**Section 1**
**General Information**

**1. Project Number:** ENE94-2
**Grant Number:** P94-3
**Funding Period:** 1994 - 1995

**2. Project Title:** Extension Agent Training Sustainable Agriculture

**3. Project Coordinator:**

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**4. Type of Report:** Final

**5. Date of Report:** June 25, 1996

**6. Reporting Period:** 1994 - 1996

**7. Major Participants:** Same

**8. Cooperators:** Same

**9. Project Status:** Continuation: A previously approved project, following revision and competitive review.

**10. Statement of Expenditures:** The appendix contains expenditures to date. A final copy of expenditures will be sent at the close of the fiscal year.

**Section II**
**Final Report**

**Objectives**

**To provide intensive training in the principles and practices of sustainable agriculture to a select number of county agricultural agents who, once imbued with the philosophy of sustainable agriculture and armed with the knowledge of sustainable farming and gardening practices, can strengthen the capabilities of the Center for Sustainable and Alternative Agriculture and help it mature into a dynamic office within Extension. Once strengthened the Center will be in a position to expand its educational and technology transfer functions to all extension professionals and to farmer clients.**

**Abstract**

**An innovative program that emphasized a hands-on approach has given West Virginia Extension agents a better perspective on how to implement and encourage sustainable agriculture practices. Supported by a SARE professional development grant over a two-year period, the intensive, four week courses featured on-farm sessions where agents worked side by side with farm families performing daily chores. Agents learned first hand how to integrate production and marketing efforts with natural resource protection. On other site visits, participants reviewed a range of sustainable methods, including rotational grazing, composting of animal manure and yard wastes, nutrient management for field crops, and wetlands identification and protection. Writings by noted sustainable ag authors helped brief the participants, who also attended workshops and meetings with ag information specialists. The grant covered honoraria for farmers, travel expenses for**

**resource specialists and participants, and various educational materials. It also funded each agent's attendance at two regional sustainable farming conferences. By many accounts, the on-the-ground professional development was a big success. "The training has certainly influenced almost every program I work with," says Brad Smith, Grant County, one of 11 Extension agents to have gone through the program.**

## Specific Project Results

**Eleven county agricultural agents completed the intensive, four-week training program. These eleven agents used their newly acquired knowledge to improve and strengthen their county educational programs. Personal comments from several of the agents are included in the appendix.**

## Publicity for the Program

**The West Virginia Sustainable Ag Training program was profiled in several different articles in the SARE publications and also in the WVU Extension Service newsletter. Participants publicized the program through the use of local media in their respective counties.**

## Trainee Adoption and Direct Impact

**Of the eleven agents participating in the program, all stated they had a much better understanding of the basic philosophy of sustainable agriculture. Most felt that the experience broadened their perspective of agriculture while enhancing their understanding**

of the issues associated with sustainability. The agents who participated in the training had different agricultural backgrounds which led to lively discussions and challenged their long held beliefs. Personal comments from the agents and the impact it had on them are included in the appendix.

## Program Impacts

The opportunities to implement sustainable agriculture practices in West Virginia are immense. The West Virginia University Extension Service has the educational capabilities, a commitment to an economic, social and environmental agenda, and the ability to network with federal, state, private and public organizations to bring the necessary knowledge and skills to further promote sustainability in the state.

The objectives of the training program related to agent training and developing a base of sustainable agriculture knowledge in West Virginia has been fulfilled. Further goals are being set to extend the understanding of sustainability beyond CES and other USDA agencies. In order to promote sustainability issues, a communication link is being built to provide up-to-date, current information to county agents, other agriculture personnel, and area farmers through the use of the Internet.

## Feedback from Farmers

Farmers who hosted Extension agents during the training all said that they were pleased to see the interest in sustainable agriculture and they enjoyed working with the

**agents. They felt it was very important for the agents to see sustainable practices on the farms, not in the classroom.**

**The agents reported that they felt better able to work with their more non-traditional clientele after the experience. As one agent said, "I had a farmer walk in to my office wanting information on organic beef production. After we talked for about an hour, he laughed and said he wasn't used to being able to talk to an extension agent about this kind of thing. "**

**Future Recommendations**

**The West Virginia University Extension Service has just begun to coordinate formal sustainable agriculture principles and practices within the state. The process that began with this training project has not ended. Currently the agents who have completed the training are working with the campus faculty to develop a method of communicating sustainable agriculture information to other agents, USDA employees and farmers through the use of Internet and a Web Page. The Web page will be the source of information and ideas for anyone interested in sustainability issues in the state.**

**In an effort to further promote work that the agents are doing in the counties, an electronic West Virginia University Sustainable Agriculture newsletter will be accessed at this site, as well as archived information and current articles.**

**When making recommendations about designing similar training programs, it is important to note that the agents participating in the West Virginia program all felt that the intensive week long sessions were important to the overall quality and potential educational benefit of the program. Another note of importance is to keep agents out on farms discussing and debating. As one agent put it, "...even though I may not agree with everything they were saying/doing, I think it is important someone being trained knows these folks are out there and what they are doing." Another summed up the experience in the evaluation by saying, "Farm/site visits are key."**

**SARE Professional Development Program**
**West Virginia University Extension Service**

**List of Appendices**

1) **Financial Report**

2) **Letters from agents trained in 1994 (5)**

3) **Speech prepared by agent trained in 1995**

4) **Newspaper Article--October 13, 1994**

5) **Magazine Article--Spring 1995**

6) **Magazine Article--Winter 1994/1995**

Ron Swope
Marion County

The sustainable agriculture training I have experienced so far, has given me a somewhat different outlook on dealing with clients. I am less inclined to give a prescription or recommend one management practice in response to a request for help. I encourage the client to look at the overall operation, rather than just one facet. Each operation must be carefully examined before specific practices can be recommended. I encourage producers to look at the bottom line rather than solely at increased production.

I have written two columns to introduce readers to the concept of sustainable agriculture. I discussed the concept of sustainability and the difficulty in gaining consensus on the definition of sustainable agriculture. I stressed the need to look beyond this season and the next, into the future. I discussed some of the problems of modern day agriculture and encouraged the reader to decide whether or not any given practice is sustainable. The definition of sustainable agriculture as written by our group of agents was analyzed and explained.

One educational program of the Marion County Farm Bureau was devoted to sustainable agriculture. I discussed the concept and promoted the farmer research grants program.

I am just completing a research project involving the use of leaves as a soil amendment and hairy vetch as a nitrogen source in tomato production for home gardeners. While the project may be expanded, my present plot is 9 X 18 Feet with 18 plants. Six plants are grown in a control plot. Six additional plants are grown in a plot with a six inch layer of fall leaves incorporated the fall before planting. The third plot had a six inch layer of fall leaves incorporated and hairy vetch was planted. The intent of this project is to determine if the organic matter content of the plots can be increased by the addition of the fall leaves, and if the hairy vetch can replace nitrogen used by the decomposition of the leaves. Soil tests were taken last fall before the leaves were incorporated, this spring, before tomatoes were planted, and will be taken again next month, after the final tomatoes are harvested. Tomatoes are harvested from each plot and weighed to see if there is a difference in production among the three plots. This project is being repeated in four other counties.

