The
Temperate Agroforester
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Oklahoma Projects Combine Timber Production with Grazing

By Tim Snell, Kerr Center, Poteau, OK

The Kerr Center for Sustainable Agriculture has developed a large-scale method of tree establishment for agroforestry plantings that integrates a timber production component into a cattle grazing operation. The method is site adaptable, environmentally safe, cost efficient, and can be implemented with tools already present in the agricultural operation. Maximum use is made of on-farm inputs. There are synergistic biological interactions between the trees, cattle, and productive capacity of the site.

The key to the tree establishment method is the formation of mulched contour tree rows at spacings which facilitate future management, maintenance, and production objectives. The mulched contour tree rows control forage competition; cycle and supply nutrients; improve soil moisture, air, and biological levels; reduce erosion; increase diversity; and provide wildlife habitat. The wood products provide a long-term, income-generating opportunity, and the tree component increases and sustains pasture productivity.

The Kerr Center has obtained good tree survival and a good rate of tree growth on the 65 acres planted with this method of tree establishment. The method has widespread application for timber and cattle agroforestry systems. It remains unlikely, however, that such strategies will be adopted widely by farmers until demonstration proves that they can be integrated profitably into working farms and ranches.

Like many other southern region cattle producers,

➤ *Kerr Center, p. 6*

Minnesota Hosts Third Annual Agroforestry Workshop

By Jan Joannides, CINRAM, University of Minnesota

On October 11, 1997 nearly 50 people attended Minnesota's 3rd Annual Agroforestry Workshop in Long Prairie, Minnesota. The title of this year's workshop was “Untapped Values of Your Fields and Forests: Discovering Opportunities for Generating Income and Wealth.”

Long Prairie, Minnesota is in the Central part of the state, in a transition zone between prairie and forests. The program was tailored to the local resources and issues, and the workshop focused on both agroforestry and woodlot management as many private landowners in this part of the state have diverse parcels of land. Following is a summary of the workshop and field tour.

Peter Bundy of Masconomo Forestry spoke about Northern Red Oak, an abundant resource in this region of Minnesota. Peter stated that if the 60 to 80 year old stands on private lands in the area are managed properly, landowners can see a short-term and long-term profit. Appropriate thinning can provide short-term revenue from saw logs while improving the quality of the site for the best trees. When mature, at 100 to 160 years old, veneer quality Red Oak can be sold for an excellent price. Current stumpage prices for Red Oak average around $140 - $160 a cord.

Steve VonGroven, Forester for the Minnesota Association of Resource Conservation and Development

➤ *Minnesota Agroforestry, p. 5*

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Mission Statement

The mission of AFTA is to advance the knowlege and application of agroforestry as an integrated land use approach to simultaneously meet economic, social and environmental needs. AFTA focuses on agroforestry in temperate zones, with an emphasis on North America. AFTA pursues its mission through networking, information exchange, public education, and policy development.

AFTA Membership Dues and Subscriptions

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The Temperate Agroforester

Editor: Miles Merwin
Contributions related to agroforestry are welcome. Please submit items either on PC-formatted diskette, via e-mail, or typewritten. Deadlines for submissions are the 15th of March, June, September and December. Address all items to: Miles Merwin, The Temperate Agroforester, P.O. Box 266, Lake Oswego, OR 97034, Tel.(503) 697-3370, Fax (503) 697-1767, Email mlm1@teleport.com

President's Corner

A Year of Growth and Success

By Joe P. Colletti, AFTA President

Well, another year has come and gone and with it we have seen many accomplishments in AFTA and more are on the way. As the incoming President, I wish to acknowledge the excellent leadership that Dr. Gene Garrett has provided AFTA over the last several years. Gene's impact and influence related to temperate agroforestry and AFTA will be felt for many years to come. Gene, AFTA has grown from your vision, leadership, and networking skills. I have "big leaves" to fill: I'll try to reach my potential. But, I know that Gene will be there to give counsel and gentle guidance.

While recognizing leadership, I would be remiss if I did not thank Miles Merwin, Newsletter Editor, for the terrific newsletters that he produces and for being the "glue" that binds our new and developing organization together. Also, I wish to thank Michael Gold (past-President), Deborah Hill (Treasurer), and Peter Williams (Secretary) for their leadership and involvement over the last several years.

In 1997, AFTA members and colleagues took part in another successful agroforestry conference hosted by Cornell University. The conference once again attracted a wide audience of practitioners, scientists, policy-makers and interested colleagues. Many excellent presentations gave the participants up-to-date information and results on agroforestry techniques, systems response, biological interactions, social acceptance, marketing, and planning.

For AFTA a major first occurred during the 5th North American Agroforestry Conference at Ithaca, New York. The first general meeting of AFTA members since official incorporation occurred. It was a dynamic, fun, and productive meeting. The minutes of the first meeting are in the October, 1997 issue of *The Temperate Agroforester*.

