business priorities as, without it, biodiversity is either neglected entirely, marginalised or forced to encroach on urban areas. Loss of diverse habitats is the primary reason for extinction; a non-reversible state. Balancing the competing demands on land use is a key challenge for agriculture. However, no other industry is as well placed to deliver a vibrant and resilient biodiversity.

Furthermore, with technological advances in agricultural innovation, there is a great opportunity for farmers to transfer these techniques to biodiversity management. Introducing an approach for 'Precision Conservation' is crucial in order to make the most of the land developed for environmental gain and to protect biodiversity. Putting the right measures in the right place, at the right time and managing them in the right way is critical for success.

A healthy and diverse on-farm biodiversity will help deliver more robust and resilient agriculture. This is partly due to the multitude of ecosystem services that biodiversity contributes to including our food and potential new breeding sources, pollination, pest control, preventing soil erosion and flood prevention and improving water quality. In addition, the social value of biodiversity should not be underestimated. A rich, living, breathing countryside is a crucial link between consumers and farmers with open landscapes, well-orchestrated dawn choruses, murmurations of starlings just some of the sights and sounds that provide another arm to reach out and engage with the public.

LEAF is delighted to have developed this booklet with support from ASDA. It offers practical ways for farmers to manage their land for efficient, sustainable food production as well as wildlife through the adoption of Integrated Farm Management.

Caroline Drummond Chief Executive, LEAF



The word Agriculture is derived from the latin ager for field or land and cultūra for culture. This caring or nurturing of the environment has been at heart of farming from time immemorial. There are many newer words, such as ecosystems and biodiversity, which are now being used to refine the thinking on nature. The linkages between the natural systems and the managed farming systems underpin our food and fibre supplies. Farmers and growers are the stewards of natural resources which support crops and

livestock. We know that customers are asking questions on the ways their food is produced; over 90% of ASDA customers in our surveys care about being green. There are opportunities to manage for biodiversity benefits, which are important to allow for improved stewardship of natural resources.

Shakespeare wrote 'one touch of nature makes the whole world kin'. Farming touches nature in ways that no other industry does.

We need to work on ensuring the precious natural resources around us in the fields and farms have the latest thinking and guidance that it deserves. ASDA hopes that this publication is a significant assistance in meeting the challenge.

Dr Chris Brown ASDA Head of Sustainable Sourcing

Credits

This booklet has been developed by LEAF in close association with ASDA, with particular thanks to:

LEAF Demonstration Farmers: **Patrick** and **Brian Barker**

ASDA farmers: **Charlie Gallichan** and **John** and **Simon Stott**

LEAF Innovation Centre: **The Allerton Project, GWCT: Alastair Leake** and **Phil Jarvis**

With thanks to **Peter Thompson, GWCT** for cover image and photos throughout and thanks to **Bayer CropScience** for photos.

“If we pollute the air, water and soil that keep us alive and well, and destroy the biodiversity that allows natural systems to function, no amount of money will save us”

David Suzuki

Biodiversity provides humans with food and raw materials for fuel and fibre. It also performs ecosystem services such as soil and water conservation, maintenance of soil fertility and biota, and pollination, all of which are essential to human survival.

Biodiversity is our life insurance, giving us food, fresh water and clean air, shelter and medicine, mitigating extremes of nature, pests and diseases and contributes to regulating the climate. Biodiversity is also our natural capital, delivering ecosystem services that underpin our economy. Its deterioration and loss jeopardises the provision of these services: we lose species and habitats and the wealth and employment we derive from nature, and endanger our own wellbeing.

Current rates of species extinction are unparalleled. Driven mainly by human activities, species are currently being lost 100 to 1,000 times faster than the natural rate. In the EU, only 17 % of habitats and species and 11 % of key ecosystems protected under EU legislation are in a favourable state. This is in spite of action taken to combat biodiversity loss. The benefits of these actions have been outweighed by continued and growing pressures on Europe's biodiversity: land-use change, over-exploitation of biodiversity and its components and the spread of invasive species.

In the UK, farmland and woodland birds have shown a dramatic drop since 1970 (See Figure 1). However, while these figures show a dramatic decline there is also some strong evidence to suggest that beneficial and proactive management practices can make a difference and reverse the current declines.

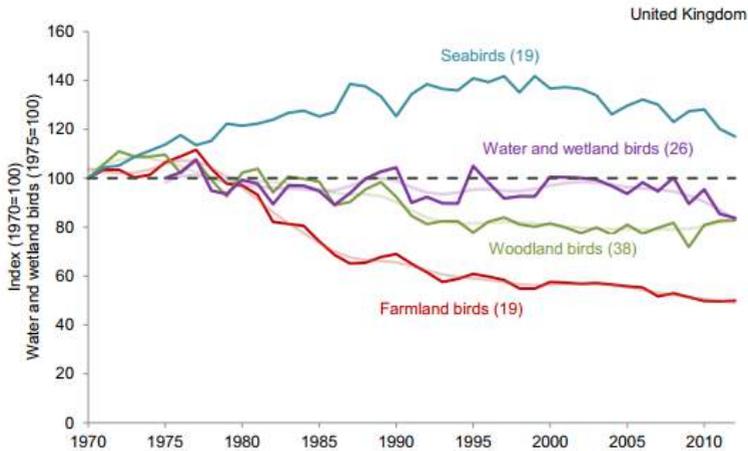


Figure 1: Breeding farmland birds, woodland birds, and seabirds, United Kingdom, 1970 to 2012 Source: British Trust for Ornithology, Defra, Joint Nature Conservation Committee, RSPB 2014

