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Potential of small-landscape elements to enhance the presence of pollinators and improve biodiversity

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CHALLENGE

Enhancing ecosystem service provision in farmland landscapes has become crucial in recent years to not only boost food production, but also to improve biodiversity and soil health. Features such as field margins or strips can aid in bolstering beneficial invertebrate abundance and diversity, such as pollinators and natural pest control agents. As part of exploring plant trait-based research to design annual plant communities, their potential effect on pollinators and biodiversity was also explored.

SOLUTION

Annual plant communities have the potential to provide resources for beneficial invertebrates such as pollinators. It is important to investigate which plant communities and species have the greatest potential impact on beneficial invertebrates. That can also be achieved by using communities designed specifically bolster beneficial taxa. The best way to assess these communities is by observing pollinator and natural pest control species interactions with the plants within each community. Counts were conducted on a fortnightly basis, however weekly observations during the flowering season would be best practice. This allows us to determine which plant species beneficial invertebrates are interacting with the most, and which communities are attracting the most beneficial species.

OUTCOME

Through systematic invertebrate surveys, we were able to identify specific plant communities and species that had a significant effect on beneficial invertebrates. Our results demonstrated that the communities designed either specifically to promote beneficial invertebrates or multifunctional communities saw a significant number of insect- plant interactions in the same year as the communities were sown.

PRACTICAL RECOMMENDATIONS

Based on the findings of the current research, the use of annual wildflower communities designed to bolster specifically beneficial invertebrates, or both these and soil and water management, can be recommended to boost invertebrate abundance and diversity. These communities could also contribute to increase the flora diversity within cultivated landscapes. These features are unique in nature as they can provide flexible and movable communities that can be used in a targeted manner, rather than as a static feature (e.g. perennial margins).

About CROPDIVA

CROPDIVA wants to put 6 underused arable crops back in the fields:
oats, hull-less barley for human consumption, triticale, buckwheat, faba beans and lupins.
27 European partners are joining forces to enhance agrobiodiversity in Europe.
They will achieve this by focusing on crop diversity and creating local value chains.

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