



**WE BELIEVE IN QUALITY WHICH LEADS TO RESULTS**

# **FARMING PLANNING**



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## **I. Introduction**

A new toolbox is emerging for farmers who are trying to integrate a number of different changes on their farms. Whole farm planning is a process to pull together decision making about environmental, economic, and production concerns. Interest in the concept is gaining momentum. In fact, whole farm planning is being "invented" simultaneously in at least a dozen styles in different circumstances.

This report articulates the consensus of one diverse group, the 120 participants in the NYAMPANDE Network. Farmers, nonprofit groups, researchers, and agency staff are engaged in a multi-year collaborative effort to explore, demonstrate, and evaluate various whole farm planning approaches. These task forces are engaging farmers and policy makers in the dialogue. Representatives from each task force and several national participants serve on a basin-wide steering committee to guide the overall project (see previous page for list of members). Coordination and policy analysis are provided by the Minnesota Project.

After a year of learning, sharing, and training about various farm planning approaches, the steering committee embarked on a series of discussions about the essential elements of a whole farm plan. An extensive written survey of 175 interested farmers, agency staff, nonprofit organizations, and other Network participants was conducted by project evaluator Dr. Thomas . Survey results added input to the discussion.

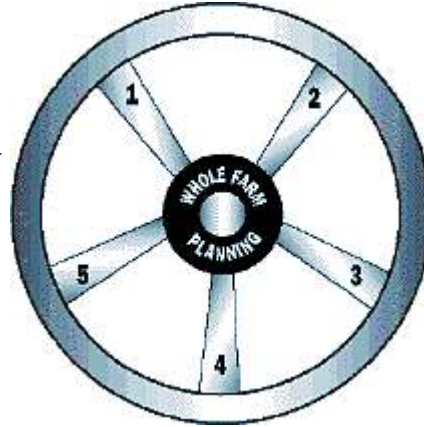
This paper represents the current consensus of participants in the NYAMPANDE Network.

The elements described here are intended to be a guide for designing and evaluating farm planning programs. This report is not a prescription for a single ideal method. The Network endorses the notion that different planning methods will appeal to different farmers, depending on their personalities, their farming situation, or what is going on in their community or watershed. Brief descriptions of nine farm planning programs currently underway are included to suggest the breadth of potential planning approaches. We think the essential elements we recommend are most likely applicable to all approaches that farmers use to integrate information, goals, and plans for their land and their farming business.

Additional attributes that may be desirable for farm planning, but not essential for success, are also described.

## **II. Whole Farm Planning Serves Many Purposes**

- 1. Coordinate Regulations**
- 2. Improve Conservation and Water Quality**
- 3. Integrate Economics and Environment**
- 4. Promote Sustainable Agriculture**
- 5. Consider Quality of Life**



Whole farm planning is a comprehensive approach to farm decision-making. It brings the entire farm and all its resources into the thought process. The purpose is to help farmers achieve their goals, while at the same time enhancing natural resources and the environment. It is based on the concept that a farmer can make better decisions if he or she has all relevant information about available resources, alternative solutions, and potential impacts.

A whole farm plan is simply a better tool to help farmers achieve their goals.

Whole farm planning is a process that has evolved partly as a negative reaction to the short-comings of the myriad of single-purpose farm plans currently used to meet each individual natural resource problem. It would not be unusual for one farm to have a plan for its highly erodible acres, another for the feedlot, another for manure management, another for pesticides, another for wetlands, and maybe one for wildlife or the woodlot.

Too often these plans solve one resource issue at the expense of another. Too often such plans are written by agency personnel and presented to the farmer with minimal interaction. Too often the plans don't consider the least cost solutions, they don't look for underlying problems, they don't take in the whole farm, and they don't coordinate between plans. General frustration results, and the full benefits of environmental farm planning remain unrealized.

Whole farm planning is a solution that seems to be at the hub of a wheel, catching the interest of different groups, sometimes for very different reasons. The major themes that attract people to the concept of whole farm planning are the opportunity to coordinate regulations, to promote conservation and water quality protection, to integrate economics with environmental concerns, to promote sustainable agriculture, or to include quality of life as a consideration in farming decisions. Creators of any farm planning program should decide which of these purposes, or what combination of purposes, they intend to meet.

## **1. Coordinate Regulations**

Farmers have had to cope with an increasing array of government regulations in recent years, each designed to deal with one problem at a time. As noted above, there are separate programs for erosion, wetlands, pesticides, feedlots, wildlife, nutrients, and on and on. Sometimes there are separate regulations from the federal, state, and local level. Farmers often experience the fragmented rules of diverse, albeit well-intended, programs as confusing and sometimes duplicative, or even contradictory.

