

1 Woodland management...improving the quality and quantity of woodland growing stock and maintaining ground cover and litter for soil and water conservation.



How it works

Existing woodland or other suitable land is dedicated to timber production. Livestock is excluded. Optimum tree populations are determined by the kinds of trees planted and their adaptability to your soils. Existing trees or newly planted trees are thinned, pruned and harvested to maintain desired production. Twigs, limbs and other debris are not removed, maintaining ground cover, reducing soil erosion and providing wildlife habitat. As trees mature they are harvested, and replacements are established.

How it helps

- Adds income to your farm.
- Adds beauty to your farm.
- Ground cover provides wildlife habitat, reduces soil erosion and improves water quality.

Planning ahead

- Do you need this land for livestock or crops?
- Are the trees you harvest going to be a marketable product?
- Can the soil support the type of trees and product you want?

Tech notes

- Plant trees that are suitable to your soils.
- Protect from grazing.
- Cut undesirable trees and shrubs that are competing with desired species for sunlight and moisture.
- Thin hardwood stands to a 12-foot spacing before trees are 5 inches in diameter at a 4 to 5 foot height.
- Thin conifer stands to a 10-foot spacing before trees are 5 inches in diameter at a 4 to 5 foot height.
- Do not cut vines unless they are interfering with trees with a high commercial value. Vines provide valuable cover for wildlife.

Maintenance

- Control weeds, brush and competing plants by mowing, spraying or cutting.
- Mow vegetative growth around new plantings until they are 3 to 4 feet high.
- Periodically check for rodent, insect or disease damage.

Planned grazing system... planting forage and using grazing rotations to maximize production and reduce sediment and nutrient runoff. Consider food, water and herd size.



How it works

Pasture is divided into two or more pastures or paddocks with fencing. Cattle are moved from paddock to paddock on a pre-arranged schedule based on forage availability and livestock nutrition needs.

How it helps

- Improves vegetative cover, reducing erosion and improving water quality.
- Increases harvest efficiency and helps ensure adequate forage throughout the grazing season.
- Increases forage quality and production which helps increase feed efficiency and can improve profits.
- Rotating also evenly distributes manure nutrient resources.

Planning ahead

- Is there enough water of good quality available in all pastures to meet the needs of your livestock?
- Is the mix of grass and legumes adequate for your herd and soil types?
- Will your pasture meet the nutrient needs of your cattle?
- Have you considered management alternatives for periods of low forage production?

Tech notes

- Plan your rotation so the same paddocks will not be grazed the same time year after year.
- Plan rest periods so each pasture (paddock) will have adequate time to recover during the growing season to promote plant growth.
- All livestock must be removed from pastures while they are being rested.

Maintenance

- Keep fencing secure.
- Some paddocks may need to be mowed or hayed during heavy growth periods.
- Remove pasture water systems during winter if necessary, and reinstall them in the spring.
- If herd size changes dramatically, update rotation schedule, paddock numbers and paddock size.
- Apply fertilizer and nutrients according to soil tests.

3 Manure storage... structure that protects water bodies from manure runoff by storing manure until conditions are appropriate for field application.



How it works

The type of manure storage structure you would use depends upon your livestock operation, animal waste management system and planned field application. Several options exist including an earthen storage pond, above or below ground tank, pit underneath a confinement facility or a sheltered concrete slab area. Manure can be pumped, scraped and hauled, pushed or flushed into your storage structure. The structure's purpose is to safely contain the manure and keep nutrient loss and pollution of downstream water bodies to a minimum by preventing runoff.

How it helps

- Protects water quality, by preventing runoff from feedlots.
- Cuts fertilizer costs and reduces nutrient losses.
- Allows for field application when conditions are right.

Planning ahead

- Is the structure planned for the proper location considering the landscape, potential odor problems, visibility, aesthetic value and compatibility with existing farm buildings?

- Will the structure store manure in a form you have the equipment to handle?
- Are there buffer zones of vegetation around the structure to filter any runoff and to improve appearance?
- Is the structure the right size to handle the amount of manure produced by your livestock during the planned storage period?

Tech notes

- Storage period should be determined by manure use schedule. Plan to empty at least twice a year.
- If manure is stored as a solid, it should be protected from precipitation.
- Runoff from land surrounding livestock facilities should be diverted from storage structures.
- Structures should be fenced for livestock and human safety.
- Ramps built for handling equipment should meet safety standards.

Maintenance

- Watch for any leaks or seepage and make repairs.
- Repair any damaged fences immediately.

4 Farm pond... a pool of water formed by a dam or pit, to supply water for livestock, recreation and wildlife, and to control gully erosion.



How it works

A typical farm pond is formed by building a dam across an existing gully or low lying area. Earth for the dam is dug out above the dam with heavy machinery to form a bowl. Generally the ponded area fills with water within a year. An overflow pipe is installed through the dam to control the water level and allow water to spill through the dam without causing erosion.

How it helps

- Prevents soil erosion and protects water quality by collecting and storing runoff water.
- Provides water for livestock, fish and wildlife, and recreational opportunities.
- Adds value and beauty to a farm or farmstead.
- Provides a water supply for emergencies.

Planning ahead

- Are adequate soil conservation measures installed near the proposed pond site to protect it from filling with sediment?
- Is there a dependable source of clean water to fill the pond?

- Will the pond store enough water for proposed uses—i.e. livestock, wildlife and recreation?
- Is the soil at the proposed site capable of holding water?

Tech notes

- Provide for a natural or constructed spillway.
- If the dam is for a fish pond, the pool should have at least $\frac{1}{2}$ acre of surface area and be at least 8 feet deep.
- The landowner should secure necessary permits or easements.
- Divert runoff from feedlots, barnyards and septic tanks if the pond is used for drinking water, livestock, wildlife or recreation.
- Clear all trees and shrubs within at least 30 feet of the dam's spillway and embankment.
- Generally for every surface acre of pond there should be at least 10 acres of drainage area.

Maintenance

- Keep outlet free of debris.
- Keep burrowing animals, trees and shrubs off the dam.
- Maintain grass cover on the dam.

5 Wildlife upland habitat... creating, maintaining or improving food and cover for upland wildlife.



How it works

Planting trees, shrubs and other vegetation that provide cover and food will attract wildlife to an area. The type of habitat provided will determine the kind and numbers of wildlife attracted.

How it helps

- Ground cover helps reduce soil erosion, adds organic matter to the soil, filters runoff and increases infiltration.
- It can add value to your farmstead.
- Planned wildlife habitat provides food and cover for wildlife.

Planning ahead

- Will your planned habitat attract the type of wildlife you want?
- Is a particular piece of land better suited for upland habitat than for livestock or crops?
- Do you plan to allow hunting?
- Are there any endangered or threatened species in your area you could help protect?
- How close do you want the habitat area to your farmstead?

Tech notes

- Plant the wildlife area with a vegetative cover of grass, trees or shrubs.
- Exclude livestock.
- To attract a specific wildlife species, choose cover and habitat for that species.
- Create a diverse habitat to attract a wider variety of wildlife.
- Consult with an NRCS biologist or local DNR officer for the recommended wildlife populations for the upland habitat area planned for your farm.
- Include a food plot if possible.
- Encourage shrub growth between woodlands and grasslands.
- Include bird houses and feeding stations in habitat areas.
- Plant fruit and nut bearing trees or shrubs to the windward side of a woodland habitat area.

Maintenance

- Prescribed burning may be necessary to regenerate growth and eliminate undesirable species.
- Use weed management to maintain desirable plant and animal species.
- Replant vegetation and trees if habitat area is damaged by disease or poor weather.