



Alley cropping, also sometimes referred to as “intercropping,” is the practice of planting rows of trees with a companion crop in between. Frequently this can be used to add another cash crop but it also reduces surface water runoff and erosion, improves soil health and fertility, and reduces wind erosion. Depending on the crops chosen, it can also modify the microclimate for improved crop production or improve wildlife habitat. Multiple crops, when managed appropriately, can keep a farm more productive throughout the year, increasing income and reducing risks associated with monocropping. It can also be used to transition from one farming system to another.



## Benefits

- Reduces surface water runoff and erosion
- Improves soil health and fertility
- Trees provide a windbreak
- Can improve crop performance
- Could reduce need for fertilizers and pesticides
- Reduces nutrient leaching to groundwater
- Improves biodiversity
- Improves wildlife habitat
- Increases carbon sequestration
- Lowers risk through diversification

## Potential Considerations

- Learning to manage more complexity
- Investment and labor to add trees or additional crops
- Possibly additional equipment expenses
- Competition between trees and crops for water and nutrients
- Increased management requirements
- Not every crop combination works together well
- It may take a few years before there is a significant financial payoff



## Resources



### Alley Cropping: An Agroforestry Practice

Good introduction to Alley Cropping by the USDA National Agroforestry Center.  
<https://bit.ly/3gqblJV>



### Guidelines for Intercropping

How to choose crops to plant together for specific purposes, strategies for success and avoiding common problems. By SARE.  
<https://bit.ly/3cGblSo>



### Alley Cropping & Intercropping

Powerpoint presentation by Oregon State University.  
<https://bit.ly/3cGcAk8>

## Training Manual for Applied Agroforestry Practices 2018 Edition



### Training Manual for Applied Agroforestry Practices

Created with SARE support  
 Michael Gold, Mihaela Cernusca & Michelle Hall, Eds. |  
 2013 | 366 pages

Updated in February 2019, the Agroforestry Training Manual by The Center for Agroforestry at the University of Missouri is designed for natural resources professionals and landowners and includes worksheets and exercises for use as an educational tool. Chapter 3 is an in-depth guide to alley cropping.  
<https://bit.ly/3gw7Mz2>

## Research

Wolz KJ and DeLucia EH. 2018. *Black walnut alley cropping is economically competitive with row crops in the Midwest USA*. Ecological Applications 1-12. <https://bit.ly/2TRhi83>

Wolz KJ, Branham BE & DeLucia EH. 2018. *Reduced nitrogen losses after conversion of row crop agriculture to alley cropping with mixed fruit and nut trees*. Agriculture, Ecosystems & Environment 258: 172–181. <https://bit.ly/2SsVa3u>

Wolz KJ, Lovell ST, Branham BE, et al. 2018. *Frontiers in alley cropping: transformative solutions for temperate agriculture*. Global Change Biology 24: 883–894. <https://bit.ly/3vkTXZo>

Wolz KJ and DeLucia EH. 2018. *Alley cropping: Global patterns of species composition and function*. Agriculture, Ecosystems & Environment 252: 61–68. <https://bit.ly/3xbG7tM>

**Learn More About Alley Cropping at The Center for Regenerative Agriculture and Resilient Systems**  
<https://bit.ly/2TgELPE>