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Natural Resources Conservation Service

Benefits of Agroforestry in Transitioning and Organic Systems

Natural Resources Conservation Service

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Benefits of Agroforestry in Transitioning and Organic Systems

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Today's Agenda

- Introduction – Learning Objectives
- Defining
  - Organic Farming
  - Organic Transitioning
  - Agroforestry
- Agroforestry Practices / Systems
- Agroforestry & NRCS Natural Resource Concerns
- Summary – What did we learn?
- Questions
- References
  - Attachment - Agroforestry Technical and Information Resources

LEARNING OBJECTIVES

At the end of the webinar you the learner will be able to:

- define and list at least 3 major characteristics of :
  - *Organic farming.*
  - *Organic transitioning.*
  - *Agroforestry.*
- list 5 benefits of Agroforestry in transitioning to Organic farming.
- describe the benefits of NRCS Agroforestry conservation practices.
- successfully complete the Webinar test.

What is…
…*"Organic farming?"*

- Organic farming is one of the fastest growing segments of temperate and tropical agriculture.
- Organic farming is an ecologically based system that relies on preventative practices to manage weeds, insects and diseases.
- Organic farming practices require use of cultural, biological and mechanical methods that:
  - support on-farm cycling of resources;
  - promote ecological balance; and,
  - preserve biodiversity.

USDA ORGANIC CERTIFICATION

- Detailed description of operation
- History of substances applied over past 3 years
- Organic products grown, raised or processed
- Organic Systems Plan (OSP) describing all practices and substances used.

Source: *Growing Organic: NRCS Assistance for Organic Farmers* (December 2017)
Source: Watch "Growing Organic: NRCS Assistance for Organic Farmers at www.nrcs.usda.gov/organic

What is …
…*"Organic Transitioning?"*

- It takes three years to transition land to a certified organic operation on land that was previously farmed conventionally.
- NRCS Technical Service Providers can help you develop a Conservation Active Plant for Organic Transition.
- NRCS Agroforestry conservation practices can help you to manage conventional, transition and organic fields.
- Your operation can be both organic and nonorganic but there must be buffer zones.
- NRCS Agroforestry conservation practices can serve as buffers zones between nonorganic and organic fields.

TRANSITIONING to ORGANIC FARMING

- Organic operations must follow USDA National Organic Program regulations
- Organic operations avoid use of synthetic fertilizers and **do not use:**
- Sewage
- Sludge
- Irradiation, or
- Genetic engineering

see other considerations in "Organic 101: Allowed and Prohibited Substances"

Source: *Growing Organic: NRCS Assistance for Organic Farmers* (December 2017)
Source: Watch "Growing Organic: NRCS Assistance for Organic Farmers at www.nrcs.usda.gov/organic

What is …
…*"Agroforestry?"*

AGROFORESTRY DEFINED

USDA defines Agroforestry as:

The intentional combination of agriculture and forestry to create integrated and sustainable land-use systems.

Agroforestry takes advantage of the interactive benefits from combining trees and shrubs with crops and/or livestock

NRCS Conservation Practices

- **Most USDA conservation programs focus on the conservation benefits and not on increasing production.**
- **NRCS conservation practice standards are often used by local and state organizations and agencies.**
- **NRCS conservation practice standards generally describe minimum criteria and specifications to achieve the specific purpose(s) based on landowner objectives in addressing a specific resource concern(s).**

NRCS AGROFORESTRY CONSERVATION PRACTICES

- Alley Cropping
- Silvopasture Establishment
- Windbreak/Shelterbelt Establishment
- Windbreak/Shelterbelt Renovation
- Multi-Story Cropping (forest farming)
- Riparian Forest Buffer

WINDBREAK ESTABLISHMENT (CPS380)

