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# SECTION 2: Introduction to Planning for Agroforestry

## In this chapter:

- **Developing a Plan for Agroforestry**
- **Identifying Land Uses, Resources, Goals and Market Opportunities**

Developing a plan may seem tedious at the beginning, but the long term benefits far outweigh the difficulties of plan creation. By having a plan, landowners can better envision how to successfully integrate an Agroforestry Practice to their farm. And, the planning process will also help develop a familiarity with the management that is required in order to reach the goals, objectives, benefits and economics that are desired. The best way to ensure success is by thoughtful and honest planning.

## A Plan for Integrating Agroforestry on the Farm:

### *Developing a Workplan*

Why plan? The development of a plan for integrating agroforestry practices to the farm system is as important as the actual establishment of the practice itself. Planning -- and the development of a timeline -- will help maximize the chances for the success of the agroforestry practice. Planning will not only assist in understanding how the practice and its placement on the landscape can accomplish specific on farm goals, but will provide assistance in identifying market opportunities for products that may be grown in the practice. **Remember: Diagnosis precedes treatment.**

The culmination of the planning process is the development of a 5-year management and activities schedule. This final, yet very important step, will help line out the inputs needed over time in order to keep the agroforestry practice a meaningful and productive component of the farm system for years to come.

## Steps to Developing an Agroforestry Plan

### Objectives for Development Area

- Step 1: Initial Objectives and Priorities
- Step 2: Evaluate Personal Resources
- Step 3: Identify Current Land Uses
- Step 4: Map Area(s) for Agroforestry Development

### Site Assessment

- Step 5: Climate Assessment
- Step 6: Soil Assessment
- Step 7: Physical Features (Terrain)

### Vegetation Inventory

- Step 8: Timber and Non-Timber Forest Crop Inventory

### Brainstorming

- Step 9: Agroforestry Development Ideas

### Choosing your 'Best Bet'

- Step 10: Listing 'Best Bets'
- Step 11: Revising Your 'Best Bets'
- Step 12: Identifying Buyers and Their Needs
- Step 13: Researching the Competition
- Step 14: Exploring the Industry
- Step 15: Adding Value to Products
- Step 16: Setting the Price
- Step 17: Getting Products to the Buyer
- Step 18: The 'Final Cut'

### Agroforestry Practice Design and Management

- Step 19: Revisit Your Objectives and Priorities
- Step 20: Detailed Crop Information
- Step 21: Designing Your Agroforestry Practices

### The Agroforestry Development Plan

- Step 22: A Five-Year Management Projection
- Step 23: Yearly Activity Schedule

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## What is a Workplan?

Your agroforestry Workplan is the primary agroforestry planning tool. Coupled with the Workbook (See Appendix Section 5: Planning for Agroforestry Workbook), this section is designed to help guide you through the various stages of creating a Workplan for your agroforestry development area(s), and will assist you in gathering information on:

- your objectives and priorities
- personal resources (e.g., labor, equipment, buildings, animals, plants)
- climate, soil conditions and physical features
- current land use
- land available to practice agroforestry
- a non-timber plant inventory (for woodland only)
- market conditions for potential products.

Together with sections three to 10 of this manual and the tree/shrub/grass/forage information provided in the appendices, the Workplan will allow you to identify what agroforestry products can grow on your land, which of these products you can sell profitably, and how to develop basic business and marketing strategies. The final section is a five-year development plan and yearly activity schedule, outlining the work you plan to do to establish your agroforestry development(s). The time you put into researching, preparing and following your Workplan is an investment in your future agroforestry success.

The steps presented in the following pages—designed to guide you in creating an agroforestry Workplan—are often inter-related, and information gathered in one step will likely impact information gathered in other steps. For this reason, the creation of your Workplan will likely require you to revisit (and expand) each step as you learn more and develop new ideas.

Note: The succession of steps has been organized to help you develop your Workplan logically. You need not complete each step in the order they are presented. You may prefer to gather information in a way that best suits your circumstances.

In addition to identifying available resources, site conditions and marketable plants, filling in the Workplan will help you explore and articulate your values and attitudes. Every landowner will have different personal and production goals for an agroforestry development, and your plan for your land will be different from someone across the country, State, or even across the road. To accommodate these differences, this guide is not based on a single set of goals. Instead, it has been developed to provide a set of tools that you can use to make informed decisions in creating a profitable agroforestry business.

An agroforestry development plan is based on the capability of your land, your personal goals, your business goals, and your land stewardship objectives. These goals and objectives will be re-assessed and changed as you obtain new information during the planning and initiation of an agroforestry development. Agroforestry practices are always changing, and understanding and working with change will help you best achieve your goals.

The Workplan includes key assessments you are likely to need to plan a successful agroforestry development.

There are many sources of information and advice available to assist you with your agroforestry development. Since agroforestry practices often involve various fields (e.g., forestry, agronomy, animal husbandry, horticulture, soil science, marketing) you may have to augment your personal knowledge. Sources listed at the end of each section in the training manual are designed to guide you.

## How to Proceed

You'll find a pull-out Workplan in Appendix 5. The Workplan can be photocopied as needed. The information, tools and links you need to complete the Workplan are found in sections that follow (sections 3 to 10).

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It is recommended that you read through these steps before you begin to write down information in the corresponding sections of the Workplan.

**Note:** Depending on the size of your property, you may have one or more areas on which you want to develop agroforestry practices. Planning will be easier if you prepare a Workplan for each separate development area, especially if potential agroforestry development areas have different site conditions and current uses.

