The general concept of agroforestry is to integrate trees and agriculture so as to create a more diversified landscape, while providing the producer with new environmental and/or economic benefits. While it sounds like an easy sell, leaders at the USDA National Agroforestry Center (NAC) in Lincoln, Nebraska admit that some landowners are reluctant to make the transition.

“One of the biggest barriers to agroforestry adoption we encounter among producers and landowners is ‘tradition,’” says NAC Director Andy Mason. “For example, annual row crops belong in that field and you manage only for trees in the woodland. I’m certainly not knocking tradition, but we need to recognize that agroforestry is a different way of thinking.”

For this reason, Mason believes conservation districts are well positioned to help educate landowners on the many benefits tied to the five common agroforestry practices: alley cropping, forest farming, riparian forest buffers, silvopasture and windbreaks. Districts have the local relationships to spread the word; problem is, like landowners, district leaders in a number of areas around the country are still just learning about agroforestry.

See ‘Agroforestry’ on Page S2

Agroforestry's five practices

Here is how the NAC website describes each of the five common practices:

• In alley cropping, an agricultural crop is grown simultaneously with a long-term tree crop to provide annual income while the tree crop matures. Fine hardwoods, like walnut, oak, ash, and pecan, are favored species in alley cropping systems and can potentially provide high-value lumber or veneer logs. Nut crops can be another intermediate product.

• Forest farming is the cultivation of high-value specialty crops under the protection of a forest canopy that has been modified to provide the correct shade level. Crops like ginseng, shiitake mushrooms, and decorative ferns are sold for medicinal, culinary, and ornamental uses.

• Riparian forest buffers are natural or re-established streamside forests made up of tree, shrub, and grass plantings. They buffer non-point source pollution of waterways from adjacent land, reduce bank erosion, protect aquatic environments, enhance wildlife, and increase biodiversity.

• Silvopasture combines trees with forage and livestock production. The trees are managed for high-value sawlogs and, at the same time, provide shade and shelter for livestock and forage, reducing stress and sometimes increasing forage production.

• Windbreaks are linear plantings of trees and shrubs designed to enhance crop production, protect people and livestock, and benefit soil and water conservation. Field windbreaks protect a variety of wind-sensitive crops, control wind erosion, and increase bee pollination and pesticide effectiveness. Livestock windbreaks help reduce animal stress and mortality, reduce feed consumption, and help reduce visual impacts and odors. Living snowfences keep roads clean of drifting snow and increase driving safety. They can also spread snow evenly across a field, increasing spring soil moisture.

District Success - Indiana

At an Indiana conservation gathering last summer, landowner Carl Diehls pulled forester Tom Crowe aside. Diehls shared that his 67-acre field, on which a tenant farmer alternates corn and beans, had experienced considerably higher yields in the areas closest to where a windbreak had been installed in 1994.

Crowe, a member of the Interagency Agroforestry Team and the NACD Forest Resources Policy Group, has planted millions of trees in Indiana but had never witnessed first-hand the impact one windbreak could have on crop yield. The quarter-mile-long stretch of Northern White Cedar sits on the western end of Diehl’s field, parallel to the road. The yield data shows a 25- to 35-bushel spike in production in the area stretching approximately 600 feet away from the windbreak. Says Crowe, “The increased production easily made up for the ground lost where the trees were planted. I would estimate a 10 to 15 percent net gain after allowing for the tree’s space.” Crowe says the soil in that spot is not among the field’s best (most of which consists of a sandy base), so the windbreak is the only logical explanation.

“I think more than anything it’s helped the plants from drying out - less stress results in higher crop yields,” says Crowe.

“The increase in yield absolutely paralleled the windbreak.”

Carl Diehls
Indiana landowner

“I’m sure the benefit has been there, to some extent, since the trees were five to seven years old. Windbreaks typically provide benefits for 10 to 15 times the height of the tree.”