West Virginia University
**Extension Service**

Cooperative
Extension Service

Marshall County Office
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Moundsville, WV 26041
(304) 843-1170

October 11, 1995

To: Keith Dix, Sustainable Agriculture Coordinator

From: Cathy Brown, Extension Agent Cathy Brown

Re: Sustainable Agriculture Program Report

You have asked us to report on the impact that the Sustainable Agriculture training program has had on our work as county agents. I believe that the program has changed the way I work with my clients, which programs I emphasize and perhaps most importantly, made me a better county agent.

The sustainable agriculture training has impacted the programs that I am planning in one significant way: all new programs are evaluated using the three part criteria that we developed in our definition. I feel that a new program must contribute to the overall agriculture sustainability in the county.

There is more of a focus on sustainability in the existing programs that I'm working with. The Master Gardener program has a much greater focus on soil building practices. I am using the sustainability criteria to evaluate potential speakers for Farm Bureau, the Stockmans Association and the Dairy Management Shortcourse. I have been able to provide more information on alternative types of agricultural enterprises to the Farmers Market Association members and to individual clients looking for ideas.

I'm more open to different ideas when I talk to clients. The training helped me to see that we have to do things different if we expect different results. One of my farmers is active in the Pennsylvania Organic Growers Association. We sat and discussed vegetable production and organic beef farming for two hours. He kept saying "It's so weird to be able to talk to the county agent who knows what I'm talking about".

The sustainability training program changed the way I think about farming in general. It gave me a strong belief that soil health affects every other aspect of agriculture and food production. It helped me to see the "big picture" and how everything is related. I feel like it was a philosophy change that has affected my day-to-day activities.

I have to emphasize how important our training program format was in my overall understanding of what sustainable agriculture really is. In a typical training meeting, I am too busy worrying about the meeting I have that night or thinking about tomorrow's work. Being able to concentrate on one topic for an entire week without the distractions of the office allowed me to really concentrate on our work. I do not feel that any of the four weeks that we spent in this program was wasted.

Most of the agents that I talk to agree that we need more "hands-on" type training. I learned a lot that I was able to put to use immediately in my county. This came not only from the speakers, but also from the other agents in the program and the farmers that we visited.

I truly hope that this program is continued in the future. It's unique, necessary, and should definitely continue. In addition to helping me at work, it also sparked a personal interest in soil biology. I am taking agricultural biochemistry this semester to help me understand some of what we learned. If there is anything I can do to help with the program, please let me know.

# Extension Programming in Grant County

The Sustainable Agriculture Training this agent has participated in has greatly influenced programming efforts. The intensive training program has been responsible for much of the programming being conducted. Some of those programs include:

**Research/Demonstration Plots** on the effects of a hairy vetch cover crop and leaf mulch in tomatoes. This is the research project we all worked on. In addition to monitoring yield of tomatoes, nitrogen was monitored on each plot throughout the growing season via N-Quick Test.

**Research/Demonstration Plots** evaluating the ability of various cover crops to suppress weeds, reduce erosion, and provide nutrients for corn production. Because of the very dry fall in '94 several of the cover crop stands were poor and results were of limited value. This project is being conducted again in 1995-96.

**Future Stewards Program** (see attached news article) This agent was involved in supporting the finding proposal, organizing extensions' involvement in curriculum development, assisting with recruitment of students and apprenticeship sites, teaching several of the training sessions, and overseeing two of the students during the four week paid apprentice training.

**Grant County Farmers Market** the farmers market was somewhat successful this summer. While the consumers from this very rural area were limited the main problem a constant supply of high quality produce from vendors.

**Lightstone Foundation Board of Directors Member and Farm Demonstration Committee Chairman.** Lightstone Foundation, Inc. is a non-profit organization which serves as a regional education and demonstration center for practicing and supporting sustainable family farming, natural resource management, and rural community development.

While it is hard to say, some of the other programs were a direct result of the sustainable agriculture training, it has certainly influenced almost every program this agent works with. It has also impacted the recommendations and responses given when working one on one with individual farm situations.

Some of the programs that have been influenced by the training have included:

**4-H Camps** - Water Quality and Natural Resource Conservation were a larger part of camp classes and activities for the one-hundred thirty campers enrolled in the two week long county camps.

**In School Programming** working with elementary school children on Environmental Issues and developing an understanding and appreciation of Agriculture. (Recently included Save our Streams Monitoring Workshop and the adoption of a stream monitoring site by a third grade class).

**Poultry Water Quality Advisory Committee Technical Support.**

- Development of Nutrient Management and Water Quality practices for the West Virginia Poultry Industry
- Development and Education of Best Management Practices in utilizing poultry by-products (litter - poultry morality - composting)
- Development of standardized Nutrient Management Plan for WV

Keith Dix:

Impact of 1994 Sustainable Agriculture Training on Ohio County Extension Education Programs.

The sustainable agriculture training had an impact upon extension programs I do and how they are done. Our training was more than sustainable farming practices. We took a fundamental look at food production along with human and natural resource allocation.

The impact of sustainable agriculture upon people was the most significant issue studied. Externalities, such pollution and contamination, were touched upon. Economic impacts of agriculture on rural communities was most interesting. Building sustainable communities seemed to be a sound and logical starting point for future extension educational programs.

A trusted advisor of mine once said, "Air, soil, and water are the only resources you have to work with." Following is a list of programs underway or planned either directly or indirectly influenced by the 1994 training program.

1. Beef cattle are a dominant crop in this region. We feel we have a competitive advantage over other parts of the country in growing grass. A grazing initiative is underway to promote intensive rotational grazing to more full utilize this advantage.

2. Observation on moisture retention during dry weather in field corn. The summer of 1995 was extremely dry. During farm visits it was noticed that some areas of corn continued to grow while others wilted. After some inquiries it was discovered that corn growing was planted in sod ground. Soil organic matter was thought to play a significant role in the moisture retention.

3. Utilization of legumes in forage systems for nitrogen production. This longstanding practice remains a pillar of forage management.

4. Cover cropping for nutrient salvaging and organic matter retention. This practice is being promoted as a soil conditioning method. Soil health is receiving attention it needs.

5. Green waste committee formed to seek ways to utilize organic wastes for land application rather than landfilling. (bio-solids included) This effort is sponsored by the local solid waste authority. The goal is to promote the utilization of lawn waste products as a soil amendment for organic matter building.

6. Broad based coalition is forming to develop strategies to sustain agricultural communities in tri-state region. This is in the planning stages.