## Step 1: Initial Objectives and Priorities

Landowners exploring multiple uses for their property face many preliminary decisions. Not least, if you have a number of different objectives for an area, some may seem to be in conflict. The choices each landowner makes reflect a set of individual values and attitudes. Your personal and business goals become the criteria for assessing the different possibilities for your land.

Your land management objectives and priorities will be specific to your circumstances and the area you want to develop for agroforestry. **However, among other possibilities, you may want to:**

- *develop a new source of income from unproductive land (diversification)*
- *reduce costs of an existing farm or forest operation*
- *develop a source of long-term income*
- *develop a source of short-term income while awaiting long-term income from timber*
- *reduce property taxes*
- *protect or improve environmental conditions*
- *increase grazing opportunities.*

Turn to the Agroforestry Workbook: Appendix 5 and complete the table of initial objectives and priorities. Remember that these initial objectives may change as you learn more about your land and your agroforestry business. After you finish this assessment, you will be able to weigh your objectives against what you can actually produce on each area

of your land.

## Step 2: Evaluate Personal Resources

In addition to your land base, your agroforestry development will require the input of other personal resources. An evaluation of the resources available to you will help determine which agroforestry options are best suited to your operation. An evaluation should include:

Management and labor availability – Periods during which you are not busy (between or after harvests) and the periods during which labor and management time will be committed to other activities

Equipment and buildings – Buildings and equipment, including machines and hand tools, that can be used for this development.

Livestock – Your operation may already have cattle, sheep or other animals

Plant material – Your own sources of seed, seedlings, cuttings and larger trees

Other materials – Resources such as sawdust or shavings, manure and straw for mulch.

List these personal resources, as well as anything else that you consider of importance, in the table provided in the Workbook.

## Step 3: Identify Current Land Uses

List the present uses of each area of your land and the products you harvest, and record them in your Workbook. These uses could include:

residential  
recreational  
farming (which crops)  
grazing (type of livestock)  
timber production  
non-timber production  
environmental use

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## Step 4: Map Area(s) for Agroforestry Development

An agroforestry development may include all of your land or only specific areas, such as existing woodlands, open field, logged-over area or riparian zone. In either case, identifying objectives and making decisions will be much easier if you break your land into separate development areas with similar current uses and site conditions (such as soil, moisture and existing plants). Steps in the Workbook, including the sketch map, should be completed for each separate development area. Pages of the Workbook can be copied for this purpose.

### *For each agroforestry development area, you should:*

- Draw a sketch map of the area you are targeting for agroforestry development. Using the legend provided in the Workbook, indicate boundary lines, main geographic features, houses, other buildings and roads.
  - Identify and measure the area approximately, marking these measurements on the sketch. This will help determine planting requirements and potential crop production.
- There is some overlap between Step 3 and Step 4, since you will indicate these uses on your sketch map. Step 3 gives an opportunity to provide information on land use in greater detail, and by thinking about land uses, you may decide to modify your sketch map.

## Why Assess Your Land?

Assess climate, soil and physical features on each site on which you intend to develop an agroforestry practice. These assessments will allow you to determine:

- which plants you can successfully grow on each site
- limitations to planting and growing these plants
- the most effective management practices

Assessments can be as detailed as you want, or as required by the project. The introduction of long-term or special-needs crops such as black walnut

trees requires a different level of site assessment than the planting of a shallow-rooted annual crop. Even if you plan to begin small, with a few tree seedlings on a fence line and a small planting of medicinal herbs, you should still assess the limitations and potential of your land.

The information provided here, and the accompanying form in the Workbook, provides a basic site assessment. More detailed assessments require added time, equipment and expertise. They are only worth doing if it will help with a critical aspect of your agroforestry development. For most developments, they are not necessary.

## Step 5: Climate Assessment

Climate on your site ultimately determines what you can grow on your land. Combining this data with the information provided in Appendices 2 and 3 will establish the range of possibilities for your agroforestry practice.

**Hardiness Zone** - The US Department of Agriculture Plant Hardiness Zone Map has mapped plant hardiness zones for the entire country. You can find the Plant Hardiness Zone Map for different regions of the USA at the USDA National Arboretum website: <http://www.usna.usda.gov/Hardzone/ush-zmap.html>

To locate a Plant Hardiness Zone Map specific to your State go to the following website and click on your State: <http://www.growit.com/bin/USDAZoneMaps.exe?MyState=MO>

These zones rate the conditions affecting winter survival of plants. The primary factor is the minimum (coldest) winter temperature, with some consideration for the number of frost-free days, summer rainfall, maximum temperatures, snow cover and wind.

Most information sources, and suppliers of seeds and plants, list the minimum hardiness zone for particular plants. Plant breeding programs have resulted in cultivars or selections of many plants that differ in hardiness from their parent (check this

carefully to prevent a costly error).

In some cases, the hardiness zone mapping is only an approximate guide for local conditions. Enter hardiness zone information in the table provided in the Workbook. Additional information you may find, such as frost-free days and date of soil thaw, should also be included in the table.

## Step 6: Soil Assessment

**Land Capability Classification** - The Land Capability Classification shows, in a general way, the suitability of soils for most kinds of agricultural land use or field crops. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. There are two principle categories in this classification system, the Capability Class and Capability Subclass.

The Land Capability Classification identifies the potential of local areas for agricultural production. County Soil Surveys contain the Land Capability Classification for all soils in your county. The County Soil Surveys also provide useful climate information.

