

BROCHURE

3 SUSTAINABLE PRODUCTION PRACTICES

PROTECTING BIODIVERSITY



This brochure is made available by the COLEAD to fruit and vegetable producers and exporters in the ACP (Africa, Caribbean, Pacific) countries. The illustrated procedures on the following pages are meant for growers facing a loss of biodiversity in their environment that poses a threat to the sustainability of their crops.

This brochure brings together the key messages and procedures to be followed to protect the biodiversity of the environment by maintaining an economically viable level of crops.

Brochures on other subject areas are also available from (www.colead.link).

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INTRODUCTION

Biodiversity means all forms of life from the animal or vegetable kingdoms present in the environment (this includes bacteria and fungi). It is the diversity of species that makes agricultural crop systems more stable, resilient and sustainable. Biodiversity is therefore a guarantee of crop stability and resistance to diseases, pests and environmental disturbances (climate change, erosion or soil salinisation).

Agriculture contributes to biodiversity when it increases habitats favourable to species living in open spaces through managed land clearance. Biodiversity is responsible for the variety cultivated plants and abundance of livestock, which form the basis for agriculture. But agriculture also contributes to rapid and sometimes irreversible reductions in biodiversity due to the heavy use of fertilisers and pesticides leading to the disappearance of numerous species. This can be caused by destruction of natural habitats (wetlands, wasteland) or the colonisation of environments that are fragile and not conducive to crops (erosion sensitive soils), or else by the introduction of foreign species or overexploitation of the environment.

It is important to conserve biodiversity in agriculture for the many services it renders, even if the farmer may not be aware: increased productivity and profitability thanks to insect pollinators and pest-control insects, the genetic resources provided by wild plants; the provision of wood, medicinal plants, fruits and other food supplements rich in minerals and vitamins; the contribution of organic matter to soils; runoff and erosion protection; water purification, etc. All these aspects contribute to greater food safety.

To maintain sufficient biodiversity, environmental protection and the adoption of good practices are the key priorities for farmers and increasingly important to consumers. Farming activities must be appropriate. This means that:

1. **Suitable good farming practices must be chosen to reduce the adverse impacts on flora, fauna and natural resources.**
2. **The use of agrochemical products must be reduced, and practices and treatments that deplete soil life must be avoided.**
3. **Uncultivated areas must be preserved since they are a safe haven for many species that contribute indirectly to production.**

LIST OF KEY MESSAGES AND PROCEDURES FOR PROTECTING BIODIVERSITY

CHOOSE FARMING PRACTICES THAT REDUCE THE IMPACT ON THE ENVIRONMENT

1. Conserve and cultivate local varieties and grow local breeds that are often more resilient and resistant to vagaries since they are more suited to local conditions.
2. Maintain species diversity in cultivated areas by keeping parcels of land surrounded by hedges and by adopting crop rotation, intercropping and associated crops.
3. Avoid destroying natural habitats by land clearance and the use of fire to manage weeds, which lead to the disappearance of beneficial fauna and flora.

REDUCE THE USE OF AGROCHEMICAL PRODUCTS, AND AVOID PRACTICES AND TREATMENTS THAT DEplete SOIL LIFE

1. Opt for the use of manures, compost, liquid manures and other products made from recycled organic waste.
2. Avoid the use of synthetic pesticides as much as possible and opt for more ecological alternative solutions that are more friendly to beneficial auxiliary insects.
3. Prohibit deep ploughing and physical soil treatments that harm the structure and biological balance of soils, in particular those that are poor and fragile.

PRESERVE UNCULTIVATED AREAS

1. Conserve the ponds, ditches and areas close to their natural state located between land parcels to foster the development of predators that control crop pests.
2. Conserve and maintain hedges and other wind breaks to serve as safe havens for a whole series of animals, birds and insects.
3. Plant wildflower strips to foster the presence of pollinating insects and the reproduction of other predator insects and mite species.

CHOOSE FARMING PRACTICES THAT REDUCE THE NEGATIVE IMPACT ON THE ENVIRONMENT



VARY CROPS AND CONSERVE LOCAL VARIETIES AND BREEDS

- Avoid growing a single species or rearing a single breed on the same ground.
- Use local varieties and breeds that are the best suited to the environment.
- Select varieties and breeds that are the most resistant to aggressors and climatic and health vagaries.