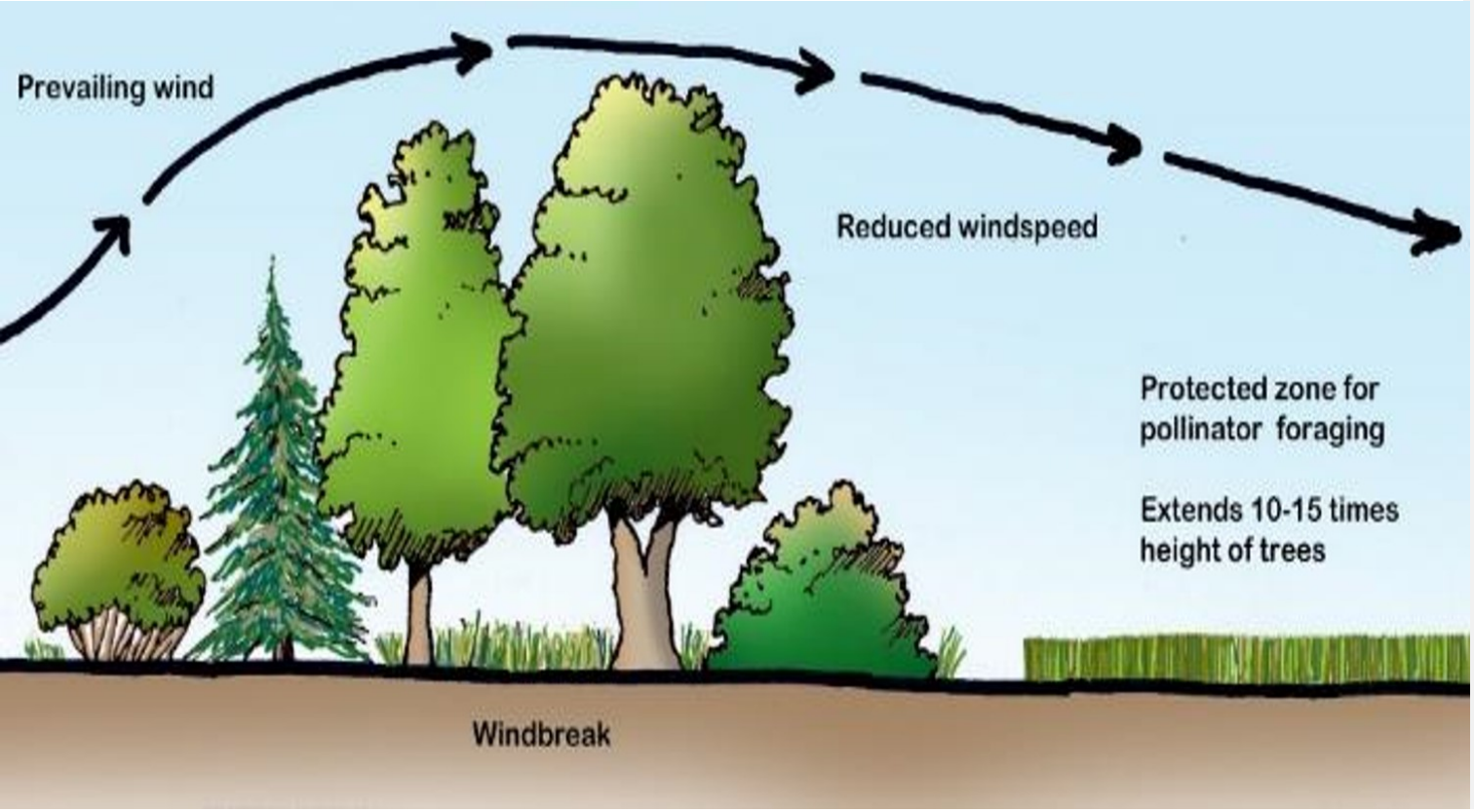
Purposes

- Reduce soil erosion from wind.
- Protect plants from wind related damage.
- Alter the microenvironment for enhancing plant growth.
- Manage snow deposition.
- Provide shelter for structures, animals, and people.
- Enhance wildlife habitat.
- Provide noise screens.
- Provide visual screens.
- Improve air quality by reducing and intercepting air borne particulate matter, chemicals and odors.
- Delineate property and field boundaries.
- Improve irrigation efficiency.
- Increase carbon storage in biomass and soils.
- Reduce energy use

DEFINITION (CPS380)

Windbreaks or shelterbelts are single or multiple rows of trees or shrubs in linear configurations.

WINDBREAK ESTABLISHMENT (CPS380)



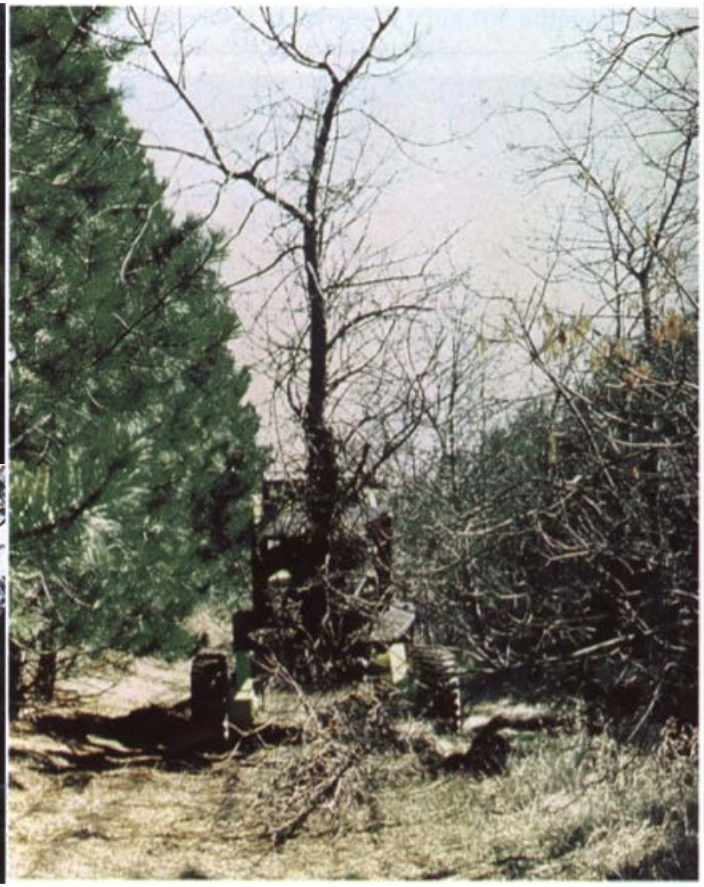
Benefits

- Diversify farm enterprise
- Reduce wind erosion
- Improve water quality
- Protect crops
- Improve utilization of nutrients
- Enhance pollinator & wildlife habitat
- Improve aesthetics
- Store carbon

WINDREAK ESTABLISHMENT (CPS380)
Summary

Photo by Ron Nichols, USDA Natural Resources Conservation Service.