The classes are ranked from I (highest) to VIII (lowest), but the capability subclasses refer to soil groups within a class. Classes I - IV are considered capable of the sustained production of common field crops. Crop species become limiting as the land capability declines from Class I to Class IV. Class V lands are only capable of producing perennial forage crops or specially adapted crops. Class VI lands are capable of providing sustained pasture. Class VII land are incapable of either arable culture or grazing.

**Capability Subclasses include:** (e) runoff and erosion; (w) wetness; and (s) root zone or tillage problems - shallow, droughty or stony.

List the climatic, capability rating and limiting factors for your site, as well as any other information you believe might be useful, in your Workbook.

Soils are an extremely important feature of your land base because they are the material in which the plants of your agroforestry practice will grow.

### Soil Information Sources

Information about various versions of a soil survey can be obtained one of three ways:

- *By checking the list of published surveys on the soils web site of the USDA*
- *By contacting the appropriate state office of the NRCS*
- *By contacting the appropriate local office of the NRCS*

**Note:** *Additional information about Missouri soils can be found at the Missouri Cooperative Soil Survey web site at (<http://soils.missouri.edu>).*

Soil survey publications represent a snapshot in time. They contain information that was current as of the indicated publication date. The text, tables and soil maps may have been updated since publication. The most up-to-date information is available on the NRCS Web Soil Survey (<http://websoilsurvey.nrcs.usda.gov/app/>) or the Soil Data Mart online at (<http://soildatamart.nrcs.usda.gov/>).

Read about the soils (formation of soils), look at a soils map, then examine your soils. One way to gain an understanding of your soil is to dig several soil pits at least 18" deep, and examine your soils for several important features. However, soils are landform dependent, and samples taken should represent different landforms and positions on those landforms. It is recommended to dig one or two pits per acre, and more if the area/landform is not uniform. For more detail on soil assessment, see Additional Resources at the end of this section.

**Important note:** If you are planning to practice agroforestry on a woodland area, plan to do a plant inventory. Since this requires setting up survey plots in a grid system, you probably want to do

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your soil assessments at the same time as your plant inventory.

### ***Soil Texture and Composition***

Mineral soils are particles of rock or minerals produced from rock by weathering and other geological processes. Soil textures are grouped into the three particle sizes shown in the table below. Sands and gravel are the largest particles, while clay and silt soils contain the smallest particles. The finer textured soils hold more water and dry out more slowly. Organic soil layers or horizons are derived from decaying vegetation, usually in a thin layer above mineral soils. Where found in a sizable layer, they tend to retain both water and nutrients.

In your Workbook list the soil type(s) found in each of your agroforestry development areas, and map the locations if there is more than one type.

### ***Soil Depth***

Soil depth determines the rooting capability of the plants you may wish to grow. In particular, forest soils can be quite shallow, requiring extra care in management. You will notice distinct layers as you dig down and you may come across restricting layers such as: 1) stones and rock outcrops that can interfere with digging and cultivation, and can reduce the nutrient and water-holding capacity of the soil. Rock outcroppings are areas with very little soil; and 2) hardpan, a hardened layer below the surface of the soil that can prevent penetration of water and roots. Additional soil features that may be problematic include: fragipans, claypans, abrupt textural changes and general discontinuity. Deep-rooted plants such as alfalfa or black walnut will be severely impacted by hardpan. Neighbors and previous landowners may know if there is a hardpan, but you may have to dig several holes to determine the extent.

Note and record in your Workbook the approximate percentage of rock fragments in the soil (stoniness), and depth and type of any restricting layers. Show their extent on the sketch map.

### ***Soil Moisture***

Soil moisture, which is key to the establishment

and growth of plants, is closely linked to soil texture. The spaces (pores) between soil particles hold water and air needed by plants for good growth. Generally, coarser soils are well-drained and are often dry for longer periods, while soils with finer textures hold more water and are likely to remain moist longer. Other factors, such as ground water level or the presence of an impermeable layer that restricts drainage, also determine soil moisture. As you dig your pit, is the soil dusty and dry? Does water seep into the bottom of the hole? Often, the time of year and recent weather will influence soil moisture.

### ***High Water Table, Standing Water or Flooding***

Areas such as wetlands and parts of riparian zones which remain fully saturated for extended periods of time are of special concern. These areas are sensitive to access development and machine use, and are important for wildlife habitat and other environmental values. You will need to identify these areas of your land and plan to use especially careful management. Access may be limited for all or part of the year.

In your Workbook and on your sketch map, it is important to note any: wetland features, evidence of flooding, areas that experience overland flows or standing water during spring runoff, and areas with continual seepage or high water table.

Both very wet or dry conditions pose challenges for planting and management. However, some plants are particularly adapted to one or the other of these extremes (see Appendices 2 & 3 for a listing of suitable plants). Note the moisture conditions of various portions of your proposed development area on both your sketch map and in your Workbook.

### ***Nutrients***

The availability of nutrients in the soil affects the quantity and quality of products produced. You can undertake a soil test to determine the soil pH (acid/alkaline balance), specific nutrient levels, and recommendations for various crops. Tissue analysis is also an effective way (preferred in forest soils) to determine nutritional status of existing trees and

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plants. Although there are soil sampling field kits, soil and tissue samples are usually sent to a laboratory for analysis and interpretation. In your Workbook note the status of soil nutrients that you have determined and attach any lab reports.

