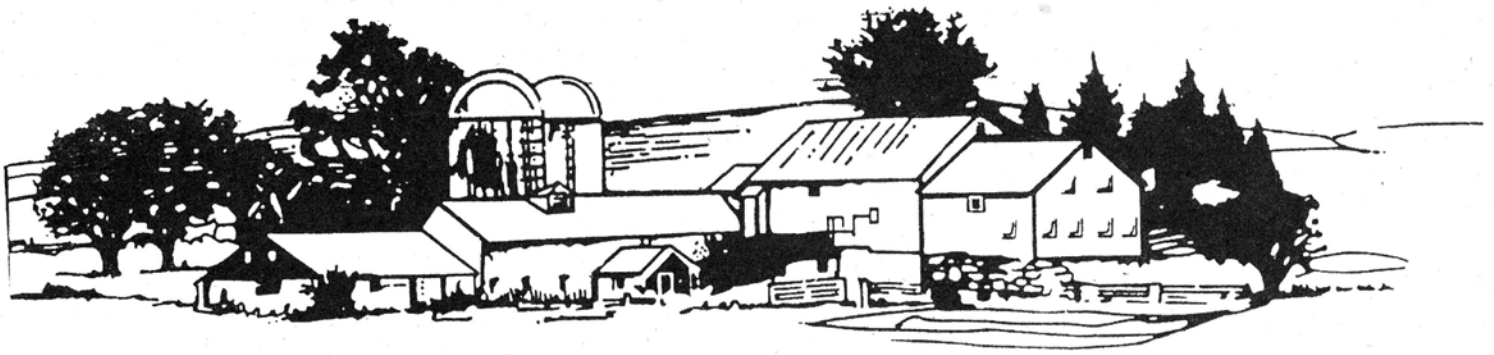
Monitoring Sustainable Agriculture with Conventional Financial Data

SARE Project LNC94-75
SARE Project LNC94-20

by Dick Levins



A Land Stewardship Project Publication

Monitoring Sustainable Agriculture with Conventional Financial Data

First in a series of publications based on the work of the Biological, Social and Financial Monitoring Team

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Preface

As the century turns, it becomes apparent that over a hundred years of agri-commerce directed mainly by a profit motive have not created sustainable agriculture in this country. Profits cannot, it seems, be the only goal of any sector of our society. Dick Levins' creative indicators to evaluate the sustainability of farming operations all outline a new way of looking at agriculture. There is clear courage here in the simplicity set forth by Levins (or any using his new indicators) as he dares to call "assets" environmental liabilities.

I'm a firm believer in the power of numbers. Financial analysis eases the mind, defines our timeline, and gives us new language. Expense ratios, I believe, are one of the quickest ways to assess the underlying values that drive any system. But how should society use numbers to measure success? Choosing to ask new questions, choosing to look for longer-term, more honest measures, may be two of the important first steps to a more sustainable society.

Let Levins' whole proposal be confounding. Let it open your mind to entirely new possibilities. Let it turn the farm profit sock inside out, rethinking bigness as the solution. Ask questions about what we are really measuring with conventional farm statistics. Ask who benefits.

These new indicators may be the bread for new conversations in the local cafe. Farmers: try them out; poke holes in them; see how they make you feel. We are at the beginning of a new era in American agriculture—could this be a new way of measuring its success? Might these new financial indicators give you even more "freedom to farm?"

For the non-farmer, Levins' proposal is clear, yet detailed enough to give the reader a quick education about the figures that a farmer must juggle in order to maintain a decent living. Let this book be an education and a challenge to us all.

Beth Waterhouse, Executive Director
The Minnesota Project

Acknowledgments

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I especially thank my wife and poet-in-residence Jane Dickerson for her editorial help. And Dana Jackson did a wonderful job of helping me organize my ramblings into something that would make for a nice publication.

This project was largely completed on a study leave made possible by the University of Minnesota. I am grateful to the University for its support and to Land Stewardship Project for allowing me to work with them during the leave.

As much as I appreciate everyone's help, I assume full responsibility for any errors or other problems with this paper.

Richard A. Levins

Introduction

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We normally think of using income and expense figures to measure progress toward the goal of earning profits. Surely, farmers in sustainable agriculture are concerned about feeding their families and paying their bills, but those are not their only goals in life. They set out to protect the land, improve their quality of life, and enhance the communities in which they live. Their day-to-day decisions are not guided by a single-minded search for profit, but by a delicate balancing act among many goals.

It will seldom, if ever, be the case that pursuing only one of many goals will lead to the best balance. The way farm progress is monitored must be comprehensive enough to measure progress toward a complete set of goals that includes, but is not limited to, profitability.

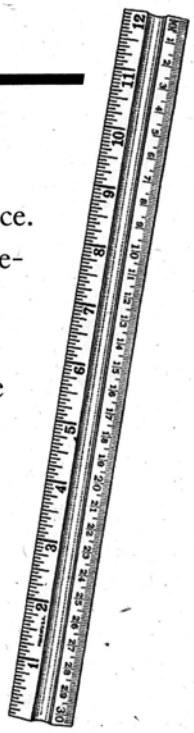
Land Stewardship Project and its partners on the Monitoring Team have for the last few years been experimenting with several ways farmers can make their own observations and draw their own conclusions about how they are becoming more sustainable. Counting birds, doing soil probes, collecting fish from streams, and identifying new plants that appear in pastures are a few of the many methods that offer promise.

