

Ecological infrastructures long-lasting in wildlife food resources

Goal	To guarantee trophic resources for pollinators, bees, bumblebees and other insects
Target group	All farms of any production type can apply this measure.
Description of the measure	<p>Improvement of hedgerows and buffer strips in order to gain ecological complexity and food resources for wildlife during the maximum amount of time.</p> <p>This includes all kind of resources such as pollen, fruits as well as ecological niches for species and plants.</p> <div style="display: flex; justify-content: space-around;">   </div> <p>Pic. 1: Flower strips in an olive crop. The species richness of the floral strip and a sufficient width ensure the availability of food and shelter for the auxiliary fauna. Pic. 2: Buffer strip in an intensive tomato crop. In an intensive crop, the buffer strip brings richness and variety of habitats to the landscape.</p> <p>In the past, plots were generally surrounded by accessory plants providing protection for the crop and/or edible fruits for farmers. Some of these species are considered forgotten/traditional orchard trees, some examples are: <i>Sorbus domestica</i> (sorolla/serbal), <i>Crataegus azarollus</i> (acerolas) / <i>Crataegus monogyna</i> (hawthorn), <i>Mespilus germanica</i> (níspero europeo), <i>Ficus carica</i> (higueras), <i>Ziziphus jujuba</i> (azufaios), <i>Ligustrum vulgare</i> (privet) etc. These plants also provided shelter and food resources for wildlife, as well as semi-natural habitats with wild plants with diverse flowering periods (<i>Crataegus</i>, <i>Viburnum</i>, <i>Rubus</i>, etc.).</p> <p>Farm intensification lead to the simplification of plots and the loss of these structures.</p> <p>Autochthonous species should be selected in order to increase the complexity of hedges and flower strips, trying to include plants with different flowering dates.</p> <p>For detailed step-by-step instructions please check out the Action Fact Sheet on Flower Strips and Hedges.</p>
Suitable sites	<ul style="list-style-type: none"> ▪ Whole field ▪ Sites could be selected in order to connect biotopes with each other and can then be used as a step stone ▪ Margins of fields or woodlots ▪ <u>Not suitable</u> at sides with wild herbs of high value or sides with potential risk of problem weeds

<p>How a good implementation looks like</p>	<ul style="list-style-type: none"> ▪ Flowering aspects can be found even in the second or third year of implementation ▪ High diversity of flowering and fruit species. (at least 4 flowers specie after the 1st year) ▪ Natural, autochthon seeding mixtures should be used
<p>Effects on biodiversity (ecosystems, species, soil biodiversity)</p>	<div style="display: flex; align-items: center;">  <ul style="list-style-type: none"> ▪ Shelter and food resources for wildlife ▪ Semi-natural habitats with wild plants with diverse flowering periods that provides flowers, nectar, and pollen for wild pollinators, honey bees and other insects ▪ Habitat that supports useful macro- and microorganisms ▪ Provision of hibernation habitat for insects in parts which retained over winter </div> <hr/> <div style="display: flex; align-items: center;">  <ul style="list-style-type: none"> ▪ Breeding and foraging habitat for field birds such as partridge, corn bunting, quail ▪ Provision of foraging habitat for birds in parts which retained over winter ▪ Areas of refuge for reptiles </div>
<p>Other positive effects/benefit for the farmer</p>	<ul style="list-style-type: none"> ▪ Increased density of pollinators. ▪ General increase of beneficial organisms reduces the need of pesticides. Many predators feeding on insects hunt on the field within a radius of 30 m from their retreatment area ▪ Reduction of soil erosion ▪ Better biological control ▪ Crops protection against winds or frozen
<p>Indicator/key data</p>	<ul style="list-style-type: none"> ▪ Length of hedges improved ▪ Diversity of flowering species with different flowering dates, ▪ Diversity of fruit species with different fruit dates ▪ number of trees/shrubs/herbs planted / sown
<p>Risk and further recommendations</p>	<p>Important to know: Optical and ecological occurrence of flowering areas can be quite different. A certain amount of grass is tolerable.</p>
<p>Timeframe (When to start a measure and anticipated time for implementation)</p>	<p>For the Mediterranean region, the time of sowing is dependent on favourable weather conditions for germination, which is in general in autumn. In temperate regions, sowing periods depend on the seed mixtures, but mainly during spring. For detailed instructions, please check the Action Fact Sheet on Flower Strips. The main issue is to ensure a well-prepared seedbed consisting of friable moist soil, as the basis of a good sown.</p> <p>When punctual mowing is needed, it should take place as late as possible in the year in order to allow also late-flowering plants to ripen fruits (late September).</p>

Additional special resources/ equipment/ skills needed	
Reference	<ul style="list-style-type: none"> ▪ www.navarra.es/NR/rdonlyres/86815038-FE6D-404A-9A29-3C27FCCBF013/398080/SistemadeAltovalorNaturalCultivosmediterraneosenla.pdf ▪ http://awsassets.wwf.es/downloads/agricultura_donana.pdf

Further information: [Knowledge Pool](#)

This Action Fact Sheet belongs to the training package for advisors of standard organisations and companies and was developed within the project LIFE Food & Biodiversity (Biodiversity in Standards and Labels of for the Food Industry). The main objective of the project is to improve the biodiversity performance of standards and sourcing requirements in the food industry by helping standard organisations to integrate efficient biodiversity criteria into their schemes and motivating food processing companies and retailers to include comprehensive biodiversity criteria into their sourcing guidelines.

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