



## How it works

Drill or broadcast adapted grass or legumes into a low-producing pasture or a steep, eroding cropland field.

## How it helps

- Heavy grass cover slows water flow, reducing soil erosion.
- Good pastures protect water quality by filtering runoff water and increasing infiltration.
- Lush pastures give cover and habitat for wildlife.
- As plants recycle and roots die, organic matter in the soil is improved.

## Planning ahead

- Are selected species suited to your soil types?
- Have you chosen species that will help you reduce the use of pesticides and herbicides?
- Have you chosen species that will meet the needs of your livestock?

## Tech notes

- Do not mix warm and cool season grasses in the same pasture.
- Selected grass and legumes should be compatible with the planned management.

- When only two grass species are selected, they should make up equal proportions of the seeding mixture.
- Add legumes to improve forage quality and extend the grazing season.
- Drill seed uniformly to a depth of  $\frac{1}{4}$  to  $\frac{1}{2}$  inch.
- Leave residues and till on the contour.
- If erosion is a problem, leave at least 30% residue cover after planting.
- Plant a nurse crop on steeper slopes or where weeds are a problem to get a good stand. NRCS recommends seeding oats at 1 to  $1\frac{1}{2}$  bu/acre as a nurse crop.
- Graze or closely chop pastures before reseeding. Apply a burn-down herbicide.

## Maintenance

- Wait until pasture is well established to graze.
- Mow weeds when they reach a height of 6-8 inches. Control persistent weeds with herbicides.
- Fertilize as needed.



## How it works

Grass, riprap and gabions are installed along the edges of a stream to buffer the banks from heavy stream flow and reduce erosion. Fencing prevents cattle from trampling banks, destroying vegetation and stirring up sediment in the streambed. A buffer zone of vegetation along the streambank filters runoff and may also absorb excess nutrients and chemicals.

## How it helps

- Streambanks are covered with rocks, grass, trees or other cover to reduce erosion.
- Better water quality results from reducing amounts of nutrients, chemicals, animal waste and sediment entering the stream.
- Buffer zones provide cover and habitat for birds and small animals.

## Planning ahead

- Have you planned to install an off-stream water system for livestock or limited livestock access to the stream?
- Are proper soil conservation measures installed in the stream watershed to prevent siltation of buffer zones and streambed?
- Will a stream crossing be needed for livestock?

## Tech notes

- Fence livestock out of the stream.
- Smooth streambanks to provide an adequate seedbed for vegetation.
- The vegetation area along streambanks should be between 15 and 25 feet wide.
- Remove fallen trees, stumps and debris that might cause turbulence in the stream.
- Remove trees and brush that adversely affect the growth of desirable bank vegetation.

## Maintenance

- Keep fences repaired.
- Avoid damaging buffer zones with herbicides from surrounding cropland.
- Remove off-stream watering systems in the winter if necessary, and reinstall the spring.

## 20 Manure testing... sampling and testing manure to determine nutrient content. This promotes proper nutrient application to fields.



### How it works

Taking a representative sample from stored manure and sending it to an approved lab for analysis to determine nutrient content is the first step in a manure management system. This data is used to match application rates to plant nutrient needs and soil test data.

### How it helps

- Manure testing and proper application to the land can reduce crop input costs.
- Preventing over-application of manure to crop fields results in improved water quality.

### Planning ahead

- What form of manure do you plan to apply?
- Have you calibrated your spreader to apply the volume of manure called for according to plant needs and nutrient value of manure?
- Have you reduced commercial fertilizer use after accounting for nutrients supplied by manure?
- Will you hire someone or take manure samples yourself?
- Do you plan to take soil samples to help determine how manure can be used most effectively?

- Have you allowed sufficient time for the laboratory to process your manure sample and return the results to you?

### Tech notes

- Take a representative sample from your storage structure.
- Apply manure as soon as possible after receiving analysis data.

### Maintenance

- Retest manure storage every time storage structure is emptied or after making major changes in livestock feed or bedding methods.

## 21 Tree planting... establishing trees in areas adapted to woodlands.



### How it works

A variety of desired tree species, either seedlings or seeds, are planted mechanically or by hand in under-stocked woodlands or open fields. Tree species are matched with soil types and selected to prevent soil erosion, increase income, or boost productivity of existing woodland.

### How it helps

- Improving stands of woodlands can increase profits.
- Ground cover created by trees and associated debris protects soil from rill and sheet erosion.
- Ground cover also protects water quality by filtering excess nutrients and chemicals from surface runoff and increasing infiltration rates.
- Healthy, well-managed woodlands provide long-term wildlife habitat.

### Planning ahead

- Is the soil suitable for producing wood crops?
- Is the soil suitable for the tree species you have selected?
- Is there a market for the species you want to plant?
- Do you need this land for crops or livestock?

### Tech notes

- Remove brush and till the strips of pasture or sod where trees will be planted the fall before planting.
- Complete spring planting by May 15. Fall planting should begin between September 1-15.
- Standard forest planting spacings are 6' x 6', at a rate of 1,210 trees per acre; 6' x 7', 1,037 trees per acre; 6' x 8', 908 trees per acre.
- Tree seedlings should be planted within seven days of their arrival.
- Keep roots moist during planting.
- Place the root crown at ground surface or one inch below.
- Remove all air pockets when planting seedlings.
- The hole prepared for the seedling should have enough room for the roots to spread completely out.

### Maintenance

- Mow vegetative growth around trees until the trees are 3 to 4 feet high.
- Use herbicides to control competing vegetation.
- Check periodically for rodent, disease or insect damage.
- Replant, if necessary, to achieve a desired stand.