Another success for the year and for years to come is the creation of a Regional Council. The purpose of the Regional Council is to help AFTA better understand and respond to research and education needs related to agroforestry in different geographic regions in North American. In other words, the council will enhance local (regional) viewpoints on the AFTA Board and to promote efficient communications to

➤ ***President's Corner, p. 10***

Partnerships Key to Success of Conservation Buffers in Iowa

By Amy Smith, NRCS, Des Moines, Iowa

What's the formula for finding farmers who may want to convert crops to buffer strips, and then convincing them by the hundreds to put the plans in place?

In Iowa, one of the leading states in buffers entered into the USDA's Conservation Reserve Program (CRP) continuous signup, it's a matter of offering a mix of incentive programs and then marketing the technical and financial help offered by those programs through public and private groups.

Through 1997, Iowa farmers had signed up more than 50,000 acres of buffers, and is one of the national leaders in both number of farmers and acres. That acreage is due in no small part to the major role several organizations are playing in promoting buffers in the state.

Universities, farm organizations, farm media, private businesses, county governments, state conservation agencies, non-profit organizations and others are working with USDA to establish buffers in Iowa at record numbers. USDA's Natural Resources Conservation Service (NRCS) has provided much of the leadership for the various efforts.

Strategies for Success

There are several strategies and activities that have contributed to the recent success of buffers in Iowa, all of which support a national USDA initiative to establish 2 million miles of conservation buffers by the year 2002. Nationally, more than 70 organizations support the buffer initiative.

A statewide coalition was established to promote productive, profitable farming through the use of conservation buffers in Iowa. The Iowa Buffer Coalition steering committee is comprised of the NRCS, USDA Farm Service Agency (FSA), Iowa Department of Agriculture and Land Stewardship—Division of Soil Conservation (DSC), Conservation Districts of Iowa (CDI), Iowa Corn Growers Association, Iowa Farm Bureau Federation, Pheasants Forever, Iowa Soybean Association, Trees Forever, Iowa Agribusiness Association, Iowa Department of Natural Resources (DNR), and Iowa State University Extension Service.

In addition, local chapters of all of the organizations involved in the national buffer initiative have been invited to participate, with many already joining the effort. Current projects include producing informational pieces to promote the benefits of buffers, and working with ag media to publicize the continuous CRP signup, the buffer model farm project and local success stories.

A list of 75 Iowa farmers who are willing to talk about their buffers was recently compiled and shared with ag media. The list, which includes descriptions of the farmers' operations and buffers, was compiled by the Iowa NRCS and was distributed to Iowa's farm radio stations and agricultural print media in the region, who pledged significant air time and space to promote buffer practices and programs. Iowa's farm broadcasters at stations in Davenport, Des Moines, Ft. Dodge, Shenandoah, Sioux City, Denison, Dubuque, Mason City, Ottumwa, and Cedar Rapids are planning a series of releases and interviews on the subject.

Trees Forever

A new Trees Forever Buffer Initiative was developed to establish buffer demonstration sites across the state. The initiative, which brings public and private sector interests together, will establish 20 streamside buffer demonstration sites each year in Iowa for the next five years and provide recognition as well as a network of technical assistance to landowners implementing buffers. The Trees Forever Iowa Buffer Initiative, which involves a diverse group of partners and sponsors, including local farmers, Novartis Crop Protection Inc., Iowa Farm Bureau, Iowa DNR, Environmental Protection Agency, and the NRCS is the first of its kind, and could serve as a national model.

Conservation professionals are involved in local promotions across the state, providing unique incentives which have helped spark interest and involvement in the growing conservation buffer movement. In efforts to protect the water quality of Lake Panorama, a group of partners in the Middle Raccoon Watershed have offered landowners a $100 per acre one time bonus payment for signing up in the CRP, as well as increased cost share to establish prairie grasses and trees in streambank buffers.

Pheasants Forever, FFA, the Lake Panorama Association, County Conservation Boards, Trees Forever, Pioneer, Monsanto, FFA, agribusinesses, Middle Raccoon Regional Watershed Foundation, Raccoon River Watershed Project, FSA, and NRCS are among the partners involved in the project. ❐

New Temperate Agroforestry Book Sets High Standard

By Miles Merwin

Past textbooks on agroforestry have relegated discussion of agroforestry in temperate regions to one chapter, seemingly as a "poor relation" to agroforestry developments in the humid and semi-arid tropics. With the recent publication of *Temperate Agroforestry Systems* (CAB International, 1997), the subject of agroforestry in temperate regions of the world has finally received the scholarly treatise it deserves.

Edited by Andrew Gordon (University of Guelph) and Steven Newman (Biodiversity International), *Temperate Agroforestry Systems* sets a high standard of excellence for all textbooks to follow on this subject.

The editors and the co-authors they have assembled for each chapter have produced a well-written and documented text, which combines basic principles, research results and practical information on agroforestry. In addition to the intended academic audience of researchers and students, the book will prove worthwhile for anyone with a keen interest in agroforestry.