Regulations could be imbedded into the whole farm planning process so that a successfully implemented whole farm plan could be the tool to coordinate compliance with regulations. Farmers could rest in confidence that their plans document full compliance with all rules that apply to them. These plans could simplify paperwork for farmers, and protect farmers from uninformed criticism.

For this to happen, agencies would have to work together, collaborating on design of the farm plan without giving up their own areas of jurisdiction or enforcement responsibilities. Indeed, better communication between agencies is an additional benefit of a whole farm planning approach designed to coordinate regulations relating to agriculture. Voluntary programs and incentives could also be coordinated through farm plans.

## **2. Improve Conservation and Water Quality**

The public is increasingly aware of the impact on water quality from agriculture. Runoff of eroded soil, animal wastes, fertilizers or pesticides is often the cause of serious pollution of both surface water and groundwater.

Realizing that these pollution sources are too complex and numerous to regulate, policy makers are searching for a different means to encourage better farming practices. By giving control back to the farmer, whole farm planning can provide the forum for evaluating problems and implementing site-specific solutions. Instead of launching separate efforts to educate farmers on how to reduce each source of runoff, the whole farm plan would coordinate programs relating to agriculture. The plan would help the farmer consider nutrients, sediment, and pesticides simultaneously, and encourage the search for the best solutions for multiple problems.

## **3. Integrate Economics and Environment**

Sometimes the media portrays farmers as being concerned only with production and profits, while environmentalists are portrayed as demanding environmental quality at any cost. In fact, most farmers care deeply about the land, and most environmentalists want a thriving agriculture economy. What is needed is a process to consider concurrently both how to solve environmental problems, and how to do it at the least cost.

Whole farm planning encourages a look at all options available, including information about relative costs, so that a farmer can choose the least cost options that meet their goals. Ideally, the whole farm plan would also be a means to increase profits, by

identifying ways to cut costs or increase production. A whole farm plan can help farmers keep records to guide ongoing management and make adjustments to practices.

#### **4. Promote Sustainable Agriculture**

An inclusive view of whole farm planning requires taking a look at the farm as a whole integrated system. Instead of addressing symptoms one at a time with prescribed best management practices, the farmer would be encouraged to look for the underlying causes of problems and consider changes to the basic operation of the farm. For example, "systems changes" such as incorporating livestock into a cash crop farm; or switching from confinement animal production to rotational grazing; or rotating crops to prevent pest outbreaks, could address simultaneously a multitude of problems relating to profitability, erosion, nutrients, and pesticides. Whole farm planning can be a tool to guide the transition towards a more sustainable agriculture.

#### **5. Consider Quality of Life**

An important element missing from single purpose farm plans is inclusion of the farmer's personal goals and intimate knowledge of their own farm. History, opportunity, instinct and common sense can only come from the farmer himself or herself. Instead of assuming that maximum production or more income is the only goal, a whole farm plan provides the chance for the farm family to articulate their real goals—whether that means passing on the farm to the next generation, creating beauty on the land, or reducing debts. Such a process might even help more people choose farming as a way to make a living.



### **III. A Policy Bridge**

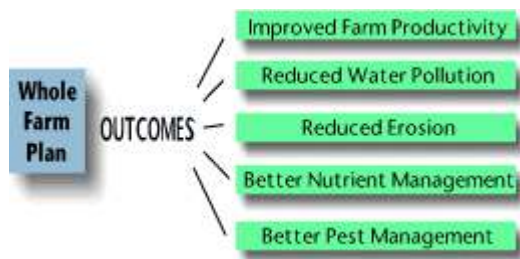
Any of the five purposes described above could be the focus of a whole farm planning program. It is interesting that such different outcomes can be envisioned from one concept. How does whole farm planning present such rich opportunities?

The call for whole farm planning is coming from two directions. From the top, policy makers are seeking a means for policy coordination and increased impact on farming practices. From the grassroots, farmers are searching for tools to help them protect the environment and improve their bottom line.

What all desire is a means to provide farmers a conscious opportunity to take stock of the natural and human resources of the farm in a systematic manner. Whole farm planning gives a farmer more tools to manage the farm and more site-specific information with which to make decisions. By better understanding their choices, as well as the potential consequences and overlapping effects of their actions, farmers can chart a path toward improved water, soil and life on the farm.