Diehl is convinced it’s a result of the practice’s impact, as well. “The increase in yield absolutely paralleled the windbreak,” he says. Diehl’s windbreak was one of around 50 windbreak installations done throughout north central Indiana during a three-year period thanks to grant funding. Kosciusko County Soil and Water Conservation District assisted in the plantings (Arrowhead Country Resource Conservation & Development facilitated the project). It’s one of many tree plantings Diehl has incorporated into his lands; the retired conservationist is active in the county’s forestry committee and is a loyal customer of Kosciusko County SWCD, says Crowe.

“He’s done a ton for forestry and agriculture in Indiana,” says Crowe. “He not only manages his woods, but has influenced many others to manage their woods.”

Still active well into his retirement, Diehl welcomes more agroforestry and tree-planting opportunities.

“The more I do, the more interesting it gets,” he says.

For more on Agroforestry, see Page S2.
Four things districts need to know ...

Agroforestry can be an overwhelming subject for a conservation district not familiar with it. It’s still a mystery to many conservation leaders, and there remain misconceptions about its five practices. But district leaders must know that there is an increasing demand for resource professionals trained in agroforestry, and that practices are often both flexible and beneficial.

Here are a few other things conservation district staff should know about agroforestry …

Not an expert? No need to worry, expertise is easy to come by

1 USDA National Agroforestry Center (NAC) leaders agree one reason some districts may not be engaged in agroforestry is because they feel they do not have the expertise or proper training to assist landowners. The good news is that, unlike some areas of conservation, agroforestry knowledge can be acquired rather easily. The NAC has a wealth of educational material available on its website and staff willing to answer questions. Says the U.S. Forest Service’s Lead Agroforester Rich Straight, “All of the information is available free. You can download a publication as a PDF or we can send hard copies to conservation districts at no cost to them. Some of those materials are technical in nature, and some are to be used as communication tools when talking to landowners.” There are also new educational opportunities that cater to working professionals.

2 When it comes to our natural resources and quality of life, society has a set of expectations, and producers are being pushed and stretched more and more each year. Agroforestry can help to meet those expectations. Practices provide environmental benefits to the soil and water, and evidence suggests they can help produce healthier and larger crop yields. Agroforestry can also serve as much needed habitat for wildlife.

Practices work for farms, big and small

3 The general consensus is that agroforestry is time intensive and designed only for small farmers, not large ones. This simply is not the case. “Although that may be true in some incidences, it is not universal,” says Straight. “Large-scale producers are also looking to develop efficiencies in their operation. Windbreaks may help reduce drift or increase yields. And agroforestry practices, by their nature, put permanent vegetation into the landscape to help control erosion, keep pesticides on site, and provide diversity for wildlife.”

Income opportunities beyond traditional crops

4 Agroforestry practices not only aid the environment, but they can provide a supplemental source of income. Says Doug Wallace, NRCS Lead Agroforester, it’s really open to the imagination of the planner and landowner. “For instance, for riparian forest buffers we could add plantings that would facilitate forest farming down the line,” says Wallace. “We could add extra rows of fast-growing crops that could be harvested for energy production. We could even add a row of fruit trees to produce fruit or allow for honey production. We can pretty much plan for any activity.” And agroforestry products are not tied to a commodity-priced cycle.

Agroforestry … continued from page S1

Says Mason, “What agroforestry needs is conservation professionals out there – districts being a big part of that population – open to the idea of agroforestry … professionals willing to learn about it and willing to find landowners – early adopters – that are doing it or have an interest in it. That’s what it’s going to take for us to break ground and expand agroforestry in many areas.” Adds Mason, “We also know that local agroforestry demonstration sites are important. Seeing is believing.”

U.S. Forest Service Lead Agroforester Rich Straight says that an important step in helping to build lasting and effective agroforestry systems is for conservation professionals to take time during the planning phase to consider a variety of options. But this may be difficult because of the heavy workload that field staffs carry.

“Not all agroforestry practices are foreign to farmers or conservation districts, although maybe the word is,” says Straight. “Windbreaks and riparian forest buffers are two types of agroforestry that are familiar to conservation-minded folks. Where conservation districts might be able to work with landowners to take it up a notch is to make those conservation practices economically productive … To take a windbreak and include in the design a tree or shrub species to be utilized as another income source. Maybe there’s a local winery or a market for jellies and jams allowing a landowner to grow fruit-bearing shrubs to harvest for that market.”