This ensures production even if there are unforeseen changes in the environmental conditions or there is an epidemic.



MAINTAIN SPECIES DIVERSITY IN CULTIVATED ENVIRONMENTS

- Maintain the division of land into parcels separated by hedges or ditches.
- Apply crop rotation that favours soil quality.
- Interplant crops and provide cover so that soil is not left exposed.
- Opt for associated crops.

Diversifying production reduces the risks and ensures an income even when the harvest is less good.



REDUCE TO A MAXIMUM THE USE OF FIRE IN AGRICULTURAL PRACTICES

- Do not use slash and burn agriculture.
- Avoid fires late in the season or that are uncontrolled.

Fire destroys weeds but also beneficial species. It reduces the quantity of precious organic matter and in particular the flora and fauna necessary for soil life.

USE LESS AGROCHEMICAL PRODUCTS AND FEWER SOIL TREATMENTS



USE ORGANIC MANURE RATHER THAN CHEMICAL FERTILISERS

- Compost organic waste and dig crop residues and weeds into the soil.
- Use the mulching technique.
- Reduce fertiliser applications by conducting analyses of leaves and the soil to adjust applications.

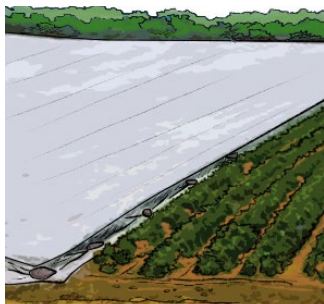
This makes it possible to reduce the cost of fertilisers which, if applied in excess, can result in diseases and the proliferation of nuisance species. This contributes to the biological balance of the soil.



USE LESS PESTICIDES

- Apply the principles of integrated pest management and biological control.
- Avoid spraying hedges and uncultivated areas.
- Opt for alternative methods and products with a low impact on the environment.
- In the last resort, use phytosanitary products, but choose those that are selective and are friendly to beneficial insects.

Phytosanitary products may destroy beneficial species either through intoxication or by destroying their food source.



AVOID DISTURBING THE SOIL AND FAUNA AS MUCH AS POSSIBLE

- Do not practice deep ploughing.
- Reduce soil treatments (fumigation, spraying or solarisation) that create a “biological void”.

This makes it possible to conserve soil structure, guarantee resistance to erosion, save water and balance nutrients.

PRESERVE UNCULTIVATED AREAS



CONSERVE OR RESTORE ENVIRONMENTS CLOSE TO THEIR NATURAL STATE

- Conserve uncultivated areas and try to ensure that they are interconnected.
- Leave natural hedges undisturbed, install hedges and grass strips along the edge of land parcels.
- Avoid over-heavy felling and pruning of trees.

This helps prevent erosion, reduce the transfer of pesticides to water courses and fosters an increase in beneficial insects.



CONSERVE AND MAINTAIN HEDGES AND OTHER WIND BREAKS

- Maintain hedges and wind breaks (2 to 3 times every 5 years).
- Leave cut trunks and branches on the ground to serve as a safe haven for animals.
- Do not systematically remove plants considered undesirable from the base of hedges.

Weeds at the foot of trees and hedges shelter a wide variety of fauna to be preserved.



PLANT WILDFLOWER STRIPS

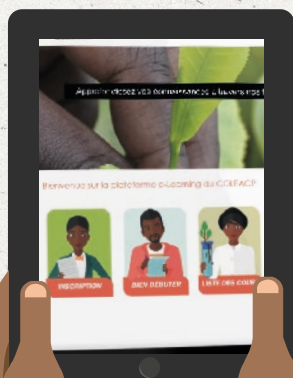
- Sow a mixture of 20 to 40 species of local flora with a low density.
- Do not treat this strip with fertiliser.
- Mow after the bird nesting season.
- Mow the wildflower strip from the centre outwards to give wildlife the possibility to escape.

Wild flowers provide shelter and food for beneficial insects.

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