Contents

The contents of the book is divided into six main chapters, each of which explores agroforestry developments in a particular continent or country: North America, Europe, New Zealand, Australia, China, and Argentina. All of the chapters are well illustrated and extensively referenced; however, the subject index is relatively brief.

The contribution from China is particularly valuable since scientific information is difficult to find on the diverse range of agroforestry systems in China, which are perhaps the most species-intensive forms of temperate agroforestry found worldwide.

Bracketing these core chapters are a brief introduction and a concluding discussion ("Synthesis and Future Directions"). The conclusion provides an interesting overview of how the main agroforestry practices have developed in different regions under different climate, soils and, in the case of China, socio-economic conditions.

Alley cropping (trees and arable crops) is important in North America (e.g., black walnut), Europe (e.g., orchard intercropping) and China (multiple species of intercrops). Windbreaks and shelterbelts are widely used in North America, Australia-New Zealand (for livestock shelter; horticultural shelter is not mentioned), and China (especially desert and coastal protection).

Silvopasture (trees in pasture with livestock) has developed in all of the geographic regions covered in the book, with research results being widely adopted in New Zealand. Forest farming (cultivated crops in forests) is covered in the chapters on North America and China; although the potential is there, it was not mentioned in other regions.

The one agroforestry practice which seems peculiarly North American is the planting of riparian buffers to ameliorate the impacts of agriculture on water quality, although this is undoubtedly an issue in other countries.

Agroforestry related practices are also discussed in individual chapters. The use of poplars for biomass production and wastewater treatment is discussed for North America and Europe, although they are used for similar purposes in Australia. Trees which produce edible pods or leaves for animal fodder (e.g., honeylocust) are mentioned in the chapters on Europe and China.

Economic and yield models of agroforestry that have been developed in Australia, New Zealand and Europe are briefly discussed. Public policy related to agroforestry is considered only in the chapter on North America.

The only suggestion for improvement that one might offer would be to expand the geographic scope of the book. The brief chapter on silvopastoral practices in Argentine Patagonia is interesting, but fair consideration of temperate agroforestry in South America should really include Chile where extensive agroforestry, modeled after New Zealand, is practiced. Likewise, the chapter on Europe concentrates on France and the UK, and little mention is made of traditional or modern agroforestry practices in other nations, e.g., Italy or eastern Europe.

How to Order

Temperate Agroforestry Systems (ISBN 0-85199-147-5, paperback) is distributed in North America by Oxford University Press, 2001 Evans Rd., Cary, NC 27513, Tel. (800) 451-7556. The publisher's price is US$50, but you may be able to find it at a discount from larger book sellers. ❐

Councils, gave a presentation on specialty forest products. The specialty forest product industry in Minnesota includes cones, decorative greenery, berries and nuts, decorative woods, smoke woods and flavor woods, medicinal materials and aromatics. In 1993 the specialty forest products industry in Minnesota was valued at 30 million dollars annually.

Greg Nolan, forester and community organizer, spoke about the Long Prairie River project. The project focuses on streamside plantings along the river. The Minnesota Department of Natural Resources provided some start-up funds for the project three years ago, but since then most of the support has come from local businesses and people with land along the river. Pheasants Forever serves as the fiscal agent, and Greg coordinates the project.

Greg says, "There are lots of reasons to plant riparian . . . but the people that I work with roll their eyes when I start talking about mitigating chemical runoff and absorbing nitrogen. Local people want to plant riparian areas for wildlife corridors and because it's beautiful." The project currently has 22 sites and has planted 30 thousand trees on 5 miles of riverfront.

Frank Foltz of Northwind Nursery & Orchard was asked to speak about his success marketing his products. Frank said that while he cannot compete in price with many of the larger and mainstream operations, he competes on quality, integrity, and personal service. By growing trees organically, and focusing on craftsmanship, community mindedness, education, and an iron-clad guarantee of his trees, the business manages to compete successfully. Frank emphasized that price is not always the bottom line.

Agroforestry Cooperative

Steve VonGroven also talked about marketing initiatives. He spoke about the Agroforestry Cooperative that has formed to support hybrid poplar growers. The cooperative is still in its formative stage and they are trying to determine what they want from the cooperative. Interest in hybrid poplar continues to grow in Minnesota because of projected revenues. If managed intensively, growers should be able to harvest 40 cords per acre at the end of ten years. The establishment and management of hybrid poplar stands run about $300, using the techniques suggested by the Agroforestry Cooperative.

The final portion of the workshop was a panel of agency representatives and private individuals who presented information on financing private tree projects. In Minnesota the options ranged from CRP to Forest Stewardship Plans to private projects run by non-profits.