## Step 7: Physical Features (Topography)

The physical features outlined in Step 7 are closely related to—but also different from—the soil characteristics described in Step 6. For ease-of-use, physical features are described separately from soil characteristics. However, the information you generate through each step is entered into the same table in the Workbook. This allows you to easily see the relationships between physical features and soil characteristics. There are several physical features that can influence your capability to produce particular crops on a site.

Aspect refers to the direction toward which the site slopes (if any). South and southwest-facing slopes are usually warmer and drier than those facing north, and naturally support different plant communities. Terrain relief refers to whether the site is steep, flat, sloped, rolling, gullied or broken (steep slopes between benches). This will influence access and machine capability, water management, cold air drainage, and other microclimate factors. Frost pockets are one additional feature to consider. Cold air flows downhill and pools in low areas. The resulting localized frosts can damage delicate flowers and shoots that start to grow early in the spring. Even crop plants correctly chosen for your hardiness zone can be affected. Assess low areas on your land for potential frost pockets—the absence of native berry plants can be a good indicator. Avoid these areas for frost-sensitive plants. Sloped or bench land that has good air drainage is a better choice.

Enter your observations of the physical features mentioned above in your Workbook and on your sketch map.

## Step 8: Timber and Non-timber Forest Crop Inventory

If you want to practice agroforestry in woodland areas, this chapter will help you inventory the variety of plants growing on your land—everything from trees to herbs on the forest floor. The inventory of trees described here is restricted to their potential production of non-timber products (e.g., medicinals, florals) and their interactions with other plants (e.g., shade, moisture, nutrients). A non-timber vegetation inventory can be used to help create a list of ‘best bets’—plants that can be successfully grown on your land, and will also help you decide how to manage your woodland efficiently and productively (i.e., managing competition for sun, water and nutrients). There is literature available elsewhere on timber inventory methods (see Additional Resources).

If you own more than a few acres of land, you should sample your land base, using inventory plots to obtain a ‘best approximation’ of the vegetation. Sampling is an excellent compromise between doing nothing (and having a very limited picture of your land) and trying to do the impossible: counting every tree, shrub and herb on your property.

### A. Preparing Your Inventory

An inventory should give you a timely snapshot of your land; it should not take too long, nor should it be too difficult. Inventory plots are the sites where you record information about vegetation and other features on your land. They form a pre-determined portion (or percentage) of the larger area you’re interested in sampling. Multiplying your plot data by the number of plots that would fit in the larger area will give an estimate of what you would find if you actually measured everything. Size of inventory plots depends on what you’re trying to survey and the vegetation cover on the plot. In your forest vegetation survey, you will actually take two separate surveys from the same plot center. This is because you need to collect information about two very different types of vegetation: Trees; shrubs and other smaller plants.

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Plot cruises can be used to estimate the number of plants in a forest by species, diameter, height, form class and grade. All fixed plot cruises have statistical sampling error which is important to know and understand before relying on the data. A plot cruise simply consists of counting and classifying all trees or plants species in a series of circular sample plots. Circular plots are usually 1/10-acre in size (37.2 feet radius). The plots are evenly spaced throughout the stand to provide an equal sampling of all forest types across all topographic changes

### ***B. Doing Your Inventory***

Locating your plots in the field. Following a compass line is a vital skill when conducting your vegetation inventory. It is beyond the scope of this training manual to review compass work in detail but there are a couple of points to remember:

- The right compass for the job. Ideally, you should have a ‘ranger’ type with a mirror in the lid, gunsight sighting, liquid dampened needle, and an adjustment for setting declination.
- Staying on track. With a little practice, staying on your traverse line is not difficult. Hold the compass level, line up the arrow in the mirror face, sight on the farthest object you can pick out through the gunsight (e.g., recognizable tree, rock, stump), and walk toward it. When you reach that landmark, sight again and find a new object to focus on.

Obtain a good guidebook to the plants of your area. Remember that quality can have a big impact on the prices you receive for non-timber forest products. That means you will have to make judgment calls when doing your inventory. Information on product specifications—including acceptable quality—can be found in Appendices 2 and 3. It is also important to remember that you should contact buyers before you harvest, so that you can harvest to the correct specifications.

#### ***Tree Inventory***

The tree inventory described here is only intended to determine the non-timber resources available (e.g., boughs, vines, bark, burls).

***Number of trees and species.*** Record the number of trees of each species found at the plot. This will

assist in determining what non-timber products can be obtained, and what plants can be grown under the canopy.

***Tree age.*** This is optional, but can be useful to know. An increment borer is easy to use and will not harm the trees. Record the age of one or two average trees per plot.

***Tree height.*** This is also optional, and only really useful for a timber inventory. Details on calculating height are provided in Appendix 5: Inventory Information.

***Condition of trees.*** Helpful in determining whether marketable non-timber products can be harvested. Also helpful in assessing the possible function as a windbreak.

***Crown closure.*** The degree of canopy closure will determine the conditions for raising or enhancing shade-loving species in the under storey. See the diagram below for estimates of crown closure.

#### ***Non-tree Inventory***

Begin your inventory by identifying and listing all the harvestable non-tree species found in the plot on your plot sheet. Include plants that provide good browse if you intend to graze the area.

***For each species, record the following:***

***Total number of plants for each species.*** Where possible/feasible, count the number of individual plants of each species found in the plot. This will be easier on an open forest floor than it will be on dense sites. You may choose to record sites like the latter simply as ‘dense coverage.’ This is one of those instances where judgment calls come in. Even an approximate number could be useful in developing a harvesting plan.