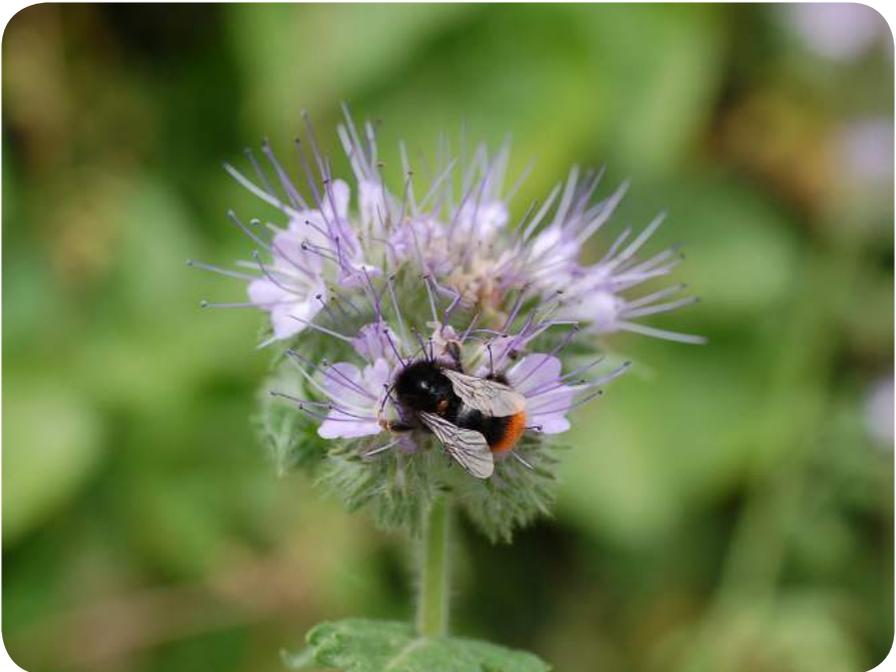
Balancing the competing demands on land use such as: ecological goals, production needs and the need for financial profitability is a key challenge for agriculture. However, no other business has greater potential than farming to deliver a vibrant and resilient biodiversity. A proactive Integrated Farm Management approach is key to support the development of multifunctional agricultural practices and systems which strike a better balance for farm businesses allowing them to be economically viable, environmentally responsible and socially acceptable.

This booklet is based on **Six Simple Steps** designed to assist in monitoring, managing and enhancing biodiversity on farmland through the adoption of Integrated Farm Management. It will help to mitigate the impact of unpredictable weather on your cropping and grazing plan, to improve the environment on farm and enhance the landscape for the benefit of your family, staff, others visiting and society generally.

General Introduction

Nature and agriculture are intrinsically linked and everyday farmers work hard to manage the interactions between on-farm production whilst protecting and enhancing biodiversity. The interactions are complex and fragile and can at times mean that trade-offs and compromise take place resulting in either reduced farm productivity or biodiversity. Maximising the opportunity for the synergies is therefore key in order to build sustainable, robust and resilient farming systems.

Biodiversity and agriculture are strongly interrelated. Biodiversity is critical for agriculture whilst agriculture also contributes to conservation and sustainable management of biodiversity. Indeed, Integrated Farm Management both promotes and is enhanced by biodiversity. The protection, maintenance and enhancement of biodiversity is essential for the sustainable production of food and other agricultural products and the benefits these provide to humanity, including food security, nutrition and livelihoods.



Photograph kindly provided by Peter Thompson, GWCT

Functions of Biodiversity

Biodiversity provides the following essential services to agriculture and the rural community. These are illustrated in Figure 2 below.

- Pollination of crops - P
- Run-off Reduction - R
- Soil conditioning - S
- Erosion prevention - E
- Flood prevention - F
- Improving water quality - W
- Pest Control - PC
- Sustaining rural people's livelihoods
- Providing variety to allow adaptation to changing conditions
- Windbreak - WB