The numbers commonly used in financial statements and tax reporting can also help paint a more complete picture of how a farm is doing. These numbers can be used to calculate indicators of farm performance in four important areas: dependence on government programs, use of equipment and energy, creation of jobs, and maintaining a balance between the production and use of livestock feed.

These indicators, looked at as a group, can be useful in measuring how an individual farm is making progress from year to year toward becoming more sustainable. The indicators can also be used to compare one farm to another in discussions of farm sustainability.

My reasons for choosing these indicators are explained in the first chapter. Chapter 2 is devoted to the mechanics of calculating the indicators. I then give some examples of how the indicators might look for different types of farms in Chapter 3. The final chapter takes a new look at how profitability fits into the overall picture of sustainable farming.

1 The New Indicators



I am proposing four indicators that, along with farm profits, can be used to evaluate the sustainability of farming operations. The indicators are:

1. reliance on government programs;
2. use of equipment, chemicals, and non-renewable energy;
3. creation of jobs; and
4. balance between feed use and feed production.

Why these indicators, and not some others? For one thing, these indicators lend themselves to being easily calculated from financial numbers farmers already have on hand. There are many other reasons, too, that are explained in this chapter.

Reliance on Government Programs

President Kennedy's farm advisors faced a huge problem—how could they control the cost for government farm programs? That was a generation ago, and every president since has struggled with the same problem, only on a grander scale. Kennedy's three billion dollar dilemma would have looked very good to Reagan's advisors and the 20 plus billion they were trying to justify each year in the mid-1980's! As this is being written, Clinton and a Republican Congress are squaring off over exactly the same problem.

An entire generation of farmers have come to see government subsidies as an essential part of many types of farming; however, a fully sustainable system of farming should not require this type of continual assistance. The first indicator in the system therefore measures the extent to which a farm is indebted to the taxpayers for its survival. This indicator can also be useful in helping the public see what kind of farming they are choosing to favor with special payments.

Use of Equipment, Chemicals and Non-renewable Energy

A quick look at almost any farm balance sheet will show you that chemicals, fertilizer and machinery are "assets." The chemicals and fertilizer usually show up as "current assets" and machinery is a big chunk of the "intermediate assets." In a recent year, the balance sheet for US agriculture as a whole showed these assets as having a value of slightly more than $85 billion.

The history of US agriculture in the twentieth century has generally been one of people being replaced by assets such as these. It has also, more recently, been one of environmental problems resulting from the use of these assets. So how do things that eliminate farming jobs and harm the environment come to be worth $85 billion?

The answer lies in another question: who are these assets serving? The type of farming that used these assets in 1991 paid $19 billion for petroleum based inputs, $6.9 billion for repair and maintenance, $6.8 billion in non-mortgage interest, and $17.3 billion in wearing out

machinery and buildings. Non-farm, largely non-local, corporations have generously agreed to help farmers do their jobs in exchange for $50 billion per year. These may be expenses to farmers, but they are income to those who furnish the assets.

The level of expenses used by such "assets" is one indicator of how willing a farm is to share its income with non-farm corporations. Expenses accounted for by chemicals, commercial fertilizers, and gas guzzling equipment are also a measure of how a farm is interacting with the environment. When measuring sustainable agriculture, the rule here must be "the less, the better."

Creation of Jobs

Everyone has heard stories about how many people can be fed by the work of a single farmer. The down side of this is that economic activity at the farm level employs virtually no one.

Too strong a statement? According to a recent report, the average farmer in southeast Minnesota spent $252,942 during 1993. Of that money, less than $7,000 went for hired labor. A quarter million dollars of economic activity supported the operator's family and less, much less, than one other local family.

The average farmer spent over three times as much for interest than for hired labor. He or she spent over three times as much to lease land and equipment than for hired labor. He or she spent over three times as much on machinery and equipment purchases than for hired labor. He or she spent over three times as much for fuel and repairs than for hired labor. And he or she spent over three times as much for fertilizer and chemicals than for hired labor.

On the national level, the numbers are much bigger, but the story is much the same. Total production expenses for agriculture nation-wide were $141.3 billion in 1991. Hired labor, counting wages, benefits, and contract work, accounted for $12.6 billion, about nine percent of the total expenses. For comparison, interest claimed $13.5 billion. Equipment and machinery replacement cost $15.7 billion. Fertilizer, lime and pesticides expenses were $13.7 billion. Even the $7.9 billion bill for energy in the form of petroleum and electricity wasn't that much smaller than what non-operator labor was paid.

During the process of converting our farms from labor users to equipment and chemical users, millions of operators were "freed up to seek jobs elsewhere," as the economists like to say. There were 5.6 million farms in 1950 and only 2.1 million in 1991. Even with 3.5 million more operators on the land, farms in total spent 15 percent of their expenses on hired labor in 1950. That number is down to nine percent today.

This is no problem for economic theory. People, pesticides and plows are generic "factors of production." Each must submit to the same profitability test: marginal revenue must exceed marginal cost. Each must pay its own way, but only in terms of those things we choose to measure in dollars. Communities and environment, unfortunately, don't make the list.

What are we to make of such an agriculture? Is it one that is a marvel of efficiency in labor use? Or is it one that is a massive engine for generating rural unemployment? Which view you take has a lot to say about which economic indicators you use to measure a farm's performance.