***Estimate of the percentage cover for each species.*** How much of the plot do you think the species covers? Provide an estimate to the closest 10%.

***Proportion of harvestable vs. non-harvestable individuals.*** The aim here is estimate the amount of harvestable individuals for each species (none,

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20%, 50%). Your decisions will be based on factors such as size, color, and insect or other damage. If many of the plants are not harvestable in their current condition, cultural practices such as fertilization and pruning may be available that would improve product quantity and quality.

### **C. Using Your Inventory**

First, make sure all areas inventoried are marked on your map(s). Next, you need to take the raw data from your inventory (plot sheets), compile it, and present it in a useful format. That means taking the information from your sample plots and organizing the information so it represents your entire development area.

#### ***Trees and/or Other Resources per acre***

Among your survey information, you have recorded the number of each plant species that appears in each inventory plot. Now you want to convert that number into the number of plants per acre. This is done using the plots per acre factor. The plot information is then extrapolated to one acre and then multiplied by the total acres. For example, if you counted ten individual witch hazel shrubs in your plot cruise

One plot on 1-acre:

Plot size 1/10-acre

Plot radius (feet) 37.2

Average trillium plants /plot 8

Factor to 1-acre, multiply times 10

Total estimated witch hazel per acre = 80

Once you know the approximate number of plants of a given species per are you have a fairly good idea of the plant resources you have on your land. Record the information in the tables provided in the Workbook.

## **Step 9: Agroforestry Development Ideas - Brainstorming**

After reading the sections 3 through 10 in this training manual, you will probably come up with some ideas for agroforestry developments on your property. Once you have done this, it is time to engage in some brainstorming. In addition, check out the appendices 2 (Trees and Shrubs

for Agroforestry) and 3 (Grasses and Forages for Agroforestry) to develop additional ideas.

Brainstorming is the process of putting ideas down on paper as they come into your head. List them all and don't try to self-censor the ideas. You can reduce this list to 'best bets' later. Input from family and friends, as well as ideas from neighboring landowners, can help generate useful ideas. This is also a point at which expert advice may expand the list of possibilities. For additional assistance consult the Additional Resources that are listed at the end of every section.

For each development area, sort the list by practice and record this information in your Workbook. In general, more intensive agroforestry practices (e.g., forest farming) are suited for smaller units of land, while the more extensive practices (e.g., silvopasture) are suited to larger units of land.

## **Step 10: Listing 'Best Bets'**

The intent of this short but important section is to create a list of potential crops that can be grown on your land. This list of 'best bets' will be based on the information you have gathered so far—including land and personal resources, site conditions and current land use—combined with the plant information provided in Appendices 2 and 3.

Perhaps the easiest way to approach this list is by first determining what plants can grow under the climatic, soil and physical conditions that occur in each of your agroforestry development areas. Plants you already cultivate on your land, plants revealed by your non-timber inventory, and crop ideas you have developed while gathering information will all form part of this list.

You can add substantially to the list by looking at Appendices 2 and 3 to see what other plants can be successfully grown on your site, and what products can be made from them. You want this list to be as extensive as possible, so you can consider the widest possible range of options.

Your list can be refined by considering the resourc-

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es at your disposal (e.g., labor, buildings, equipment) at different times of the year. These factors will limit the crops and crop combinations you can grow. Finally, you can further refine your list by revisiting the objectives you have for your land, such as income diversification, reduction of land taxes or environmental protection.

The list of ‘best bets’ you make in this part of your Workbook should include all the plants that can grow on your land, and the products that can be derived. Make sure you include timber products that can be made from trees you would plant as part of an agroforestry development. If you have done a timber inventory—in addition to the non-timber vegetation inventory list those possible timber products as well.

Along with Section 10 of the Training Manual, the following steps will help you develop a marketing strategy, or marketing plan. Each step contains directions needed to complete corresponding sections in your Workbook. You should note that every part of every step might not apply to your situation.

## Step 11: Revising Your ‘Best Bets’

In Step 10 of your Workplan you identified the plants that can grow on your land, and which you can produce with the resources you have available. In Step 11, the list of ‘best bets’ will be refined to include those plants and products you think have the best market potential. This revised list of ‘best bets’ will provide direction for your in-depth market research.

*When selecting a list of marketable ‘best bets,’ consider:*

- *Are there buyers nearby?*
- *What is the demand for the crop, relative to supply?*
- *How does harvesting and selling these crops fit in with the rest of your production system? For example, will the crop(s) require big inputs of labor during an already busy period?*
- *Is investment of resources (labor and capital) likely to provide an adequate return?*
- *How does that return compare to other pos-*

*sible crop/product options?*

Where possible, use your vegetation inventory information to list the approximate volumes of the crops you have for sale. For crops not yet planted, you should estimate how much you’ll be able to sell so you have an idea of how much to plant.

## Step 12: Identifying Buyers and Their Needs

Your customers are the consumers, brokers, wholesalers and others who will potentially buy your product. Generally, buyers for NTFPs and agricultural crops or products include: consumers, wholesalers/brokers, supermarkets, small retailers, processors, restaurants and exporters.