Paul Johnson, Chief of the Natural Resources Conservation Service (NRCS), recently wrote about the underlying roots of farm planning, as described 50 years earlier by Aldo Leopold (letter, December 1995):

The rationale for whole-farm and whole-ranch conservation assistance was best stated by the conservationist Aldo Leopold in a 1947 lecture .....Leopold closed that lecture by referring to the alphabet of natural objects (soils, rivers, birds, etc.) that spell out a story the landowner can read—if he knows how. "Once you learn to read the land," Leopold remarked, "I have no fear of what you will do to it, or with it. And I know many pleasant things it will do to you." Helping landowners "read the land" is fundamental to good conservation.



## IV. Essential Goals for a Whole Farm Plan

Although the style of whole farm planning can take many forms, the NYAMPANDENetwork concurs that all whole farm plans should aim for at least five goals for the farm. Three fourths of our survey respondents agreed that these outcomes are essential, and the rest said they are desirable.

### 1. Improved Farm Profitability

What makes whole farm planning different from past approaches is that improving farm profits is front and center. Where environmental concerns are the driving force, the process should help farmers find solutions that actually save money, increase profits, simplify the work, or otherwise meet farmer family goals. Seventy percent of our survey respondents feel farm planning has the potential to improve profitability of farms. At a minimum, planning should maximize environmental benefits at the least cost. To the extent that whole farm planning can demonstrate a positive effect on farm finances, the demand from other farmers to participate is likely to grow.

### 2. Reduced Water Pollution

The main driving force behind interest in whole farm planning is the need to reduce nonpoint source pollution from agriculture. Agriculture is widely recognized as the largest source of nonpoint pollution in the U.S. today. Pollutants range from sediment, to nutrients from manure or fertilizer, to pesticide runoff and volatilization into the air. Farm families themselves are often the first victims of contaminated water supplies, if a water well becomes fouled with nitrates, bacteria, or pesticides. The tendency of government to

launch a new program or regulatory focus for each source of pollution has led to frustration and confusion. Erosion control programs are 50 years old; now also being promoted are manure management, nutrient management, and pest management programs. Since farmers need to pull it all together and look for the simplest, most cost-effective solutions, whole farm plans could be the best means to achieve cleaner water supplies.

### **3. Reduced Soil Erosion**

Soil erosion programs are currently the furthest developed of farm environmental programs. For a half century the NRCS (formerly called the Soil Conservation Service) has offered technical assistance and financial incentives to farmers. Most farms have had their highly erodible lands identified, and the Revised Universal Soil Loss Equation provides equitable evaluation of different management practices on different sites. Since 1985, many farmers developed and implemented conservation compliance plans for their highly erodible acres, as a precondition of receiving U.S. commodity program benefits. For those farmers, whole farm planning won't duplicate compliance plans, but will rather start from a reevaluation of existing plans.

### **4. Improved Management of Nutrients, Including Manure and Fertilizer**

Nitrogen is a necessary soil nutrient for crops, but its easy solubility in water causes any over application to lead to pollution of drinking water. In addition, nitrates draining through the Mississippi River basin are thought to be the leading cause of the 7000 acre "dead zone" in the Gulf of Mexico, due to oxygen depletion. Phosphorus is another necessary nutrient that causes problems when an excess runs into surface water and leads to algae growth. In some places where manure is over-applied, a virtually permanent buildup of phosphorus in the soil is a cause for concern. Bacteria and viruses from manure are also a concern when they contaminate drinking water supplies. Programs that separate manure management from total nutrient management are especially problematic. Although storage issues for manure and fertilizer can be different, too many farmers use both to excess. Also, the solutions are similar: use soil tests, apply at agronomic rates, and prevent runoff.

### **5. Improved Management of Pests and Pesticides**

Pesticides that move from the intended field, whether by runoff, leaching, or volatilization, are an economic loss to the farmer and a threat to the environment. The nature of pesticide pollution varies tremendously from place to place, depending on cropping patterns, the nature of chemicals used, soil types, and geological conditions. Farmers and their families face additional health risks due to daily exposure and accidents.

Whole farm planning can help farmers consider several approaches to improving pest management to reduce or eliminate pesticide risks. The first step is to make sure that good housekeeping practices prevent accidents and over-application. The next step is to



incorporate the broader principles of integrated pest management, where alternative practices are used to tackle the particular problem, including crop rotations, cultivation, cover crops, and scouting to reduce the ultimate use of pesticides. Farmers who wish to make the full transition to elimination of pesticide use could consider a number of biological controls including organic and biodynamic practices, beneficial organisms, and building soil quality.