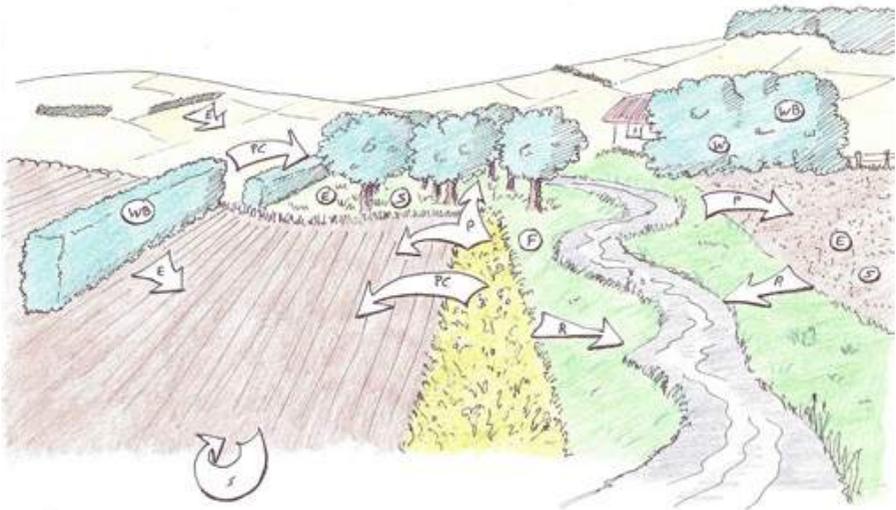


Figure 2: The multiple services provided to agriculture by biodiversity (ELN-FAB, 2014)

“What you do makes a difference, and you have to decide what kind of difference you want to make”

Jane Goodall

Integrated Farm Management (IFM)

There is no one single solution to achieve more sustainable farming practices on farm – it is important to consider the whole farm in an integrated way.

‘Integrated Farm Management (IFM) is a whole farm business approach that delivers sustainable farming.’

IFM is geared towards sustaining and optimising the use of all resources on farm, including soil, water, air, staff, machinery, capital, wildlife habitats, landscape and archaeological features, addressing regulation and embracing innovation. Its successful uptake requires a detailed understanding of the business and an innovative and challenging approach. The implementation of IFM is built around adopting knowledge and innovation alongside beneficial husbandry principles and traditional methods. It is built around your development of a risk management approach to anticipate, assess, manage and develop contingency plans for any unplanned and/or natural events



Getting Started

This booklet has been produced to help you develop an effective on-farm management strategy in order to maintain, protect and enhance our valuable biodiversity and to improve the farm's contribution to the environment. It supports you to optimise this valuable resource, to create an improved awareness of the importance of biodiversity and locate those special areas on your farm where there is an opportunity to improve habitats and their quality over time. It is important to remember that landscape and wildlife are like any other aspects of the farm; what is achieved depends on the starting conditions, the capability of the land and the effort and skill invested.

Based on **Six Simple Steps** to help improve the performance, health and long term sustainability of your land, you are encouraged to set a baseline by assessing and mapping your habitats and identifying priority areas for monitoring, managing and enhancing your biodiversity.

Where possible you are encouraged to keep a photographic diary of those areas that you specifically value or are proud of, are looking to improve and where you have seen change and enhancement over time. By recording and mapping your farm you will build up a long term picture of how you manage and protect biodiversity as an integral part of your land management.

Six Simple Steps for managing Biodiversity on your land

Monitoring

Step 1 Identify habitats

Step 2 Identify key species

Management

Step 3 Manage farmland sympathetically

Step 4 Be pro-active in your management of habitats

Enhancement

Step 5 Enhance existing habitats and populations

Step 6 Work with others

Monitoring

Step 1 - Identify habitats

The crucial first step of successful biodiversity management is taking stock of what you already have. Identifying and documenting the current habitats on your farm will provide a useful focus for your future actions.

A habitat map can be the easiest way to do this and should include:

- Areas and sites on the farm with statutory protection or designation.
- Areas and sites on the farm where important species or populations are present.
- Lakes, ponds and watercourses.
- Semi-natural habitats (e.g. moorland, wetlands, lowland heath, species-rich grassland, broad-leaved woodland, forest etc.).
- Linear features (e.g. hedges, verges, fence lines, farm borders, field margins, walls, ditches, tracks etc.).
- Point features (e.g. in field trees, ponds etc).
- Public rights of way.
- Archaeological or historical sites.

Ensure the map is kept regularly updated and shared with all staff. Producing a habitat map will help ensure all current habitats are identified and fully considered within the business. You may also choose to highlight potential areas of habitat and perhaps identify areas that you might not previously have considered as habitat. Mapping habitats will help you assess whether greater connectivity between habitats is required and how best to achieve this. A map will also help distinguish the extent of one habitat type over another.

The quality of habitat is more important than quantity of habitat. Ideally aim to increase the area set aside for habitat but more importantly ensure all habitat is actively managed to optimise the quality for biodiversity.

Step 1 - Biodiversity Score

Indicator	Poor (0)	Medium (1)	Good (2)
Monitoring			
Map (a)	No map or written identification of farm habitats available	Knowledge of habitats and location and some recorded	Fully annotated map in place that is regularly updated and shared with staff



Photograph kindly provided by Bayer CropScience

Management

Step 2 - Identify key species

In addition to mapping the habitats, it is important to monitor the species present across the farm. Following this, perhaps identify four priority species that particularly interest you or where you would like to see population growth, and tailor your conservation efforts around these. Sufficient monitoring will help measure the progress of different practices to help focus efforts more effectively in the future.

