

# AGRI-21: A COMPREHENSIVE DEMONSTRATION OF PROFITABLE AND ENVIRONMENTALLY SUSTAINABLE AGRICULTURE FOR THE 21ST CENTURY

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## INTRODUCTION

Farmers in the Tennessee Valley and the nation are faced with economic and environmental issues that are changing traditional agriculture. As legislative bodies impose new environmental and safety regulations on agriculture, the challenges will become more serious. These issues have the potential to adversely impact the economic viability of farmers and threaten their long-term survival.

Adjustments to these issues are complex and are not made quickly. Farmers need information on how to proceed without being subjected to undue risks. A new procedure for bridging the gap between sustainable research findings and their practical application and evaluation under farm conditions is a part of the Agri-21 Farming Systems program. The major component of this program is the whole-farm demonstration, which is used to fully integrate the issues of sustainable agriculture. It takes into consideration the entire farm, the farm family, and their resources and aspirations. These demonstration farms, called Agri-21 Farms, serve as applied research stations where innovative techniques are tested and evaluated. Agri-21 Farms also function as an educational tool for farmers, technical agricultural workers, and the agricultural community. The additional components of the program provide opportunities to test and demonstrate sustainable agriculture technology on an individual enterprise.

## OBJECTIVES

The objectives of this program are (1) to develop, test, demonstrate, and evaluate technology that will be required to maintain sustainable (efficient, competitive, profitable, and environmentally acceptable) farming operations in the 21st century and (2) to educate and/or enhance the awareness of professional agricultural workers, farmers and their families the

agricultural community, and the general public of critical agricultural issues and alternative solutions.

## STRATEGIC METHODS

Major areas of program emphasis include environmental improvement, increased profitability, leadership development and education, and improved family finances and personal lives. Specific activities include:

### Environmental

- Best management practices (BMPs) for conservation compliance, including no tillage, minimum tillage, conservation tillage, ridge tillage, winter cover crops, and crop rotations.
- Integrated pest management (IPM).
- Nutrient management on crop, pasture, and forest land.
- Wetlands management, filter/buffer strips, and farmstead environmental assessments.
- Pesticide, fertilizer, and petroleum product handling and storage.
- Livestock and household waste storage and management.
- Farmstead and feedlot stormwater management.

### Financial

- The latest computerized farm planning techniques, including FINPACK and Planetor.
- The latest marketing techniques and strategies, including improved market information technologies.
- Strengthening and improving agribusinesses.

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- Exploring economical uses for farm and processing wastes.
- Economical use of pesticides and other chemicals.
- Introduction of alternative enterprises.

#### **Education**

- Conduct field days and farm tours on participating farms.
- Conduct workshops and conferences on agricultural/public policy and environmental regulations.
- Prepare brochures, handbooks, newsletters, news releases, and video productions on sustainable agriculture.
- Conduct short courses (formal training) on various aspects of sustainable agriculture.
- Incorporate the sustainability concept in school curriculums.

#### **Leadership Development and Public Awareness**

- Foster the leadership skills of participants.
- Participate in the legislative process as environmental policy affecting agriculture is developed.
- Develop partnerships with community and local governing bodies.
- Make the general public aware of the benefits of sustainable agriculture.
- Participate in Leadership Development Training workshops.

#### **DEMONSTRATION AREA AND PROJECT DURATION**

The Agri-21 Farming Systems program is conducted in the 201 counties of the seven-state Tennessee Valley region. The Agri-21 Farms are selected, or targeted, in areas that represent significant farming regions or have problems common to many farms. The Agri-21 Farming Systems program extends over a 10-year period beginning October 1, 1992. On-farm demonstrations will be conducted over a

9-year period. The final, or tenth year, is to be used for an overall program evaluation.

#### **PROGRAM SUPERVISION**

The overall direction and supervision for this program is provided by the Executive and Management committees. The Executive Committee is comprised of the seven Extension Service deans and directors of the Valley land-grant universities, a representative of a Valley 1890 land-grant institution, and a representative of a state department of agriculture. It also includes USDA agency heads and other government entities, non-profit agricultural organizations, as well as a representative from the Tennessee Valley Region Association of Demonstration Farm Families. The committee meets annually to establish general program guidelines and policy, review progress and plans, assist in securing project funding, and issue special directives to the Management Committee.

The Management Committee is charged with Valley-wide program coordination, implementation, evaluation, and supervision. The role of the Management committee is to provide regional coordination and leadership for the program. It is made up of the co-chairs of the Technical Operations Subcommittee, a representative of each of the seven-state Agri-21 committees, as well as a farmer representative from the Tennessee Valley Region Association of Demonstration Farm Families.

The Technical Operations Subcommittee is a subcommittee to the Management Committee. It is comprised of individuals having expertise in disciplines related to the various assigned functions of the subcommittee and is responsible for formulating a uniform planning procedure for the Agri-21 farm demonstrations. This should include the necessary steps for developing the plan and the tools to be used.

At the state level, the program is directed by the State Agri-21 Committee. The committee is co-chaired by the university supervisor for TVA programs and the TVA regional manager and consists of representatives of state participating agencies. The university program supervisor represents the state committee on the Management Committee. State committees are responsible for implementing the program in their respective states, adhering to the guidelines and directives established by the Executive and Management committees.

Management of the program at the local level is the responsibility of a university Extension staff person with guidance and direction from the state committee. In most cases, this person is a state Extension specialist. This individual is responsible for the program at the "grass roots" level and for soliciting the assistance of other specialists, county Extension staff, and other agency personnel.