Providing a living for a local family is something good, not something to be avoided. Whether the job is in the farmer's family or in someone else's family is not important as far as this indicator goes. The part of farm income that is directly available to local families is a number that should be maximized, not minimized, to the extent a farmer can remain consistent with his or her other goals.

Balance between feed use and feed production

One of the biggest transformations in American agriculture has been that farmers, as a group, have decided to spend their lives waiting hand and foot on livestock. Farmers routinely grow feed, harvest it, bring it to animals who live indoors with absolutely nothing to do, pick up the manure, and carry it back to the fields so they can grow more feed.

Working like a dog (or more properly, like a cow or pig) is hardly satisfying, so farmers start looking for ways around it. Some buy 100-horsepower tractors to pull manure spreaders while that much horsepower, and more, is in the animals they are keeping on welfare. Others decide to "specialize" and grow only feed or only livestock. Then where to put manure becomes a major problem, and any chance for the animals participating in the production and harvesting of their feed is gone for good.

Pulling plows with mules is not the only way to put farm animals to work. Animals can break ground with their hooves. They can harvest feed by grazing. They can spread manure by walking on the fields where manure is needed to replenish nutrients and build up soil structure. All of this is possible, but only if the animals live where their feed is grown.

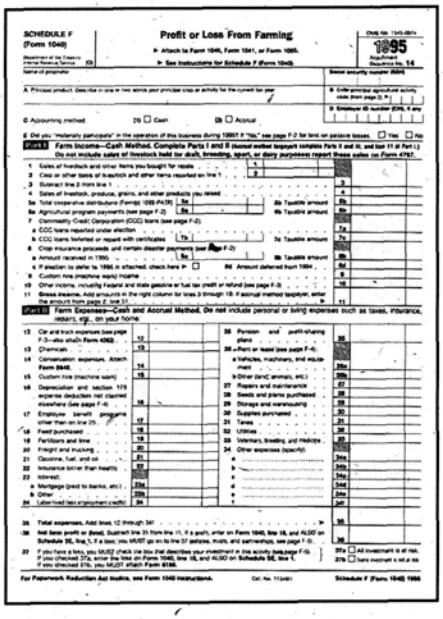
There is another problem, too, when feed production and use are out of balance. A farmer buying feed has little or nothing to say about how the land upon which that feed is grown is being treated. Conversely, a farmer selling feed has little or nothing to say about how the animals which consume it are treated.

2 How to Calculate the Indicators

The worksheet at the end of this chapter can be used in a simple, straightforward way to calculate the indicators I am proposing for evaluating a farm's sustainability.

Sources of Numbers

The worksheet has been designed so that a farmer can do all the analysis from income and cost categories normally used on tax forms. This is not to say you should necessarily use the exact numbers on the tax forms, but at least the categories should be familiar.



SCHEDULE F (Form 1040)

Profit or Loss From Farming

1995

The reasons you may not want to use the actual numbers on tax forms relate to the various purposes for which you are using the numbers. For example, over the years the government has helped many farmers pay for bigger and fancier equipment. The way it does this is through depreciation bonanzas of one sort or another. The more depreciation the government allows you to claim, the less you will have left to pay taxes on. But the high depreciation does not necessarily indicate how much your equipment and buildings are actually being used up in production during the year.

If you have a good set of farm records, they should certainly be used. Otherwise, work from your tax reports and be careful. To avoid the biggest pitfalls in working from tax records, check the following things before using them.

- Income should be for crops and livestock produced in the tax year. If you sold grain from last year, for example, you should adjust your numbers accordingly.
- Expenses should only be for the crops and livestock produced in the tax year. If you prepaid feed or supplies for next year, this is one of the adjustments you will need to make to get everything to match.
- Depreciation on machinery and buildings should be an accurate reflection of the degree to which those items were actually used up during the year.
- If you sold breeding livestock during the year, it will be on Form 4797 instead of on Schedule F. It is income, nonetheless, and it should be included in the Gross Income figure you use in the worksheet.
- If you decide to make any changes on your tax numbers, make sure you recalculate net income so it will be consistent with the changes you have made.

These adjustments should be easy enough to make, and then there is only a matter of copying some numbers onto a form, adding them up, and doing a little division here and there.

Worksheet Calculations

The first section of the worksheet determines what part of gross farm income is from government payments. There is only one calculation to make: divide Agricultural Program Payments by Gross Income.

The next group of numbers is a general indication of how your way of farming uses chemicals, machinery, and non-renewable energy. The expense categories listed here are Chemicals; Custom Hire (machine work); Depreciation on Equipment and Buildings; Fertilizers and Lime; Gasoline, Fuel and Oil; Rent or Lease Vehicles, Machinery, and Equipment; Repairs and Maintenance; and Utilities.

Add these numbers up and divide them by Gross Income. This will show the percent of your income that you are choosing to spend on this group of expenses. As a general rule, you would like to see this percentage be lower rather than higher.

The third section of the worksheet asks you to look at the money you spent to directly support families in your community by providing employment. This may be your family or it may be someone else's. There are four numbers in this section: Employee Benefit Programs; Hired Labor; Pension and Profit Sharing Plans; and Net Farm Profit (or loss). Divide the sum of these four numbers by Gross Income.