WINDBREAK RENNOVATION (CPS650)



DEFINITION (CPS650)

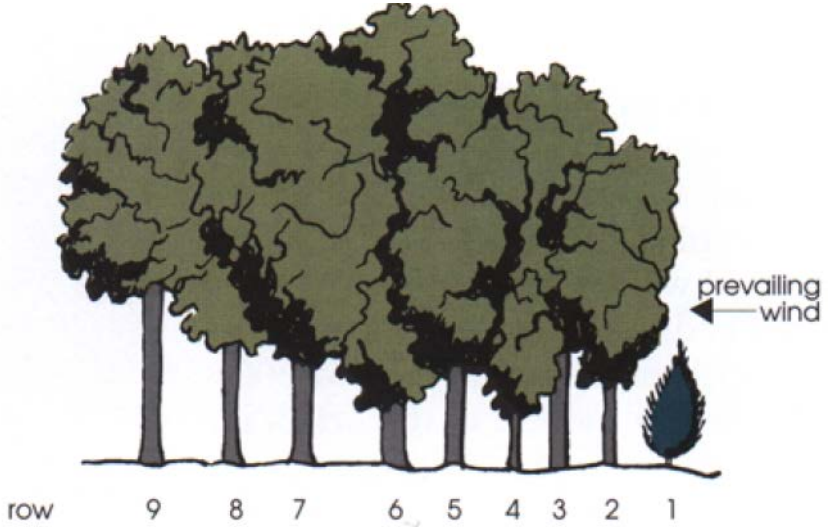
Replacing, releasing and/or removing selected trees and shrubs or rows within an existing windbreak or shelterbelt, adding rows to the windbreak or shelterbelt, or removing selected tree and shrub branches

Purposes

- To restore or enhance the original planned function of existing windbreaks or shelterbelts

WINDBREAK RENOVATION (CPS650)

BEFORE



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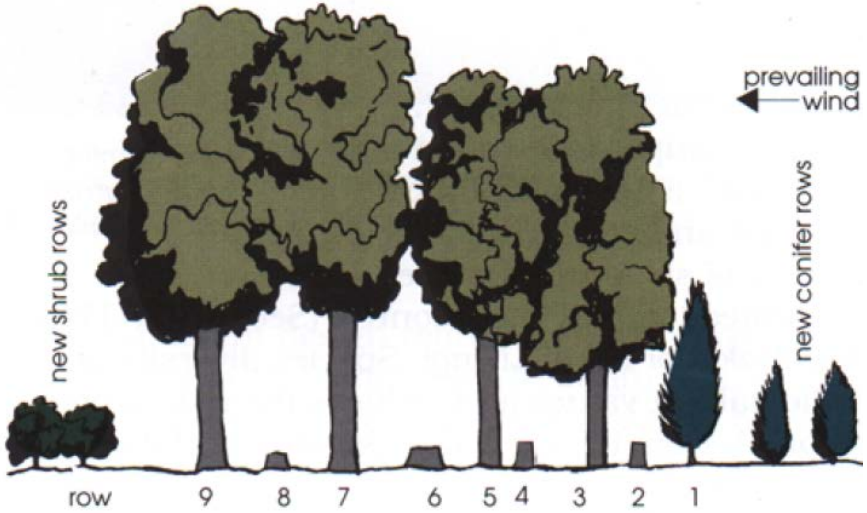

