LONGLEAF PINE AGROFORESTRY

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Abstract. While whole-system restoration of longleaf pine forests represents a worthy ideal, it is not always a practical alternative for landowners. Agroforestry offers the opportunity to provide the multiple benefits of high value timber products and agricultural crops in a single system. Agroforestry can be developed from existing longleaf pine plantations, and intercropping practices can be designed to capitalize on the many potential benefits of growing trees with agricultural crops. Agroforestry can be a flexible system, and for forest landowners, may well mean the difference between profit or loss in uncertain times of commodity price fluctuations. Alternative income possibilities will be discussed and the reader will be encouraged to turn this vision into reality. Of particular importance is the need to locate and secure dependable markets to supply a steady cash flow for forest landowners. Additionally, opportunities for the long-term conversion of pastureland to naturally regenerating forest systems will the necessity to locate and secure dependable markets to supply a steady cash flow for forest landowners. Uncertain times of commodity price fluctuations. Agroforestry can provide income alternatives that range from attractive prospect to those wishing to maintain a productive land base.

INTRODUCTION

Land ownership patterns have shifted dramatically in the South, and large tracts of forested acreage have changed hands in recent years (Wear and Greis 2002). This acreage is often subdivided and further developed, extending urbanization into what were once cohesive blocks of forested land. On these lands, long-term ownership may no longer be the norm (Wear et al. 2007). One effect of urbanization has been changes in land valuation. Since traditional forestry is rarely able to compete with real estate development, finding alternative income sources from land management activities is the daunting task facing many state and federal agencies.

Compass Magazine (2005) reported that many forested acres in the United States are stocked with an over abundance of small diameter trees. Connor et al. (2009) suggested that agroforestry might be an attractive land use alternative in areas where row cropping, grazing, or pulpwood markets are no longer viable or where there is a threat of tree insect and disease epidemics. The combination of intensified managed timber with livestock forage, wildlife habitat, other agricultural or nursery crops, and biofuel crops presents an attractive prospect to those wishing to maintain a productive land base.

Although the concepts are not new, agroforestry has received little attention in the southeastern United States. While whole-system restoration of longleaf pine forests represents a worthy ideal, it is not always a practical alternative for landowners. Agroforestry offers the opportunity to provide the multiple benefits of high value timber products and agricultural crops in a single system. Agroforestry can be developed from existing longleaf pine plantations, and intercropping practices can be designed to capitalize on the many potential benefits of growing trees with agricultural crops. Agroforestry can be a flexible system, and for forest landowners, may well mean the difference between profit or loss in uncertain times of commodity price fluctuations. Alternative income possibilities will be discussed and the reader will be encouraged to turn this vision into reality. Of particular importance is the need to locate and secure dependable markets to supply a steady cash flow for forest landowners. Additionally, opportunities for the long-term conversion of pastureland to naturally regenerating forest systems will be presented.

OBJECTIVE

To discuss alternative strategies to livestock management for private and public landowners interested in agroforestry.

ECONOMIC BENEFITS

The environmental benefits of agroforestry include improved water quality and soil conservation. Fike et al. (2004) stress the importance of choosing tree species for silviculture that are marketable, that are deep rooted and drought tolerant, have high quality wood and rapid growth, and that produce additional products, such as nuts. Secondary species can be intercropped between the rows of trees or the area can be managed for wildlife. However, one major drawback to silviculture is potential damage by livestock to the crop trees immediately after (5-6 years) planting.

INTERCROPPING

While the list of species for intercropping is extensive, it is important to consider the potential market. Before the project begins, markets for the crops must be determined, a good business plan developed, knowledge of appropriate species that can be grown in the territory investigated, and some basic site evaluations, such as soil analyses and surveys, must be completed (USDA Forest Service Database). When markets are performed, plans can be analysed for potential economic success. The following are possible income sources from land maintained in agroforestry.

Medicinal Plants and Herbs

The list of herbs and understorey plants that can be grown as a cash crop is substantial (e.g. Richter’s Herbs, www.richters.com). The key is matching crop to site. Either shade tolerant or intolerant species are possible candidates, depending on alley width and/or the growth stage of the overstory trees. Some examples of medicinal herbs commonly mentioned as marketable are:

1. Black cohosh - Actaea racemosa L.
2. Bloodroot - Sanguinaria canadensis L.
3. Catnip - Nepeta cataria L.
4. Echinacea - Echinacea angustifolia D.C.
5. Gingeng - Panax quinquefolius L.
6. Goldenseal - Hydrastis canadensis L.
7. Skullcap - Scutellaria lateriflora L.
8. Wild indigo - Bignonia australis (L.) R. Br.

Shrubs with medicinal properties include:
1. American witch hazel - Hamamelis virginiana L. (leaves, bark)
2. Slippery elm - Ulmus rubra MuHl. (inner bark)
3. Wild hygranges - Hydrangea arborescens L. (bark, roots)

Soft Fruits

Soft fruits are any stoneless fruit, such as strawberries, raspberries, blueberries, blackberries, and grapes. All are potential crop species. Market potential can include a pick-your-own variation (with appropriate insurance for protection against injuries). Grapes require the construction and maintenance of a trellis infrastructure, adding to startup costs. Mushroom ‘plugs’ can be drilled into small non-merchantable hardwood logs and the crop harvested months later with minimal effort between inoculation and harvest. Oyster mushrooms also grow well when mixed with sweeten chips.

Landscaping Plants

Shrubs and trees can be converted to provide markets for hardwoods, pulpwood, firewood, organic, mulches, biofuel crops, ornamental trees, and other cellulosic products. USDA National Agroforestry Center (2002).

Aromatics and Essential Oil/Cooking Herbs cont.

Many species would require further investigation before planting. Preferred climate, tolerance to temperature extremes, soils, establishment, production, and markets may all be limiting factors. While some of the above listed species are not normally grown in the southern states, most will survive and fruit/adhere. However, it may be necessary to consider that some non-native or non-local plants, as previously mentioned, can become invasive or are otherwise undesirable.

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References:

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Warning: Some species may have characteristics which should be considered before planting. They may be considered invasive in some areas, may be toxic to wildlife, or otherwise undesirable.