6. Continued

During a conversation with a member of the Washington County Pennsylvania Farm Land Trust ~~board member~~, the issue was raised about keeping farm land in production was useless unless persons were available to farm the land. Sustainable communities was discussed. The training effort during 1994 was especially helpful in developing ideas for discussion.

Proposed is to form a committee to look at alternative income opportunities from agriculture. The goal is to develop products to be sold in the Pittsburgh market. Representation on the committee will be a broad based representation from the agricultural community as well as retail merchants.

7. Work with organic farmers continues. Production and marketing are the main focuses of the two in the group.

Programs or activities are only an indicator of what I have accomplished as a result of the sustainable agriculture training. The interest in sustainable agriculture was there to undertake such a rigorous training schedule. My original interest remains fueled with the knowledge gained through the training.

John L. Miller
Extension Agent
Ohio County
10/10/95

GNF

GREEN NATURE FARM
P.O. BOX 69 HERNDON, WV
(304) 294-5858
*An Adventure in Sustainable Permaculture*
*in the Appalachian Bio-Region*

MEMO

TO: Keith Dix

FROM: Glenn Runions & Brenda Mitchem

SUBJECT: HELP !!!

As you can see by the new letterhead we are very serious about Sustainable Agriculture and the influence we can generate on rural, hillside farming in the southern mountains of WV.

We are busy designing our site-specific project as a learning classroom/farm with several enterprises that will deal with sustainability. Our methods have not changed drastically but we are finally finding some affirmation for a system that makes good sense as well as good cents.

I'm sending you part of my plan of work for 1996 and I think you can see that it is filled with SA. Every program that I'm doing next year will be using the concept of sustainability. It's really easy to work on such a program when you use sustainability as the main evaluation tool for any project. It also allows me a way out of programs that I know are not sustainable and therefore not a priority.

My son Monroe is packing now to attend his first session of Permaculture training next week. We plan to finish up the complete training in Feburary and will be certified teachers. This movement has over ten thousand members that have completed the training. Every aspect of the training deals with sustainability, especially the agricultural component.

I hope the information I am sending will be of help to you. I especially hope that our project here will be included in our program in the near future. Some will probably see this as a conflict of interest but if I am to be really successful I need this classroom that will be open to anyone that is interested in sustainability.

**Sustainable Agriculture and Society**
**World Food Day - October 16, 1995**
**Peter Jensen, WVU Extension Agent**

## An Historical Perspective

I have travelled in many parts of the world, particularly the developing agrarian societies of Haiti and Guatemala. I have seen some remarkable terraced agricultural systems that have sustained generations of families and communities in the Guatemalan highlands, and I have seen the effects of unbridled population growth and deforestation on the steep tropical soils of Haiti - with a devastating effect on village families who are forced to flee to the squalid slums of Port-au-Prince. The essence and necessity of a sustainable agriculture is seen and felt the world over, be it in the third world or right here in the post-industrial U.S. Without it we face a decline in the family structure of rural peoples - something we are already witnessing here in the U.S. Is it important to talk about sustainability? It most certainly is!

The most difficult problem that I as an agricultural educator face is in convincing people that farming is very much a part of society as a whole, not just another job by which a person makes a living. What happens in the countryside in one century will affect the cities in the next, and often there is not even that much of a time gap. We've all heard the adage, "As goes the country so goes the city." I believe that it is true. Agrarian rural areas are in trouble and so too are the cities which depend on the food produced there. The current system of agriculture is by and large not sustainable either due to economics, environmental degradation or social distaste. What are we to do?

"Food is the common denominator of life; producing food is part of the biological and cultural as well as economic fabric of civilization." (1) So says Gene Logsdon is his insightful book, The Contrary Farmer, a book I highly recommend as both farming handbook and social essay. Although historians should continue to question the precise causal connections between rural and urban economies, it is a fact that a strong and vital urban society has always been supported by a strong and vital rural society. General decline in the

Roman Empire, the British Empire and the Former Soviet Union paralleled, if indeed not followed, the decline of their rural communities. The same thing is happening in the United States, in my opinion; we just don't seem to realize it yet. I feel it is my purpose to educate the community as a whole, farmer and city-dweller alike about the importance of developing a more sustainable agriculture for the betterment of the civilization we are currently so proud of.

**Problems in U.S. Agriculture**

There are many points to consider when discussing the problems of U.S. agriculture as currently practiced. I am going to merely touch on two aspects which have societal as well as on-farm impact; groundwater contamination and soil erosion.

Groundwater Groundwater is the source of public drinking water for nearly 75 million people. Private water wells supply water to an additional 30 million individuals. Nearly 50% of all drinking water, 97% of all rural drinking water, 55% of all livestock water, and more than 40% of all irrigation water is from underground sources. (6) Accumulating evidence indicates that a growing number of contaminants from agricultural production are now found in underground water supplies. (7) This is not to place the blame on the shoulders of agriculture alone mind you. Golf courses, homeowners, industrial runoff, and others also contribute greatly to the groundwater contamination equation. However, the impact of agriculture cannot be denied.

Increased use of nitrogen fertilizers without the benefit of nitrate quick tests and pesticides without field scouting, particularly herbicides, over the past 40 years has raised the potential for catastrophic groundwater contamination. Additionally, several of the most widely used pesticides have the potential to leach into the groundwater as a result of normal agricultural use. Indeed, pesticides have been detected in the groundwater of 26 states as a result of so-called normal agricultural practice. (8) Greater use of feedlots that concentrate animal manures also heightens this risk.

Soil Erosion Soil erosion remains a serious environmental problem in parts of the U.S., even after 50 years of state and federal efforts to control it. Common management practices such as continuous row crops, fewer rotations involving forages, and larger farms

being tilled by one operator have made it difficult to conserve soil resources in some areas. (6) Similarly, some federal price support programs have historically encouraged high levels of production that work as a disincentive for effective erosion control practices.

Soil erosion causes off-farm as well as on-farm damage. Quantifying the economic cost to society of off-site effects of erosion is difficult and estimates vary widely depending on who wrote the report. The USDA calculated annual off-site damage at between $2 and $8 billion. Each year, the 350 to 400 million acres of land used for agriculture are estimated to account for more than 50% of suspended sediments deposited in surface waters.(9) Wind and water erode nearly 3 billion tons of soil from the nation's cropland each year.(9) This erosion damage can reduce the productivity of the land, labor and capital on the farm, and increase the need for more fertilizer and other inputs. Hardly a sustainable situation.

These are just two of the major issues of concern in modern agricultural production. We haven't even touched upon the effect of irrigation, surface water, loss of genetic diversity, pesticides or problems associated with antibiotics. Suffice to say that there are some serious problems here which jeopardize the sustainability of modern agriculture.

