



DEFINITION

Alley cropping is the planting of trees or shrubs in two or more sets of single or multiple rows with agronomic, horticultural, or forage crops cultivated in the alleys between the rows of woody plants.

PURPOSE

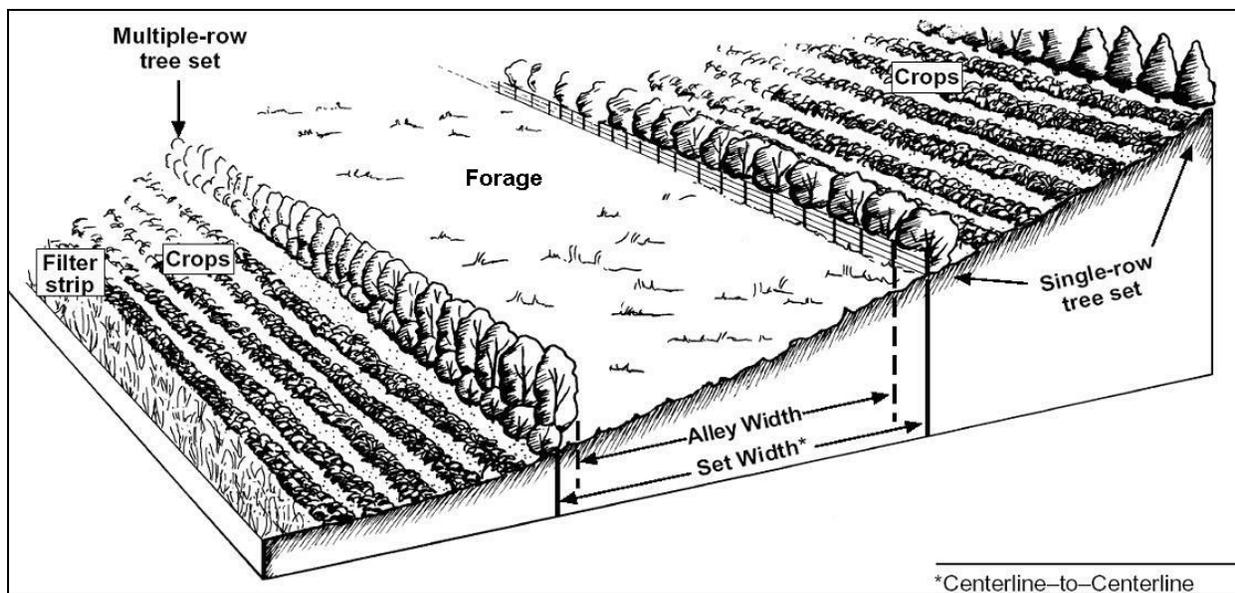
Alley cropping is used to enhance or diversify a farm enterprise by:

- adding tree/shrub products,
- reducing surface water runoff and soil erosion,
- altering water table depths,
- improving utilization and reducing offsite movement of nutrients,

- modifying the microclimate for improved crop production,
- providing habitat for wildlife and beneficial insects,
- enhancing the aesthetics of the area, and
- increasing net carbon storage.

WHERE USED

Alley cropping is used where improved economic or environmental conditions are desired over the existing farming practices. Alley cropping, in addition to the tree or shrub products grown, is used with row-crop, small grain, forages, or specialty crop production. The sites selected must be suited to production of both the woody and herbaceous crop species desired.



Trees or shrubs are generally planted in single or multiple-row sets or series. The spacing between sets is determined by the primary purpose of the alley cropping, the equipment being used to harvest the crops and the agronomic, horticultural, or forage crop grown. Woody plants are typically selected for their potential value for wood, nut, or fruit crops and/or the benefits they can provide to the crops grown in the alleys. There are many compatible tree or shrub species, depending upon the region of the country, soil type, value, and markets. All traditional agronomic, horticultural, or forage crops can be grown in the alleys between the sets of trees or shrubs.