Field Tour Stops

After a delicious lunch that was all grown locally and by individuals using sustainable farming practices, the group boarded a bus and visited a number of local farms implementing the practices that had been highlighted in the presentations. We first visited Mike Worzeka's hybrid poplar plantation which was planted several years ago. The next stop was Bob and Iona Krause's farm which provided an example of a diversified operation which included U-Pick blueberries, Christmas trees, and the management of their forest for timber and firewood. We also saw a bandsaw demonstration at the Krause farm. Our final stop was the Kroll Century Farm where maple syrup is collected and processed and where the forest has been carefully managed for many years providing income for past, current and future family members.

Perhaps the most powerful presentation of the day was the introductory presentation by Greg Nolan, community organizer and owner of Snowy Pines Reforestation, a small service-oriented forestry business. Greg was responsible for much of the local coordination for this conference and for setting up speakers and the field tour. In talking about his work, Greg said, "The citizens of this community are the most powerful tool we have to make positive changes on the landscape."

As to his future work, Greg said, "The next step I want to take is to write sentences to the people in the 21st century with projects that say 'We gave thanks for the wealth that we have by investing in the natural systems around us, where all wealth starts.' This is a kind of multi-generational wealth. More than anything else I want the people who come after we're gone to look at us as intelligent people who could work together, because we are."

Sponsors of this year's workshop included the Minnesota Agroforestry Coalition, Center for Integrated Natural Resources and Agricultural Management (University of Minnesota), Minnesota Institute for Sustainable Agriculture, Todd County Soil and Water Council, WesMin RC & D, Central Chapter of the Sustainable Farming Association, Dept. of Forest Resources at the University of Minnesota, and USDA Forest Service State and Private Forestry Division. ❐

the Kerr Center has large pastures cleared of trees and maintained in that condition for hay and forage production. Producers with treeless pastures find that during heat stress, cattle do not graze well in unshaded areas. Establishing trees in these pastures provides shade for cattle and allows for more even grazing. It also helps to remove excess water, which can be a limiting factor for high-quality forage.

Project Development

In 1991 a multi-disciplinary team, with livestock, forestry, agricultural economics, and environmental expertise, designed and implemented two large-scale timber and cattle agroforestry projects on the Kerr Center ranch. The emphasis thus far has centered on developing a cattle compatible tree establishment method which uses on-farm inputs and only equipment presently available on most farms. This tree establishment method can be easily modified to suit soil and water conditions and the needs and desires of landowners.

Cattle graze in the New Fescue Agroforestry Project, a silvopastoral system developed at the Kerr Center ranch near Poteau, OK. (Photo: T. Snell)

The two projects have the same objectives:

- to develop profitable agroforestry systems that fit easily into established farming systems
- to maintain records of capital investments and variable costs for establishment and maintenance
- to track production from timber, cattle, and other enterprises
- to monitor the effects of timber and cattle management on soil conditions and farm productivity
- to provide a working agroforestry demonstration for regional farmers
- to increase, enhance, and diversify the wildlife population and habitat

A unique feature of these projects is the establishment and maintenance method of the timber component. We mowed the forage present at the sites using a sickle bar mower and windrowed the forage to tree contour lines from both sides with a side delivery rake. The mowing and windrowing built up a thick matt of mulch on the tree contours into which the tree seedlings were planted during the winter. The mowing also removed the overburden of summer grasses allowing the more palatable cool-season legumes and grasses to grow better.

Between the Lakes Agroforestry Project

The project area is a steep, 34-acre, north-facing, improved grass pasture. It is situated between two lakes (Beaver Lake and New Lake) having elevations of 448 ft. and 500 ft. It has rounded dry knolls and some flats with excessive moisture. Soil erosion was a problem on this site.

In September 1991, we cut the forage in the pasture with a sickle bar mower and windrowed the cut forage into tree contour lines with a side delivery rake. In some areas of the pasture, we were unable to create a thick mat of mulch, so we unrolled 28 round hay bales (1300 lb) in sections of the rows.

In January 1992, we divided the pasture into three management areas based on topography, soil type, and moisture regime gradients. On the higher, more marginal slopes, we planted 1171 improved loblolly pines (*Pinus taeda*). On the two lower, more productive areas, we planted 344 sycamore (*Platanus occidentalis*) and 620 green ash (*Fraxinus pennsylvanica*) in separate contour rows. We planted 2896 black locust (*Robinia pseudoacacia*) around them as a barrier to limit cattle damage. The black locusts also serve as training trees to improve the form of the sycamore and green ash and provide nitrogen through nodule fixation.

Loblolly pines are used for paper and lumber. Sycamore is used for furniture and butcher blocks. Green ash is used for furniture and sporting goods. Black locust is rot resistant and is used for posts and fencing wood. We planted locally-collected rooted willows (*Salix nigra*) along the lake margins, hoping to satisfy the beavers' appetites before they reached the hard-

wood planting. We hand planted seedlings with dibble bars. Each winter from 1993 to 1995 we replaced any dead trees with seedlings of the appropriate species.

After planting, the total tree row acreage was 5, and the total pasture acreage was 28. In May 1992, we cut the forage in the wide alleys (56 ft) and windrowed the cut forage from 9 ft on each side into the tree rows. From 1992 to 1995 we hayed the project each spring and brush-hogged the edges of the tree rows. Each fall we brush-hogged the pasture.