Benefits

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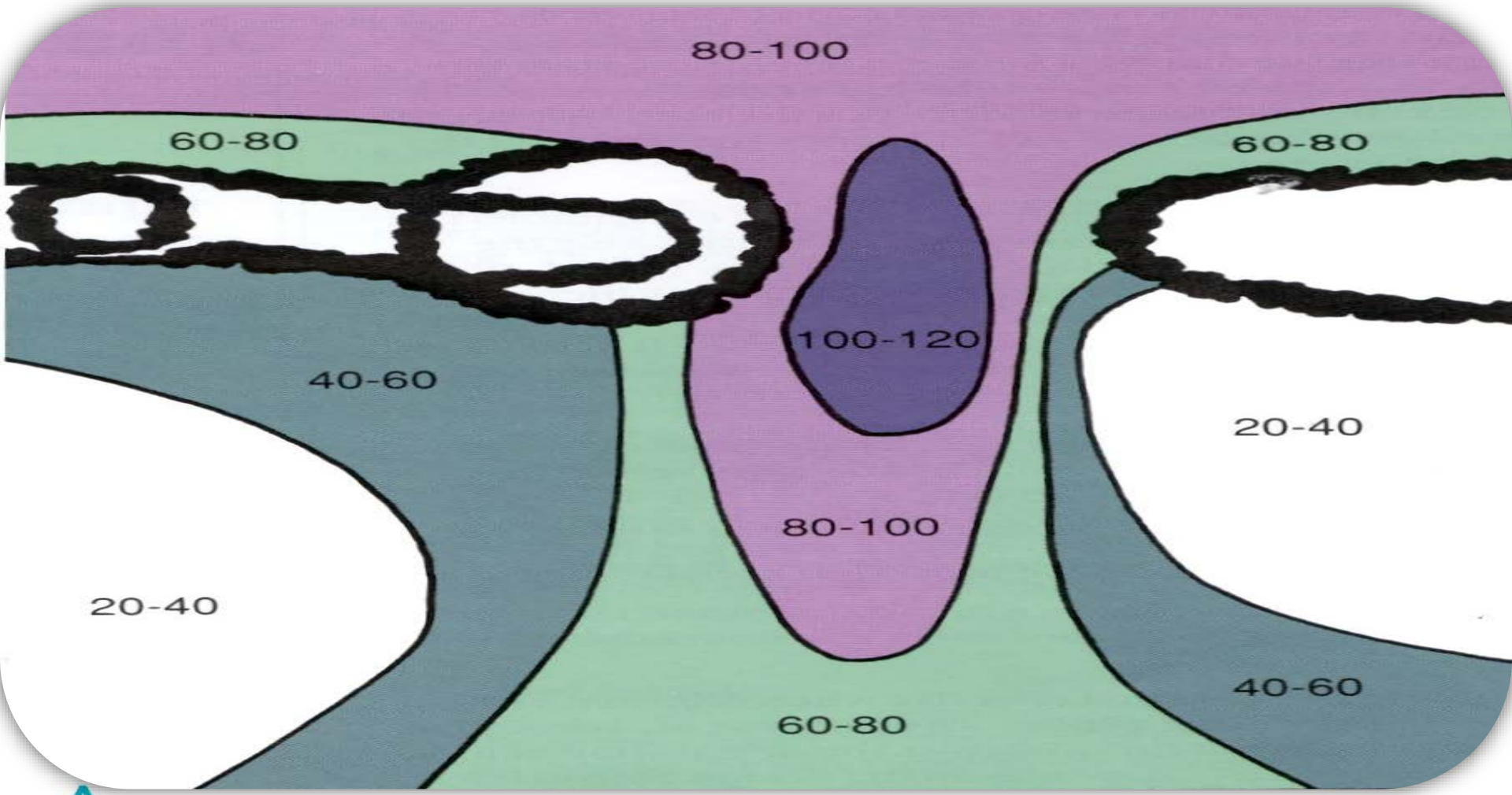
WINDREAK RENOVATION
Summary



RIPARIAN FOREST BUFFER (CPS391)

DEFINITION (CPS379)

An area predominantly trees and/or shrubs located adjacent to and up-gradient from watercourses or water bodies.

Purposes

- Create shade to lower or maintain water temperatures to improve habitat for aquatic organisms.
- Create or improve riparian habitat and provide a source of detritus and large woody debris.
- Reduce excess amounts of sediment, organic material, nutrients and pesticides in surface runoff and reduce excess nutrients and other chemicals in shallow ground water flow.
- Reduce pesticide drift entering the water body.
- Restore riparian plant communities.
- Increase carbon storage in plant biomass and soils.

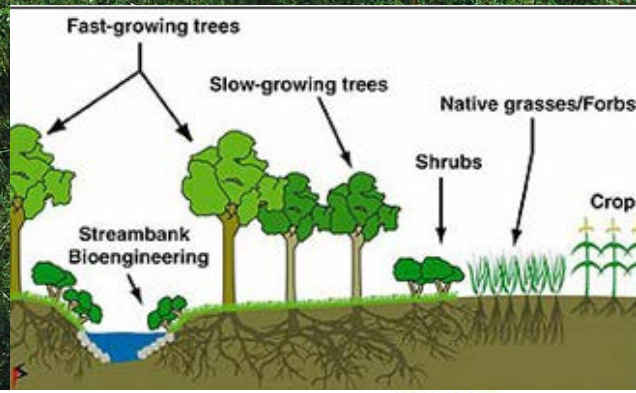
RIPARIAN FOREST BUFFER (CPS391)

Benefits

- Improve water quality
- Erosion Control
- Pollinator and Wildlife habitat
- Multifunctional riparian forest buffers (MRFBs) offer the opportunity to produce perennial crops of native fruits and nuts, as well as floral trees and shrubs.

RIPARIAN FOREST BUFFER (CPS91)

Summary



ALLEY CROPPING (CPS311)

Purposes

- Enhance microclimatic conditions to improve crop or forage quality and quantity.
- Reduce surface water runoff and erosion.
- Improve soil health by increasing utilization and cycling of nutrients.
- Alter subsurface water quantity or water table depths.
- Enhance wildlife and beneficial insect habitat.
- Increase crop diversity
- Decrease offsite movement of nutrients or chemicals.
- Increase carbon storage in plant biomass and soils.
- Develop renewable energy systems
- Improve air quality.

