Science Societies

Genetic Variation in the Benefits Cover Crops Provide Cash Crops

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Researchers found that the domestication history of peas, shown here, has a significant impact on soil properties when peas are used as cover crops. Image by Jamain via Wikimedia Commons and published here under this license: https://creativecommons.org/licenses/by-sa/3.0/legalcode.

Cover crops improve crop yields by providing a range of ecological benefits, from soil protection to weed suppression. Some of these benefits may result from plant–soil feedbacks. Many studies of cover crops have focused on comparing traits among different species or species mixtures, but few have investigated differences in cover cropping traits within a single species, such as peas.

Researchers at the University of Vermont investigated the impact of a diverse set of field peas (*Pisum sativum*) on corn yield. They measured the effects of modern pea cultivars, pea landraces, and wild peas on corn yields, soil chemistry, and microbial community diversity. Their findings indicate that modern pea cultivars had the most positive impact on corn yields as well as on soil levels of nitrogen, carbon, and manganese. There were no significant differences in root-associated bacterial communities among the different types of peas. However, pea landraces recruited more diverse fungal communities than either wild or modern cultivars.

The results demonstrate that there is variation among field peas in cover cropping traits, which can be harnessed to breed improved cover crops. This variation within species is essential for breeding better cover crops.

Adapted from

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