Grazing tests with mature cows were conducted each year to observe the cows' behavior and compatibility with the trees. Beginning in winter 1996 we began the maintenance and use phase of the project. We "flash" grazed the pasture for two days with 100+ cows and their calves as they hit the area in their normal rotation pattern.

Results to Date

Establishment costs from 1992-95 were about $2240 or $66/acre. This includes site preparation, seedlings, and labor. Survival of trees thus far has been good (70%+) with green ash at almost 100%. Average 5-year heights for species planted: pine - 6 ft, sycamore - 9 ft. green ash - 9 ft, and black locust - 16 ft. The beavers cut one green ash tree and one sycamore tree. The willows planted along the edge of the project to satisfy the beavers' appetite were heavily grazed several times during each summer and winter.

We are getting good diversity in the tree rows from wild (free) trees becoming established naturally, mostly as root sprouts. Wild trees established in rows so far include green ash, persimmon (*Diospyros virginiana*), willow oak (*Quercus phellos*), winged elm (*Ulmus alata*), sweetgum (*Liquidambar styraciflua*), sycamore (*Platanus occidentalis*), thornless honey locust (*Gleditsia triacanthos* var. *inermis*), honey locust (*Gleditsia triacanthos*), and a few pecans (*Carya illinoensis*).

Insect attacks in 1994 were severe enough to limit height and mass growth and resulted in the death of 21 trees. Since 1996 there has been very little bug damage. Large numbers of beneficial insects are now present including parasitic wasps, spiders, ladybugs, praying mantis, and lacewings.

Cattle grazed the project, as follows: 120 ADU's (animal daily units) in 1993 and 231 ADU's in 1994, 700 ADU's in 1995, and 1820 ADU's in 1996. With the "flash" grazing maintenance and use strategy there has been little tree damage to the hardwoods or pines.

We are observing an increase in the native grass component with Big Bluestem (*Andropogon gerardi*) and Eastern Gamagrass (*Tripsacum dactyloides*) becoming established in the least grazed areas. Orchard grass (*Dactylis glomerata*) and Broomsedge Bluestem (*Andropogon virginicus*) are increasing in the most heavily grazed areas. An erosion scar which was a precipitating factor in the project's location has grassed in and healed over nicely.

The project site attracts wild turkeys because of its species diversity and its position between their safe roosting areas and the wildlife food plots where they feed. Flocks of more than 50 turkeys have been observed here. Snakes, bobcats, eagles, and hawks keep the rodents at acceptable levels. Coyotes, deer, possums, armadillos and raccoons use the area at night.

The most important things we have learned, besides the overall effectiveness of mulched contour tree rows were:

1. Single rows of trees fit into the mechanical management of the forage-mulch operation much better than multiple tree rows or more complicated tree configurations. If configurations other than the single row method are desired, a single row can be established the first year and additional rows can be added on either or both sides the next year.

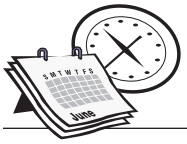
2. Leaving tree rows in a rough, natural condition provides habitat for mice and rats which allows them to harvest cocklebur seeds and other weed seeds in the field. Mice and rats have eliminated cockleburs in this previously infested field.

3. The trees that were most compatible with cattle during the early years of growth were the green ash and black locust.

New Fescue Agroforestry Project

The project site is a wet, 39-acre, flat bottom next to the Poteau River, which occasionally floods. The soil is a silt loam. The elevation ranges from 460 to 462 ft above sea level. The wetness of this pasture limits the use of machinery until late in the growing season and controls the type and amount of forage produced. A ditch around the pasture and several cross ditches provide adequate surface drainage unless they are overloaded by excess water from river flooding or beaver dams. We want the trees to dry up the pasture and improve the forage and usability of the site.

Continued ➤



Mark Your Calendar

National Conservation Buffers Technology Conference, January 26-28, San Antonio, TX. For information, contact Lyn Kirschner, CTIC, Tel. (765) 494--1827, Email kirschner@ctic.purdue.edu, or Web site www.ctic.purdue.edu.

Agroforestry: Integrating Conservation, Crops, Livestock and Trees in the Pacific Northwest, May 12-13, Richland, WA and May 14-15, Portland, OR. For information, contact Gary Kuhn, NRCS, Tel. (206) 616-7166, Email kuhn@geology.washington.edu.

North American Conference on Enterprise Development Through Agroforestry: Farming the Forest and Agroforest for Specialty Products, October 4-7, St. Paul, MN. For information, contact Scott Josiah, CINRAM, 1530 Cleveland Ave. North, 115 Green Hall, St. Paul, MN 55108, Tel. (612) 624-7418, email josia001@maroon.tc.umn.edu. ❐

➤ *Kerr Center*

The alleys between the tree rows are 90 ft wide to make mechanical maintenance and haying easier. In September 1992, we mowed the pasture and baled the hay into 96 round bales (1300 lb). Then we unrolled the bales in the tree rows.