#### NUMBER OF FARM DEMONSTRATIONS AND LENGTH OF PARTICIPATION

A major goal of the Agri-21 Farming Systems program is to select and implement approximately 100 whole-farm demonstrations across the Valley (see Table 1). All Agri-21 Farm demonstrations are for a 5-year period. The participation period starts on a fiscal year basis beginning on October 1. The first year of participation is considered a probationary period. Continued participation is contingent upon the successful completion of activities planned for each year of the program.

Table 1. Number of Agri-21 Farm Demonstrations by Program/Project Year.

Project Year	Year of Program Participation					Total
	1	2	3	4	5	
1	18					18
2	18	18				36
3	20	18	18			56
4	22	20	18	18		78
5	22	22	20	18	18	100
6		22	22	20	18	82
7			22	22	20	64
8				22	22	44
9					22	22
10						0

Evaluation Period

#### CRITERIA FOR SELECTING POTENTIAL AGRI-21 FARM PARTICIPANTS

1. Be established in a full-time farming operation or part-time operation of which a substantial portion (at least one-third) of the family gross income is derived from farming.
2. Be in a position to obtain access of sufficient resources to implement the farm plan.

3. Have needs in their current farming operation that can be addressed with this initiative.
4. Be committed to addressing the issues of sustainable agriculture (efficient, competitive, profitable, and environmentally acceptable).
5. Be willing to keep detailed records, make their farm available for tours and visits of farmers and professional people, and agree to allow environmental sampling throughout the duration of the project.
6. Be willing to accept advice and guidance and to participate in environmental education and leadership development sessions.
7. Have farming operations representative of agriculture in the area targeted for the demonstrations.
8. Be committed to implement the farm plan, serve as a demonstrator, and be an advocate for the duration of their participation.
9. Where appropriate, priority will be given to cooperators identified in special watershed and other targeted areas by cooperating agencies and organizations, such as state heritage programs, hydrologic units, etc.

#### PROCEDURE FOR NOMINATING AND SELECTING ACRI-21 FARM CANDIDATES

Nominations originate at the local or county level. An organized group, such as a county rural development committee or a similar group, with representatives from all major agricultural agencies may submit a nomination for consideration to the State Agri-21 Committee.

All nominations are made at least 6 months prior to a farm beginning the program. Representatives of the State Agri-21 Committee review the nominations and make a preliminary screening of the nominees' qualifications of the nominees, especially as related to farming types to be emphasized, areas of the state to be targeted, etc. Following this screening, representatives of the state committee visit all nominees to interview the operator and the family, observe the current farming operation, and assess the family's potential to be a successful cooperator.

Those selected are notified of their preliminary selection. Final selection is determined when the farm plan(s) is completed and accepted by the candidates.

### **PLANNING PROCESS AND PROCEDURES**

Once the preliminary selection is made, a comprehensive plan is developed in partnership with each prospective demonstrator. The plan includes a full inventory of the farm's resources, as well as the establishment of farm and family goals. A number of alternative plans are prepared so the family can compare these with their current operation. They are expected, however, to implement one that achieves an optimum net farm income subject to environmental and regulatory constraints and fits the family's financial and development goals.

#### **The Overall Farm Plan**

The planning procedures and tools necessary to develop the comprehensive plans needed for these farms were determined by the Technical Operations Subcommittee. The overall plan should also provide for farm and family financial planning, including financial simulations, environmental assessments and plans, as well as leadership and education workplans and schedules.

The second thrust of this program is to increase the awareness of professional agricultural workers, farmers and their families, and the agricultural community of critical agricultural issues. Formal plans are developed to accomplish this phase of the program. These plans may range from a general statewide program to very specific on-farm activities utilizing Agri-21 Farm experiences.

### **INCENTIVES AND REIMBURSEMENTS**

Participants receive cost-share incentives provided certain measures of success or progress are achieved as the plans are implemented. Incentives are MADE available following implementation or accomplishment of a planned activity. The level of incentives for an individual demonstration will be determined during the planning process and may vary according to complexity and risk of the technology being introduced. The nature or type of incentives may also vary from year to year. Generally, incentives will be in the FORM of discounts or a reimbursement for a share of the cost of an approved item or practice. Incentives will be available for all components of the Agri-21 Farming Systems program. Participants, however, may not

receive incentives for more than one component. Agricultural and state agencies may assist, as appropriate, in financing the planned changes in the farming operation.

### **PROJECT BUDGET**

The annual cost of the Agri-21 Farming Systems program is estimated at about \$2 million. This estimate includes the cost of conducting all components of the Agri-21 Farming Systems program's on-farm activities (Agri-21 whole-farm demonstrations and sustainable practice and alternative enterprise demonstrations); leadership development training; conferences; workshops; field days and tours; program planning, supervision, and management; project evaluation; and promotional and reporting activities. This figure also includes estimates of agency staff salaries and related costs, educational activities, and program incentives, but does not include expenditures to be made by participating farm families as they implement the program. Input from other state and federal agencies, both direct funds and in-kind services, will be sought, especially where their agency objectives and goals mesh with those of Agri-21 Farming Systems program. Efforts will be made to develop new partnerships with industry, private non-profit foundations, special interest groups, and others to provide additional support.

### **SUMMARY**

The Agri-21 Farming Systems program is an initiative designed to continue and strengthen cooperative efforts in order to demonstrate agricultural technology that will be required to conduct a profitable and sustainable agriculture in the 21st century.

The whole-farm demonstration concept (Agri-21 Farms) is used to integrate economic and environmental aspects into one approach for sustainable agriculture. Successful implementation and adaptation of this concept in the Tennessee Valley provide a model for focusing on the farm and the farm family, as well as their resources and personal aspirations. These demonstrations expedite the acceptance of research findings for on-farm utilization. The Agri-21 Farming Systems program provides farmers with methods to enhance the environment without sacrificing agricultural productivity or family income.