Beyond education, landowners also require help with financial planning and technical assistance. NAC has identified almost 20 U.S. Department of Agriculture programs that offer assistance for agroforestry-related projects, many of which conservation district staff are already familiar with.

“You can have financial assistance, but the technical assistance is huge,” says Mason. “So having people in districts that are literate in agroforestry, or if they aren’t, knowing who to go to – who the professionals are in their state – is important.”

In addition to the USDA National Agroforestry Center, university Extension offices around the country have also taken an active role in assisting conservation professionals in helping to guide landowners through the process.

Adds Mason, “We’re going to need a critical mass of resource professionals who have at least a basic expertise in agroforestry and that are willing to reach out to other professionals that may have more expertise – perhaps someone in Extension or State forestry. We’ll need landowners open to it, sure, but if a landowner walks into a USDA Service Center and asks about agroforestry and the response is ‘we don’t do that here,’ the conversation isn’t going to go any further.”
The future: Where agroforestry is headed

USDA National Agroforestry Center Director Andy Mason recalls being excited when he heard USDA Secretary Tom Vilsack’s “All Lands” speech in August 2009. It offered a new direction for conservation thinking, and even though it wasn’t in the transcript, agroforestry was clearly imbedded in Vilsack’s message.

Agroforestry leaders have built on that momentum in the past year and a half and have witnessed a wealth of new opportunities pop up all over. Agroforestry still has a long way to go, but Mason and other NAC leaders believe the future is bright.

Here are a few things on the horizon …

A new way to train

The Center realizes it needs to keep up with the times. People are looking for new ways to train and consume information. Because of this, NAC has begun to create agroforestry workshops for conservation professionals.

The biggest advantage is that the workshops offer the same level of training as traditional workshops, only using a cost-effective approach. “More and more state and local budgets are strained,” says NAC’s Rich Straight, “but people still want the information and training. It’s a way for folks to access it easily.”

Straight says NAC finished a recent webinar on silvopasture and a number of attendees contacted him immediately afterward hoping to gain more information on the practice. Those interested in upcoming webinars can check the NAC website at http://www.unl.edu/nac.

More CIG opportunities

Conservation Innovation Grants (CIG) is an NRCS program that uses Environmental Quality Incentives Program (EQIP) funds in an attempt to ‘stimulate the development and adoption of innovative conservation approaches and technologies.’ Says NAC’s Doug Wallace, “It’s one of the nice federal programs that, as long as it meets the federal criteria, (the design) is really up to the group submitting the application.” In the latest call for CIG applications, agroforestry is mentioned in eight separate sections. For more information on CIG, visit http://www.nrcs.usda.gov/technical/cig.

Changes in the next Farm Bill?

With discussions only now beginning for the next Farm Bill, it would be unwise to speculate as to how agroforestry will fit in. NAC officials hope to see more opportunity, but others suggest changes to policy may be needed first. Mike Gold, a research professor at the University of Missouri’s Center for Agroforestry, says the current language treats agroforestry as a passive enterprise, making it vulnerable to be misused by producers. “You stick some practice in and you get a rental payment and you’re done. While that’s not in practice the case, that’s what most people think and it’s how I’ve perceived it.”

For agroforestry to grow, Gold believes perceptions must first change, and rewards should end after profits are realized. “If the price of corn goes up they’ll rip it out. If you’re actually managing it and making income, you’re not going to take it out,” believes Gold. “To me, what would make more sense would be to see a program where you get a cost-share to help you install an actively managed agroforestry practice. When you start earning income – whether it’s the first, third or eighth year – once it equals your cost-share, you’re done.”

More discussion on how agroforestry will fit into the next Farm Bill is expected at this summer’s North American Agroforestry Conference (http://hosting.caes.uga.edu/2011NAAC).

