



## Planning Agroforestry Practices

### Purpose

- Explain why planning is important in developing agroforestry practices.
- Describe a planning process that can be used for agroforestry.

### Why Plan an Agroforestry Practice?

Few things disappoint a landowner more than spending money, time, and effort on a project that fails... especially one like agroforestry, where it can be years before problems become apparent.

Agroforestry practices can provide many different environmental and production benefits for a farm and its surrounding area. However, it can be a complex task to determine what opportunities, limitations, and trade-offs exist in each situation, and to design an agroforestry practice that achieves the best balance among them. Planning helps determine the best design *before* the landowner commits to something in the field. It can improve the level of success and reduce the risk of failure.

#### Benefits of Agroforestry

Check all that apply:

- Wildlife Enhancement
- Flood Control
- Income Generation
- Erosion Control
- Livestock Protection
- Fishing Improvement
- Water Pollution Control
- Crop Protection
- Land Beautification
- Snow Management

Other:

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

### A Planning Process for Agroforestry

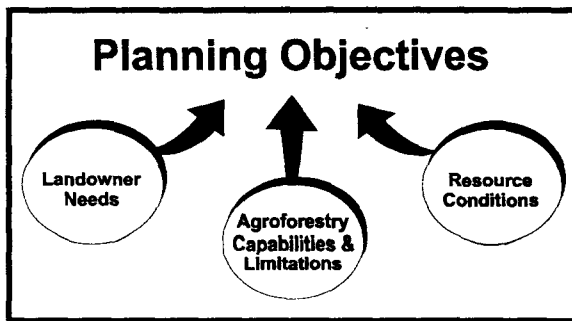
Planning typically starts when a landowner contacts a resource professional. The landowner may express an interest in some type of agroforestry or describe a problem that agroforestry can solve. The resource professional can develop a practice that meets the landowner's needs by systematically conducting three basic tasks:

- Determine objectives of the practice;
- Develop viable options for the landowner to select from;
- Implement the practice and monitor the results.

#### Determine Objectives

Before you design and install it, you have to know what it's supposed to do. Initially, a landowner may have only a general idea of problems to solve (e.g., poor cash flow) or conditions to improve (e.g., more wildlife). This provides a starting point.

Further discussion may help clarify those ideas and bring up additional ones, particularly as the resource professional helps the landowner become aware of the capabilities and limitations for agroforestry on that farm or ranch. This information helps the landowner more clearly identify an initial set of planning objectives.



After assessing the complete situation, determine planning objectives.

resource surveys. For example, some conditions that indicate opportunities for improvement include: total farm income based on a single crop; unacceptable erosion from stream banks or cultivated fields; wind stress on crops or livestock; periodic damage from flooding; and sparse fish or game.

**Landscape** assessments identify resource conditions and problems in the surrounding area that could affect, or be affected by, an agroforestry practice at the landowner's site. For example, you might find that the site is: within a critical breeding area for certain at-risk species of wildlife; upstream from a popular, but rapidly degrading recreation lake; or drains to a stream that provides drinking water to a local community. Landscape-scale information can be determined from neighbors, community leaders and groups, agency representatives, and conservation organizations. Other good sources include county and regional assessments and development plans.

Site and landscape assessments will enable the landowner to become aware of *all* the potential benefits and limitations for agroforestry on their land. The landowner can then make an informed decision about which benefits to address. Where there are several, have the landowner prioritize them in case some trade-offs are necessary in the design.

It is often helpful to specify what measurable level of each benefit (or suitable indicator) is desired. Such indicators and target levels will be useful later in developing optional designs, and for monitoring to determine if an installed practice is successful.

**Develop Options and Select One**

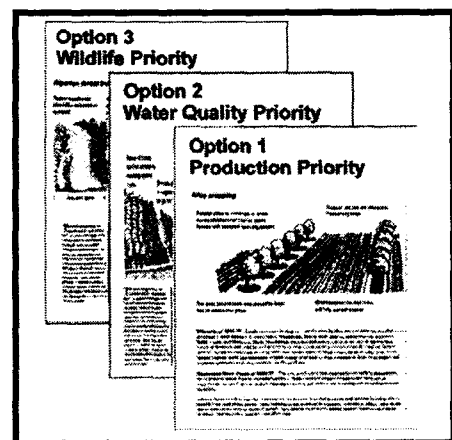
There's more than one way to get a job done... and some ways are better than others. Since the landowner makes the final call on what is "better," it is important to prepare a range of viable options.

Some optional designs may not be what the landowner originally had in mind and some may not even include agroforestry. But, good planning and design will ensure that each option can achieve the objectives of the landowner. Present each option and help the landowner evaluate and compare them.

Formulating a viable option typically requires repeated design, evaluation, and refinement. A complete agroforestry design indicates its location, size, and vegetation composition, as well as how the practice should be managed. Professional judgement, accepted rules-of-

Both a site- and a landscape-scale assessment should be conducted.