*The needs of these different buyers can vary significantly. Take the time to find out what your potential buyers want before you go any further.*

*Important information includes:*

- *What quantity and quality of product do they expect?*
- *How much are they willing to pay?*
- *When do they need the product?*
- *Does the market area have an adequate customer base?*
- *Ideally, you will be able to focus on one primary market—or group of buyers—that looks like the best fit and is large enough to provide a reasonable return for your efforts.*

## Step 13: Researching the Competition

Understanding the competition will influence the way you customize your marketing plan. Speaking with potential buyers is a good place to start developing a list of competitors. Next, determine as much as you can about your competitors, including:

- *Are they working at full capacity (i.e., can they produce more)?*
- *Do they have a particular niche?*
- *What are their marketing methods?*

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- *What are they doing right? What are they doing wrong?*
  - *How long have they been in business?*
  - *Can you offer something they cannot?*

One way to get around approaching competitors for business information is to contact similar businesses in different areas. They are more likely to share their knowledge because you're not in direct competition. You can also try: checking competitors' prices, talking to their customers/buyers/suppliers, collecting their promotional material.

After assessing the competition, you may choose a different approach. Keep in mind that potential competitors may also be potential buyers for your products. Perhaps you can explore marketing with other producers where there are advantages in assembling larger volumes for sale.

## Step 14: Exploring the Industry

Getting to know your potential competitors is important, but it is also necessary to have a clear picture of the entire industry in which you intend to participate. You should focus on three main areas.

1. Knowledge of standards, including:
  - the form in which products are sold
  - required methods of product handling
  - minimum or preferred purchasing amounts.
2. Awareness of influences within the industry (largely beyond your control), including:
  - fluctuations of markets, primarily regional but also national and international
  - the effect of climatic variables on local supplies
  - seasonal purchasing trends.
3. Anticipation of industry trends, helping you take advantage of opportunities and protect yourself as markets change. Trends include:
  - expected long-term growth or shrinkage in markets
  - development of new product areas
  - pricing directions, shifts and swings
  - new varieties or cultivars.

## Step 15: Adding Value to Products

When making decisions about your choice of products and how you can market them, consider ways to add value. Adding value will allow you to obtain a better price for the same amount of raw material. For small landowners, adding value to agricultural and non-timber crops can make an enormous difference to the bottom line.

The common view is that adding value involves changing the form of a harvested product. For example, turning berries into jam may multiply the value of berries by as much as 10 to 15 times over selling them fresh. Processing raw materials can provide other benefits, including:

- being able to sell some products out-of-season or over a longer period of time (e.g., berries which often all become ripe at the same time)
- minimizing the need for cold storage and reducing losses during the shipping of fresh products over long distances
- differentiating your product from others using the same primary material, and creating a 'niche' market.

Less well-known are ways of adding value that do not involve changing the form of the raw materials. For example, selling further down the marketing chain—by-passing a middleman or two—may significantly increase the price you get for your product. Even delivering your own products or providing other services to the buyer could result in a higher price.

In other situations, processors prefer to buy from brokers who provide the amounts needed in one transaction. In this case, a co-operative venture with other producers will create the bulk shipments needed to attract buyer interest.

### *Ideas for Adding Value*

A few of the more common methods of adding value to your agroforestry products are described below. Many edibles you could produce in an agroforestry practice also have a market in a value-added form. Fresh products are usually perishable

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and only available for short periods. Processing extends the period during which products can be made available, and allows processors to increase potential returns.

### **Examples of Value-added Edibles**

Processed fruit products (jams, jellies, fruit leathers, sauces, chutneys, vinegars); Lower quality/broken mushrooms (dried and used to create a flavorful spice or thickening agent for use in soups). Frozen products (berries are the most obvious candidates, though mushrooms are sometimes frozen); Dried products (mushrooms, berries). Other creative ways for adding value to edible (or other) products include direct marketing to consumers. In addition to the more traditional farm stands or farmers' markets, there are also options for supplying consumers with agricultural products through community supported agriculture (CSA) programs. (Check with your local organic producers associations).

It is important to be aware of complications that come with making processed food products. Carefully research regulations and standards before you begin production. Value-added decorative and craft products can provide immediate returns. The amount of skill required to produce these products varies. Some products (e.g., wreaths) are fairly easy to produce, while others (e.g., baskets and furniture) may require more time to develop proper skills.

Herbal products offer a number of opportunities for adding value. Medicinal herbs are a good option for marketing at a local level but you must adhere to regulations that govern the sale of these products. Getting into the business of selling 'drugs' to the mass market should not be taken lightly. Herbal teas sold under food regulations may offer a much easier approach.

### **Is it Worth it?: The 'Cons' of Adding Value**

**Adding value is not always the best option. Ask yourself some hard questions before you embark on the value-added route:**

- *Are financial and human resources/expertise available to develop value-added processing?*

*If not, what will it take to acquire them (e.g., loans, training)?*

- *Do you have the long-term supply of resources to support a value-added strategy?*
- *What are the markets for potential value-added products? Can you meet the requirements of the marketplace? How easy will it be to break in to those markets?*
- *How long will it take to recoup the costs of any processing equipment involved?*
- *Can you handle the risks sometimes involved in adding value? For example, are you better off taking less for your product but letting a middleman absorb the risk?*

As with any business, you have to do the research, consider your resources and crunch the numbers to see if it's worthwhile. Usually, adding value is smart marketing.

## **Step 16: Setting the Price**

The price you set will be a major factor in determining the success you have in marketing your agroforestry crops and products.

The two basic functions of pricing are to cover costs and make a profit, and to encourage customers to buy. You can either price to the market or price to your costs.