In January 1993, we hand planted 2000 willow oak (Quercus phellos), 1000 pin oak (*Quercus palustris*), 1000 green ash, 250 bald cypress (*Taxodium distichum*), and 100 each of Shumard (*Quercus shumardii*) and Nuttall (*Quercus nuttalli*) oaks. In 1994 we hand planted 2000 pin oak, 1000 shumard oak, 1000 green ash, and 100 bald cypress trees to form a second row in our configuration and to replace any dead trees. In 1995 we hand planted 500 green ash to increase tree numbers and fill any gaps we found in the tree rows.

Timber Uses

We have planted 9150 trees on this project. All of the trees except the green ash and bald cypress are considered red oaks by the timber industry and thus could be sold as a single uniform unit. Red oaks are used for furniture and always in high demand from a marketing position. Bald cypress is used for decorative paneling and has some rot resistance properties.

After planting in 1995, the total tree row acreage was 4, and the pasture acreage was 35. We hayed the alleys and brush-hogged the edges of the tree rows each spring. Round hay bales were moved to a storage yard and fed to the cattle herd in the winter. In the fall of 1994 and 1995, we mowed the alleys and left the forage lying in the pasture.

From 1992 to 1995 cattle grazed the pasture during the fall and winter months when the trees were leafless and dormant. We didn't graze this project in 1996 because we wanted to encourage height growth which had been limited by yearly grazing of the terminal buds.

Except for the willow oaks, which were not dormant when planted, tree survival has been good. The 1996 average heights of trees in this project are; willow oaks - 6 ft., pin oaks - 6 ft., Nuttall oaks - 5 ft., Shumard oaks - 5 ft., green ash - 6 ft., bald cypress - 6 ft. Beavers damaged only the green ash along the drainage ditch as expected. No insect problems were observed. Free wild trees establishing in the rows thus far are mainly persimmon and green ash.

Establishment costs from 1993-95 were about $3500 or $90/acre. This includes site preparation, seedlings, and labor.

The mulched tree rows catch and hold a tremendous amount of eroded soil (humus, clay, and silt). The cumulative effect of this ongoing process should be an increase in the comparative elevation of the tree rows. A rise in the elevation would benefit tree growth. The project site was a favorite of the woodcocks because of an increased worm population in the soil. Flocks of more than 150 ducks used the pasture for food and cover. Snakes, bobcats, eagles, and hawks kept the rodents at acceptable levels. Coyotes, deer, possums, armadillos and raccoons use the area at night.

The most important thing we have learned is that considerable grazing can take place even while trees are being established providing it takes place after the hardwoods trees have lost their leaves for winter.

For more information, contact Tim Snell, Kerr Center for Sustainable Agriculture, P.O. Box 588, Poteau, OK 74953, Tel. (918) 647-9123. ❐

Operation Green Stripe: An Industry/FFA Student Partnership

Sedimentation is the number one threat to stream quality in the United States. Loss of valuable topsoil is a threat to the sustainability of agriculture in many regions, especially erodible areas. Agriculture has been identified as the prime contributor to stream sedimentation, so agriculture can also have the biggest impact on stream quality improvement.

With that in mind, Operation Green Stripe was developed by Monsanto in 1992 to combat the problem of surface water runoff of soil sediment by planting grassy buffer strips along streams, lakes and sinkholes on farm property.

The objectives were threefold: to encourage farmers to adopt stream protecting practices, to teach future farmers the benefits of good stewardship and to begin to make a difference in stream quality.

FFA Student Involvement

The strategy was to enlist Future Farmers of America (FFA) students to contact their local community of growers to plant vegetative filter strips instead of crops along bodies of water. As a reward for the FFA chapters' efforts, Monsanto Company would donate an educational grant of $100 per buffer strip planted, up to five per chapter. Seed retailers would become partners to donate free wildlife--compatible grass seed for the program. With those elements in place, Operation Green Stripe was born as a pilot program in the state of Wisconsin in 1992.

The program was well received during its initial year, and in 1993, the program was expanded to six additional states: Iowa, Illinois, Minnesota, Michigan, South Dakota, New York and Wisconsin. Since 1993, several additional states have participated in Operation Green Stripe including: Alabama, California, Indiana, Kansas, Kentucky, Maryland, Missouri, Nebraska, North Carolina, Ohio, Pennsylvania, and Texas. These states represent over 500 FFA chapters that have been contacted and invited to participate.

The concept of Operation Green Stripe is simple: The FFA student initiates the contact with the grower, and gains commitment to plant the buffer strip. Perennial grass seed is provided at no cost by local agricultural businesses across the country. The grower plants the seed and commits to maintain the buffer strip for a minimum of three years. The chapter receives their educational grant money directly from Monsanto.

