

ALLEY CROPPING

S. C. Practice Job Sheet 311

Prepared for: _____

Prepared by: _____

Farm: _____ Tract: _____ Date: _____



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

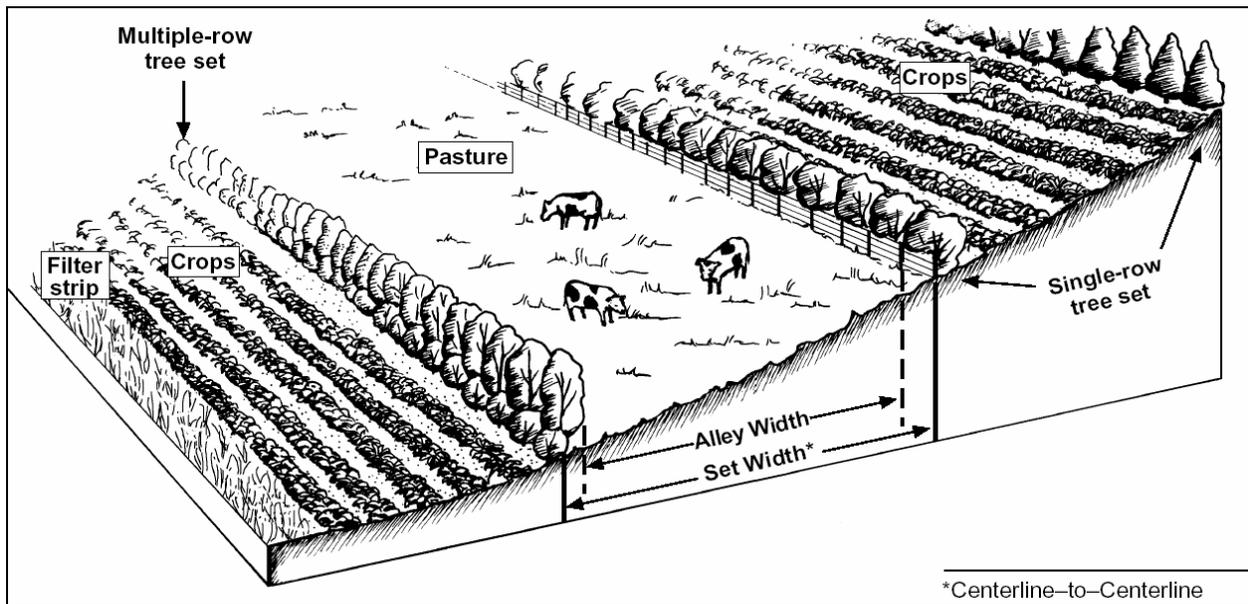
This practice enhances or diversifies a farm enterprise by adding tree/shrub products, reducing surface water runoff and erosion, altering water table depths, improving utilization and reducing offsite movement of nutrients, modifying the microclimate for improved crop production, providing habitat for wildlife and

beneficial insects, enhancing the aesthetics of the area, and increasing net carbon storage.

Where Applicable

Alley cropping is used where improved economics 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, small grain, or specialty crop production. The sites selected must be suited to produce both the woody and herbaceous crop species desired.

The United States Department of Agriculture (USDA) prohibits discrimination in its programs on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, and marital or familial status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint, write the Secretary of Agriculture, U.S. Department of Agriculture, Washington, DC 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD). USDA is an equal employment opportunity employer. To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.



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 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, value, and markets. All traditional agronomic, horticultural, or forage crops can be grown in the alleys between the sets of trees or shrubs. The primary factor for selecting crops for planting within an alley is their sunlight requirement in relation to the canopy density (shade) created by the trees or shrubs in the sets.

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. Prescribed grazing and other forage-related practices need to be applied when forage crops are used. When alley cropping is used for erosion control, trees are planted on the contour in conjunction with herbaceous vegetation.

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, and connecting important habitat areas or infield cover. Trees and/or shrubs and herbaceous species are usually required to create wildlife travel lanes as well as cover for breeding, feeding, and resting.

Operation and Maintenance

Replace dead and dying woody species in newly established sets. Care must be taken to utilize chemicals or chemical applications that are compatible both with the tree crop and the alley crop. Monitor alley crop growth to determine if shading conditions are being met as sets mature.