DEFINITION (CPS311)

Trees or shrubs are planted in sets of single or multiple rows with agronomic, horticultural crops or forages produced in the alleys between the sets of woody plants that produce additional products.

ALLEY CROPPING (CPS311)

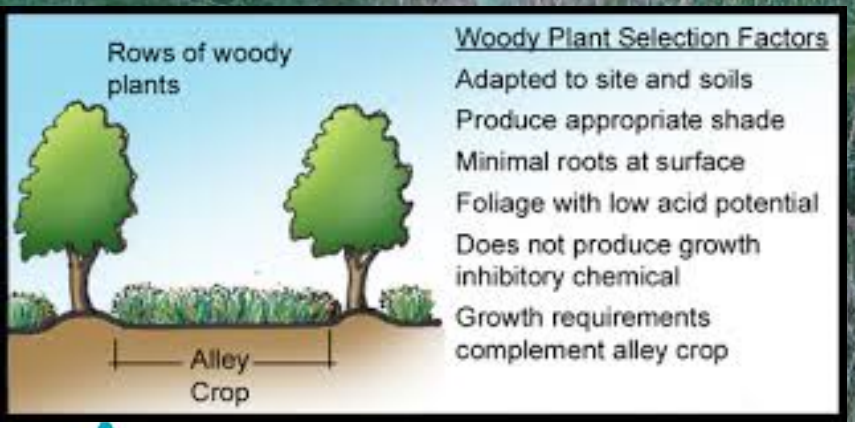
Manfred Mielke, USDA Forest Service, Bugwood.org

Benefits

- Diversify farm enterprise
- Reduce soil erosion
- Improve water quality
- Protect crops
- Improve utilization of nutrients
- Enhance pollinator & wildlife habitat
- Improve aesthetics
- Store carbon

ALLEY CROPPING (CPS311)

Summary



Woody Plant Selection Factors

- Adapted to site and soils
- Produce appropriate shade
- Minimal roots at surface
- Foliage with low acid potential
- Does not produce growth inhibitory chemical
- Growth requirements complement alley crop

SILVOPASTURE ESTABLISHMENT (CPS381)

Purposes

- Provide forage, shade, and/or shelter for livestock.
- Improve the productivity and health of trees/shrubs and forages.
- Improve water quality.
- Reduce erosion.
- Enhance wildlife habitat.
- Improve biological diversity.
- Improve soil quality.
- Increase carbon sequestration and storage.
- Provide for beneficial organisms and pollinators.

DEFINITION (CPS381)

Establishment and/or management of desired trees and forages on the same land unit.

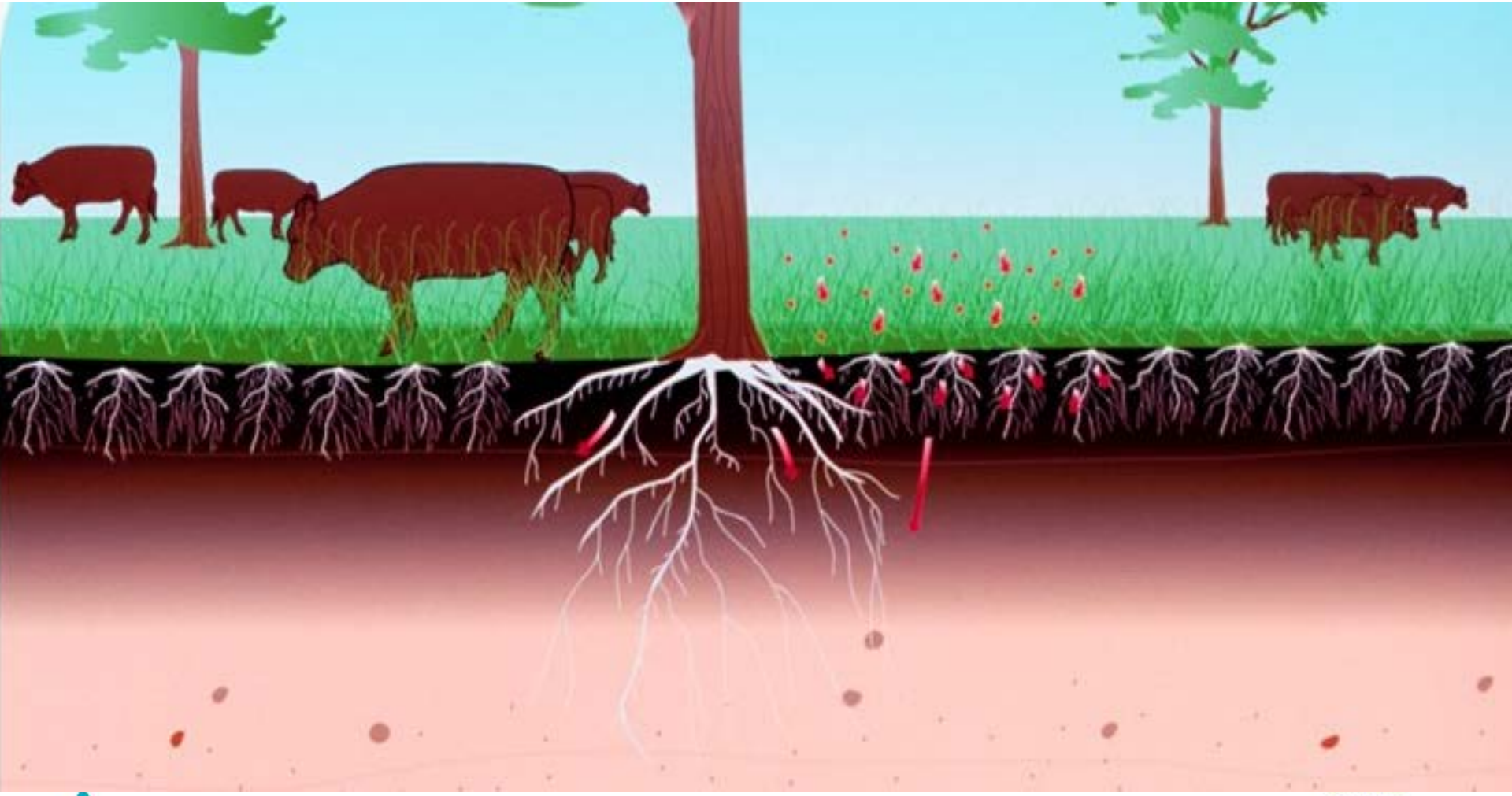
SILVOPASTURE ESTABLISHMENT (CPS381)