The Agricultural businesses providing perennial grass seed include: AgWay, Alabama Farmers Cooperative, Cenex - Land O'Lakes, Farmland Industries, GrowMark, Countrymark, MFA, Southern States Cooperatives, and Terra Industries.

FFA chapters are encouraged to go beyond the basic requirements to turn the buffer strips into wildlife habitat areas, to maximize public awareness with local media and to develop special programs to address unusual erosion programs.

Best in the Nation Contest

In 1996, Monsanto invited over 460 FFA chapters representing 14 states. The “Best In The Nation” award winner was Filley FFA Chapter, Filley, Nebraska. In 1995 and 1994 our national winners were: Madison Plains FFA; London, Ohio; and Mid Prairie FFA, Wellman, Iowa, respectively. These chapters have successfully participated in Operation Green Stripe, planting over 50 vegetative buffer strips in their community, effectively promoting water quality initiatives through coordinating projects, receiving media exposure to their project through tours and published articles and therefore were selected for the award. Each school received a $3000 educational grant from Monsanto.

In partnership with Monsanto in the eight midwestern states of Minnesota, Michigan, Missouri, Ohio, Iowa, Illinois, Indiana, Wisconsin, the US Fish and Wildlife Service has agreed to provide matching funds for additional buffer strips over the original five (up to 10 strips). Currently, the USF&WS is requesting additional funds to partnership with Operation Green Stripe on a nationwide basis. The Ohio Department of Natural Resources has also agreed to match the educational grant over the first five strips. Several other states have inquired about the possibility of matching programs.

For questions or more information, contact Angela Rushing, Monsanto, 2660 Egret Ln., Tallahassee, FL 32312, Tel. (904) 385--3447. ❐

Internet Resources

Ginseng Newsletter

www.earthworks.com/agsi/index.htnl

The newsletter of the American Ginseng Society can be found here, along with information about the cultivation and use of ginseng.

Hardwood Marketing Information

www.hardwood.net

This web site, produced by the publisher of *Weekly Hardwood Review*, focuses on the marketing of hardwood lumber products. It offers buyers access to an extensive list of lumber inventories, and sellers the opportunity to advertise to a large audience.

NRCS National Plants Database

plants.usda.gov/plants/

From this site, visitors can search the PLANTS database which includes checklists, distribution data, crop information, growth data, symbols and references for plants of the US and its territories. Managed by the National Plant Data Center in Baton Rouge, Louisiana, it provides a single source of standardized information about plants.

Agroforestry in Australia

www.agfor.unimelb.edu.au/agroforestry/agrof.html

The Agroforestry and Farm Forestry Program at the University of Melbourne is a good source for information about agroforesttry in Australia. There is a discussion forum for questions and issues related to agroforestry. Other sections of the web site include selected research and articles, references, photo gallery and links to other sites.

Correction

The email address for asking questions regarding how to sign on to the Temperate Agroforestry News Group (afta@lists.missouri.edu) was listed incorrectly in the last newsletter. The correct address for the list administrator at UMC, Dr. Marc Linit, is linit@showme.missouri.edu. ❒

➤ *President's Corner*

and from the membership. Three members of the Regional Council will be elected by the membership to serve 2-year terms as Directors-at-large on the AFTA Board. My congratulations go to Andy Gordon, Jim Brandle, Steven Sharrow, Tim O'Keefe, Henry Pearson, Catalino Blanche, and Scott Josiah for becoming the first Regional Council members. Jim Brandle, Tim O'Keefe, and Catalino Blanche have been elected as Directors-at-large.

Election Results

Also, last fall our 1997 AFTA election occurred. I wish to congratulate Peter Schaefer on being elected President-Elect, Sandy Hodge is our new Secretary, and in charge of our money is Treasurer Barbara Cliff. I look forward to working with these capable and friendly colleagues.

Another big change occurred late in 1997. Dr. Bill Rietveld, Program Manager for the National Agroforestry Center in Lincoln, Nebraska retired. Bill has been a driving force at the national level since the Center came into existence. He has caused many linkages to occur between AFTA and the National Agroforestry Center. With his leadership, AFTA and the Center has been directly involved in various analyses and studies of the existing conditions and future potential situation for temperate agroforestry.

Bill, many thanks and we will miss you. I'm sure that you won't mind if about fifty of us drop by your house in southwestern Colorado to chat about agroforestry. Just kidding - maybe.

State Chapters

I know that several more states have formed and are forming state or multi-state agroforestry associations to be affiliated with AFTA. Keep up the good work!! I encourage members to get involved at the local levels, especially in terms of recruitment of new AFTA members and building partnerships with allied conservation, agricultural, and forestry groups. I am looking forward to the next several years -enhancing AFTA membership, activities, and partnerships. Our journey continues.

As we say in Italian - Ciao (good bye) and in Chinese Xie-Xie (thank you) . . . more growth and success to come!! ❒

SAF Agroforestry Working Group Technical Session Report

By Richard C. Schultz, Iowa State University

Over 50 people attended the Agroforestry Working Group Technical Session on Oct. 8 during the Society of American Foresters convention in Memphis. The program was organized to update major advances in agroforestry in the past year.