**The Solution - Education in Sustainable Agriculture**

The solution to these problems is the education of not only the farmers and the consumers, but also the educators themselves. In order to become a better educator one must be willing to learn. The WVU Extension Service has made a significant commitment to educate all agricultural agents about the viability and practicality of sustainable agriculture systems, techniques and philosophies. The 1990 Farm Bill included a statement to the effect that all county agriculture agents should be thus educated. Money was made available via grants to the land-grant universities. WVU responded and put together a terrific training program of which I am a part and where I am heading this afternoon. It is a five week commitment in terms of time but a career-long commitment as far as I am concerned.

This week we'll be spending some considerable time among the Amish of Ohio in search of traditional farm wisdom for a more sustainable agriculture. The low-input sustainable farming systems practiced today by Amish farmers have developed over 300 years and have sustained the Amish as one of the most persistent and successful subcultures

in North America. Amish agriculture depends on traditional elements, such as horse farming and hand labor, and therefore contrasts sharply with conventional high-input farming. However, contemporary Amish agriculture is a blend of old practices with new ideas, similar in many respects to the sustainable practices that agricultural researchers are now experimenting with and designing. This long continuous history of sustainable farming practices gives us a unique opportunity to study biological control of insect pests and diseases and nutrient cycling, which contribute to sustainability. (2) This should be an interesting week indeed.

But need we look only at a subculture here in the U.S.? Why not look closely at what was published in the 1938 USDA Yearbook of Agriculture. It is full of research reports detailing the importance of composting, cover crops, crop rotation, biological pest control, efficient use of animal manures, etc. (5) These are the very same practices now being so heavily promoted by the sustainable farming community as new information. What happened that made us put all this good information aside in favor of high-input, energy-intensive farming? In a word: World War II.

Following the war, we had a surplus of Ammonium Nitrate which had been used in the incendiary bombing of Germany and Japan - cheap fertilizer. It simply became cheaper and easier for farmers to buy their fertility in a bag rather than having to plant clovers, make compost and haul manure. Energy was cheap and available and of course, ammonium nitrate does make great fertilizer. Unfortunately, it does nothing for the soil itself and in fact is toxic to earthworms and other soil animals. The forgotten element in modern commercial fertilizers is carbon. Carbon is what holds the whole world together for the soil microbes so critical for sustaining soil health. But, yields were tremendous. People were no longer in fear of starving. In fact, the Green Revolution hybrids saved India from certain famine, but brought with them a dependence on chemical inputs and a disregard for the solid foundations of traditional agriculture: cover cropping and green manures, mulching and composting.

Unfortunately, the microbes and earthworms which had long sustained agricultural production by working their "magic" were being starved, poisoned and killed. The soil was dying and yields, in order to be maintained, required more and more fertilizer. It was a "production at all cost" mentality which drove this system; not profit which implies some

consideration of required expenses. In an increasingly monocultural system, with little to no biological diversity, came disastrous pest infestations and a heavy reliance on ever more expensive chemical insecticides. Larger machinery and spray equipment was needed to handle the yearly onslaught of high yields and pests which, in turn, brought an ever increasing debt load at the bank to the family farm.

Finally, the oil embargo of the late 70's drove the price of fuel and the chemicals derived from it through the roof. The high cost of inputs coupled with the low prices in the marketplace drove many American farm families into debt and despair. The system had crashed and there was nothing we could do about it.

Farmers couldn't make a profit. Farms which had been in the family for generations were sold to the highest bidder. The suicide rate among 40 year old males in Iowa was 3 times the national average during this period. Many feel the number should be a lot higher if one were to include the number of reported "farm and hunting accidents" for the same time period.

This was a terrible time to be in farming. Unless of course, you hadn't followed the easy path where chemicals had replaced knowledge and sound soil management practices. It was from these survivors that sprang the sustainable agriculture movement and beget such authors as Wendell Berry, Wes Jackson, Allan Savory and Gene Logsdon. These are farmers who happen to know how to write and have told us that it is high time we woke up and smelled the humus (sorry). Before them we had Aldo Leopold, Scott Neering and Louis Bromfield to remind us of the ways and wonders of country life and farming. This is not a new idea.

**What is Sustainable Agriculture?**

So, what is sustainable agriculture? It has and still does, go by many names: alternative agriculture, natural farming, ecological farming, biodynamic farming, holistic resource management, integrated resource management, organic farming - I, myself, look forward to the day when sustainable agriculture will, by definition, be known merely as agriculture. It must be if we want our families, communities, indeed our civilization to prosper. All these names have similarities but do not all follow the same philosophy.

Sustainable agriculture is, after all, just that: a philosophy, a goal to strive for, a way of life, and above all, a moving target. As Louis Bromfield wrote in 1950, and which we can still find relevant today: the beauty and joy of farming comes...

> "in having made something great and beautiful out of nothing. The farmer may leave his stamp upon the whole of the landscape seen from his window, and it can be as great and beautiful a creation as Michelangelo's David, for the smart farmer who takes over a desolate farm, ruined by some evil and ignorant predecessor, and turns it into a paradise of beauty and abundance is one of the greatest of artists." (3)

But let us think in practical terms. Allow me to offer this as a definition of sustainable agriculture: A whole-farm approach to the management of resources which has as its goal the implementation of site-specific practices that are economically viable, environmentally sound, socially acceptable, and have the quality of life goals of the farm family firmly in place. If any one of these key elements are missing, sustainability has not been achieved. This is a lofty goal and is indeed "a moving target." However, it is the effort, the process, the journey to get there that really matters. Can you profitably produce quality, healthy food without damaging the environment, your family or your neighbors? You most certainly can if you're willing to educate yourself about the natural world, and more specifically, the world beneath our feet.

**Soil Is The Source Of Life**

Soil is the major resource, indeed the cornerstone, of a sustainable agriculture. To this end, ecological soil management, and in particular management of the organic matter fraction of the soil, to promote both the level and diversity of the biological activity in the soil, is essential.

What is it about organic matter that makes it such a vital link in healthy, productive soils? Without going into too great detail - organic matter aids in moisture retention, erosion prevention, water filtration and purification, it increases nutrient availability, it increases microbial activity which can lead to greater pest and disease resistance, and it increases a soil's buffering capacity. (4) The addition of organic matter to a sandy soil helps it to hold water whereas when added to a clay soil, drainage is enhanced. Such a simple ingredient in such a relatively small amount can make such a huge difference. If you will, think of

organic matter as if it were yeast in leavened bread. Without yeast, the bread would be hard, rubbery and inedible much in the same way that a soil without organic matter would be hard, infertile and unhealthy. Therefore, organic matter is to soil as yeast is to bread.

Soil health and organic matter are indivisible. A healthy soil is one that is rich in organic matter. It will yield healthy plants which are more resistant to insect and disease attack, thereby decreasing if not eliminating entirely most pesticide needs of the farmer. Therefore, it just makes good financial and agronomic sense to feed the soil and let the plant feed itself. Chemical-based farming, on the other hand, relies on feeding the plant and sees the soil merely as the root holding medium. In the long run this is not sustainable.