Reaching out to Tropical and Tribal friends

NAC leaders acknowledge that one area that’s been neglected over the years has been to work with Tropical lands and Tribal entities, both of which have historical ties to agroforestry practices.

“Agroforestry by its nature – its history – is very much a tropical approach to land use,” points out Straight. “It’s only in the last 30 years that we’ve started to take a look at the benefits of agroforestry in more temperate climates and begun to modify it some. A number of island Territories and Federations still utilize agroforestry to some extent, but like some indigenous knowledge, it’s starting to get lost.” NAC has begun to document that lo-
Technological and scientific knowledge, and is working to help support local food production and improve nutrition.

Wallace says Tribal entities also have that history to draw from. “They didn’t call it agroforestry,” he says, “but the things they do and are interested in match up well with our practices … They have a strong land ethic. They traditionally multi-crop in a lot of areas.”

Working with both Tribal and tropical leaders has become an important priority for the Center moving forward.

It’s time to talk energy

One of the NAC’s most popular documents has been its “Working Trees” series, which covers topics such as livestock, water quality and agriculture. Now the NAC plans to introduce its latest installment in the series: “Working Trees for Energy.” It’s part of a movement within agroforestry to consider bioenergy in the designing phase.

Straight believes bioenergy has the potential to fit into any of the five agroforestry practices. “For small producers, being able to harvest a portion of the practice to be used for on-site energy generation can suddenly be a benefit and still maintain the conservation benefits,” says Straight. “For large producers, it could generate a large quantity of woody fuel to be sold to a local market.”

Interest in bioenergy has grown considerably, but Straight admits that science and markets still need to catch up. “The technology is there,” says Straight, “but the cost is still a little on the high side.”

Educational opportunities

The University of Missouri has long been a leader in agroforestry education. Now, the school’s Center for Agroforestry is offering a two tracks that will allow professionals to enhance their agroforestry knowledge without having to step foot on campus.

Anyone with a bachelor’s degree is eligible to enroll in one of two tracks: a four-course graduate certificate program or a 30-credit non-thesis master’s program. Says the Center’s Associate Director Mike Gold, “It doesn’t matter if you’re a landowner, a farmer or work for a conservation district, we’ve created a format so that you can get some in-depth training in agroforestry.”

Available courses include: Agroforestry Theory, Practice and Adoption; Ecological Principles of Agroforestry; Agroforestry Economics and Policy; and Agroforestry for Watershed Restoration.

The certificate track allows students to study both the biophysical and socioeconomic aspects of agroforestry while getting an overview of the big picture. The master’s program consists of a suite of 10 available courses. Gold says three to six of the required 30 credits will come from non-course work.

Discussions for the online programs began in late 2009. Students can choose to take courses from nine instructors, including the Center’s four full-time professors.

For more information on these educational opportunities, visit the University of Missouri’s Center for Agroforestry home page at http://www.centerforagroforestry.org.

Districts: NAC's best customers

The USDA National Agroforestry Center (NAC) in Lincoln, Nebraska acts as a warehouse for dozens of available agroforestry documents, such as the “Working Trees” series. The Center also lends out vertical agroforestry banners, 39-inches wide by 90-inches tall, just for the cost of return shipping.

A large number of those documents wind up in conservation district offices each year. “Year in and year out, conservation districts are the largest users of our publications and displays,” says Rich Straight, the Lead Agroforester for the U.S. Forest Service.

All of the NAC’s materials are available free of charge. Most of the documents can be downloaded online, but with advance notice conservation districts are also able to have print publications and brochures shipped to events. Districts are asked to pay the return postage for display units.

NAC is happy to provide conservation districts with the resources. As NRCS Lead Agroforester Doug Wallace puts it, “They know the folks who need the information.”

To obtain materials, all users need to do is visit the NAC website and search for the practice of interest. The site will then provide a listing of every publication available.

We Want To Hear From You!

Conservation District leaders...

• Tell us whether agroforestry practices are relevant in your area

• Share success stories for how you’ve worked with landowners on agroforestry projects

• Let us know what information we can provide that would be helpful to your district

Email your comments to: forestrynotes@email.nacdnet.org