To that end it began with Bill Rietveld from the National Agroforestry Center, describing how agroforestry has, over the past decade, moved from the definition stage to a phase of expanding interest. He pointed out that agroforestry is not a set of static practices and that much remains to be learned about how agroforestry can be integrated into farming systems to improve landscape sustainability.

Bill said that several focal points to concentrate agroforestry development and outreach are the National Conservation Buffer Initiative, riparian zones and floodplains, income generation, collaboration with sustainable agriculture and agroecology, the agriculture/community interface and the socio-economic acceptability of agroforestry.

Marketing Strategy

James Chamberlain from Virginia Tech used examples from southeast Asia to show that now that agroforestry has become a reasonably well developed technology, a marketing strategy needs to be developed to get it adopted by the mainstream agricultural community. He stressed that social acceptance is needed if agroforestry is to have an impact during the next century.

Catalino Blanche from the Dale Bumpers Center for Small Farms Research, used pine straw harvesting in the southeast as an example of how marketing agroforestry can develop a successful financial enterprise. In his example, harvest of pine straw could begin eight years after the establishment of a loblolly pine plantation. Income from pine straw can exceed that from timber harvesting over the life of a stand and cattle grazing can be a part of this successful agroforestry system.

Lynn Townsend from the NRCS Watershed Institute, introduced the National Conservation Buffer Initiative of the United States Department of Agriculture. This initiative gives agroforestry a major boost as many of the recommended buffers include woody plants in an agricultural landscape. The goal of the program is to install 2 million miles of buffers by the year 2002 in an attempt to make the landscape more sustainable.

This program has a continuous sign-up that automatically accepts all eligible land and pays rental rates that are based on soil productivity and cash rent comparisons for a either 10 or 15 year period, the longer one for planting of woody plants. A 20 percent incentive is paid for installation of grassed waterways, filter strips, riparian buffers and field windbreaks. In addition, up to 50 percent cost sharing is allowed for establishment of these practices.

Upland and Riparian Buffers

Bruce Wight, from the National Agroforestry Center and Joe Colletti from the Agroecology Issue Team at Iowa State University, provided a detailed update on the various upland and riparian buffers that could be used under the buffer initiative. Both stressed the importance of woody plants in providing multiple conservation benefits in concert with perennial forbs and grasses and row crops. Both indicated that flexibility in design to fit the landscape is the key to adoption by landowners.

In the final presentation of the session, Tim Snell from the Kerr Center for Sustainable Agriculture, provided an interesting example of how biodiversity benefits can be obtained from a six year old riparian agroforestry project that includes timber production and riparian pasture. He demonstrated how careful management for multiple production objectives could dramatically increase the biodiversity of the flora and fauna of a site.

Demonstration Examples

This project provided an excellent example of how agroforestry can be used to make a landscape more productive and sustainable at the same time. It was a great way to wrap up a session that showed how far agroforestry has come over the past decade. All of the examples presented during the session showed that effective visual demonstrations of agroforestry projects can be used to market agroforestry and increase its adoption over the next decade. Planning has already begun for the next Agroforestry Working Group technical session at the 1998 SAF convention in Traverse City, Michigan. ❐

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New in Print

Two New Books on Forest Pruning

A comprehensive new book, *Forest Pruning and Wood Quality of Western North American Conifers*, collects the work of 40 authors with experience in pruning research and practice. The 403-page volume includes a look at changing market opportunities, the biology of pruning, "how to" information, and New Zealand's experience with intensive pruning in agroforestry and plantation forestry. Available for $37.50 postpaid from University of Washington, Institute of Forest Resources, P.O. Box 352100, Seattle, WA 98195-2100, Tel. (206) 685-7650.

In the second book, the results of extensive studies of forest pruning equipment have been published by the US Forest Service. After a brief introduction on when and how to prune conifers, the report illustrates a wide variety of commercially-available pruning equipment, covering both manual and powers saws and loppers, ladders and climbing gear. Field evaluations of different pruning equipment are included, along with a directory of equipment suppliers.

Pruning in Timbered Stands, US Forest Service, 9624-2815-MTDC, 1996. Request copies from USFS Missoula Technology and Development Center, Bldg. 1, Fort Missoula, Missoula, MT 59804-7294, Tel. (406) 329-3900, Fax 329-3719.

Stream Restoration Video

A new 28--minute video produced by the Izaak Walton League of America helps people learn to stabilize eroding streambanks and restore degraded stream side forests. The video demonstrates environmentally sound techniques for streambank restoration that rely on woody vegetation and special planting patterns to hold eroding banks in place.

Restoring America's Streams, 1997. To order, send a $20 check made payable to the Izaak Walton League of America to IWLA, Stream Doctor Project, 707 Conservation Lane, Gaithersburg, MD 20878--2983 or call 1--800--284-4952. ❐