## V. Essential Qualities of the Whole Farm Planning Process

How something is done is usually just as important as the final product. These are key qualities of a good farm planning process:

### 1. The Farmer Is In Charge

It is critical that a whole farm plan not be prepared by an expert and handed over to the farmer as a done deal. Such a plan is not likely to be implemented. The farmer must be involved in learning about problems, considering choices, and, most important, developing the action plan so they can internalize it and commit to it. A farmer's sense of ownership was deemed the most important key to success by nearly 90 percent of our survey respondents.

### 2. The Farm Family Sets Goals for the Farm

It is essential that the farmer identify the specific goals they intend to reach. Our survey found 83 percent of respondents said this step is essential. Environmental goals should be identified, ranging from basic compliance with laws to more far-reaching improvements to the land. Economic goals, family goals, and social goals should be included.

Goals would not necessarily be set right at the beginning of the process, but must be done before deciding among options for the action plan. Separate short term and long term goals could be included. Stated goals should be meaningful to the farmer, and somehow be measurable with either quantitative or qualitative measures so that as the plan is implemented, the reason for taking each step remains clear. Successes and failures should be monitored and new action taken when necessary.

### **3. Planning is Voluntary**

Many view whole farm planning as a way to demonstrate to society that agriculture can solve its own environmental problems without the need for more regulations. Most farmers prefer voluntary conservation programs. Indeed, if forced on unwilling participants, whole farm planning might be resisted and become an empty shell that does not result in changed practices on the land. Of our survey respondents, 57 percent felt planning should always be voluntary.

However, some Network members agree that in some impaired watersheds it may be necessary to eventually require all farmers to implement action plans, for the sake of fairness to farmers who do commit to changes. Criteria for such mandatory plans might be somewhat different from purely voluntary plans.

### **4. The Entire Farm is Included**

The essence of whole farm planning is to integrate all resource issues with the farm system. To address just one problem field or pasture in isolation may be a good step, but it falls short of the purpose of harmonizing practices on the farm with the farmer's goals. All plans will necessarily include some kind of assessment of resources (see the content section below) which should include a look at the entire farming operation.

### **5. Problem Areas are Clearly Identified**

The first step in any healing process is to admit what the problem is. A core purpose of a whole farm plan is to help farmers name the concerns that need to be addressed. By naming concerns, the farmer begins to pay attention to what he or she knows ought to be fixed. Our survey confirmed 80 percent of respondents feel this is an essential step. In reference to their own farm goals, the farmer articulates where they are falling short. Depending on the desires of the farmer, problems might be narrowly focused on environment or profit, or broadly focused on quality of life and their community. It is important that this step be done before considering options. Too often human nature denies a problem while the mind is rushing forward to reject what is assumed to be the only possible solution. Whole farm planning seeks to identify a pattern of problems in the hope that new solutions will emerge.

### **6. Alternative Options are Considered**

The heart and soul of whole farm planning is the exploration of alternative solutions to the named problems of the particular farm. Technical assistance will surely be beneficial in offering information to farmers on multiple solutions, including innovative ideas they might not have thought of. Too often in the past a single panacea solution was pushed on all. For example, in conservation compliance many farmers report that they were basically told what level of conservation tillage would meet their erosion goal, even though a myriad of other practices is available, including crop rotation, strip cropping, contours, and grass waterways. Our survey found 82 percent felt farmers need less

expensive farm practices to protect the environment. Comparing the relative costs of options will help farmers select the most cost-effective solutions to protect the environment. Such information should include not only the initial outlay, but costs for maintenance, annual work load, additional benefits, cost savings that might appear elsewhere, labor needs, etc. By offering flexible choices, the whole farm plan can accommodate the diversity of farmers and their differing circumstances.

### 7. The Farmer Develops an Action Plan, with Adequate Timelines

Good intentions without an action plan are destined for oblivion. It is essential that the selected options be written into an action plan by the farmer himself, to which the farmer makes some kind of commitment. Without this step, it is not really a plan, but only a list of ideas. The timeline should be carefully thought out to reflect reasonable amounts of time to accomplish each task. Some actions can be taken immediately; other longer term transitions may take years to fully realize. Even a self-commitment to a voluntary plan has meaning.

For some whole farm planning programs there will be an added step of review or approval by another party, depending on whether the plan holds a farmer accountable for something, for example receiving public cost-share dollars or organic certification. Peer review of the plan by other farmers can also be used as a quality assurance process.