The final section of the worksheet is devoted to determining the balance between livestock and feed on your farm. The balance for your farm is calculated by first subtracting the dollar value of feed sold from the dollar value of feed purchased. This difference is then divided by Gross Income. A value of zero indicates a perfect balance. A grain farm would have a positive number close to 100 percent, indicating that almost all of the grain it produces is sold for feed used on other farms. A livestock operation that did not grow all its own feed would have a negative number. The closer that number comes to minus 100 percent, the less feed used on the farm would have been produced on the farm.

Remember, the feed-sold and feed-purchased numbers used in estimating the balance should be for a single year. If your numbers include sales or use from inventories, you will have to adjust them accordingly.

Using the Worksheet

So we have four indicators. One shows the degree to which you depend on the government for income, one shows the degree you depend on non-renewable energy and machinery, one shows the degree to which you provide jobs for local families (including your own), and one shows the balance of feed production and use on your farm.

No one of these numbers is intended to be used by itself any more than profitability should be used by itself. Each number is part of a bigger picture, and being "perfect" on any one of them might come at the expense of another looking much worse than you would like to see.

Financial Indicators For Sustainable Agriculture

Worksheet, Page 1

Government Payments as Percent of Gross Income

Gross Income _____

Agricultural Program Payments _____

Ag Program Pmts/Gross Income (x 100) ==> ____

Energy and Machinery as Percent of Gross Income

Chemicals _____

Custom Hire (machine work) _____

Depreciation on Equipment and Buildings _____

Fertilizers and Lime _____

Gasoline, Fuel and Oil _____

Rent or Lease Vehicles, Mach. & Equipment _____

Repairs and Maintenance _____

Utilities _____

Total _____

Total/Gross Income (x 100) ==> ____

Financial Indicators For Sustainable Agriculture

Worksheet, Page 2

Support for Local Families as Percent of Gross Income

Employee Benefit Programs	_____	
Labor Hired	_____	
Pension and Profit Sharing Plans	_____	
Net Farm Profit (or loss)	_____	
Total	_____	
Total / Gross Income (x 100) ==>		_____

Indicator of Feed Production and Use Balance

Gross Income from Crops Sold for Feed	_____	
Feed Purchased	_____	
Difference	_____	
Difference / Gross Income (x 100) ==>		_____

3 FOUR EXAMPLES OF USING THE INDICATORS

Four examples of how the indicators look for different types of farms in Minnesota are shown in this chapter. Each is based on actual farm records and is intended to show how differences in farms show up in the indicators.

Conventional Grain Farm

The first example is a Southwest Minnesota grain farm. The farm is 960 acres and, apart from the acres set aside for government programs, is all planted to a corn-soybean rotation. It is typical of many farms in the area in that about one-third of the land is owned and the other two-thirds are rented.

The gross income for the farm is $255,000. This includes an $18,000 check from commodity programs, so seven percent of this income comes from government programs.

The farm relies heavily on chemicals, fuel and machinery. Chemicals, depreciation, repairs and fertilizer are major contributors to the $99,200 spent on this category. The total spent here accounts for 38.9 percent of gross income.

The high machinery use makes for low labor use. Out of the quarter million dollar gross, only $7,100 goes for hired labor. The operator and family are, however, making a reasonably good living. Still, the total for this category of $44,600 is only 17.5 percent of gross income.

Finally, the farm is as out of balance as you can get. There are no animals on the farm and all of the feed is sold. Only the government payment keeps the balance indicator from being a "perfect" 100.

This example farm is almost a complete failure in terms of the financial indicators of sustainability. Equipment and chemical companies love it, but it generates virtually no jobs in the local economy. The operator may get rich—that depends on how much is paid for rent and interest—but few other local people share in the benefits. There is no chance for animals to work on the farm. And the farm ties up enough land to support at least three farms using different methods.

Financial Indicators For Sustainable Agriculture

Worksheet, Page 1

Government Payments as Percent of Gross Income

Gross Income	255,000	
Agricultural Program Payments	18,000	
Ag Program Pmts / Gross Income (x 100) ==>		7%

Energy and Machinery as Percentage of Gross Income

Chemicals	28,500	
Custom Hire (machine work)	5,500	
Depreciation on Equipment and Buildings	25,000	
Fertilizers and Lime	13,500	
Gasoline, Fuel, and Oil	6,000	
Rent or Lease Vehicles, Mach. & Equipment	0	
Repairs and Maintenance	18,000	
Utilities	2,700	
Total	99,200	
Total / Gross Income (x 100) ==>		38.9%

Conventional Grain Farm

Financial Indicators For Sustainable Agriculture

Worksheet, Page 2

Support for Local Families as Percentage of Gross Income

Employee Benefit Programs	0	
Labor Hired	7,100	
Pension and Profit Sharing Plans	0	
Net Farm Profit (or loss)	37,500	
Total	44,600	
Total / Gross Income (x 100) ==>		17.5%

Indicator of Feed Production and Use Balance

Gross Income from Crops Sold for Feed	237,000	
Feed Purchased	0	
Difference	237,000	
Difference / Gross Income (x 100) ==>		92.9%

Conventional Grain Farm

Financial Indicators For Sustainable Agriculture

Worksheet, Page 1

Government Payments as Percent of Gross Income

Gross Income	255,000	
Agricultural Program Payments	18,000	
Ag Program Pmts / Gross Income (x 100) ==>		7%

Energy and Machinery as Percentage of Gross Income

Chemicals	28,500	
Custom Hire (machine work)	5,500	
Depreciation on Equipment and Buildings	25,000	
Fertilizers and Lime	13,500	
Gasoline, Fuel, and Oil	6,000	
Rent or Lease Vehicles, Mach. & Equipment	0	
Repairs and Maintenance	18,000	
Utilities	2,700	
Total	99,200	
Total / Gross Income (x 100) ==>		38.9%

