

## Plant Enhancement Activity - PLT14 – Alley cropping establishment of wildlife and beneficial insect habitat



### Enhancement Description

This enhancement involves the use of trees and/or shrubs planted in multiple-rows with agronomic, horticultural crops or forages produced in the alleys between the sets of woody plants that produce additional products and provide wildlife and insect benefits.

### Land Use Applicability

Cropland and Forestland

### Benefits

Integrating trees and agronomic or horticultural crops creates a land management system that produces marketable products while maintaining long-term soil productivity. Economic risk is reduced, because the alley cropping system produces multiple products, many of which have an established market. When a landowner is also interested in providing habitat for wildlife and beneficial insects, alley cropping designs and management can be modified to create structure and plant diversity which is attractive to many wildlife species including quail, nongame birds, other terrestrial wildlife, and beneficial insects. See Alley Cropping (311) conservation practice standard for further guidance.

### Criteria for Alley Cropping Establishment for wildlife and beneficial insect habitat

- Identify wildlife species to be benefited by the alley cropping.
- Account for the habitat condition of the field, farm, and adjoining fields to determine habitat needs for the targeted wildlife.
- Plant tree and shrub species in multiple-row (minimum of two-rows/set) sets.
- The distance between the sets of trees or shrubs will be determined by the following:
  - Tree or shrub management objectives;
  - Light requirements and growth period of the crops or forages in the alleys;
  - Erosion control needs;
  - Machinery widths and turning areas.
  - Maximum distance between rows (to be determined by states for this enhancement)
- Use one or more of the following methods to improve habitat for the targeted species.
  - Manage cropping periods or add legumes or plant cover crops to enhance wildlife habitat during critical life cycle periods.



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- Use native tree and shrub species that favor targeted wildlife species.
- Plant multiple tree and shrub species (3 or more; use native species whenever possible) with varying flowering times to favor beneficial insect species.
- Establish clusters of other tree and shrub species if needed as a food or pollinator source (e.g., oaks for mast or black locust for pollen).

### **Documentation Requirements for Alley Cropping Establishment for wildlife and beneficial insect habitat**

- List of targeted wildlife species/insects.
- Brief written description of the activities (criteria) completed with dates of application and receipts for planting stock, herbicides, etc.
- Acreage of the enhancement activity.
- Delineations on a map or aerial photo of alley cropping layout and placement.

### **References**

- *Working Trees for Agriculture*. 2008. USDA National Agroforestry Center, Lincoln, NE.
- *Alley Cropping: An Agroforestry Practice*. January 1999. Agroforestry Notes – AF Note 12. USDA National Agroforestry Center, Lincoln, NE.
- *Alley Cropping Practices – Chapter 7*. 2009. In, *North American Agroforestry: An Integrated Science and Practice*. H.E. Garrett, Editor. American Society of Agronomy, Inc.



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## IDAHO ADDENDUM 2011

### ***Plant Enhancement Activity – PLT14 – Alley Cropping Establishment for Wildlife and Beneficial Insect Habitat***

#### **Additional guidance:**

Distance between rows will be dependent on the mature size of the tree or shrub species planted. Maximum distance between tree/shrub rows will be 15 times the mature tree/shrub height. The Idaho State Agronomist must be consulted for this enhancement, to determine optimal design and evaluation of potential resource issues.

#### **Beneficial Insects**

Beneficial organisms can reduce the need for pesticides and promote pollination. There are four types of beneficial organisms: pollinators, predators, parasites, and pathogens. To improve habitat for beneficial organisms, plant native shrubs or trees that complement alley forages and crops.

Scout frequently to identify and control noxious weeds. Choose non-chemical methods to control noxious plants and insects whenever possible. Even “natural” insecticides (e.g., pyrethrums) used within the alley-ways can harm bees and other beneficial insects. **Refer to the bolded references below for lists of Pacific Northwest plants that attract pollinators and other beneficial organisms.**

#### **Wildlife Friendly Species**

The alley cropping system can be designed to benefit specific wildlife species. In this case, the operator will identify the target species. Choice of appropriate introduced or native species to benefit wildlife, and the arrangement of rows, will depend on the target wildlife species and planned alley crops or forages. Refer to the references below for additional information and guidance.

#### References:

Idaho NRCS Biology Technical Note 2, *Pollinators* (includes recommendations and pertinent references). <http://efotg.nrcs.usda.gov/references/public/ID/BioTN01-Pollinators.doc>

**Idaho NRCS Plant Materials Technical Note 2, *Plants for Pollinators in the Intermountain West.*** <ftp://ftp-fc.sc.egov.usda.gov/ID/programs/technotes/pollinators07.pdf>

Idaho NRCS Plant Materials Technical Note 24, *Grass, Grass-like, Forb, Legume and Woody Species for the Intermountain West*. [ftp://ftp-fc.sc.egov.usda.gov/ID/programs/technotes/tn24\\_seedspecies](ftp://ftp-fc.sc.egov.usda.gov/ID/programs/technotes/tn24_seedspecies)

Idaho NRCS Plant Material Technical Note 24, Supplement: *Intermountain Planting Guide*, USDA-ARS Forage and Range Research Lab/Utah State Extension, AG 510. <ftp://ftp-fc.sc.egov.usda.gov/ID/programs/technotes/tn24supplement>.

Idaho NRCS Plant Materials Technical Note 43, *Tree Planting Care and Management*. [ftp://ftp-fc.sc.egov.usda.gov/ID/programs/technotes/treecare\\_1007.pdf](ftp://ftp-fc.sc.egov.usda.gov/ID/programs/technotes/treecare_1007.pdf)

**PNW Insect Management Handbook, *Examples of Flowering Plants Visited by Beneficial Insects that can Aid in Biological Control Conservation***. <http://uspest.org/pnw/insects?30IPMW05.dat>

USDA National Agroforestry Center, Agroforestry Note 12, *Alley Cropping: An Agroforestry Practice*, <http://www.unl.edu/nac/agroforestrynotes/an12ac01.pdf>

USDA National Agroforestry Center, Agroforestry Note 35, *Pesticide Considerations for Native Bees in Agroforestry*. <http://www.unl.edu/nac/agroforestrynotes/an35g09.pdf>

USDA National Agroforestry Center, Agroforestry Note 20, *Planning Agroforestry Practices*, <http://www.unl.edu/nac/afnotes/gen-3/gen-3.pdf>

**Xerces Society. *Pacific Northwest Plants for Native Bees***. [http://www.xerces.org/wp-content/uploads/2008/11/pnw\\_plants\\_bees\\_xerces](http://www.xerces.org/wp-content/uploads/2008/11/pnw_plants_bees_xerces)

Xerces Society. *Pollinators in Natural Areas – A Primer on Habitat Management*. [http://www.xerces.org/wp-content/uploads/2008/11/pollinators\\_in\\_natural\\_areas\\_xerces\\_society.pdf](http://www.xerces.org/wp-content/uploads/2008/11/pollinators_in_natural_areas_xerces_society.pdf)

**Xerces Society. *Farming for Pest Management***. [http://www.xerces.org/wp-content/uploads/2008/09/farming\\_for\\_pest\\_management\\_brochure\\_compressed.pdf](http://www.xerces.org/wp-content/uploads/2008/09/farming_for_pest_management_brochure_compressed.pdf)

**This activity may NOT be used with the following enhancements:  
ANM21, ANM22, ANM29, ANM30, PLT08, SOE02, SQL06**

**Potential duplicate practices:**

**311 – Alley cropping , 340 – Cover crops, 612 – Tree and shrub establishment**