Benefits

- Lower livestock stress from cold or heat
- Sustained forage supply
- Helps control invasive species
- Annual income (e.g. grazing, haying, pine straw)
- Long-term income (timber)
- Improved plant vigor
- Reduced wildfire risk
- Diversifies pollinator and wildlife habitat

SILVOPASTURE ESTABLISHMENT (CPS381)

Summary



MULTI-STORY CROPPING (CPS379)

DEFINITION (CPS379)

Existing or planted stands of trees or shrubs that are managed as an overstory with an understory of woody and/or non-woody plants that are grown for a variety of products.

Purposes

- Improve crop diversity by growing mixed but compatible crops having different heights on the same area.
- Improve soil quality by increasing use & cycling of nutrients & maintaining or increasing soil organic matter.
- Increase net carbon storage in plant biomass and soil

MULTI-STORY CROPPING(CPS379)

Benefits

- Diversify farm enterprise
- Increase cash flow for entire operation
- Protect crops
- Improve utilization of nutrients
- Enhance pollinator & wildlife habitat
- Improve aesthetics
- Store carbon
- Control invasive species through active management

MULTI-STORY CROPPING (CPS379)

Summary

Agroforestry and ….
….Transitioning to Organic Farming

Agroforestry …
… and the NRCS CAP 138

ORGANIC

NATURAL RESOURCES CONSERVATION SERVICE

TYPES OF ASSISTANCE

NRCS provides free technical assistance to all agricultural producers. Transitioning-to-organic producers are also eligible for all NRCS financial assistance programs, though the Environmental Quality Incentives Program's Organic Initiative is designed specifically for this purpose. For all programs, producers must control or own the land and be in compliance with highly erodible land and wetland conservation requirements and, in some states, sodsaver provisions; additional requirements are unique to each program. Learn more at **www.nrcs.usda.gov/farmbill**.

CONSERVATION ACTIVITY PLAN 138

NRCS' CAP 138 helps transitioning-to-organic producers by addressing the natural resource concerns of their operation. The CAP must be prepared by a NRCS-certified technical service provider (TSP) in order for the producer to receive financial and technical assistance from NRCS.

The Resource Inventory (section one) of the CAP 138, when submitted with the Resource Inventory Supplement, contains the required components of an Organic System Plan. Current National Organic Program regulations do not require the use of a specific OSP. The use of the Resource Inventory and the Resource Inventory Supplement document for this purpose is optional, but producers should check with their organic certifier to learn their preference.

GET STARTED

Producers should visit their local USDA Service Center at **http://offices.usda.gov** to meet with an NRCS conservationist, or contact their state office to ask for their State organic point of contact at **www.nrcs.usda.gov/wps/portal/nrcs/main/national/contact/states**.

Contact Us

To receive technical assistance in completing CAP 138, producers should contact their local NRCS service center, at **http://offices.usda.gov**

To learn more about organics, visit the USDA organic website **www.usda.gov/organic**, or the NRCS organic website **www.nrcs.usda.gov/organic**

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Conservation Activity Plan – 138

- To receive technical assistance in filling out the CAP 138, contact your local NRCS service center.
- NRCS can help locate a TSP or provide conservation planning services outside of the CAP 138 requirements.
- TSPs must develop all three sections required by the CAP 138.