### **Pricing to the Market**

When you're just starting out, pricing to the market is often the simplest approach. Pricing to the market involves finding out what others are charging for the same products, and then using that information to establish a similar price range. Buyers are also pricing to the market when they tell you what they're willing to pay for your products.

Pricing information on agricultural products can be obtained from a number of sources. If you plan to sell directly to the public, various retail market outlets will provide you with information on the going rate for your product. Buyers will also provide pricing information, but keep in mind that these prices are usually negotiable. For traditional agricultural crops, specialists at the MAFF should be able to assist you with pricing information. The Internet may

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be another source of pricing information, depending on the market you are seeking to access. NTFP pricing information can be difficult to obtain, but your best bet is talking to other producers and the buyers you've identified. The Internet also has limited pricing information for some products, especially for 'finished' or value-added products such as crafts, wreaths, berry jam and the like (these may also be obtained from catalogues from various companies).

### *Pricing to Your Costs*

Pricing to your costs ensures that what you charge covers all your expenses—not necessarily the case when pricing to the market. Businesses sometimes start out by pricing to the market, and then shift to pricing according to costs once these become clearly identified. If you find that similar products are available for a much lower price than you could charge, you'll have to either adjust your profit margin or differentiate your product so that consumers feel it is worth the higher price.

The timing of sales has a strong influence over the price which can be obtained, and the obvious objective is to sell when prices are highest (i.e., demand is high relative to supply). Non-perishable products allow greater flexibility in this choice, as do products processed to allow out-of-season sales. You may also wish to explore different management practices that will enable you to harvest early or late in the season when other supplies may be limited.

### *What goes into the cost equation?*

Production costs, materials, fixed overhead, time/labor and profit.

A simple formula for setting the price per unit is:  
Total costs of production per unit + Desired profit per unit = Price per unit.

### *Price Setter or Price Taker?*

Sometimes you will be able to set prices for your product, other times you won't. A number of factors will influence whether you are a price-setter or a price-taker:

- **The scale of the market.** Prices for internationally traded commodities (e.g., lumber,

wheat) tend to be set far from the place of production. This is also true for many agricultural commodities and NTFPs (e.g., mushrooms, some floral greens, medicinal herbs) that are traded in international or other extended markets.

- **Product differentiation.** If your product is unique (the opposite of a commodity) you are more likely able to influence the price you receive. 'Niche' market and value-added products usually have superior opportunities for cost-driven pricing.
- **Your reputation within the industry.** Sometimes experienced, dependable suppliers are able to get a higher price for their products (a 'premium') because buyers know they will reliably supply a high quality product.
- **Your negotiating skills.** If you have good negotiating skills, your ability to influence the prices you receive for a product will increase greatly.

In the end, the single most important influence on your pricing decisions will be your customer's ability and willingness to pay the price you are asking. However, keep in mind that you can also influence prices by promoting your products.

## **Step 17: Getting Products to Buyers**

There are three aspects to getting your products to buyers:

- A. Distribution: The sales channel(s) your product will follow.
- B. Location: Where you sell your product.
- C. Transportation: How your product will reach the buyer.

### *A. Distribution: Sales Channels*

Your product may be able to take a number of different routes—or sales channels—to the end user. Which sales channel(s) you end up using will depend on a number of factors, such as:

- existence of a 'dominant' distribution system for your product
- demand for your product from various levels in the marketing chain

- time you have available and your marketing abilities
- your own preferences.

Using these criteria, among others, you can choose one of the three basic marketing channels that most products follow:

- Direct marketing: From producer to the consumer
- Single-stage: From the producer to a retail business to the consumer
- Traditional or multi-stage: From producer through several others (broker and/or processor and/or wholesaler) to retailer to the consumer.

In general, the closer the producer is to the consumer, the greater the return as well as the workload. Your choice of sales channels may significantly impact your bottom line.

You may be tempted to eliminate one or more middlemen in the chain. Remember that if you're being paid outright by a broker/buyer/wholesaler, that person is also accepting the risk of selling your product to the next level in the sales chain. Before you take over that role yourself, make sure that you are willing to accept the additional risk. Also, some products and markets may allow you to invite bids from different buyers and possibly obtain a better price.

Knowing how your product is being distributed could, over time, help you establish 'alternative marketing strategies' to improve your returns. You may find opportunities to sell your products at a higher level and to cut out some of the middlemen. You may also discover potential channels that will provide other business opportunities.

### **B. Location**

When selling directly to consumers, there is a range of choices as to where you will offer your product. Possible sites for marketing agroforestry products include:

- your property (everything from timber to berry jam), if not too remote
- roadside stands (your driveway, highway rest areas, park-and-ride locations)

- farmers markets (in urban areas these can be especially lucrative)
- craft markets
- co-operative marketing with other firms (e.g., renting seasonal space at a plant nursery, Christmas tree lot, supermarket, bed and breakfast).

Many businesses take orders over the phone, by fax, email, or regular mail, and deliver the product (themselves or using a delivery service) directly to customers. For some products, particularly specialty foods and crafts, the Internet can provide easier access to a wider market than traditional mail-order techniques. All 'mail-order' type direct marketing systems require a product that is easily handled and access to reliable transportation for it.

### **C. Transportation Options**

If you are pursuing a sales channel where your customers are not coming to you, it is necessary to consider how your product will get to them. Important factors to consider include:

- cost to ship to distant markets via various transportation modes
- inclusion (or not) of transportation costs in the selling price (i.e., whether you or the buyer pays the freight costs)
- the reliability and timeliness of various modes of transportation (especially for perishable goods).