Increasing the organic matter fraction of a soil is simple but not necessarily easy to do. It involves time, good management and above all, patience. In practical terms it means utilizing compost and animal manures, mulches for weed control, cover crops and subsequent green manures and conservation tillage practices.
All of these are not new ideas. Remember the 1938 Yearbook of Agriculture spelled them out in vivid detail.

You'll recall that earlier I talked about carbon as the forgotten element in modern fertilizers. It is the carbon which supplies the fuel to microbes which are so important to sustaining a healthy soil. There are literally millions of microorganisms at work in our soils converting raw organic materials into stable humus - the glue which binds soil together. (4) As soil managers, sustainable farmers must endeavor to make the soil friendly to these busy decomposers. This is accomplished through the addition of organic materials and lime, limiting heavy cultivation, growing cover crops, and reducing the amount of nitrogen fertilizers which are toxic to these sensitive creatures. Bear in mind that if we kill these organisms we inherit their jobs.

And of course there is much more. We haven't begun to talk about biological pest control, encouraging beneficial insects, crop rotation, or mechanical weed control strategies. Suffice it to say that sustainable farming is a journey with many steps along the way. We must also bear in mind that despite what some may say, sustainable need not mean purely organic. Organic farming is indeed a worthy goal, one which I lean toward as a possible direction for world agriculture. But sustainable agriculture does not overlook some of the

obvious benefits of the judicious use of chemical fertilizers and specific -- not broad-spectrum, kill everything -- insecticides. If they are used in an integrated approach to crop and insect management and are deemed acceptable within the farm's economic perspective, then they too are tools in a sustainable farmer's tool box.

To summarize what I mean by ecological soil management remember these ideas: 1) Soil is the source of life and should be treated a such; 2) Feed the soil, not just the plant; 3) Diversify production, avoid monoculture; 4) Maintain optimum conditions for soil microbes; 5) Recycle crop residues; and, 6) If you take nothing else home with you today let it be this: Soil health and organic matter are indivisible.

**A Systems Approach - Management Intensive Grazing**

This leads me to the systems approach to sustainable agricultural production. About a month ago I was watching Sesame Street with my 4 year old, Mali. We do this a lot together. If you haven't tuned in to this wonderful program in a while, I urge you to do so. Some of the segments are pure gems: simple, insightful, humorous. One of these "gems" came on about how a little boy was able to eat the sun.

Basically, this is how the story goes: The sun shines on the grass, the grass grows, the cow eats the grass, the cow makes milk, the milk is made into cheese, the farmer sells the cheese to the store, Johnny's mom buys the cheese and makes a cheese sandwich for Johnny. Johnny eats the sun. Beautiful! How many of our children actually know where cheese comes from let alone how the sun is involved.

Let's look at the sun-grass-animal-farmer-money cycle for a moment. How do we maximize the economic, environmental and social sustainability of livestock agriculture? Simple: Let the animal, a ruminant, do what it likes to do best - eat grass. The animal becomes a huge solar collector converting grass, which we can't eat, into meat which we can eat. And as far as I know, the sun's energy is still free. Now that's a resource that all farmer's should be capitalizing on.

Research conducted by a prestigious land-grant university (not WVU) has concluded that cows like to walk around and grass likes to stand still. Why does the majority of the American farm community (though less and less of a majority as time goes on) still insist on

keeping the cows in a barn while the grass is mowed and brought to them? Does it not make more sense to allow the cow, sheep, goat, pig, rabbit, or chicken do what comes naturally - walk around and eat grass? Of course it does. By developing a grazing system which is management and animal intensive as opposed to machine intensive optimum productivity can be achieved. Such a system is known as management intensive grazing and involves a rotation of pasture.

With a rotational approach to grazing the manager lets the animal do the harvesting in a way that is best for the forage. A plant gets its growing energy from the sun. This energy is taken in through the leaves so if the leaf area is diminished too much, growth will be stunted. The key to rotational grazing is that the manager is in control. The manager decides to rotate livestock in high density in small paddocks so that they eat all the forage (grass, legumes and weeds) once without overgrazing. Once they've eaten an area down to about 2", animals are moved to the next paddock and so on. By the time you need to move them back into the first paddock, it has had a chance to adequately regrow. Simple, it's called using nature to one's advantage without destroying it. It's called sustainability.

What are the benefits: higher forage yields; an ability to graze many more animals on the same acreage; help in the establishment of legumes to increase forage quality; natural weed control; development of a deeper root system which prevents drought stress; healthier and happier animals; and often a longer grazing season - well into the winter months thus limiting hay needs. An additional benefit is that if the animal does the harvesting, then the farmer doesn't need to and can do away with some expensive machinery like mowers and balers; thus improve the bottom-line and the approach to sustainability even more.

**Biological Diversity on the Farm**

The greater the diversity of species on the farm, the more the various forms of life keep each other from achieving out-of-balance population relative to the other species. This is far more than merely achieving a "balance" of nature. Increasing diversity means increasing the biological dynamism which leads to an increasing amount of total food produced without increasing the amount of human labor or purchased agricultural inputs. An excellent example is growing clover. As a legume, clover works with rhizobia bacteria to

fix atmospheric nitrogen making it available to itself or subsequent crops without any human cost or involvement. A factory built to extract nitrogen from the air costs millions of dollars and society's tendency is then to use the nitrate thus extracted to make gunpowder.

To quote again from Logsdon's book, The Contrary Farmer:

> "As life forms interact with each other they create effects that individually they are incapable of. For example, cow flaps draw earthworms to dine on the organic matter. Young trees that have crept into the meadow over the years from the adjoining woodlot draw the cows to their shade. The cow-manure-earthworm-tree environment draws woodcocks to the farm. These birds come for the earthworms under the cow flaps and under the moist dirt bared by tree shade and cow hooves. Not incidentally, the combination has also produced on occasion a fairy ring of edible mushrooms. And also not incidentally, the animal manure is all the while being broken down and returned to enrich the earth. All we have to do is stand and watch in awe - and pick the mushrooms." (1)

If only it were that easy. Then again, maybe it is so long as we allow nature to work with and for us. For example, maintaining a riparian buffer strip along stream banks may take away some excellent grazing land, but it will improve water quality, decrease soil erosion, and increase the biological diversity on the farm. A trade off for sure, but most farmers would agree, a fair one.

**Conclusion**

The decline of the Roman Empire is often attributed to a reach exceeding the grasp. Many historical scholars look deeply into the geopolitical struggles of the empire builders themselves as a way to explain the decline of this once great civilization. Political, military and economic policies have been scrutinized down to the smallest order of magnitude but still questions as to why nag us.

Allow me to offer some food for thought. It was a disregard for the source of life that did them in. Their soils and farmers were not given the respect they deserved and so both began to starve. As goes the farm so goes the city (and perhaps the civilization itself).