Conventional Grain Farm

Financial Indicators For Sustainable Agriculture

Worksheet, Page 2

Support for Local Families as Percentage of Gross Income

Employee Benefit Programs	0	
Labor Hired	7,100	
Pension and Profit Sharing Plans	0	
Net Farm Profit (or loss)	37,500	
Total	44,600	
Total / Gross Income (x 100) ==>		17.5%

Indicator of Feed Production and Use Balance

Gross Income from Crops Sold for Feed	237,000	
Feed Purchased	0	
Difference	237,000	
Difference / Gross Income (x 100) ==>		92.9%

Conventional Grain Farm

Conventional Grain, Finishing Hogs

The second example is also a Minnesota grain farm, but this time there is an older finishing barn on the farm which is usually used to feed out about 1,000 feeder pigs each year.

The farm's gross is up to $350,000 because of the added income from selling hogs. There is still lots of corn base, however, and this qualifies for a $15,000 commodity payment. The payment is 4.3 percent of gross income.

This farm is also heavily dependent upon equipment and non-renewable resources, and it has all of the usual expenses that go with grain farming. In addition, the hogs are raised in confinement and have no opportunity to provide useful work. Instead, feed and manure handling equipment add to the $114,355 total for this category. It comes to 32.7 percent of gross.

The operator of this farm is doing very well. Net farm income is $65,000 in a typical year. Almost 22 percent of gross goes to the jobs category, but the income shows the same split as the conventional grain farm—lots to the operator, very little for anyone else. The total bill for hired labor is barely $11,000.

Finally, the farm is substantially out of balance. After the hogs are fed, there is still $217,743 in feed grains to be sold to other farms. A relatively small amount of specialized feeds are also purchased, and the final balance indicator is 59.6 percent.

This farm shows that adding livestock alone does not always improve the financial indicators used here. It takes more equipment, not more people, to care for them in this case, and the problems of conventional grain farming are not addressed at all.

Financial Indicators For Sustainable Agriculture

Worksheet, Page 1

Government Payments as Percent of Gross Income

Gross Income	350,000	
Agricultural Program Payments	15,000	
Ag Program Pmts / Gross Income (x 100) ==>		4.3%

Energy and Machinery as Percent of Gross Income

Chemicals	25,307	
Custom Hire (machine work)	254	
Depreciation on Equipment and Buildings	25,388	
Fertilizers and Lime	33,629	
Gasoline, Fuel, and Oil	7,390	
Rent or Lease Vehicles, Mach. & Equipment	1,240	
Repairs and Maintenance	18,499	
Utilities	2,648	
Total	114,355	
Total / Gross Income (x 100) ==>		32.7%

Conventional Grain, Finishing Hogs

Financial Indicators For Sustainable Agriculture

Worksheet, Page 2

Support for Local Families as Percentage of Gross Income

Employee Benefit Programs	0	
Labor Hired	11,291	
Pension and Profit Sharing Plans	0	
Net Farm Profit (or loss)	65,000	
Total	76,291	
Total / Gross Income (x 100) ==>		21.8%

Indicator of Feed Production and Use Balance

Gross Income from Crops Sold for Feed	217,743	
Feed Purchased	9,194	
Difference	208,594	
Difference / Gross Income (x 100) ==>		59.6%

Conventional Grain, Finishing Hogs

A Conventional Dairy

The third example is a conventional Minnesota dairy milking 54 cows. The farm uses 225 acres to grow corn and hay. There are another 45 acres of conventional pasture and seventy or so acres of woodland.

The farm grosses $161,000 and gets a $3,000 check from the government for growing corn. Program payments are less than two percent of gross income.

The farm is not much different from a grain farm in that it is top-heavy with equipment. There is corn equipment, hay equipment, feed handling equipment, manure handling equipment—you name it. It costs a lot to own this much equipment, and just as much to keep it running. When you add in chemicals and fertilizer for the crops, the bill for the second category comes to $47,500, or 29.5 percent of gross.

The farm hires some part time help at harvest time and occasionally gets some relief from milking. The majority of the $59,400 in this category, however, goes to the husband and wife who each work very hard for the $49,500 they are clearing. They wonder if it is really worth both of them working full time just to keep things going.

This farm, too, is out of balance, but not as badly. A small amount of corn and hay gets sold each year, and, in spite of 225 crop acres and another 45 acres in pasture, there is still $17,000 in feed which must be paid for.

Perhaps it is no wonder that Minnesota is losing almost three dairy farms every day. In spite of the grueling work put in by husband and wife, suppliers of equipment and non-renewable resources still make as much as they do. And while the grain farmer works six to eight weeks a year, these folks are working 52 weeks a year tending crops and waiting hand and foot on milk cows.