Specifications

Site-specific requirements are listed on the specifications sheet. Additional provisions are entered on the job sketch sheet. Specifications are prepared in accordance with the NRCS Field Office Technical Guide.

Alley Cropping – Job Sheet

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 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"/> Decrease 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): _____
Tree/shrub set orientations: _____ Contour; _____ North/South, _____ East/West, _____ 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 between plants within row (ft):	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.

Temporary Storage Instructions
Planting stock that is dormant may be stored temporarily in a cooler or protected area. For stock that is expected to begin growth before planting, dig a V-shaped trench (heeling-in-bed) sufficiently deep and bury seedlings so that all roots are covered by soil. Pack the soil firmly and water thoroughly.

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.
 Add soil amendments as follows:
 Additional requirements:

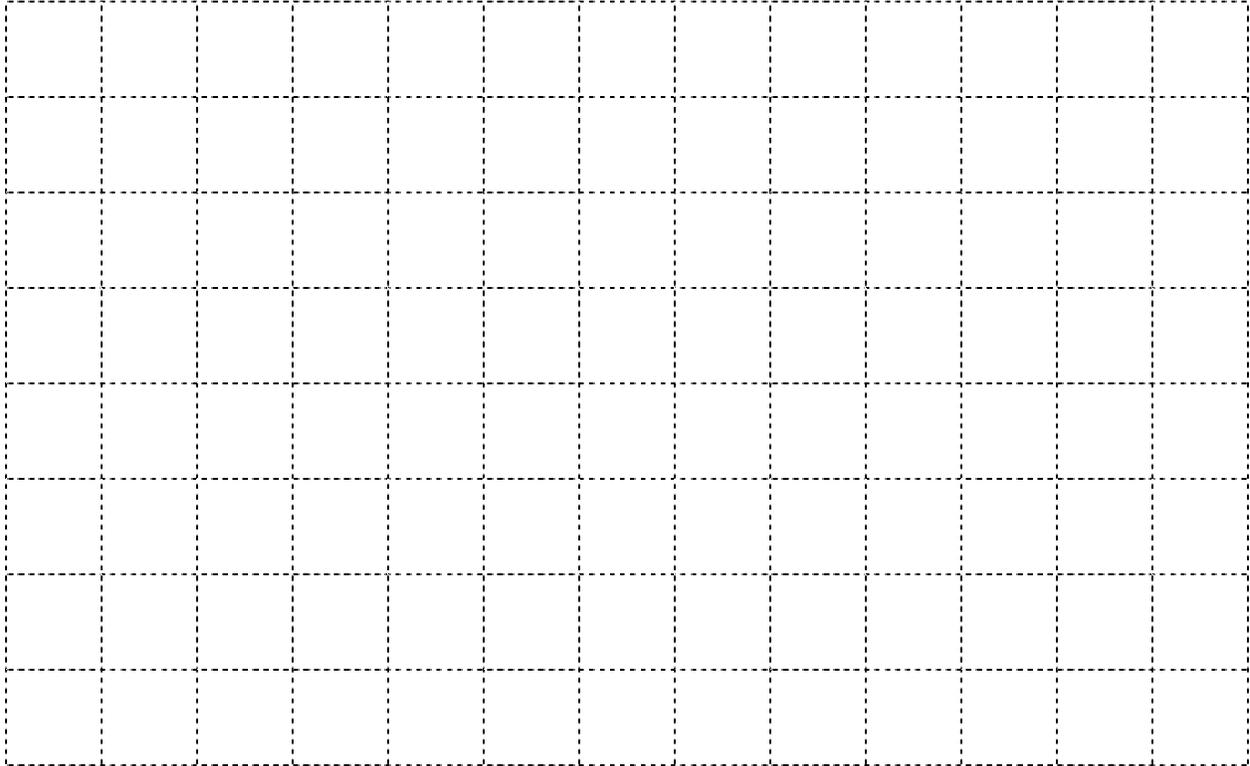
Planting Methods
For container and bareroot stock, plant stock to a depth even with the root collar in holes deep and wide enough to fully extend the roots. Pack the soil firmly around each plant. Cuttings are inserted in moist soil with at least 2 to 3 buds showing above ground. Plant during the months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

Operation and Maintenance

Alley Cropping – Job Sheet

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"= _____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")



Additional Specifications and Notes:
Comply with applicable federal, state, and local laws during the installation, operation, and maintenance of this practice.