Monocultures of crops such as rapeseed can have a detrimental impact on biodiversity | Photo source Irina Iriser on Unsplash

RESEARCH SHOWS FIELDS PLANTED IN STRIPS ARE BEST FOR BEES

AGRICULTURE & ENERGY

Fields planted in strips of different crops support insects better than conventional farming methods

Spotted: Monoculture—growing just one type of crop in a field at a time—allows farmers to use machinery and increases the efficiency of planting and harvesting. However, it also depletes soil nutrients and insect species, while increasing the risk of disease and pest outbreaks.

To find alternatives to monoculture, researchers at the University of Göttingen and Kiel University, in Germany, have conducted research that demonstrates that planting in narrow fields with many edges helps retain a much wider variety of insect species. In the pilot project, wheat and rapeseed were cultivated in alternate strips as a mixed crop. The crops were planted next to each other in 36-metre-wide stripes.

The combination of crops allows insects to have a 'complimentary diet' and not only supports wild bees, but also birds. In fact, the greater variety of insects on the stripped fields supported around twice as many bird species as on monocultures. The greater insect diversity also means that no single species can get out of control, leading to a decrease in pests like cereal aphids and rapeseed beetles.

Researcher ReTeja Tscharnke, from the University of Göttingen, explains, "Small fields or stripes mean that more species can live in these fields because two different resources are close together. This lures different insect species into the field." Gunnar Breustedt, who led the project at Kiel University, adds that, "Strip farming is offered here as an alternative [to monoculture]. In this way, insects can be supported, without making food for humans more expensive or in shorter supply."

As the world seeks new ways to adapt to global warming, developing ways to increase biodiversity naturally, while maintaining agricultural efficiency will grow more urgent. Some of the innovations in this space recently covered by Springwise include food additives made from duckweed that could eliminate the need for fertilisers and using sound to disrupt harmful locust swarms without chemicals.

Written By: Lisa Magloff

23rd June 2022

Takeaway:

While monoculture makes it possible to farm agricultural land efficiently and relatively cheaper, it comes at a large cost. As the landscape becomes more uniform, insects that are dependent on variation disappear. This is then followed by the disappearance of species that live on those insects. The end result is a sterile area dependent on chemicals and additives in order to grow food. As concerns grow about the environmental effect of monocultures and the loss of diversity, solutions like planting in strips could provide a low-cost way to promote biodiversity without lowering yields. In fact, the researchers expect no more than a 5 per cent reduction in yield when using this method over conventional mono-cropping.