Financial Indicators for Sustainable Agriculture

Worksheet, Page 1

Government Payments as Percent of Gross Income

Gross Income	161,000	
Agricultural Program Payments	3,000	
Ag Program Pmts / Gross Income (x 100) ==>		1.9%

Energy and Machinery as Percentage of Gross Income

Chemicals	2,100	
Custom Hire (machine work)	1,400	
Depreciation on Equipment and Buildings	17,000	
Fertilizers and Lime	3,400	
Gasoline, Fuel, and Oil	4,100	
Rent or Lease Vehicles, Mach. & Equipment	0	
Repairs and Maintenance	17,000	
Utilities	2,500	
Total	47,500	
Total / Gross Income (x 100) ==>		29.5%

Conventional Dairy

Financial Indicators for Sustainable Agriculture

Worksheet, Page 2

Support for Local Families as Percentage of Gross Income

Employee Benefit Programs	0	
Labor Hired	9,900	
Pension and Profit Sharing Plans	0	
Net Farm Profit (or loss)	49,500	
Total	59,400	
Total / Gross Income (x 100) ==>		36.9%

Indicator of Feed Production and Use Balance

Gross Income from Crops Sold for Feed	2,900	
Feed Purchased	17,000	
Difference	-14,100	
Difference / Gross Income (x 100) ==>		-8.75%

Conventional Dairy

Grazing Dairy Cows

The fourth and final example is also a dairy. It has more cows than the dairy just described, has a lower gross income, and looks a whole lot better when seen with the new indicators. The big difference between this farm and the conventional dairy is that there is no corn grown on the farm. The farm's 250 acres are all in pasture which is carefully grazed for maximum production.

The farm grossed $149,318 in a recent year. Since there was no corn, the government saw no reason to help this operator at all. Perhaps the public will someday rethink its decision to single out the one farm which used no chemicals and no commercial fertilizer for such treatment!

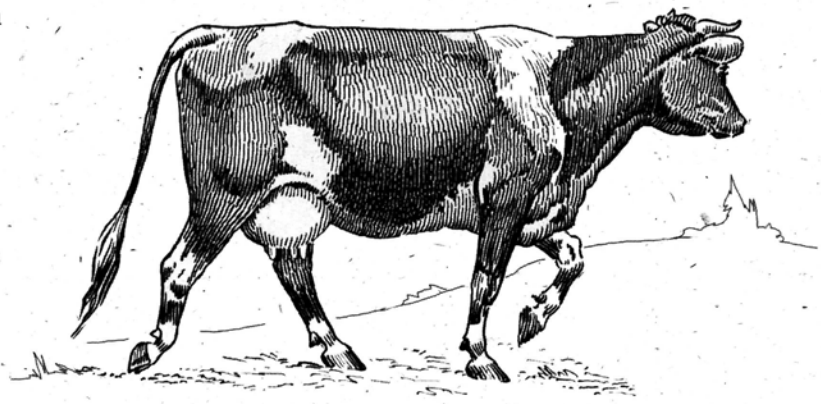
The cows are not inside all day waiting to be fed and cleaned up after. They are out most of the year, spreading manure and harvesting feed. One result is that there is very little equipment on the farm. The total bill in this category, even counting custom hay harvesting and manure handling (you can only ask so much of cows in a Minnesota winter!), is $30,924, or 20.7 percent of gross. This is by far the lowest percentage for this category among the four example farms.

The third, or "jobs" category, shows $58,295, or 39 percent of gross. This is a far higher percentage than the grain operations have shown and is not much different than the conventional dairy. What is very different, however, is the way the income is split up. There is a much better balance between the operator and the hired help, and both get reasonable vacations and time with their families.

Finally, the farm is close to being in perfect balance. Some hay was sold, some feed was purchased, but the overall percent of gross was less than four percent.

This example shows that the answer to dairy financial problems does not necessarily lie in bigness. The problem to begin with is too much equipment, and buying more won't fix it. What works better in this example is creative management guided by thoughtful goals.

And compared to grain farming, there is no contest at all with these indicators. Grain farming, even with conventional livestock feeding, is heavy on equipment, light on jobs. Grazing dairy cows is the mirror image—light on equipment, heavy on jobs.



Financial Indicators for Sustainable Agriculture

Worksheet, Page 1

Government Payments as Percent of Gross Income

Gross Income	149,318	
Agricultural Program Payments	0	
Ag Program Pmts / Gross Income (x 100) ==>		0%

Energy and Machinery as Percent of Gross Income

Chemicals	0	
Custom Hire (machine work)	9,356	
Depreciation on Equipment and Buildings	8,000	
Fertilizers and Lime	0	
Gasoline, Fuel, and Oil	2,039	
Rent or Lease Vehicles, Mach. & Equipment	1,019	
Repairs and Maintenance	6,424	
Utilities	4,086	
Total	30,924	
Total/Gross Income (x 100) ==>		20.7%

Grazing Dairy Cows

Financial Indicators for Sustainable Agriculture

Worksheet, Page 2

Support for Local Families as Percentage of Gross Income

Employee Benefit Programs	0	
Labor Hired	26,486	
Pension and Profit Sharing Plans	0	
Net Farm Profit (or loss)	31,809	
Total	58,295	
Total / Gross Income (x 100) ==>		39%

Indicator of Feed Production and Use Balance

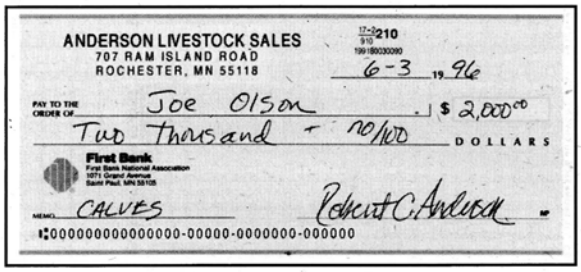
Gross Income from Crops Sold for Feed	3,987	
Feed Purchased	9,678	
Difference	-5,691	
Difference / Gross Income (x 100) ==>		-3.8%

Grazing Dairy Cows

4 HOW DO PROFITS FIT IN?

There is general agreement that farms should be profitable, but not nearly as much consensus on just what that means. Economists see things one way, and most everyone else sees things another way.

