

## **Soil Association- How Organic Farming Delivers Biodiversity**

### **The biodiversity benefits of organic farming come under three broad headings:**

- (i) the enterprise mix (mixed livestock and cropping instead of specialisation; crop rotation instead of mono-culture etc.),
- (ii) the treatment of the cropped area (the avoidance of agro-chemicals, the less intensive approach etc.), and
- (iii) the boundary features (field margins, more and larger hedges etc.).

### **But, what is the origin of these benefits?**

Organic farming is a particular *whole farm* "systems" approach. It is often discussed as a collection of different practices, but organic farming is actually the whole *package* of the approach and all the individual practices.

For a start, organic farming is based on a set of principles, for example:

- ? a holistic approach to farming (instead of addressing problems individually),
- ? the creation and maintenance of conditions that positively nurture the health of the crops/livestock (instead of solely treating the symptoms of problems, eg. applying chemicals), and
- ? the harnessing of natural processes (instead of relying on artificial inputs).

Thus, for example, agro-chemicals are avoided and instead alternative practices based on these principles are used. Many of these benefit biodiversity. Indeed, many of the agricultural practices of organic farming involve the positive use of biodiversity (through the soil, field margins, hedges etc.), thus making the conservation of biodiversity an integral part of the farming system. For example, the soil is treated as a living entity not simply as a substrate for crops to grow in.

The "standards" for organic farming developed long after organic farming had been established as a system, but are now used as a template and guide for the practice of organic farming. Some practices are obligatory, others are "recommended". With the latter, many are the most practical organic approach and so are also the standard practice for that issue. In addition, there are special "conservation" standards to ensure that specific conservation objectives are addressed in more detail.

Some of the biodiversity benefits of organic farming can be directly linked to particular standards (eg. avoiding the use of agro-chemicals, the use of grass leys), others are an indirect result of the standards (eg. mixed crop and livestock farming, mixed spring and autumn sowing), and yet others are the result of the farmers applying the principles and approach of organic farming in a way tailored to their situation and for issues and to a detail not dealt with by the standards.

Thus, the range, degree and quality of the benefits of organic farming is delivered by the whole package of the approach, not simply by the standards.

## ***Examples of Organic Farming Practices That Benefit Biodiversity***

Organic farming relies on different farming practices to conventional regimes. Since the whole approach is based on using natural processes positively, rather than combating 'negative' effects, many of these are also important for biodiversity:

### ***1. Mixed Farming***

The majority of organic farms have both crops and livestock. This provides a range of wildlife habitats across the farm area, with a variety of food sources, food sources throughout the year, and also a variety of nesting habitats. For example, different invertebrate and seed sources are found on arable and grassland areas. In conventional farming, though mixed farming was once the norm, it has now become standard practice for farms to be specialised in either livestock or crop production.

### ***2. Crop Rotations***

Rotations are required practice for all organic arable production and form an integral part of the system. They are a key means of achieving pest and weed control, and the practice means grassland areas (and thus a mixture of wildlife habitats) are introduced to areas of predominantly arable production. In conventional farms, crop rotation is carried out now in just a minority of farms; mono-culture is now common.

### ***3. Spring Sowing***

Spring sown crops supply important nesting habitats for ground nesting birds and the "stubble" over winter provides important food sources (weeds and grain) for birds. Spring sowing is very common practice on organic farms. In contrast, it has largely died out on conventional farms as autumn sowing produces higher yields. Even when spring sowing is carried out on conventional farms, the fast growth rates from the use of nitrate fertiliser mean it is hard for nests to be established.

### ***4. No use of Synthetic Pesticides or Herbicides***

The avoidance of agro-chemicals use is the best known feature of organic crop production systems. It means there are much higher levels of invertebrates and wild plants that forms the base of food chains and support natural predators.

### ***5. Maintenance of Trees, Hedges and Fields Margins***

The organic standards protect and encourage the good management of these farm habitats. However, they are anyway an important part of organic farming through the need to maintain the habitats of natural predators, such as spider, birds and beetles, for pest control purposes. A large amount of non-crop habitats have been removed on conventional farms, for example, up to a third of hedgerows since 1945.

### ***6. Green Manuring***

This is the ploughing in of unharvested crops for fertility building/retention and is valuable for supporting invertebrate populations. It is common practice in

organic systems but occurs negligibly in conventional farms.

### ***7. Undersowing***

This is the sowing of grass or clover under a cereal crop so that it is already established when the cereals are harvested. It increases the level of biodiversity that can be supported in a cropped area and after the harvest it support seed bearing wild plant species. Though once widely used, it is now used rarely in conventional farms.