The types of plants, insects, pollinators and mammals will vary depending on many factors, including where you are geographically, the soil type, previous and present management practices, the type of farm and cropping. It is worth finding out about the geographical range of particular species so you know what you are likely to find. Ensure bees and other pollinators are monitored as well as soil biodiversity. Identify protected or priority species on your land and any particular threats to these. In addition, it is critical to monitor and track any invasive species on your farm.

The most effective and regular way of monitoring is when you, or those working on the farm are out and about crop walking, checking livestock or working machinery. Different species require different techniques for monitoring and some species require a licence or specialist experience. For more in depth information on monitoring methods, see the LEAF Green Box.



Photograph kindly provided by Peter Thompson GWCT

Identifying species requires practice. Some species are easy to identify whereas other are extremely difficult. Seek advice in identification of species if required (for more information, see Step 6). Further your knowledge through activities like training and local lectures. Take photos and involve farm staff and local interest and biodiversity groups in the monitoring of key indicator species and the beneficial effects of management.

Where possible, link the species identified to your habitat map. In addition try to link information to wider initiatives such as Biodiversity Action Plans (BAP) in your area. If possible describe 2 or 3 BAP species expected or seen on the farm. Use species information sheets from your country. In the UK, initiatives like the Game and Wildlife Conservation Trust (GWCT)'s Big Farmland Bird Count can be a great way to get involved at a more national level and see how your populations compare to others.

It is important that you are interested in your conservation plans and efforts around priority species will invariably benefit further species along the way.

Step 2 - Biodiversity Score

Indicator	Poor (0)	Medium (1)	Good (2)
Monitoring			
Species Monitoring (b)	There is a general awareness of the species present due to the habitats available	Aware of the species and their location on farm through irregular monitoring	Aware of a wide range of species on farm, their populations, locations and fluctuations.
Priority Species (c)	No specific species planned for	2-3 priority species are identified and monitored	4+ priority and biodiverse species are identified and monitored

Management

Step 3 - Manage farmland sympathetically

Ensuring an Integrated Farm Management (IFM) approach is in place across the farm is crucial to managing healthy populations of biodiversity. Through IFM, biodiversity can be considered in the cropped areas and straightforward but effective measures can be taken to enhance the quality of habitats and number of species. Biodiversity is affected by a wide range of factors. Changes to soil, water and air can have important direct and indirect impacts on species. It is therefore important to manage these resources and minimise any negative impacts from agricultural activities.



Reducing soil run-off from the land is important for water quality and the biodiversity within watercourses. Soil particles can smother spawning grounds and hold phosphate and plant protection products which can deplete water quality. Sustainable soil management and a good soil structure will help reduce run-off and associated diffuse water pollution.

Biodiversity provides a wealth of beneficial organisms that help keep pests under control. In order to promote these, use Integrated Pest Management techniques across the farm to minimise chemical use. Where required, ensure appropriate and targeted application of narrow spectrum plant protection products is applied to minimise impacts on non-target organisms. Manage chemical applications with care to avoid unnecessary run-off.

Manage soils to promote a numerous and diverse range of organisms. This will help improve soil quality and associated production. Practices like minimum or zero tillage and returning organic matter to the soil feeds earthworms and other soils organisms – see Simply Sustainable Soils for more information. Depending on soil type and the crop rotation, it may be possible to leave from land uncropped (as winter stubble) or grow cover crops or spring-sown crops. These practices will help provide split grain and weed seeds for farmland birds.

Distribute crops around the farm and avoid large blocks of single species. Use rotations to include legumes as well as giving some areas of the farm over to flora and fauna. Avoid disturbing ground nesting birds when carrying out field operations by marking nests in the field where appropriate.

The presence of livestock and mixed farming systems has the potential to support varied and beneficial biodiversity. Manage grazing of sensitive habitats appropriately and include some fine leaved native grasses and legumes in your grassland.

Step 3 - Biodiversity Score

Indicator	Poor (0)	Medium (1)	Good (2)
Management			
Farm Management (d)	Biodiversity is only considered in areas of habitat and managed in isolation of other farming activities	Biodiversity is considered in farming operations	Biodiversity is a crucial part of the business and protected throughout the farm's activities

Case Study - Patrick and Brian Barker, EJ Barker and Sons, Suffolk



Effective habitat management has been a key part of LEAF Demonstration Farmers Patrick and Brian Barker's ethos for the past 10 years alongside optimising crop production. Attention to detail and consistent monitoring and management has reaped great rewards at EJ Barker & Sons, a 510ha cereals farm in Suffolk.

Squaring up fields, removing awkward corners, taking out wet areas, shaded headland and the worst shaped fields on the farm out of production provided the farm with a plentiful area of habitat. The management of these areas are focussed around two target species, the Grey Partridge and Great Crested Newts. This was done in the knowledge that, given the complex variety of needs from these two species many other species would benefit from their successful conservation.