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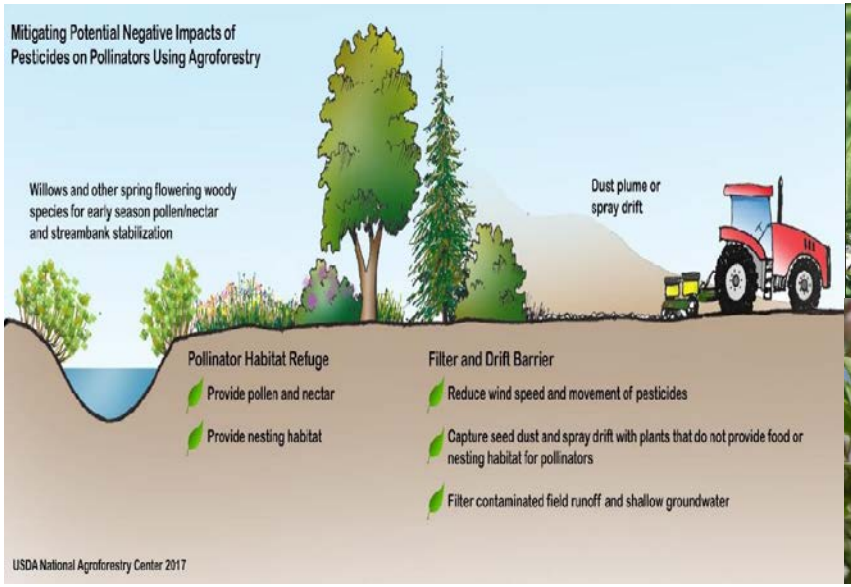
Protecting Existing Resources



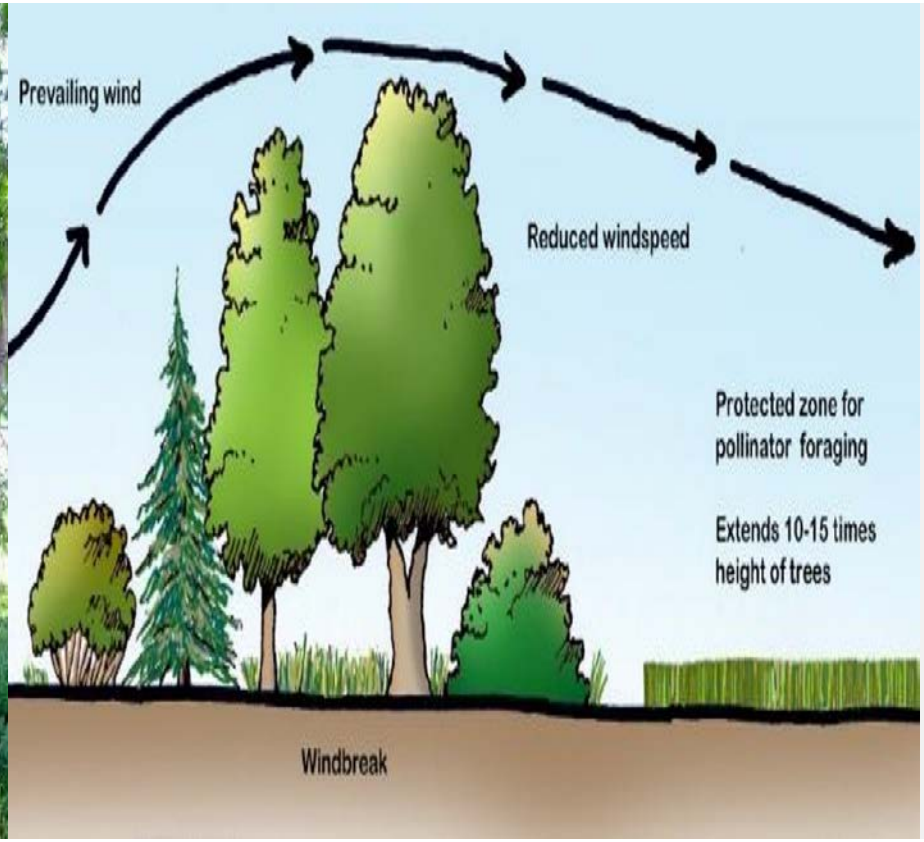
Pollinators & Beneficial Insects

- Perennial vegetation intercepts drifting chemicals from adjacent operations
- Perennial vegetation reduces water erosion
- Perennial vegetation provide forage and nesting sites in undisturbed soil and stems

Western States _ Conservation Buffers in Organic Systems

Protecting Existing Resources

Photo: Maine NRCS



REDUCED WIND SPEED

- Reduced evapotranspiration and greater plant efficiency or growth
- Reduced soil moisture loss in tillage cropping systems
- Native Pollinators and beneficial insects forage further and longer