Agricultural anthropologists have shown tremendous soil loss and soil degradation during this era centered around the Roman Empire. Could it be that as this great civilization spread its wings and flew it forgot to make sure it had a place to land? Food ran short, famine reared its ugly head, once happy villagers began to turn on those holding the grain

storage keys, riots broke out...the implosion of a mighty regime had begun. If only they had treated the soil resource and its managers with the dignity and honor they deserved...

Is this merely ancient history, or, is history destined to repeat itself as many so often claim. Can the "American Empire" be brought down in the same way? Are we taking care of our soil resource? Do we not have hungry, indeed starving, people in this country? We are the world's bread basket and have been for quite some time - we better take good care of it or we might just go the way of the early Romans.

If you think I'm just making this all up, take a good look at topsoil losses reported around the country by the USDA. Billions of tons are being lost every year down the Mississippi, Ohio, Potomac and other rivers; wind carries tons of silt and dust high into the atmosphere where it is lost; fields and lawns alike are being over-fertilized and mismanaged!

Sustainable farming is smart farming. It involves treating the farm as a whole ecosystem utilizing the many resources found there to their maximum efficiency. It involves a certain reverence for the soil and all the life, seen and unseen, which it supports. It involves a conservation ethic, a belief that man can work with nature to improve and feed the soil for the nurturing of the many generations to come. It means becoming educated about the way of life in the soil, the sea, and amongst the many cultures which inhabit the world. It is a system which connects us all whether we farm or merely enjoy the fruits of the farm.

So, is it all lost? Sure, it may take 1000 years to make just an inch of soil, but is this really that important when we've got 10 foot deep topsoil in the Midwest? Well, for the time being we're alright. We will probably not experience wide-spread famine here in the U.S. At least not in this coming century. But how about in the next? Should we not be developing a sustainable agricultural system which treats soil as the source of life so that future generations can look back upon us with the respect and appreciation we deserve? Or will they look back at us with the blame, disgust, disbelief and nagging questions about decline that we have for the Roman Empire?

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THE PENDLETON TIMES

VOLUME 81 FRANKLIN, PENDLETON COUNTY, WEST VIRGINIA, 26807 THURSDAY, OCTOBER 13, 1994

# Lightstone Hosts Program on Sustainable Agriculture Here

Pendleton County's Lightstone Foundation hosted a week-long training program on sustainable agriculture for five West Virginia University Extension Service agents October 2 through 7. "The program is not only the first of its kind in West Virginia but also the first in the country," remarked Keith Dix, director of the Center for Sustainable Agriculture at WVU and organizer of the training program.

The U.S. Department of Agriculture has mandated that all states train their extension agents in sustainable agriculture. West Virginia won a competitive bid among eleven northeast states to fund an innovative, on-farming training program. West Virginia's Sustainable Agriculture Training Program is unique in providing agents with hands-on farm experience: conducting farm tours, involving agents in farm work, and talking directly with farmers about production and marketing methods for sustainable agriculture.

The five agents who participated came from different parts of the state—Brad Smith, Petersburg; Cathy Brown, Moundsville; John Miller, Wheeling; Glenn Runions, Herndon; and Ron Swope, Fairmont. These agents represent a new core group of sustainable agriculture agents who will train other agents throughout the state. Another five agents will go through this training next year, so that nearly a quarter of all of West Virginia's extension service agents will receive this intensive training.

Ron Swope said the training sessions "certainly exposed me to a lot of ideas I had never experienced before." Brad Smith remarked, "This has been really beneficial to me. I hope to develop some ways to work with young people, such as 4-H, to help them stay in farming." Cathy Brown stated, "I was surprised by how much I learned in this program that will be helpful to people in my county."

Dr. Tony Smith, executive director of Lightstone Foundation, welcomed the WVU Extension Service by noting that "Lightstone's mission is to promote sustainable agriculture and natural resources conservation. This week's training session is a perfect expression of our mission and partnership philosophy."

The agents began their week at Lightstone on Monday, October 3, with a full day of farm work at Mountain Spirit Organic Farms, covering compost piles with plastic, replacing a dirt floor in a cow barn, stacking hay bales, and boxing organically-grown pumpkins for Fresh Fields market in Charlottesville. They were rewarded for their labors with professionally-cooked meals, prepared from good grown at Mountain Spirit and other local farms. Staying at the Lightstone farmhouse meant they could continue their training and planning sessions well into the evenings.

On Tuesday, the extension agents visited Mike Clark's greenhouse at Planet Diversified, Inc., an organic farm in Charlottesville. Later they met with Tom Scott to learn about organic orcharding. Wednesday they traveled to Poly Face Farm, leaning about diversified farming methods for poultry and dairy. That evening, Jim Barusky from Kimberton, Pennsylvania, spoke on Bio Dynamic Farming.

Thursday saw, according to Keith Dix, "the largest in-service training session I've ever witnessed" as 26 extension service agents, SCS agents, and local farmers arrived at the Lightstone Community Building to hear Cary Oshins of the Rodale Institute speak about farm composting.

Among them were Ed Collins, WVU program leader in environmental management; Ed Hooper, WVU extension specialist on solid waste; Ray Lovejoy, WVU extension specialist on sludge utilization; Dan Lynch, SCS in Franklin; Lorella Nelson Mitchell, extension agent for 4-H in Pendleton County; Del Yoder, coordinator of the Direct Marketing Association; and Andy Walker, coordinator of the statewide Inter-Agency Water Quality Office.

A number of questions about poultry manure management were addressed at this session. That afternoon, Carl Mortenson of Mountain Spirit Organic Farms demonstrated a compost windrow turner on his compost piles. Agents took temperature and moisture readings of the piles, and Oshins showed the squeeze test for moisture. That evening, John Fichtner spoke about Holistic Resource Management as a way to maintain profits and good land management in sheep and dairy farming.

The agents wrapped up their week with a presentation on Friday by Greg Watson, regional director of the Northeast Nature Conservancy, and former agricultural secretary of Massachusetts. Watson spoke about ways to bridge the gap between environmentalists and farmers. As Agriculture Commissioner, Watson developed successful partnerships between farmers and environmentalists for comprehensive wetlands and groundwater protection regulations. "These regulations were endorsed by everyone from the Farm Bureau to the local Audubon Society because they were all involved in their development, and because there was a lot of public education and public support built up through workshops held throughout the state," said Watson.

After this week of intensive training, the extension agents developed their own definition for sustainable agriculture as "A site-specific agricultural system that is ecologically sound, economically viable, and socially acceptable for present and future generations."

## *Sustainable Agriculture Training:*

# A Report from West Virginia

The West Virginia University Extension Service has launched an innovative new approach to educating Extension agents about concepts and practices of sustainable agriculture. Five agents from different parts of the state participated in a four-week, intensive training program that provided on-farm work experience and the opportunity to learn from farm families that are using sustainable strategies.