**ACTION PLAN FOR OUR FARM**

TO DO NOW	THIS YEAR	IN TWO YEARS
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SIGNED \_\_\_\_\_

Even though some kind of commitment to an action plan is made, nevertheless a written plan must always be flexible, allowing for necessary day-to-day changes. After all, life inevitably brings surprises, and plans must be modified when there is justification.



### 8. Implementation Progress is Measured, and the Plan Re-visited

All farm plans should include a process for periodically measuring both progress made in implementing the action plan, and progress toward the stated goals of the farmer. This will involve some kind of record-keeping and analysis by the farmer. Admittedly, designing measurable indicators of progress is one of the most challenging tasks in any plan. Other than the universal soil loss equation for erosion, there are no comprehensive formulas for measuring environmental impact.

With creativity and an eye on the ultimate purpose of a plan, we need to develop additional means to measure both qualitative and quantitative aspects of plan implementation. In some cases, the goals themselves will be measurable ("More fish in my creek"). In other cases, the practices implemented are what counts ("Half of the farm in four year rotations"). In still other cases, the environmental outcomes can be measured ("No increase in nitrates in well water").

If the action steps are being implemented but they are not really solving the problem, the farmer should take note and alter the plan. Periodically, say every three to five years, farmers should review, evaluate and update written plans to reflect changing circumstances, goals, technologies, and regulations.

At the same time farmers continuously monitor their progress on the farm, agencies have the responsibility to monitor general effects in the environment.

## **9. The Planning Process is Encouraging, Easy to Understand, and Educational**

Whole farm planning should be useful as an active, on-farm decision-making tool. Ninety percent of our survey respondents agreed. If it is too complex, requires a lot of paperwork, takes hours to figure out, or doesn't seem relevant to the farmer, the written plan will not be successful.

Farm planning approaches appeal in different ways to different farmers. Holistic Resource Management is family-oriented, done in classes with other farmers facing similar situations. Ontario Environmental Farm Plan is a jazzy notebook with cleverly structured worksheets, personalized and filled out by the farmer, and later anonymously reviewed by other farmers who offer suggestions. PLANETOR pulls it all together in a computer program which spits out maps and printouts. Each approach is designed to be attractive in a very different way.

Agencies should continually evaluate the planning process and format for relevance and appeal to farmers. Keeping it simple is the key.

## **10. Technical Assistance is Available**

Personal assistance from trained experts is needed to help farmers explore problems and possible options they might otherwise not be aware of. Our survey found 82 percent thought planning will require more information than most farmers currently have at their fingertips. In addition, review and comment on a written plan by another party is always

helpful. Access to advisors should be easy, and the help they provide should be easily understandable without having the advisor take over the process. Assistance might be provided one-on-one at the farm, to many farmers in a workshop of some kind, or by providing high quality information to those requesting it. When farmers want to acquire a new skill themselves, training should be available to transfer the needed information from experts to the farmer.

Technical assistance could be provided by government agencies, input suppliers, farm cooperatives, independent crop consultants, nonprofit organizations, and other farmers. Networking with other farmers is particularly beneficial for many farmers. One new USDA program, the Environmental Quality Incentives Program, specifically allows non-agency professionals to be involved in writing conservation plans to qualify farmers for financial assistance for conservation measures.

### **11. The Farm Plan Itself is Confidential**

Information contained in written farm plans must remain confidential. Farmers who fear neighbors or inspectors looking over their plan are unlikely to honestly name problems, or to be very ambitious in their commitments to future actions. Economic information is particularly sensitive. Of our survey respondents, 62 percent said confidentiality is essential. Steps can be taken so that advisors and peer reviewers either promise to keep information confidential, or review the plan without knowing its owner or location.

The desire for confidentiality becomes somewhat sticky if farm planning programs are designed to achieve assurance of compliance with environmental laws, or to formally release the farmer from legal or personal liability. In those cases, there must be some form of public accountability to ensure that the basic purpose of full compliance with rules has indeed been accomplished. Full confidentiality is probably not possible.

## **VI. Essential Contents of a Whole Farm Plan**

The topics listed below, either alone or in combinations, are the minimum that should be considered for a whole farm plan to serve its intended purpose:

### **1. Farm Family Goals**

The farmer and the whole family should develop their overall goals. Personal goals for business, lifestyle, quality of life, and landscape beauty are all relevant.

### **2. Economic Viability of the Farm**

The plan should evaluate not just productivity per acre, but total profitability. Input cost reduction and higher prices for farm products sold are just as important to profit as the amount produced. Some farmers may want to include factors beyond the bottom line,

such as reducing dependence on government programs, balance between livestock and grain production, total level of debt, stability of income, and responsiveness to market changes. The plan should include provisions for record keeping and making adjustments as needed.

