SCIENCE & EDUCATION
Impact
Benefits from USDA/Land-Grant Partnership

Farming for Now…and Now On

Sustainable agriculture is the key to the future.

Farming practices increasingly must be compatible with long-term goals of protecting natural resources and the environment. Agriculture, the nation's most basic industry, also must be economically viable for producers who compete in global markets. Preparing for a more sustainable future is a major goal of the Land-Grant University and USDA partnership. New production methods and improved crops – coupled with remote sensing and other high-tech advances – are making agriculture more efficient and environmentally friendly.

Payoff

- **Good, better, best.** Across the nation, best management practices or BMPs are being developed to protect water, soil and air, and help farm profitability for a sustainable future. Routine pesticide applications are being replaced with integrated pest management and biological controls. Conservation or minimum tillage is protecting soil from erosion and improving water quality. Substitutes for soil fumigants such a methyl bromide are being developed to protect the atmosphere. In Alabama, **Auburn** researchers are working with the state environmental management department and USDA's Natural Resources Conservation Service to develop BMPs for the catfish farming industry. **Delaware's** new Institute of Soil and Environmental Quality is developing BMPs to control pollution caused by phosphorus and other nutrients. **Nevada** scientists are combating non-point source water pollution, which is troublesome because pollution sources are difficult to trace. Pasture management and irrigation practices are being modified to reduce nutrient leaching and soil erosion in watersheds. An extension education program is helping small farmers test wells and protect them from contamination. In 2001, the Nevada program was expanded to eight Western states.

- **Less is more. Maine** research shows that reducing use of chemical fertilizers and pesticides may not lower potato yields. Using manure instead of chemical fertilizers actually resulted in significantly higher yields. A comparison of pesticides and environmentally friendly pest management tools showed that

RESEARCH, EXTENSION AND EDUCATION AT WORK

both controlled insects and diseases, but the sustainable and more environmentally friendly approach reduced pesticide use by 62 percent – with no yield reduction.

- **Landscapes vs. hardscapes.** In Maine's Lower Kennebec Valley, lush farmland is threatened by urban development. To help farmers, **Maine** Extension created the Working Landscapes Project, providing production and marketing assistance for a more sustainable future. The project has helped 25 farms, and 23 have increased profits between 5 percent and 20 percent over the past two years. One dairy producer said the project helped increase annual milk production by 1,000 pounds per cow, boosting income by $158,000.

- **Satellite sensing.** Global positioning systems and other satellite technologies are revolutionizing crop management nationwide. **Utah State** Extension is training producers to use the technology for more uniform fertilizer application that can improve yields and keep excess nutrients out of water supplies. **Tennessee** researchers are using remote sensing to track deer populations causing damage to agricultural crops. Findings are helping manage deer herds and agricultural lands in a profitable and sustainable manner.

- **Environmental education.** To promote sustainable agricultural practices, **Kentucky State** started monthly workshops, which attracted nearly 1,400 participants in 2001, including women and minority farmers, organic farmers and non-traditional farmers. A small farm field day, focusing on sustainable practices, attracted 550 producers from 70 counties in nine states. Participants reported greater awareness of reduced input production methods and sustainable techniques. **Maine** extension started a week-long training program to increase the amount of organic waste being recycled. Less than 3 percent of the nation's 200 million tons of organic waste currently is turned into compost and returned to the soil. The compost course also attracted people from other states, Canada and South America. Training by these graduates has increased awareness of composting worldwide. **Maryland** is teaching a summer course in Costa Rica, helping students understand the relationship between sustainable agriculture and the environment. **Ohio State's** new 28-acre organic farm demonstrates practices that are sustainable. One of the fastest growing segments of U.S. agriculture, organic farming had $7.8 billion in sales during 2000 – a 20 percent increase over 1999. **Virginia State** demonstration plots are helping farmers produce crops that can be certified as organic by the state. In 2000, about 30 new farms were certified, bringing the total to 120 farms on more than 6,400 acres.

- **It's only natural. Michigan State** researchers found that soil quality is one of the most important factors in controlling nematodes and other soil-borne pests. Findings from 13 tests indicated that the number of tiny parasites was higher in soils treated with conventional pesticides than in soils treated with biological and organic management practices. Michigan research also found that reduced tillage methods on sugar beets cut soil loss to less than half the usual 5.5 tons per acre.

- **Sustainable in Samoa.** Medicinal plants in American Samoa have a history in the treatment of various ailments as well as attracting the attention of major pharmaceutical firms. However, that legacy may be lost if knowledge about plant use is not sustained. To make sure it is, **American Samoa Community College** is documenting the value of various medicinal plants and helping producers establish a market for their plant products.

Cooperative State Research, Education, and Extension Service
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Cooperative State Research, Education, and Extension Service in cooperation with the Extension Committee on Organization and Policy, the Experiment Station Committee on Organization and Policy, the Academic Programs Committee on Organization and Policy, the International Programs Committee on Organization and Policy, and the Louisiana State University Agricultural Center.

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