The success of crops is measured by yield and Patrick does the same for farmland wildlife. **"Productivity of Barn Owls, butterflies, Great Crested Newts and wild flowers are all indicators of whether the environmental features that we are managing are working and producing."** If there is a change in population, the conditions of habitats are assessed in the same way as a growing season would be reviewed to see why a certain crop has yielded better than another.

Habitat management is kept simple at EJ Barker & Sons but Patrick is keen to optimise all efforts for the benefit of biodiversity. For example, Patrick has selected wild bird seed mixes that are appropriate for the soil type and ground conditions to optimise yield. Wild bird seed mixes, nectar flower mixes, grass margins and species rich grassland are all positioned to give birds using them protection from the weather and predators. The 48km of hedgerow at the farm is cut as late in the year as possible once the hedge has been exhausted of berries.

By following these principles within an Integrated Farm Management approach, the same level of care and consideration is given to environmental management as commercial crop production and Patrick is making the most of the opportunities that habitats at EJ Barker & Sons have to offer.

Step 4 – Be pro-active in your management of habitats and species

It is important to actively manage habitats in addition to preventing negative impacts. Biodiversity should be treated and managed like any other output on the farm, with a view to optimise outputs from inputs. Biodiversity can even be measured in the same way with the success of environmental features and conservation methods being measured by indicators such as productivity or “yield” of barn owls for example.



Assess the value of existing habitats and plan management and enhancements as appropriate. With this in mind, produce a 5 year action plan as part of your Landscape and Nature Conservation and Enhancement Plan. This should be completed in reference to your habitat map. You may choose to seek advice from external experts.

It is recommended that farm staff are actively involved in the planning of habitat creation and environmental improvement. The action plan and map will be useful resources to utilise with all staff and contractors to support engagement with, and understanding of, the features and management that is or will be carried out to protect and enhance biodiversity. Habitats should always be managed with knowledge of the species life cycle.

LEAF members can access a Landscape and Nature Conservation Audit and Enhancement Plan template on the website which can be useful as a central place to document monitoring and, among others, the following areas should be considered.

Margins

Ensure your management of margins is in line with relevant compliance requirements. Try to make the most of margins by ensuring all are actively managed and incorporate pollen and nectar and wild flower mixes where possible. Mixes often require regular treatment especially in the early stages of establishment. Consider conservation headlands around cropped fields and/or field corners.

Hedges

Where margins are next to hedges, try to provide a number of different species with a range of vegetation heights to provide a range of micro-habitats.

Time and plan hedge cutting on farm and avoid unnecessary trims. Hedges must not be trimmed during the observed nesting period and ensure trimming and management is only carried out more than every 2/3 years when it can be justified.



Watercourses

Monitor and clear watercourses as appropriate. Avoid clearing ditches during nesting periods. Ditch maintenance (cutting and clearing of ditch-side vegetation, re-profiling) should be restricted to one side of individual ditches in any one year to allow nature time to adjust. Maintenance must not be carried out during the bird nesting season. Try to have a range of watercourses and/or waterbodies of varying depths and flow speeds.

Birds

By carrying out the above measures or additional ones ensure “The Big Three” are provided for farmland birds.

- Nesting habitat
- Summer food
- Winter food

Invasive species

Monitor and manage invasive species. Take care to ensure correct identification and management of non-native species.

Habitats

In addition, ensure you actively manage in-field trees and orchards for the benefit of biodiversity. Farm buildings can also be important as roosting and nesting sites for bats and birds. Consider erecting bat and bird boxes, in particular in areas where buildings would previously have been more accessible to biodiversity.

Beetle banks are another important habitat that provide a refuge for predatory insects over winter. The banks are easy to establish and can be positioned so that normal cultivation can continue. In addition, they can act as corridors between areas of habitat and, if positioned correctly, help reduce soil erosion.

Step 4 - Biodiversity Score

Indicator	Poor (0)	Medium (1)	Good (2)
Management			
Habitat Management (e)	Habitats are assumed to help biodiversity	Habitats are managed specifically to aid biodiversity	The impact of habitat management is monitored by its effect on biodiversity



Enhancement

Step 5 - Enhance existing habitats and populations

Enhance the quality and functioning of your existing efforts and habitats and increase efforts and areas where possible. Ensure this fits with your Landscape and Nature Conservation and Enhancement Plan.

Consider innovative ways to further promote biodiversity. Take the same approach to managing your conservation as managing crops. Be innovative and use new techniques. Be precise: good conservation management is all about choosing the right measures, putting them in the right place and managing them in the right way.

Aim for bigger, better and more connected habitats across the farm to promote and protect biodiversity. Consider where you can create corridors for wildlife. Planning field margins effectively can be a good way to improve connectivity.

Provide a mosaic of different habitats to encourage a range of species across the farm. Encouraging different species will improve the overall ecosystem of the farm. This can be achieved even within specific areas, for example, consider the range of micro-habitats that can be created within a margin if species composition and management is sufficiently planned.

Set targets and timescales to improve your environment features in a similar way to business and market opportunity targets. Monitor and evaluate the impacts of your interventions on habitats and species and adapt your management accordingly.