### **3. Water Quality**

The plan should include how to protect all forms of surface water and groundwater.

### **4. Soil Conservation**

The plan should aim for erosion control that achieves tolerable rates of soil loss, represented by "T" in the Universal Soil Loss Equation.

### **5. Nutrient Management**

The plan must account for reducing pollution and maximizing benefits of soil fertility. In addition to natural and "home grown" nutrients (from previous crops), the plan should consider fertilizers, manure management if applicable, and feedlot management if applicable.

### **6. Water Management**

The plans should consider water quantity issues related to wetlands, drainage, flood plains, irrigation, and water conservation.

### **7. Pest Management**

The plan should evaluate how to minimize pest problems, including prevention of pollution from pesticides.

### **8. Soil Quality**

The plan should consider building soil quality over the long run, including organic matter and soil fertility.

### **9. Crop Rotations**

The plan should evaluate how to maximize benefits from rotating crops.

### **10. Tillage**

The plan should consider tillage alternatives to improve soil conservation and quality.

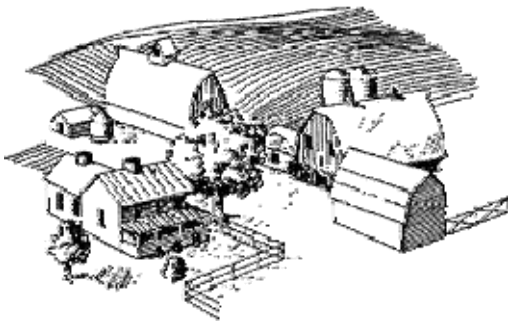
## **VII. Pulling it All Together**

The "magic" of whole farm planning comes when all of the separate elements are integrated and plugged back into the farmers' goals. Whole farm planning should facilitate understanding of how one practice affects another, and how one resource affects another. A good plan reveals the vulnerabilities of a farming operation. It also reveals how to draw on the resources of the whole farm. The integration step is where farmers prioritize their problems and reassess possible solutions against their goals. They try to find the most cost-effective solutions to their needs.

Synergy is a word some people use to describe how looking at the whole farm system can lead to solutions that may offer the opportunity solve a pattern of problems simultaneously. For example, a new crop rotation could potentially lead to less fertilizer use, less pesticide use, less runoff and pollution, better production, and better profits. If a whole farm plan leads one to consider farm system changes, or a gradual transition to more sustainable farming, then it will be the guide for many actions, all supporting mutual goals. In some ways, the intent is to encourage looking beyond solving problems one at a time, to envision farming systems that prevent problems from occurring.

Of course whole farm planning doesn't have to be so all-encompassing. Some farmers want simple, easy solutions to specific issues, while their basic operation remains unchanged. Other might like the concept but lack sufficient skills or other resources to implement changes. And designing "integration" into the farm planning process is admittedly difficult.

Whether broadly conceived or narrowly focused, the action plan is where it all comes together, listing specific steps and estimated timelines and costs for implementing them.



## **VIII. Many Paths; No One Ideal Plan**

This report doesn't prescribe how to actually design a planning process. There are many ways to structure the planning process, divide information, design the look of materials, and provide technical assistance. In fact, many groups are already knee deep in

implementing their best attempts at whole farm planning. Below is a summary of nine of the best examples.

CROPS (Comprehensive Resource Planning System) is a computer tool. Developed at Virginia Tech, this software is designed to generate crop rotations and conservation practices for each field on a farm, while maintaining compatibility of rotations to meet the farmer's cropping preferences and production goals. Farmers will use CROPS with help from their NRCS District Conservationists to come up with a whole farm plan. The program incorporates a map of the farm and descriptions of livestock, soil types, acreage, slope and proximity to waterways of each field. CROPS then displays potential risks of pollution and soil erosion. The farmer can enter priorities for environmental protection, production and profit goals, and target acreage for specific crops. Six-year crop rotations for each field, including tillage and other management practices, are suggested by the computer.

Farm\*A\*Syst Farmstead Assessment is a cooperative program of the US Department of Agriculture and the Environmental Protection Agency. It is administered in 30 states by Extension offices, Soil and Water Conservation Districts, Natural Resources Conservation Service, and other state agencies. Most other states are at some stage of developing the program. Farmers use a series of worksheets to identify pollution risks associated with practices carried out around the farmstead. Alternative practices which reduce or eliminate identified risks are suggested. As a state-sponsored process, Farm\*A\*Syst clearly indicates how farm operations can comply with environmental regulations. Farm\*A\*Syst does not currently deal with cropland management, but worksheets for cropland and irrigation wells are being developed.

