Cover Crops

Soil Health & Fertility

Researchers at Illinois State University are studying how cover crops can capture and store carbon dioxide in the soil and how they can impact the soil microbial community.

Researchers from the Department of Agriculture and the School of Biological Sciences have been monitoring the soil in experimental field plots that were established in the Fall of 2020. Three cover crops were used in these plots: cereal rye; pennycress; and a pea, clover, radish, and oat mix. Soil samples collected in Fall 2020 and Spring 2021 showed that cover crops can increase the amount of organic matter present in soils. In just one field season, cover crops begin to build organic matter in the top layers of soil. Soils sampled again in Fall 2021 to assess the soil microbial community showed that microbial diversity changes throughout a soil profile, with greater microbial diversity near the soil surface. The fall samples also showed that cover crops can have a lasting impact on the microbial community, even after a cash crop has been planted in between. Samples collected in the spring showed that a cover crop mix results in a more active microbial community than single cover crops.

Cover crops can play an important role in preserving the soils of our croplands. Living plants can be used to protect and enhance soil fertility during a time of year when fields would otherwise be bare. By planting cover crops, farmers can be sustainable stewards of their farmlands and positively impact the overall health of soils.

Cover crops can positively impact the overall health of soils and be used to jumpstart soil biological processes.

- Suppress weeds and nematodes
- Increase movement of water through the soil
- Reduce erosion
- Reduce soil compaction
- Decrease nutrient loss
- Facilitate nutrient cycling
- Increase soil organic matter
- Enhance the soil microbial community

Help researchers at ISU by completing a brief survey about your thoughts on cover crops.

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For more information on cover crops and how you can implement them on your farm visit your local USDA Service Center

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