

Book of Abstracts



ECOLOGY – MEETING THE SCIENTIFIC CHALLENGES OF A COMPLEX WORLD

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of Germany, Austria and Switzerland

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Improving the ecological impact of maize cropping through sown wildflowers strips

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The enlargement of maize cropping within energy cropping systems among others is widely discussed as major threat to weed and wildlife biodiversity in Germany. The two main reasons for the negative impact on various biodiversity compartments are the late soil tillage date and the lack of weeds, flowers or vegetation structure at the early growing stages of maize. We developed a new cropping system for maize based on strip-till and band spraying technologies. Wildflowers were sown between the future maize rows after harvest of the last main crop in the year before. With these wildflower strips we wanted to avoid late tillage and provide flowers and vegetation structure on maize fields. We have conducted field trials at two sites in Germany, where the agricultural feasibility, ecological and yield impacts have been analysed. Within these trials the following five factors have been tested: i) two wildflower mixtures, ii) three cover crops for establishing the wild flowers, iii) two widths for the wildflower cover crops, iv) two widths for the wildflower strips, and v) two widths for chemical plant protection treatments. We present the results of these field trials with special regard on the agricultural feasibility and the ecological effects of the new cropping systems using conventional maize cropping as reference. The results show the successful establishment of the wildflowers strips between the maize rows. Flowering diversity and duration was ten times higher than in conventional maize crop stands and lasted the whole cropping season. Weed species diversity was elevated 3–4 times in the new cropping systems. Positive implications on pollinators could be proved. A yield reduction of 30 % was observed, but it could not be related to the wildflower competition alone. The management of spontaneous weeds needs some further improvement.