**Site** assessments identify more clearly the landowner's initial ideas and verifies his or her needs. It should also identify any other conditions that could be improved by, or limit effectiveness of, agroforestry at the site. Site-scale information can be obtained by talking with the landowner, making field observations, and consulting



Develop and discuss options with the landowner.

thumb, and scientific models can be used to estimate how well a design may achieve each planning objective.

There may be other criteria, not among the planning objectives, that also affect how desirable a design is.

Options	Considerations							
	Objectives				Other Criteria			
	Site		Landscape		Environmental	Economic		Social
	Erosion Controlled	Diversified Farm Income	Lake Nutrients Reduced	More Game Birds	Fishing Improvement	Start-Up Costs	Profitability	Landowner Acceptability
Current Practices	-2	0	-1	0	0	0	0	0
Option #1	+1	+2	+1	0	0	-2	+2	-1
Option #2	+2	+1	+2	+1	+1	0	0	+1
Option #3	+2	+1	+1	+2	0	-1	0	0

Use a matrix to compare optional designs. In this example, entries indicate relative level of impact, such as improvement (+1 and +2), no change (0), or worsening (-1 and -2). Other kinds of entries may be used depending on the needs of the planner.

Environmental impacts (positive and negative), economic costs, and general appeal of the design, for example, represent additional benefits, important limitations, and trade-offs that should also be evaluated for each option.

After preparing a few different options, compare each one to the others. Base this comparison on how well they achieve each planning objective, and on each of the other important criteria. When there are numerous objectives and other criteria, a matrix (as shown above) offers a systematic way to compile and conduct all the necessary comparisons. A matrix is also a useful tool to educate the landowner about advantages and disadvantages of each option.

### Implement and Monitor

Small agroforestry projects can be installed with a minimum of planning, however, relatively large and more-complicated projects may require implementation planning to organize numerous activities, people, and equipment, particularly if installation is a long-term activity.

After installing the selected design, monitor how well each of the planning objectives (and other criteria) are being met. The measurable indicators and target levels that were specified when developing the objectives should be used for this purpose. For example, your indicators and targets might be: farm income diversified to 20 percent from agroforestry products; livestock weight gain increases by 10 percent; crop yields increase by 10 percent; or stream water nitrate levels fall below 10 mg/L.

Some objectives may not be achieved for several years. In these cases, regular monitoring can still help determine if there is satisfactory progress toward them.

The plan can be revised and re-implemented if monitoring suggests that the planning objectives are not going to be met. Effective monitoring identifies problems early, when they are more-easily corrected. Some solutions may simply require re-installation of the original design. In other cases, the design may need to be modified to achieve the objectives. In still others, the objectives may become unobtainable, so they must be changed and a new design developed. This kind of planning activity, *after* the practice is installed, is sometimes called “adaptive management.”

**Revision is Part of the Planning Process**

The planning process is a learning process for the resource professional and the landowner. New information often leads to better assessments of problems and limitations; changes in priorities; and new or modified objectives. Revision represents an opportunity to apply that information and improve an agroforestry design. Expect to “cycle back” through each part of the process a few times, particularly the objectives and options activities, before an effective agroforestry design is produced.

**Landscape Scale Planning**

Planning for the development of agroforestry in large areas, such as counties or watersheds, can follow the same basic process that have been described above, but with two important adjustments:

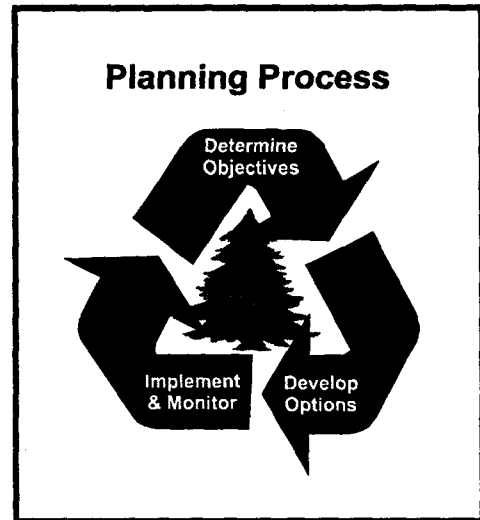
- Emphasis is placed on identifying and addressing landscape- and community-scale resource issues,
- Landscape assessments should pinpoint locations where the potential for agroforestry benefits are especially promising.

A *landscape*-scale design can be used as a guide by landowners, resource professionals, and other *site* planners for blending their individual agroforestry practices with surrounding land uses to enhance benefits to communities and resources throughout the larger area.

**For More Information**

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Planning leads to a successful agroforestry project.

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For more information contact the USDA National Agroforestry Center (NAC), East Campus-UNL, Lincoln, Nebraska 68583-0822. Phone: 402-437-5178; fax: 402-437-5712.

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