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Increasing the number of species grown on farm: how many species and how well mixed

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Intercropping provides a good means by which more species can be grown on a farm: by mixing two or more species in the same field as part of annual cropping. In general, more species and greater diversity leads to greater productivity and resilience as long as components are well matched. The choice of species to include in an intercrop mixture is determined by the purpose of the intercrop such as to solve a specific agronomic issue or to enhance resilience to uncertain weather conditions.

The number of components and their density might be increased over time and space. For example, if the aim is to cover the ground to suppress competitive weeds, it may be desirable to grow a green understory (undersowing and living mulches) of complementary species to cut out light falling onto the soil. Diversity can also be included at other points during the rotation, for example in diverse leys between cash crops.

Increasing the number of species in a mixture can increase the complexity of sowing, managing and harvesting the crop. Relay intercropping (growing two or more crops that only overlap partially in their growth cycle and can be sown and harvested separately) or increasing the number of varieties of each crop in the mixture provide further, simpler, opportunities for crop diversification.

Spatial arrangements are important to consider alongside diversification over time. A completely homogeneous mixture of species might not be needed to reap the maximum benefits of intercrops. Studies suggest that patchy mixtures are as or more effective for disease control as homogeneously mixed intercrops. However, thorough mixing might be more desirable in legume-based mixtures where the aim is to reduce inputs of nitrogen fertiliser, increase soil phosphate availability for the companion crop and provide scaffolding for the legume crop. In this case, the benefits will be greatest if the legume and its companion crop are intimately associated.

> To learn more about crop diversification options visit: cropdiversification.eu

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