Holistic Resource Management® (HRM) is a private sector program that defines farmers, their families, land, community and the business of farming as one inseparable whole. Participants typically pay a fee to attend workshops where they start by setting goals for their operation; this can include personal, economic, environmental and social values. Management options are evaluated in terms of whether or not they bring the farm family closer to their goals. Designed by an expert on grazing and grassland ecosystems, HRM has been used primarily by livestock managers, but is also applicable to other farms, as well as local and regional water and land use management. Although HRM can help farmers articulate and reach their environmental goals, it does not deal with the specifics of complying with regulations.

New York City Watershed Agriculture Program Whole Farm Planning is a process devised by a unique partnership of city officials, farmers, state and federal conservation agencies and Cornell Cooperative Extension. This project targets the 550 farms near the city's water reservoirs in the Catskill Mountains. Farm operators set business goals and fill out an Environmental Audit, similar to the Farm\*A\*Syst worksheets, identifying practices or situations that are potentially harmful to water quality. Agency personnel propose changes in current practices and evaluate them against the farmer's business goals, selecting those that will work best and creating an integrated farm plan from them. A timeline for implementation is developed, and costs of implementation are determined.



The City of New York picks up the tab for making any structural changes, averaging about \$75,000 per farm. These Whole Farm Plans meet all requirements of state and federal water quality laws.

The Skaneateles Lake Watershed Agricultural Program (Whole Farm Pilot Project) is a pilot program conceived of as a three-tier process: in Tier I, farmers fill out a questionnaire to identify farms with potential environmental concerns. If there are no environmental risks, that's it; the farmer is done with the process. If practices potentially damaging to the environment are identified, the farm moves to Tier II, which includes an environmental assessment similar to Farm\*A\*Syst, and the remedying of minor problems by the farmer, with assistance from private consultants or extension agents. Tier III is for farms with more complex potential risks. These farmers develop a full-scale New York City Watershed-type plan, to balance and integrate farm business goals with environmental goals. The tiered process is designed to maximize both the use of agency resources and adoption by farmers. Results of this pilot program will be used to help design a statewide program for New York.

Ontario Environmental Farm Plan is similar to Farm\*A\*Syst in its format: a notebook of worksheets is filled out by farmers to identify practices that may be damaging to the environment. The Ontario plan is more extensive, including management of feedlots, pastures, cropland and greenhouses. Environmental laws and standards are included in each worksheet, as are suggested practices. Farmers identify areas that need immediate action, set a timeline for addressing less urgent problems, and identify barriers to action. \$1,500 is available to each farm to help finance changes. A panel of local farmers reviews and comments on each plan. Staff of Ontario Ministry of Agriculture, Food and Rural Affairs provide technical support. Although the Ontario program is funded by the federal government, it was developed and is administered entirely by farmers, through the Ontario Soil and Crop Improvement Association.

Organic Farm Plans are used by farmers whose products are certified to be labeled organic. These plans are usually written by producers to describe farm practices. One of the goals of organic farm plans is to develop a farm management system that is sustainable and environmentally sound. Certifying agents use organic farm plans to document and certify organic production. Farmers using this planning process do not always have access to peer, agency or consultant assistance. Certified organic farms may or may not be in compliance with regulations.

Pennsylvania One Plan is a cooperative public-private effort to help farmers develop an integrated management plan. It emphasizes coordination of recommendations by various agencies and agricultural advisors to eliminate conflicts in previous single-issue plans. This planning process does not follow a standardized format; instead, the farmer sets goals and the agency representatives and crop consultants come up with recommendations for achieving those goals while protecting the environment. Participants in the program are encouraged to be open to new ideas as they plan for natural resource protection and improved profits. Farmers implementing the One Plan

program will be in compliance with all environmental regulations, though liability limits vary by agency.

PLANETOR is another computer tool for comprehensive environmental and economic farm planning for croplands developed by the Center for Farm Financial Management at the University of Minnesota. Farmers and agency personnel are trained to use this software package, which helps evaluate the potential for soil erosion, pesticide leaching and runoff, pesticide toxicity, nitrogen leaching and phosphorus runoff of various farm practices. The program predicts the economic impacts of changes in pesticide use, tillage, nutrient management or crop rotations. PLANETOR does not suggest practices or articulate regulations.