The program also included many field trips and sessions with resource people knowledgeable in almost all aspects of sustainable agriculture.

"For West Virginia it worked, and it worked surprisingly well," said Keith Dix, who helped coordinate the training sessions. "One agent said it was the best learning experience of his career . . . and we already have six people signed up for the second year."

The program, supported in part by a SARE grant, exposed the agents to multiple approaches to sustaining agriculture, and helped participants become a working team.

"Basically, we lived together for four (nonconsecutive) weeks," Dix explained. Between farm visits, the group discussed what they'd seen "and tried to analyze which practices were sustainable and which were not," Dix said.

Some specifics: The training began with an orientation week in which the agents visited organic farms, a dairy farm that composts manure with municipal yard waste, attended both the Rodale Institute and USDA Agricultural Research Service's annual sustainable agriculture field day. The agents also made stops "inside the Beltway" to talk with USDA staff and representatives from sustainable agriculture advocacy groups.

Water quality and agriculture were the focus of the second week of the program. The agents went to Moorefield, located at the headwaters of the Potomac River and the center of the state's burgeoning integrated poultry industry. Farm visits and field trips addressed a variety of issues: riparian buffer zones, wetlands identification and protection, biological assessments of streams, poultry waste composting, the economics of poultry farming, use of litter in livestock feed and sludge applications to farm land.

The owners of a Pendleton County, 750-acre, certified organic farm and a nonprofit educational organization hosted the third week, in which the agents helped the farmer with 18 farm chores, including gate mending, barn clean-out, fall pickup of irrigation equipment and sorting, packing, weighing and delivering 40 cases of pumpkins to market. During this week agents also visited a nearby ecological greenhouse operation and Joel Salatin's Polyface Farm in Swoope, Va.

The final training week was spent at West Virginia University where agents learned about using the Internet, met with extension and agriculture faculty, and participated in workshops on whole farm research and farmer-to-farmer linkages. They also prepared a report and slide presentation documenting their experiences.

Dix says the West Virginia agricultural community is already seeing the pay-off from the program.

"It's amazing how they have just in the last five months integrated sustainable agricultural concepts and ideas in their county programs," he said. ◆

# New Resources from the Sustainable Ag Network

Several new "electronic books" — including a directory of state alternative agriculture laws and updated guides to literature about and experts in environmentally sound, profitable farming — are now available from the Sustainable Agriculture Network.

A cooperative effort of university, government, farm, business and nonprofit organizations, SAN is dedicated to the exchange of scientific and practical information on sustainable agriculture systems. It is supported by the national SARE program.

"SAN was established on the principle that the process of disseminating information (about sustainable agricultural systems) must be decentralized, participatory and multi-media," said J. Patrick Madden, a founding member of the network. For those reasons, SAN combines print publications with various electronic products.

SAN's new electronic books are designed to help people quickly find information. Each book comes on three-and-one-half-inch DOS disk which includes the text and the software you'll need to easily search for and print out (or copy into your computer) key sections of text. Because each word is indexed and searchable, the software allows you to search for the precise information you need.

We've provided brief descriptions of each publication on page 7.

extension

# VISION

Cary Oshins, program manager for the Rodale Institute's Rural/Urban Initiative, leads an on-farm composting workshop for extension agents and farmers during a sustainable agriculture training week.

## Sustainability movement changing agriculture

■

by Grace Truman

If it's not sustainable, it's not good agriculture.

That's the philosophy behind a national mandate to retrain all agricultural extension agents, preparing them to teach the concepts of sustainable agriculture. Called "the quiet revolution," the movement to sustainability is changing the way farmers work and live.

Just what is sustainable agriculture? Here is a definition developed by West Virginia's experts—the first five West Virginia University extension agents to complete intensive training in that area:

"Sustainable agriculture is a site-specific agricultural system that is economically viable, environmentally sound, and socially acceptable for this and future generations."

In other words, sustainable agriculture focuses on the long term. Farmers look beyond this year's harvest and this year's balance sheets. Preserving and improving natural resources are not mere wishes but basic tenets. The goals are healthy profits, healthy crops and animals, healthy environment, and healthy families.

"This approach stresses soil health and working with the environment to produce high-quality products," explains extension agent Cathy Brown of Marshall County. "We are not turning our backs on technology, but we are

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integrating the new with environmental consciousness."

Brown was one of the five WVU agents trained this year. The others were John Miller of Ohio County, Glenn Runions of McDowell, Mingo, and Wyoming counties, Brad Smith of Grant County, and Ron Swope of Marion County. A second group of agents will be trained in 1995.

The 1990 farm bill laid the groundwork nationally for this new emphasis. The bill directed the U.S. Department of Agriculture to address site-specific, environmental and resource management problems that challenge today's farmers.

Congress also directed the Extension Service to organize and administer a national training program in sustainable agriculture. The farm bill provided for competitive grants to encourage land-grant colleges and universities to develop regional training centers.

The WVU Extension Service picked up the beat, establishing a Center for Sustainable Agriculture in 1993. The center's director, Keith Dix, collaborated with other WVU agricultural extension specialists to design an innovative, on-farm training program. Their proposal, competing with others throughout the Northeast, was awarded a $41,000 implementation grant this year from the U.S. Department of Agriculture.

"The technical reviewers liked our proposal so much that, even though we had requested funding for only one year, they extended it and gave us funding for two years. Plus, they actually increased the amount funded over what we had asked," Dr. Dix noted.

**West Virginia's first extension agents to complete intensive training in sustainable agriculture are, from left, John Miller, Ron Swope, Brad Smith, Cathy Brown, director Keith Dix, and Glenn Runions.**

WVU's four-week sustainable ag training program is the only one of its kind in the country and may well serve as a model for other states, Dix added. What makes it unique is its emphasis on hands-on farming experience. The agents trained this year worked side by side with farmers, learning directly from them about production and marketing techniques in sustainable agriculture.

Take, for example, George Shell's integrated poultry and beef cattle operation in Petersburg. There, the agents learned firsthand how farmers in the Potomac River basin can successfully handle serious waste management and groundwater quality challenges. Shell's strategy includes nutrient management, flood plain management, pasture rotations, crop rotations, riparian management, and composting.

The agents also explored a modified hydroponics greenhouse specializing in herbs and tomatoes. They discovered some innovative rotational grazing systems at the poultry farm of Joel Salatin in Swoope, Va.