Step 5 - Biodiversity Score

Indicator	Poor (0)	Medium (1)	Good (2)
Enhancement			
Habitat Planning (f)	There are no plans to improve habitats or enhance biodiversity	There are plans to improve biodiversity populations through more active management	There is an on-going plan to improve biodiversity populations through investing in new skills and techniques alongside the development of the business

Case Study - Charles Gallichan, Woodside Farm, Jersey



Woodside Farm is a 250 ha family owned farming business based in Jersey, growing LEAF Marque Jersey Royals alongside a range of other vegetables and salad crops. Production is both outdoor and under tunnels for local markets and export and they are a valued ASDA supplier.

"Making the environment better than when we took it over" has always been integral to the ethos at Woodside Farm both with regard to the owned and rented land. With this in mind the farm is managed with an Integrated Farm Management (IFM) approach and biodiversity is considered throughout farming operations. In addition to the many conservation measures carried out annually in accordance with Woodside's 5 year Landscape and Nature Conservation and Enhancement Plan, Charles Gallichan, the fifth generation owner of the business is particularly proud of the work they have done on the farm reservoir. The reservoir was installed in 2009 to store rainwater collected from farm buildings in order to provide irrigation water. The reservoir was a typical barren plastic lined reservoir, mostly devoid of wildlife, and in addition, problems with water quality began to arise due to algal blooms and pH issues. In 2013 a workable, affordable solution that tackled the water quality issue but also had the added benefit of turning a featureless farm reservoir into a haven for wildlife was found. Five 7m x 7m floating islands and 6 barley straw dispensers were put onto the reservoir. The islands are made of coir substrate and are planted with native long rooted plants. As well as filtering and retaining suspended solids, the root matrix has reduced the incidence of algal blooms through shade provision and its capacity to soak up nutrients thereby successfully improving the water quality.

Previously, the barren edges of the reservoir although adjacent to leek and broccoli fields were mostly devoid of vegetation and were of limited value to invertebrates. Therefore this area provided a great opportunity for improvement and was planted with species that would encourage beneficial insects to the area to feed on the pests found in crops in neighbouring fields.

The floating islands and margins provide a great habitat for insects and the insects provide food for birds. The islands themselves also provide landing sites for birds. As a result, bird population and species diversity in and around the reservoir has increased and includes 2 species on the Red Species list; House Sparrow and Lapwing and 6 on the Amber Species list; Tufted Ducks, Grey Heron, Little Egret, Dunnock, House Martin and Swallow. The improvements to the reservoir have been extremely effective in enhancing water quality and biodiversity, both of which have had a beneficial impact on the environment and crop production. These efforts, combined with many others around the farm have produced a business where biodiversity and production are truly working in harmony together.

Step 6 - Work with others

Working with others can help extend and maximise your understanding of the habitats and species within your business. Working with conservation and biodiversity groups, neighbouring farmers and the local community can bring further benefits.

Staff

Ensure all your staff are aware of Landscape and Nature Conservation and Enhancement Plan. Try to ensure advisers and contractors are also aware of specific plans as well as overall aims.

Local Farmers

Work with local and/or neighbouring farmers within your catchment to improve water quality and the health of the biodiversity within watercourses. Bordering and local farms can also help you to create larger and more connected habitats for specific species. Large and connected habitats will promote more stable populations and provide benefits that may not have been produced by efforts from a single farm. Increasing connectivity of habitats by linking up wildlife corridors between farms can reap further rewards.



Local Community and Interest Groups

Monitoring biodiversity is also an ideal opportunity to involve your local community. Hosting a farm walk and inviting local volunteers along (wildlife groups etc.) is an excellent way to gain interest, support and goodwill. It can also identify local experts with specialist knowledge who might be keen to help. It is definitely worth contacting local specialist groups who may be keen to come and carry out surveys on your farm particularly if there are species you are having difficulty identifying – there are some species which require a licence or specialist experience. You can often extend this involvement through getting your farm involved in specific studies or projects.

Local Schools



Other options are getting your local school and community involved. Specific monitoring projects are a good mechanism for this as well as one off activities. Engage the community through mechanisms like LEAF noticeboards to encourage them to understand and respect habitats on farm. Appreciate the value biodiversity and landscape management gives to people who come to the farm and communicate this as best you can. Open Farm Sunday and Open Farm School Days can be a great way to achieve this.

Step 6 - Biodiversity Score

Indicator	Poor (0)	Medium (1)	Good (2)
Enhancement			
Working with farmers (g)	The farm is managed in isolation of activities beyond the farm gate	Biodiversity is managed with reference to surrounding landscape and known activities	The farm is involved with other farms in specific projects to aid biodiversity
Biodiversity and Conservation groups (h)	There is no interest in having biodiversity groups on farm	Aware of groups or individuals that have been used in the past	Engage with local groups regularly on biodiversity projects
Local Community (i)	Do not engage with the local community	Engage with the local community generally via farm walks, Open Farm Sunday, Open Farm School Days and Noticeboards	Try to engage the local community and schools through specific biodiversity projects, in addition to more general outreach

Case Study - John and Simon Stott, Laund Farm, Lancashire



Over the past 10-15 years, John and Simon Stott have made a number of changes to the benefit of birds and other biodiversity. Laund Farm, Lancashire is a 243 ha beef and sheep farm and their mix of intensive grassland, rush pasture and semi-upland areas produce a rich mosaic of habitats where biodiversity can thrive.