RESOURCE MANAGEMENT SYSTEM

Alley cropping is normally established concurrently with conservation crop rotation, nutrient and pest management, residue management, and other practices as part of a resource management system for a conservation management unit. Forage-related practices need to be applied when forage crops are used. When alley cropping is used for soil erosion control, trees or shrubs are planted on the contour in conjunction with herbaceous vegetation. When wildlife habitat enhancement is a concurrent purpose, native or adapted tree or shrub species beneficial to the target wildlife species become part of the site-specific specifications.

When tree/shrub sets are spaced at relatively close intervals (40 feet or less), shade-intolerant crops can be grown for several years until the woody canopy creates significant shading. At that point, several options can be considered.

- 1) Replace shade-intolerant crops with shade-tolerant crops.
- 2) Thin and/or prune the woody vegetation to reduce shading so long as functions or future products are not impaired.
- 3) Harvest the sets and reestablish woody plants (requires woody species that produce products quickly).

WILDLIFE

Alley cropping provides excellent opportunities to improve wildlife habitat for some species by creating travel lanes connecting important habitat areas, providing in-field cover, improving vertical structure, and increasing edge effect. Plantings can be included as part of the system along the existing forest edge to soften an existing hard edge.

OPERATION AND MAINTENANCE

Replace dead and dying woody species in newly established sets. Care must be taken to use chemicals or chemical applications that are compatible with both the tree crop and the alley crop. Monitor in-alley crop growth to determine if shading conditions are being met as sets mature. Root pruning is recommended along the edges of alleys to maintain adequate growth in adjacent agronomic, horticultural, or forage crops. Protect trees and shrubs from damage by livestock or harmful wildlife.

SPECIFICATIONS

Site-specific requirements are listed on pages 3 and 4 of this job sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the Wisconsin NRCS Field Office Technical Guide, Section IV, Standard 311, Alley Cropping.

Landowner _____

Field number _____

Purpose (check all that apply)	
<input type="checkbox"/> Produce tree and/or shrub products (wood, nuts, berries, fodder, mulch, etc.) along with crops or forages.	<input type="checkbox"/> Provide or enhance wildlife habitat.
<input type="checkbox"/> Improve crop or forage quality and quantity by enhancing microclimatic conditions.	<input type="checkbox"/> Create habitat for biological pest management.
<input type="checkbox"/> Reduce surface water runoff and soil erosion.	<input type="checkbox"/> Improve crop diversity, quantity, quality, and economic returns.
<input type="checkbox"/> Improve utilization and recycling of soil nutrients.	<input type="checkbox"/> Reduce movement offsite of nutrients or chemicals.
<input type="checkbox"/> Reduce subsurface water quantity or alter water table depths.	<input type="checkbox"/> Enhance the aesthetics of the area.
	<input type="checkbox"/> Increase net carbon storage in the vegetation and soil.

Layout	
Alley width ¹ (ft): _____	Spacing between tree/shrub sets ² (ft): _____
Supplemental herbaceous cover width – erosive sites (ft): _____	
Tree/shrub set orientations: <input type="checkbox"/> Contour <input type="checkbox"/> North/South <input type="checkbox"/> East/West <input type="checkbox"/> Other (specify): _____	

¹Distance available for herbaceous crops; set equal to multiple agricultural equipment widths. ²Distance from center of one set to center of the next set.

Woody Plant Materials Information				
Planting date: _____				
Species/Cultivar by Set and Row Number (Indicate set and row numbers on the job sheet sketch.)	Kind of Stock ³	Distance (ft) Between Plants Within Row	Total Number of Plants for Row	Distance (ft) From This Row to Next Row ⁴
Set #1: 1				
2				
3				
4				-----
Set #2: 1				
2				
3				
4				-----

³BAreroot, COntainer, CUTting; include size, caliper, height, and age as applicable. ⁴Adjusted for width of maintenance equipment.