**Joel Satalin, right, shows the extension agents his in-the-field slaughter facility, where he prepares broilers for market.**

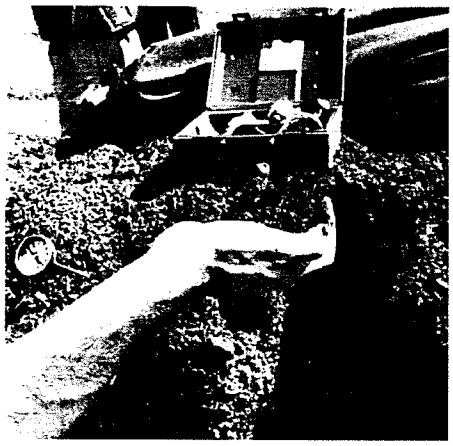
Kip Mortenson's 700-acre organic farm near Moyers, Pendleton County, became an outdoor classroom for the agents, who spent five days there working and learning. The host farmer presented the agents a list of 18 chores with which he needed help. The list included gate mending, barn cleaning, fall pickup of irrigation equipment, and sorting, packing, weighing, and delivering of 40 cases of pumpkins to a Charlottesville, Va., supermarket. Sandwiched in between these chores were discussions and presentations on sustainable agriculture.

The agents said their experiences and the frequent, personal contact with farm families were eye-openers.

"This will change the way I do my job," said Miller. "I've learned a good bit about the marketing and management aspects from people who are successful and are doing a good job."

Miller's interest in reducing fertilizer and pesticide inputs made sustainable agriculture appealing to him. He also saw the training as a way to help him better serve Ohio County's two certified organic farmers. Now, he realizes the concepts apply to all farmers and all crops.

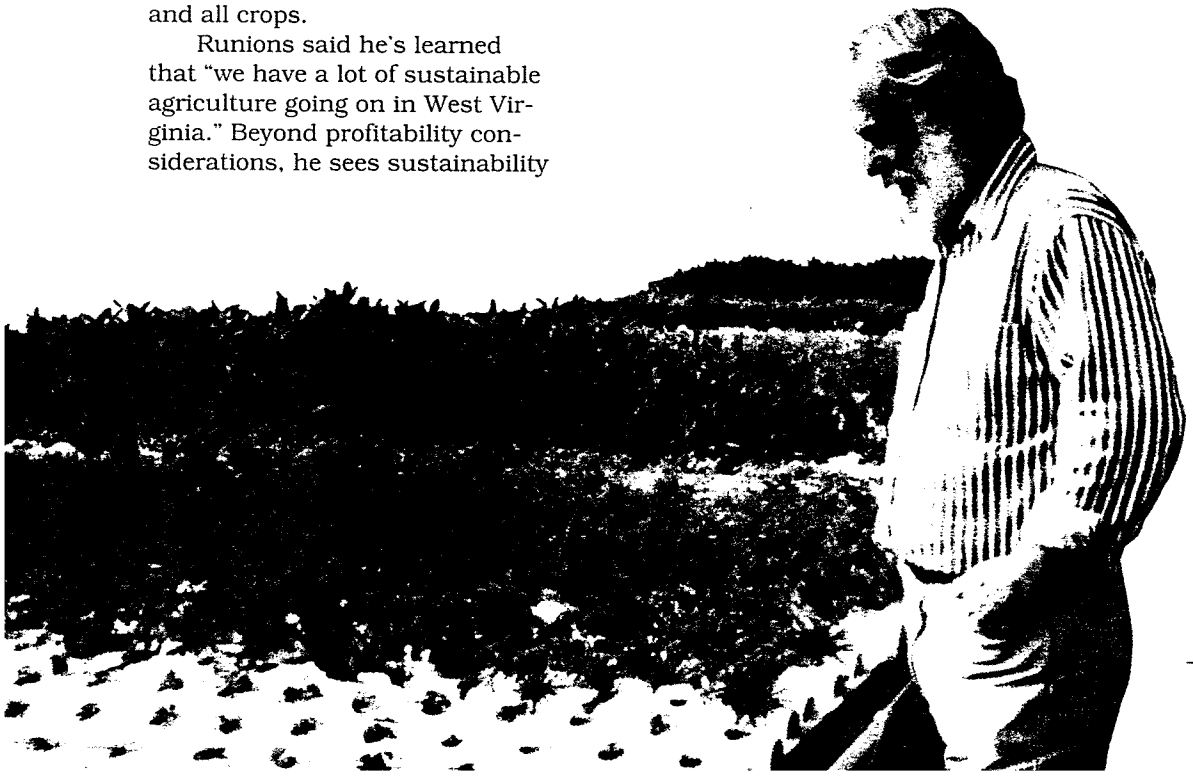
Runions said he's learned that "we have a lot of sustainable agriculture going on in West Virginia." Beyond profitability considerations, he sees sustainability



**Above: Kip Mortenson, left, explains how he turns cow manure, poultry litter, straw bedding, and other farm wastes into soil-enriching compost.**

**Left: High-technology meters and gauges and the low-tech "squeeze test" tell farmers when compost is ready to use.**

**Below: Keith Dix, leader of the sustainable agriculture training program, examines herb and tomato plants at a modified hydroponics greenhouse in Charlottesville, Va.**



**Elevated tubes secure organically grown plants started from certified seed that costs as much as $1,000 an ounce. Lady beetles are the main means of pest control.**

as a quality of life issue for rural families. "Every farmer we've met is vitally interested in ecology and in what they will be leaving for the next generation," he observed.

Because many West Virginia farms are small, part-time operations, it may be easier for farmers in this state to adapt new practices, Runions added. This is particularly true in his southern counties, where the average farm is just 25 to 40 acres.

The WVU training program was built around the simple premise that seeing is believing. Dix said this training is especially useful for newer agents who may be well-prepared academically but have little actual farming experience.

"This firsthand exposure to sustainable farming gives these agents the information and inspiration to fully understand sustainable agriculture and to promote it in their respective counties and among their peers," said Dix.

It's a sound training strategy, said Brown, who asserts "this is different from what we learn in ag school."

Buttressing the on-farm experiences, the training included meetings with federal agriculture and environmental officials, tours of farm and research institutes, and study at the WVU campus in Morgantown and the National Agriculture Library.

The agents trekked through hairy vetch research plots at the USDA Agricultural Research Service facility in Beltsville, Md. At the Rodale Institute Research Center in Pennsylvania, they learned of studies on farm management, soil health, compost, perennial crops, reduced tillage, and cover crops.

They were briefed on international developments by Roger Blobaum, director of the World Sustainable Agriculture Association. A legislative representative with the American Farmland Trust discussed policy issues related to sustainable agriculture and the urban/farm interface.

The newly trained agents recognize that some farmers and some of their own peers may question the new focus on sustainability. Nonetheless, they are confident that sustainable agriculture is not simply the newest fad. It is, instead, the future of farming and food production.

"I was skeptical in the beginning, too, but the farmers who have adopted this approach say it's the best thing they've ever done," Brown said. "They say that they're making more money, their health is better, their animals and crops are healthier, and they're seeing their families more. You just can't beat that." ■

**VISION**

**We have received many positive comments about our previous issue, which introduced *Vision*'s updated look. Much planning went into the "facelift." The fresh, eye-catching appearance was achieved by using brighter green ink, photographic effects, different paper, different headline typeface, and other new design elements. We hope you find the new *Vision* easier to read.**