Populations of lapwings and oystercatchers are of particular interest and a number of measures have been introduced to aid their protection. Ground is set-aside for lapwings and fields infested with rush are managed to create water scrapes for oystercatchers, curlews, redshank and snipe. Numbers of all species are monitored annually to assess the impact of environmental measures.

Hedgerow management is another key part of the conservation and enhancement plan. Hedges are valued for their benefit to biodiversity and also as a shelter for sheep. Three miles of hedgerow have been planted over the past 10-15 years. Management is crucial and a six foot gap between the hedge and the fence is maintained. Hedges are cut annually but John is careful that this is done as late as possible to ensure that birds can make the most of the spoils. As well as providing valuable habitats, hedges along with woodland edges, provide wildlife corridors enabling improved habitat connectivity across the farm.

Simon and John Stott work with a large number of outside organisations that help with on-farm biodiversity projects. The RSPB have been heavily involved and the Ribble Rivers Trust has helped protect on farm watercourses. The farm has hosted visits to demonstrate habitat creation and management to other local farmers and the local primary school is also regularly welcomed on farm with the children taking part in monitoring projects.

Simon and John Stott are passionate about the difference they are making to biodiversity at Laund Farm and through a number of targeted measures; they are seeing tangible improvements. Through harnessing the expertise from a range of external parties many different aspects of biodiversity are flourishing.

Case Study - Phil Jarvis, Hall Farm, Leicestershire



Hall Farm is The Allerton Project Farm. It is managed by Phil Jarvis and is a LEAF Innovation Centre. Their approach to an improved environment starts in the middle of the field and encompasses all aspects of farming. This strategy combined with strong local links is working well and biodiversity is flourishing.

The farm is 333 hectares of Denchworth and Hanslope clay, growing winter wheat, winter oilseed rape, winter beans and spring oats. Sheep graze 30 hectares of permanent grassland. The farm has 20 hectares of woodland and numerous streams and ponds within its boundaries.

There are a range of typical lowland habitats and features on the farm. These include, hedgerows, woodland, ditches, field margins and ponds. All of these habitats are managed to try and maximise their value for farmland wildlife.

Hedges are managed on a 20 year rotation which starts and finishes with hedge laying and coppicing. Every year the farm team lay and coppice around 250 meters of hedge. This traditional way to maintain hedges helps to rejuvenate the shrubs and has other benefits as it generates around 5 tonnes of woodchip which is put to good use in the bio-mass boiler in the visitor centre.

Several measures are in place across the farm to keep soil, nutrients, and plant protection products out of water in order to protect both aquatic and terrestrial wildlife. Ponds, ditches and streams are buffered with grass and wildflower margins and beetle banks are used to split steeply sloping fields. Both the buffers and beetle banks are excellent habitats for invertebrates which are the bottom of the wildlife food chain. The invertebrates provide a vital protein rich food source for farmland birds in the summer. In addition the invertebrates help minimise the farm's pesticide use as they feed on many of the aphids that would otherwise be the target of spray applications. The game and wild bird seed mixes are important sources of food for farmland birds in winter and the farm also practices supplementary winter feeding, scattering seeds on the farm tracks.

At Loddington, the management for wildlife is as intensive as the management for crops to ensure maximum wildlife benefit is delivered alongside well produced food.

How are you doing?

Now you have carried the Simply Sustainable Biodiversity Six Simple Steps, how did you do?

Complete the table opposite to get an idea of how well you are managing biodiversity. Revisit your score on an annual basis. These are the first steps to developing a more sustainable biodiversity strategy for your business.

Overall score for your business

Poor:	0 – 4
Medium:	5 – 8
Good:	9 – 12

Photocopy the sheet opposite for each farming year to monitor your progress

Your Biodiversity Score

Indicator	Score	Value		
	(a)	Year 1	Year 2	Year 3
Step 1				
Map	(a)			
Step 2				
Species Monitoring	(b)			
Priority Species	(c)			
Step 2 Total	(b+c)/1			
Step 3				
Farm Management	(d)			
Step 4				
Habitat Management	(e)			
Step 5				
Habitat Planning	(f)			
Step 6				
Working with farmers	(g)			
Biodiversity and Conservation Groups	(h)			
Local Community	(i)			
Step 6 Total	(g+h+i)/3			
Overall Total				

Further information

There is a wide range of information on how to improve biodiversity and habitat management. These are readily available for farmers, including:

www.leafuk.org for:

- LEAF Sustainable Farming Review (for LEAF Members only)
- Simply Sustainable Soils
- Simply Sustainable Water
- LEAF Green Box (for LEAF Members only)

