Science Societies

Farms need green and animal manure

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Rolling-crimping rye cover crop and planting soybean in a one-pass operation. Photo courtesy of Erin Silva, University of Wisconsin–Madison.

Nitrogen fixation by legumes, animal manure, and other biological-driven processes provides the base for soil fertility on organic farms. Green manure crops are grown as a source of nitrogen while animal manure applications are made to supply a variety of crop nutrients including nitrogen and phosphorus.

In a recent article published in *Agronomy Journal*, researchers reviewed the scientific literature to determine if adequate nitrogen was supplied to organic field crops through the growth of green manures and application of animal manures.

They found that green manure crops generally met the nitrogen needs of subsequent field crops when grown in warm humid regions but did not meet nitrogen needs in cool and sub-humid regions. Animal manure applications met nitrogen needs but required careful management to avoid overapplication of nitrogen and phosphorus.

Additional research is needed to better understand the release of nitrogen from green manures and animal manures in organic field crop systems. Further research also should explore the advantages of combining grazing systems with field crop operations to capitalize on the benefits that livestock can add to rotations. Stronger communication and coordination among researchers will aid in efforts to solve the soil fertility challenges faced by organic farmers.

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Carr, P.M., Cavigelli, M.A., Darby, H., Delate, K., Eberly, J.O., Fryer, H.K. ...Woodley, A.L. (2020). Green and animal manure use in organic field crop systems. *Agronomy Journal*, *112*. **https://doi.org/10.1002/agj2.20082**

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