Site Preparation
Remove debris and control competing vegetation to allow enough spots or sites for planting and planting equipment. Prepare supplemental moisture materials for installation if required by trees and/or shrubs. Additional requirements:

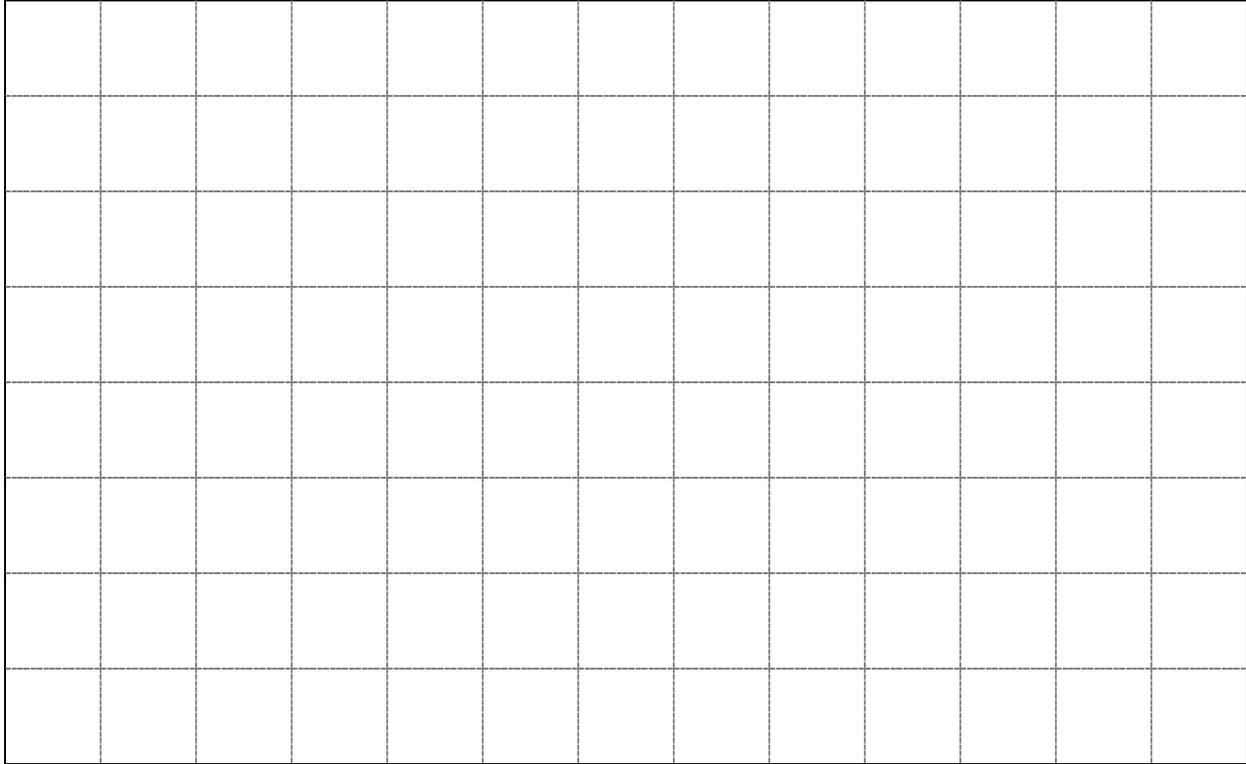
Planting Methods
For container and bareroot stock, plant stock to a depth even with the root collar in holes deep and wide enough to fully extend the roots. Pack the soil firmly around each plant. Cuttings are inserted in moist soil with at least 2 to 3 buds showing above ground. Additional requirements:

Operation and Maintenance
Inspect alley cropping components periodically and protect from damage so proper function is maintained. Replace dead or dying tree/shrub stock and continue control of competing vegetation to allow proper establishment. Install and begin supplemental irrigation if required. Additional requirements:

Sketch of Planting

If needed, an aerial view or a side view of the practice can be shown below. Other relevant information, complementary practices and measures, and additional specifications may be included.

Scale 1 inch = _____ feet. (N/A indicates sketch not to scale: grid size = ½ inch by ½ inch.)



Additional Specifications and Notes

A large empty rectangular box for providing additional specifications and notes related to the planting practice.