- Farm Wildlife website: www.farmwildlife.info
- GWCT: <https://www.gwct.org.uk/>
- RSPB: <http://www.rspb.org.uk/>
- Big Farmland Bird Count: <http://www.gwct.org.uk/farming/big-farmland-bird-count>
- Convention on Biological Diversity: <https://www.cbd.int/>
- Conservation Evidence: <http://www.conservationevidence.com/>

References

- Beddington (2011) Foresight: The Future of Food and Farming
- Defra (2011) Water Usage in Agriculture and Horticulture Results from the Farm Business Survey 2009/10 and the Irrigation Survey 2010
- LEAF and Environment Agency (2010) Sustainable Drainage Systems (SuDS)
- MDC 2006 Effective Use Of Water On Dairy Farms
- Met Office 2012 www.metoffice.gov.uk/climate/uk/anomalygraphs/
- Moors for the Future (2012) www.moorsforthefuture.org.uk
- WMO (2012) WMO/UNCCD Press Release No.954

Join LEAF

LEAF (Linking Environment And Farming) promotes sustainable food and farming. We help farmers produce good food, with care and to high environmental standards, identified in-store by the LEAF Marque logo.

LEAF builds public understanding of food and farming in a number of ways, including Open Farm Sunday and farm visits to our national network of Demonstration Farms.

We work with farmers, consumers and the wider food industry - everyone can get involved – as a supporter, member, Demonstration Farmer or LEAF Marque grower.

For farmers – become a member, a Demonstration Farm or LEAF Marque farmer and show your customers you care about the environment

For consumers – support LEAF and buy food carrying the LEAF Marque logo, visit your nearest Demonstration Farm and get involved in Open Farm Sunday

For the industry – work together with LEAF on one of our exciting projects to bring farmers, consumers, researchers and industry partners closer together.

Interested in LEAF? Then join us and get involved at www.leafuk.org

About LEAF



LEAF (Linking Environment And Farming) is the leading global organisation delivering more sustainable food and farming. We work with farmers, the food industry, scientists and consumers, to inspire and enable sustainable

farming that is prosperous, enriches the environment and engages local communities. LEAF promotes Integrated Farm Management (IFM), a whole farm business approach that delivers sustainable farming.

Integrated Farm Management (IFM)

Integrated Farm Management (IFM) is a whole farm business approach that delivers sustainable farming. It uses the best of modern technology and traditional methods to deliver prosperous farming that enriches the environment and engages local communities. A farm business managed to IFM principles will demonstrate site-specific and continuous improvement across the whole farm.



The LEAF Sustainable Farming Review

The LEAF Sustainable Farming Review is a self-assessment, online management tool for LEAF members to help them farm more sustainably. It enables them to monitor their performance, identify strengths and weaknesses and set targets for improvement across the whole farm, covering the 9 sections of Integrated Farm Management. It is a very easy to use, practical resource to help farmers make more informed management decisions to drive their businesses forward - economically, environmentally and socially.

The LEAF Marque

The LEAF Marque is an assurance system recognising sustainably farmed products, based on LEAF's Integrated Farm Management (IFM) principles. All LEAF Marque certified farms are independently inspected to ensure they meet stringent criteria to demonstrate that food is being produced to high environmental standards, across the whole farm.



LEAF's Demonstration Farms and Innovation Centres

LEAF Demonstration Farms are commercial farms which host organised visits for a broad range of audiences. They communicate an understanding of IFM in order to encourage uptake by farmers, support from the industry and political awareness of sustainable food and farming. LEAF Innovation Centres are research organisations whose work supports the research, development and promotion of Integrated Farm Management.

Public Engagement

LEAF manages Open Farm Sunday, the single, most effective, supported day in the farming calendar for the industry to 'open their gates' and welcome consumers onto farms to discover the story behind their food and the vital role farmers have in caring for the countryside. We also manage Open Farm School Days which encourage school children out onto farms to learn more about where their food comes from and how it is produced.

Visit www.farmsunday.org for more information.



Let Nature Feed Your Senses delivered sensory rich farm visits to people with disabilities of all ages, older people and people who live in some of the most disadvantaged areas of England. Visit www.letnaturefeedyoursenses.org

Speak Out – the LEAF communications initiative

LEAF's 'Speak Out' initiative encourages farmers to improve their communication skills and provides them with the know how to explain 'what they do and why they do it.' Speak Out is a self-help CD-Rom that has already helped thousands of farmers tell their story. LEAF also arranges communications training events for farmers.



Membership

LEAF is a charity and membership organisation. We help our members' to farm more sustainably through our membership tools and services. These include, the LEAF Sustainable Farming Review, the Integrated Farm Management Guide, the IFM Bulletin, Simply Sustainable Soils and Simply Sustainable Water booklets, access to our online Information Centre as well as technical case studies, events and training videos.



ASDA

LEAF

Linking Environment And Farming
Stoneleigh Park, Warwickshire, CV8 2LG

T: 024 7641 3911 E: enquiries@leafuk.org
W: www.leafuk.org

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LEAF is a company limited by guarantee
registered in England number: 3035047