For most everyone, except economists, the word "profit" means something like "what's left after the bills are paid" or "what's left for the family." Some might even go so far as to include "and something has been set aside to replace equipment and breeding stock," but that is about as far as it goes. Making profits, rather than defining the word, is vastly more important to regular people.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MEMO CALVES Robert C. Anderson

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Economists generally have more time on their hands and consequently have thought a great deal more about exactly what the word profit should mean. The economist's definition is based not on making enough to live on, or even on having enough to buy a Buick, but on seeing that each resource used in production is making more than it could if it were used some other way.

The way profits are defined makes a difference in how they are measured. It also affects how profits fit into an overall system for becoming more sustainable.

The Economist View of Profits

Some of the costs economists use in calculating profits are very real in the sense that a check must be written to pay them. Buying feeder livestock is an example. Other costs, however, are more hypothetical in the sense that they represent income that could be gained in some other use of farm resources. Both types of costs are subtracted from income to determine profits in the sense economists use the term.

Land is a good example of how the economist's definition might seem unusual. What was originally paid for land used in farming is irrelevant. So is the size of the mortgage payment. Instead, economists subtract the full value of whatever could be made by letting someone else use the land at the going rate.

The labor and management provided by a farm family are treated the same way by economists. They are charged against gross income at whatever could be made doing something else off the farm. If a person can make $55,000 working in town, it doesn't matter if that same person can make $50,000 per year farming. It would not be profitable to farm, no matter how good $50,000 might look at first glance. To farm would be to lose $5,000 per year.

The Regular Person's View of Profits

The way land, labor, management, and other farm resources are often treated by economists is not only unusual, it can be downright dangerous. As they say in the TV commercial, "Don't try this at home!" Imagine going into a tax audit with a story like this: "Sure I made

$50,000, but actually I didn't make a dime because I could have made more doing something else, so I am not paying any taxes this year." About the best you could hope for would be that your jail time would be spent in a minimum security facility.

This is not to say that the IRS doesn't have the words "Profit and Loss from Farming" in big letters right on top of the Schedule F tax form, because they do. And, furthermore, it doesn't mean that a farmer who drives a nice car and regularly pays his or her bills is not commonly thought of as "profitable."

The general way in which IRS asks that farm profits be calculated works well enough for day-to-day purposes. Common expenses actually paid, along with some estimate of depreciation for equipment and breeding livestock, are subtracted from farm income. The remaining "profit" is what is left to support the farm family.

Enough versus Maximization

In this regular person's view of profits, whether a farm is profitable depends a bit on individual circumstances that economists don't consider. For example, a farmer could have long ago paid for land that has now become much more valuable. The farmer might be easily paying his or her bills and living well, so in the regular person's sense, this farm is profitable. For economists, however, the land value makes all the difference in the world. This farmer may well be losing money by not selling out to developers and finding a job in town.

This points out the key difference between the economist and regular person's view of profits. The economist looks at making the maximum dollars possible, and the regular person looks at making "enough" dollars. The idea of "enough" is troubling to economists because it varies from person to person. The idea of "maximum" is troubling to most farmers because they see themselves as farmers, not as investors managing a portfolio of resources.

"Maximum" is a fine guiding principal if all that is being considered is profits. The only goal is making more. But in sustainable agriculture, there is always a balancing act among family, community, and environment that includes, but is not confined to, profits from farming. In this balancing act, the concepts of "enough" and "acceptable to me, if not everyone else" are simply more useful than maximization of profits or any other single goal.

The goal of making "enough" will not only vary from farm to farm, it will vary for the same farm as circumstances change. Farmers usually need off-farm income when they are getting started. Later on, things might turn more their way and what the farm is making becomes enough. And, as age brings wisdom, farmers might decide that having enough money has two sides: making more and needing less.

The important thing for sustainable agriculture is that "enough" at least leaves open the possibility of concentrating on other goals. "Maximization" will always have a reason to look only at profits.

Looking Ahead

The system shown in this report, like all financial analysis systems, is primarily one for looking back and seeing where you have been. It is useful for measuring your own progress and for making comparisons with other farms.

There are also many good tools for looking toward the future and seeing how you are going to move more toward "enough" while staying true to your other farming goals. Land Stewardship Project occasionally offers courses in Holistic Resource Management throughout Minnesota, and many farmers have put HRM planning tools to good use. Some conventional planning tools work well for these purposes, too, if only you are careful to keep all your goals, and not just profit, in mind.

The Land Stewardship Project

Founded in 1982, the Land Stewardship Project is a private non-profit, membership organization that fosters an ethic of stewardship for farmland and promotes sustainable agriculture and sustainable communities. A series of meetings held with constituents in 1992 resulted in the selection of three goals to guide LSP's work in the 90s.

1. Prosperous, Diversified, Family-sized Farms

This will require:

- Integrating quality-of-life issues, profitability and long term health of the ecosystem into farming decisions;
- Developing improved farming approaches that increasingly replace reliance on purchased inputs with people-based management and on-farm biological resources;
- Changing public and corporate policies that encourage bigness, vertical integration and ecologically damaging farming systems.