With these diverse examples already in use, one can see that there are many paths leading to similar destinations. Other approaches to whole farm planning are also being explored in numerous watershed projects and state programs for nonpoint source pollution prevention. In the near future, two new USDA programs will be launched with required farm plans: Environmental Quality Incentives Program and Conservation Farm Option.

## **IX. Optional Components for Farm Planning**

While not essential for a whole farm planning process, these components could be desirable.

### **A. GOALS**

#### **1. Compliance with Regulations**

When a whole farm plan documents compliance with regulations, the farmer still has the burden of full compliance with laws, but the burden is eased "by enabling a landowner to voluntarily and proactively meet the multiple legal obligations together, rather than as a series of separate obligations. A whole-farm or whole-ranch conservation plan could be a critical foundation on which to build such collaboration between a landowner and the agencies" (letter, Chief Paul Johnson, NRCS, 1995.) One agency is not likely to cede its authority to another, but several may agree to cooperate in the context of farm plans. Such cooperation could even lead to fewer government regulations.

Even if the plan itself isn't the instrument of regulation, it could serve the purpose of making regulations clear, so a farmer completing a plan knows whether they are in compliance. By having the peace of mind that they are in compliance with regulations, a farmer would experience reduced environmental liability, both in terms of the threat of enforcement and the threat of individual lawsuits by disgruntled neighbors. The plan itself shouldn't be a shield against liability; rather the plan is a means to preventing situations that open a farmer up to liability.

## **2. Public Recognition of Success**

Both farmers and agencies may benefit from public recognition of successful plan implementation. Awards, farm signs, and media coverage are ways to reward dedicated farmers, educate other farmers, and improve the public image of farmers as caretakers of the environment.

## **3. Sustained Rural Communities**

The most holistic farm planning approaches may want to take into account how farming practices impact rural communities, directly and indirectly. Effects on related agribusinesses, employment, tourism, development, hunger, and rural population may be appropriate areas for setting individual farm goals.

## **4. Improved Health and Safety**

Many potential environmental problems first affect the resident farm family. Preventing accidents and exposures to health problems could become an important focus for farm plans.

# **B. PLANNING PROCESS**

## **1. Consider Farming Systems Changes**

Some whole farm planning approaches may want to emphasize reevaluating the fundamental farm system. The mix of enterprises, especially the integration of livestock into cropping systems, could be evaluated and altered to address environmental and economic needs.

## **2. Encourage Discussion Between Farmers**

As valuable as professional technical assistance can be, the experience of other farmers is often even more valuable. Discussing what has worked, what didn't, and why, in the context of farm plans may be the best way to motivate some farmers. Some planning processes might be carried out in groups of farmers who discuss their ideas. Others might use a "peer review" process where a small group of trained farmers would review each plan and offer comments, as is done in the Ontario program.

## **3. Coordinate Agency Programs Around Farm Plans**

Farm plans could be mutually supported by local, state, and national programs, especially where coordination between agencies is already underway within watersheds. For example, different agencies could offer complementary programs of technical assistance, incentives or other means of promoting farm planning. Besides improving individual programs, better relationships among farmers, communities and agencies could result.

#### **4. Formally Review and Approve Plans**

Some whole farm planning programs are designed for purposes which demand that the plan meet certain standards. For example, if cost share funding will result, as with EQIP plans, then the plan must go through an approval process for public accountability. If farmers are to be declared in compliance, then obviously the farm must really meet standards. If other incentives, such as a bonus payment, free technical assistance, or property tax incentives are awarded in return for a farm plan, then the plan will have to be approved.

Even where no quid pro quo is involved, a purely voluntary, educational plan might improve if the farmer gets feedback from others on their plan.

#### **5. Monitor Plan Effects on the Environment**

While everyone hopes that changed farm practices resulting from implementation of the action plan will reduce threats to the environment, it is important to check out whether it in fact is working as intended. Agencies, working together with farmers, should generally be responsible for monitoring water quality, wildlife, and other ecosystem effects.

#### **6. Offer Financial Incentives**

By offering cost-sharing incentives to farmers, implementation of the action plan might be accelerated. It will be interesting to analyze what effect the size of the incentive has on implementation. For example, Ontario offers \$1500, while New York City is offering up to \$75,000 to each farmer.



### **C. CONTENT**

For a truly comprehensive farm plan, these additional components could be included, if applicable to the farm in question.

1. The larger watershed or ecosystem of which the farm is part
2. Health and safety
3. Grazing management

4. Irrigation management
5. Woodlot management
6. Energy efficiency
7. Noise and odor
8. Fish and wildlife