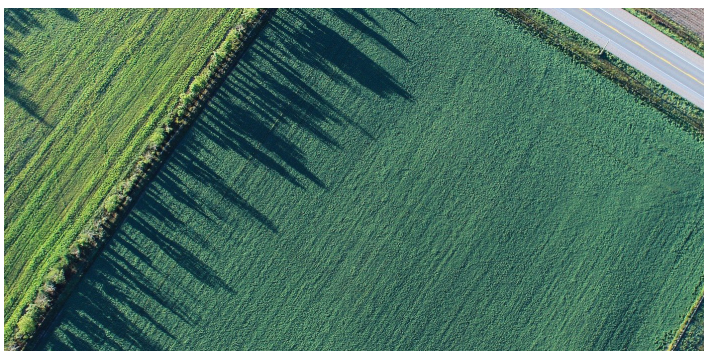


Crop Rotation

Because different crops have different nutritional needs and tend to be vulnerable to different diseases and pests, rotating what crops are grown in a specific location can reduce soil depletion and the need for as much pesticide and fertilizer use. When done correctly it can also reduce soil erosion, enhance biodiversity, and improve the quality as well as fertility of the soil. It also increases soil organic carbon.

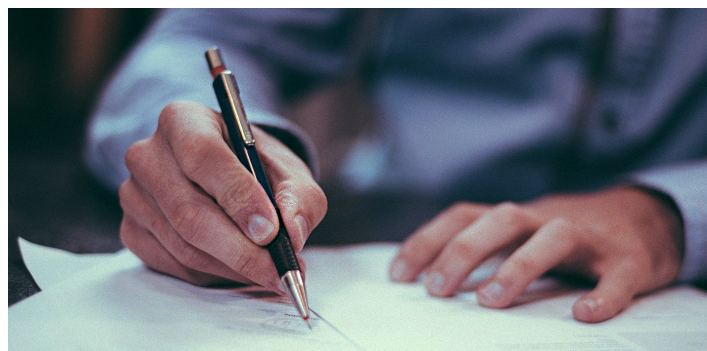
When combined with no-till or low-till practices, this can have a significant impact on carbon sequestration with positive impacts on reducing the rate of climate change.

Although the practice of crop rotation varies, the principles are universal: alternate crops with different characteristics. For example, one season you might plant crops that fix nitrogen in the soil; the next season plant crops that use a lot of nitrogen. You could also alternate sod-based crops with row crops, crops that attract certain insects with those that do not, or weed-suppressing plants with those that do not suppress weeds. Many farmers rotate several different crops in succession.



Benefits of Crop Rotation

- Increases soil quality and fertility
- Improves soil microbiology
- Increases soil organic carbon
- Breaks pest cycles
- Amplifies the benefits of low-till or no-till
- Increases biodiversity
- Reduces need for pesticide and fertilizer
- Diversified crops lower financial risk
- Increases carbon sequestration



Potential Considerations

- Planning is required to meet your goals
- Time to see what works on your farm—there is no universal solution
- Learning a new cropping system
- Additional equipment might be needed for additional crops
- Soil testing to help you analyze results
- Might give lower financial returns at times
- Might not be favorable in certain growing conditions



General Principles



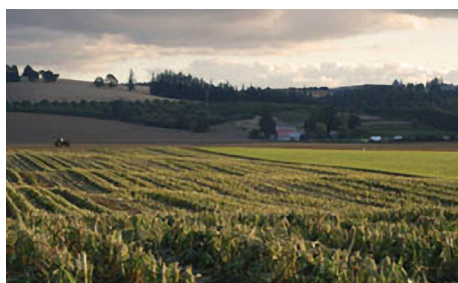
- 1) Grow annual crops for only one year in one particular location.
- 2) Follow nitrogen fixing legumes with crops that use nitrogen heavily the first year and less heavily after that.
- 3) Avoid growing closely related species in succession. Mix it up.
- 4) Try to grow a deep-rooted crop in one rotation to improve deeper levels of soil.
- 5) Grow some crops that will leave a significant amount of residue to use as mulch and add organic soil carbon.
- 6) Grow crops with a similar growing cycle at the same time.

Resources



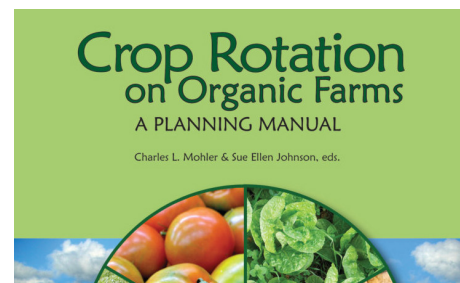
Tipsheet: Crop Rotation in Organic Farming Systems

Information from ATTRA Sustainable Agriculture, a program of the National Center for Appropriate Technology
<https://bit.ly/3piGu31>



NRCS Conservation Practice Standard: Conservation Crop Rotation

Criteria and considerations for a variety of situations.
<https://bit.ly/3g2Dzr1>



Crop Rotation on Organic Farms: A Planning Manual

Manual created by Charles Mohler and Sue Ellen Johnson, in 2009, for SARE.
<https://bit.ly/3uJSdc1>

Research on Crop Rotation

Bullock, D. G. (1992). "Crop rotation". Critical Reviews in Plant Sciences. 11 (4): 309–326. <https://bit.ly/2S2CLuf>

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Sherrod, L. A. ; Peterson, G. A.; Westfall, D. G.; and Ahuja, L. R. Cropping Intensity Enhances Soil Organic Carbon and Nitrogen in a No-Till Agroecosystem, Soil Science Society of America Journal, September, 2003. <https://bit.ly/3g4Oq3x>

Triberti, Loretta; Anna Nastri & Guido Baldoni (2016). "Long-term effects of crop rotation, manure fertilization on carbon sequestration and soil fertility". European Journal of Agronomy. 74: 47–55. <https://bit.ly/3uGZfhQ>

Learn more about crop rotation at The Center for Regenerative Agriculture and Resilient Systems
<https://bit.ly/3fB5zlg>