2. Land reform in the Upper Midwest

This will require:

- Bringing people together to develop visions, goals and action plans for change;
- Increasing public understanding of the need for more people on the land;
- Providing access to farmland and education in the principles and practices of sustainable agriculture for all farmers;
- Preserving farmland threatened by development in metropolitan and rural areas.

3. Healthy Communities

This will require:

- Bringing people together to develop visions, goals and action plans for change;
- Organizing public support for policies that will help sustainable family farms to thrive;
- Supporting the growth of meaningful, well-paying employment opportunities in rural areas, including those based on farming;
- Encouraging understanding, interaction and respect for cultural diversity in terms of race, gender, age, profession, heritage and faith.

Join the Land Stewardship Project and work for a more sustainable future for people and the land.

For information about membership, contact the LSP office nearest you or the membership coordinator in the White Bear Lake office. To learn about scheduled courses in Holistic Resource Management, contact the Montevideo office.

•••

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The Biological, Social and Financial Monitoring Team

Measuring the success of a farm seems easy when maximum productivity is used as the main gauge. But what if a farm family is striving for a holistic goal that includes good quality of life, profitability, and long-term ecological health of the land? How and what could the farm family observe to find out if they are achieving their goals and helping improve a watershed in which they farm? Who could assist them in determining what and how to monitor?

To help answer such questions, the Land Stewardship Project convened a team of 25 people (see appended list) that includes six farm families making the transition to Management Intensive Grazing, university researchers, private consultants, LSP staff and federal, state and local agency officials. This initiative is called the Biological, Financial and Social Monitoring Project, but is referred to most often as "The Monitoring Project." Team members, referred to simply as "The Team" have expertise in soil science, plant pathology, wildlife ecology, hydrogeology, farm management, water quality, rural sociology, animal production, agricultural economics, stream ecology, vegetation, on-farm research and participatory education and Holistic Resource Management™.

The Team's over-arching goal is to encourage movement toward sustainable farming systems. The Team has three objectives.

1. Develop and test a process of on-farm observation and interaction that brings together farmers and other professionals to monitor ecosystem health and economic and social well-being of the farm family.

2. Implement a new dynamic process for designing agricultural research that:

   - is participatory and farmer driven,
   - uses a whole-systems approach that depends on a dialogue among all team members,
   - values and develops on-farm knowledge and experience, and
   - fosters changes in research approaches by all project team members and their institutions.

3. Engage farmers, researchers, the public, agency officials, private business and others in feedback and application of on-farm monitoring and whole-systems participatory research.

TEAM APPROACH:

In partnership with the Minnesota Institute For Sustainable Agriculture (MISA) and participating agencies, the Team is collecting data on the six team farms and paired farms (farms nearby with similar soils or stream reaches). During the 1994 growing season, team members established plots and collected data that will provide a baseline for long-term longitudinal studies. During 1995 and 1996 the Team is testing farmer-friendly indicators against analytical measures used since the first year. Just as importantly, the Team is documenting farmer observations.

Several key assumptions undergird the team project design and team process. The information produced is intended to help farmers determine if they are progressing toward their goals.

This type of inquiry requires long-term observation of impacts on the ecosystem and family well-being. Nevertheless, in the shorter term this project will develop useful indicators for farmers, useful information for policy makers and questions and hypotheses for ongoing research in these and other settings.

Ecological data collected on paired farms in a continuous pasture or row crop setting will provide points of reference to understand rapid changes that are taking place on team farms.

Each team member brings an important perspective that needs to be heard. The whole is greater than the sum of the parts. The Team poses questions, interprets and integrates data that is gathered by specialists and farmer observation. The different values and professional contexts of individual team members add perspective and cross-disciplinary understanding beyond what is possible in the standard research paradigm. We have agreed that conclusions need to be approved by the Team before being stated formally in the Team's name.

Each team member is a "subject" in this research process. The Team wants to understand how their participation changes relationships with other members and their institutions. The process and results will be communicated to farmers, researchers and policy-makers.

The Monitoring Project farmers, members of the Sustainable Farming Association of Minnesota, base their own evaluation of success on how well they are moving toward their goals. Though each farm family has its own goals, the participants in this project also share some common visions. Management Intensive Grazing is the avenue that all of these farmers have chosen to carry them toward this vision. There is the belief that if these farmers can show other people that farming can be fun and profitable at the same time that it preserves the resource base, then they can bring about a fundamental change in agriculture.

The set of four economic indicators of sustainability described in this book by team member Dick Levins, Professor and Extension Agricultural Economist at the University of Minnesota, is being tested by farmer team members. The author, the Land Stewardship Project and team members hope that many other farmers will consider trying out these indicators on their own operations.

The Monitoring Project has been supported by funds from the Minnesota Institute For Sustainable Agriculture, the USDA Sustainable Agriculture Research and Education Program[1], the Legislative Commission on Minnesota Resources[2], the Minnesota Department of Agriculture, the Charles Stewart Mott Foundation, the W. K. Kellogg Foundation, the Wallace Genetic Foundation, and the Weyerhaeuser Family Foundation. Funds to assist with publishing were provided by the Northwest Area Foundation.

Savannah Sparrow

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[2]Funding for this project approved by the Minnesota Legislature, ML 1995, Chapter 220, Sec. 19, Subd. 5(r), as recommended by the Legislative Commission from the Minnesota Futures Resources Fund.

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