

Farm 'weeds' have crucial role in sustainable agriculture

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Plants often regarded as common weeds such as thistles, buttercups and clover could be critical in safe guarding fragile food webs on UK farms according to Researchers funded by the Biotechnology and Biological Sciences Research Council (BBSRC).

Published tomorrow in *Science*, researchers from the University of Bristol detail the interactions that occur between the different food webs commonly found on farms throughout the UK and the robustness of these interactions to [species loss](#). In one of the first studies to look simultaneously at multiple types of food webs, the researchers found that some plants such as thistles, cow-parsley, clover and buttercups were disproportionately well linked to animals through the [food web](#).

The research also showed that bees, butterflies and other [pollinators](#) are more susceptible to changes in their environment making them more fragile than other networks. This research highlights the importance of ensuring an agri-ecosystem approach is taken in land management practice to enhance biodiversity on UK farmland.

Professor Jane Memmott, from the University of Bristol, who led the study, explains: "If ecologists, [land managers](#) and policy makers want to manage farmland diversity, they need to understand the way species are linked to each other, since these links can have a huge impact on a community's response to species loss, species restoration and the provision of [ecosystem services](#) such as pollination and pest control."

Over two years, Professor Memmott and her team of looked at 1501 unique interactions between a total of 560 organisms on one 300 acre farm in Somerset. They found that some groups of animals were more sensitive to the loss of plants than others and that what was bad for one group of animals was not necessarily bad for others.

Dr Michael Pocock, who was involved in running the research, explains why their findings offer good and bad news for biodiversity: "We already know that some wildlife groups are declining on our farms such as pollinators and birds. Our research suggests that focussing on the sustainability of one group of animals may not bring benefits to others, however, we did find that restoring particular plants such as buttercups, thistles and clover could, theoretically at least, rapidly increase biodiversity across the farm."

Dr Darren Evans, also involved in the research, added: "With over three-quarters of the land area of the UK under agricultural production, we hope our findings will encourage land managers to consider food webs and other ecological networks as a practical tool for managing biodiversity on farmland."

Professor Douglas Kell, BBSRC Chief Executive said: "Global food security is one of the major challenges facing us all this century and the big question is 'how do we feed a rapidly rising global population sustainably?' Drawing on expertise from across the bioscience community is crucial in order to set about answering this. This research highlights the crucial importance of understanding our agricultural environment to ensure we protect biodiversity and harness its natural capacity to aid sustainable agriculture across the UK and beyond."

Provided by Biotechnology and Biological Sciences Research Council

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