Protecting Existing Resources

Soil Health

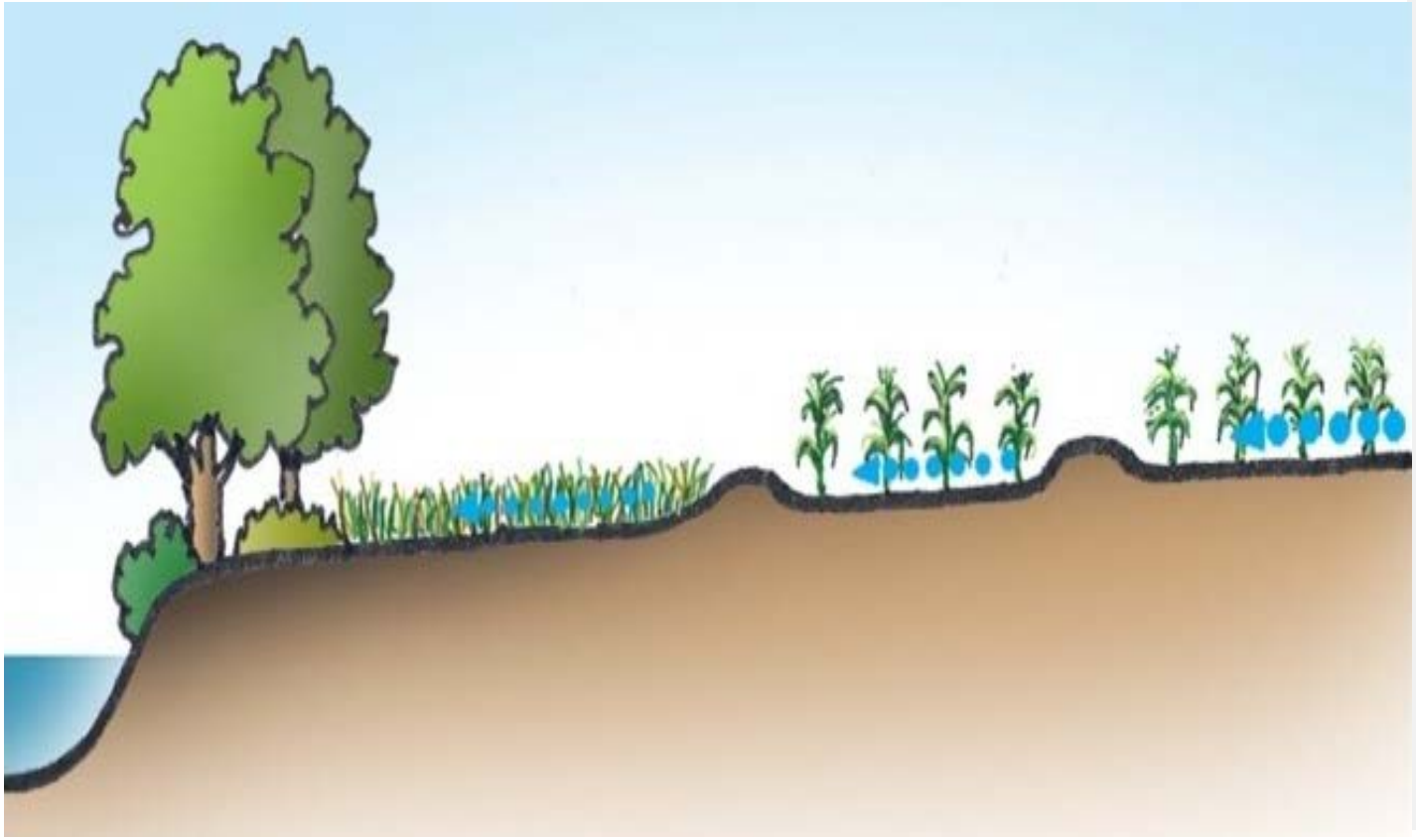
- Diversity of plant material (roots, leaves, twigs, stems) feed the soil and soil organisms
- Perennial vegetation increases organic matter production
- Perennial vegetation buffers soil moisture and soil temperatures (soil retains cover in limited tillage / disturbance cropping systems)

Protecting Existing Resources

Soil Erosion

- Perennial vegetation helps to reduce wind speed reduces sheet, rill and wind erosion losses
- Perennial vegetation helps to reduce concentrated flow erosion losses
- Perennial vegetation helps to reduce excessive bank erosion losses

Protecting Existing Resources



WATER

- Perennial vegetation helps to robs the intensity of rain drops to create soil displacement
- Perennial vegetation helps to reduce concentrated flow erosion losses
- Perennial vegetation helps to reduce excessive bank erosion losses

Protecting Existing Resources

Photo: NRCS - Beverly Mosely, Texas

Livestock

- Diversity in available feed including fodder
- Aid in livestock distribution
- More comfortable livestock feed and drink more resulting in increased weight gain
- Heat Stress on livestock of all kinds can be reduced
- Wind chill can be reduced

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Why Agroforestry?

Photo: Keefe Keeley

Today's Summary

- Defined "Organics / Transitioning / Agroforestry"
- Described Benefits of Agroforestry
- Described 6 NRCS Agroforestry Practices
- Described Natural Resource Concerns
- Access Agroforestry Resources and Training to support your transitioning from conventional to organic farming

LEARNING OBJECTIVES

After listening to this webinar, you as the learner can now:

- **define and list at least 3 major characteristics of** :
  - *Organic farming.*
  - *Organic transitioning.*
  - *Agroforestry.*
- **list at least 5 benefits of Agroforestry in support transitioning to Organic certification.**
- **describe the different benefits of NRCS Agroforestry conservation practices.**
- **successfully complete the Webinar test.**

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Thank you! Questions?

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