Negotiating favorable freight terms may be critical to the viability of your business, so do not simply accept the first quote you receive from a shipper. For air cargoes, some freight brokers may be able to offer much better rates than the airlines. Greater volumes may permit price breaks, so partnering with another businesses in assembling loads can be beneficial.

Another way to reduce freight costs is to find trucking firms which are seeking 'back-haul' loads (i.e., freight for trucks from regional or provincial distribution centers that would otherwise be returning empty). It is important to compile a list of prospective transport options and their respective costs. In some cases it is simply not profitable to ship a

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specific product into a particular market.

## **Step 18: The ‘Final Cut’**

Now that you have applied your market research to your list of ‘best bets,’ you are ready to establish a final listing of the crops and products that appear best suited to your production and marketing efforts. You may find that the initial ‘best bets’ you chose at the beginning of this chapter still look good, or you may decide to shelve some ideas and work through some other opportunities. Over the long-term, your choice of crops and products is likely to evolve as your business and woodland matures.

## **Step 19: Re-visit Your Objectives and Priorities**

The first step in developing your Workbook was to outline your initial objectives and priorities for your land-based business. Since then, you have gathered considerable amounts of information that will likely change at least some of those original goals. Record your revised objectives and priorities in the space provided in the Workbook.

## **Step 20: Detailed Crop Information**

In order to develop the most functional and profitable agroforestry practices, you should know as much as possible about each plant you intend to grow. You will have gathered much of this information while filling out your Workbook, using your land assessment, plant inventory (where appropriate), market research, Appendices 2 and 3, and possibly your own additional research. Important information includes the biological requirements of each plant, the agroforestry practices they can be grown in, what other plants (and animals) they are compatible with, labor requirements for harvesting, potential volumes, value-added opportunities, and useful market information.

The table provided in the Workbook may include categories of information you do not have. You

can exclude these or take extra time to find the information. There is also extra space for additional information you consider important but not specifically listed here.

## **Step 21: Designing Your Agroforestry Practices**

Now is the time to arrange your plants into agroforestry practices that best meet the management objectives you outlined in Step 19. The information on each plant crop, and the management information provided earlier in this chapter, will allow you to design and manage agroforestry practices that best meet your objectives. Fill in a table in the Workbook for each agroforestry practice you intend to develop.

Note: Remember that price and marketability are not the only criteria for selection of the plants you will include in your agroforestry practices. Some plants may be chosen because they provide valuable ecological functions to your agroforestry practice, such as trees for shade and windbreaks, or legumes for nitrogen fixation.

## **Building an Agroforestry Development Plan**

The purpose of building an agroforestry development plan is to create a schedule of the work that needs to be done in the years ahead in order to fully develop your agroforestry area(s). Your completed Agroforestry Development Workplan will include specific tasks, timelines, and labor projections for each agroforestry practice on a year-by-year basis. You will need a Development Plan for each agroforestry development area. The Development Workplan is the final step in your Workbook, and will form the practical basis for your agroforestry development. You will no doubt change and adapt your work projections in the years ahead, but a good Development Plan will form a clear starting point and help focus your management efforts.

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**The Development Plan includes two distinct parts:**

- *A five-year plan outlining specific tasks for each agroforestry practice*
- *A yearly activity plan, broken down into specific tasks for each month.*

## **Step 22: A Five-year Management Projection**

Your five-year management projection is a schedule of the work you plan to undertake in the next five years in order to develop your agroforestry practices. The specific tasks and timelines you prepare will form the basis for your yearly activity schedule.

Don't worry too much about getting absolutely everything right on the first pass. Your plans will change over time and you can go back and adjust your projections accordingly. For now, you are mainly interested in conceptualizing the overall operation on paper.

The five-year management projection has four sections:

- **Area:** size of the area to be managed.
- **Practice:** agroforestry practice and its associated products.
- **Year:** year that you want the management activity to take place.
- **Management Objective:** specific objective you hope to accomplish.

Use the template provided in the Workbook to create your own five-year management projection.

## **Step 23: Yearly Activity Schedule**

The yearly activity schedule describes specific tasks that need to be done, when and by whom. This is the document you will use to plan your work schedule on a month-by-month basis. A good yearly activity schedule will allow you to identify potential time and business conflicts, and ensure you avoid overlapping seasonal activities that could create shortages of labor and resources.

A yearly activity schedule—one for each agroforestry practice—has five sections:

- **Crop Plant:** the plants that you have decided you can grow and market.
- **Management Objectives:** a record of objectives, transferred from your five-year projection.
- **Task and Time of Year:** a list of specific tasks that must be accomplished to achieve each objective, including timelines associated with each task.
- **Materials:** estimates of seed, seedlings, fertilizer, fencing, animals, feed and other items necessary for corresponding tasks.
- **Labor and Equipment:** a record of labor and equipment needs (if any) for each of the specific tasks.

Like the five-year management projection, your yearly activity schedule will likely change as you learn more. Remember to leave yourself plenty of time to complete all the work. As landowners well know, most tasks take longer than expected. The yearly activity schedule will also be helpful in costing the materials, labor and equipment that are necessary for the cash flow projection of your business plan. For details on business planning, refer to *Building a Sustainable Business: A Guide to Developing a Business Plan for Farms and Rural Businesses*. The information in the Workbook will provide a good basis for a business plan that includes a comprehensive cash flow projection.

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