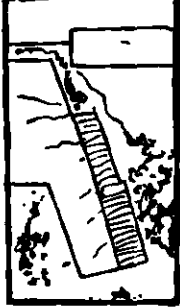
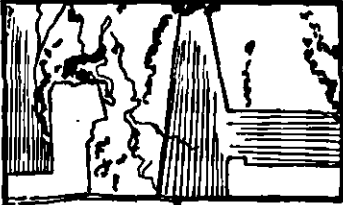


A Dozen Years
of
Conservation
Farming

By
H. O. Anderson & P. E. McNell



1935

A DOZEN YEARS *of* Conservation FARMING

H. O. Anderson & P. E. McNall



1949

"Soil conservation pays on my farm. Soil losses have been reduced and the soil is easier to work now that I am using conservation methods."

That's the conclusion reached by a Grant county farmer who has been farming the conservation way since 1938. This leaflet tells the story of his farm.

Soil Conservation Program for the Farm

Much of this farmer's crop land is steeply rolling, with slopes of 12 to 20 per cent. When the soil conservation survey was made in 1936, very little top soil was left on the steep slopes. The farmer faced these problems:

1. Reducing loss of top soil from cultivated fields.
2. Stopping gullies which were cutting up fields and reducing crop producing areas.
3. Developing a soil conserving and fertility building program which would control erosion without radically changing livestock production.
4. Maintaining total production and at the same time converting some of the steepest, severely eroded cropland to permanent pasture.

Because of the continuing excessive soil losses, it was necessary

to make several changes in the farm set-up to control erosion. Important changes recommended were:

1. Converting three acres of the steepest, most severely eroded cropland to permanent pasture.
2. Raising hay crops on at least one-half of the cropland, using different rotations for various parts of the farm. Longer rotations with more legume-grass hay and pasture crops should be grown on steeper croplands.
3. Maintaining good stands and yields of alfalfa through regular reseeding and through adequate applications of lime and fertilizer. Heavier applications of lime and fertilizer also were used on the rest of the cropland.
4. Contour strip arrangement of fields. Terraces on 11 acres of cropland and construction of a dam to protect the terrace outlets.
5. Renovating permanent blue grass pastures and application of nitrogen fertilizers to pastures that could not be renovated.
6. Protecting woodlots from grazing and establish areas for wildlife habitat.

Table 1 shows how well this farmer followed the changes planned for his farm. Conservation goals were reached by taking steeper cropland out of crops, by using contour strip cropping and terracing, and by application of commercial fertilizers. The acreage of pasture improvement exceeded the amount planned, but slightly less lime was applied and the acreage in soil conserving crops was lower than planned.

How One Grant County Farmer Adopted A Soil Conservation Plan

Item	Before cons.	Planned	1938-41	1942-45	1946-49
Retired cropland, acres	0	3	3	3	3
Soil cons. crops, %	46	59*	57	51	50
Contour strips, acres	0	50	50	50	50
Terraces, acres	0	0	11	11	11
Fertilizers, tons	0	5	2	2.6	5.4
Lime, tons	10	20	18	12	17
Pasture renovation, acres	--	6	16	19	19

*Without terraces. Terraces were constructed in 1939.

More feed was grown and more livestock raised, resulting in more manure spread on the fields.

The original conservation plan for the farm called for a larger acreage of hay (about 59 per cent of the cropland) and a smaller acreage of corn and small grain with about the same area in cropland.

After reviewing the crop production possibilities and the feed needs of the livestock, it was decided to change the conservation plan to include the terracing of one field. This made it possible to raise more corn and less hay without increasing soil losses.

How This Grant County Farmer Used His Land

	Before program	Cons. plan	1938-41	1942-45	1946-49
Corn, acres	20	18	19	21	20
Small grain,* acres	30	19	21	23	25
Hay mixtures,** acres	43	54	50	46	45
Hay mixtures, %	(46)	(59)	(55)	(50)	(50)
Total crops	93	91	90	90	90
Renovated pasture	--	6	16	19	19
Permanent pasture	67	57	40	37	37
Woodland	--	12	14	14	14
Other land	7	7	7	7	7
Total farm	167	167	167	167	167

* Includes fractional acreages of miscellaneous crops.

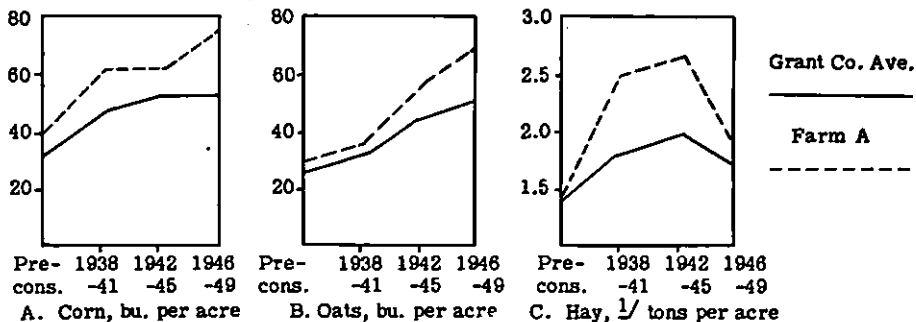
**Mixtures of legumes, either alfalfa or red clover, and such grasses as timothy and brome. The acreages include rotation pasture.

Changes in crop yields show that the changes in cropping practices adopted on this farm were satisfactory.

Corn yields jumped from 40 bushels to 75 bushels per acre and net income rose \$75 a month in the first dozen years following the adoption of a soil conserving program. During this same period, average county corn yields increased by only 19 bushels.

Oat yields increased 14 bushels over the county as a whole, and improvements in hay yields on this farm also were greater than the average for the county. Putting some of the most eroded cropland into permanent pasture, getting more legumes in the cropping system, contour strip cropping, terracing, and heavier applications of commercial fertilizers and lime all helped to improve yields. This farm probably used no more commercial fertilizers than the average Grant county farm.

Yield trends on this farm and averages for Grant County



1/2 Harvested hay yields on farm A because different acreages of second crop were pastured.

Feed Production

The production of total digestible nutrients, exclusive of pasture, increased during the entire period covered by the study.

Corn and small grain increased from 30 tons in 1933-36 to 41 tons in 1938-41, 51 tons in 1942-45, and 62 tons in 1946-49.

Hay production ranged from 10 to 36 tons above that of the pre-conservation period. More hay was stored and a small amount of this surplus was sold.

During the past ten years, longer pasture seasons were obtained by permanent pastures and improved pasture rotations. Increased growth and more uniform production during the grazing period also was noticed.

Whenever an extra pasture was needed, second and third crops of alfalfa and second crops of timothy and clover were used.

The pre-conservation pastures, mostly bluegrass, usually were inadequate to meet the livestock needs in late summer and early fall. Barn feeding after September 1 was a common practice, but renovated pastures and meadow aftergrowth have provided excellent forage until November in later years.

The farmer credits much of his higher dairy production from 1940-1949 to the pasture improvement program.

More Feed - More Livestock

As the proof of the pudding is in the eating, so the final evaluation of crop production on most Wisconsin farms must be made on its effect upon livestock production and finally upon net income.

In this case, the number of dairy cows increased steadily--14 cows in 1933-36, 15 cows in 1938-41 and 18 cows during the last seven years. Annual sales of butterfat increased from 2,848 pounds for the pre-conservation period to 5,424 pounds in the last four-year period. This is a 90% increase.

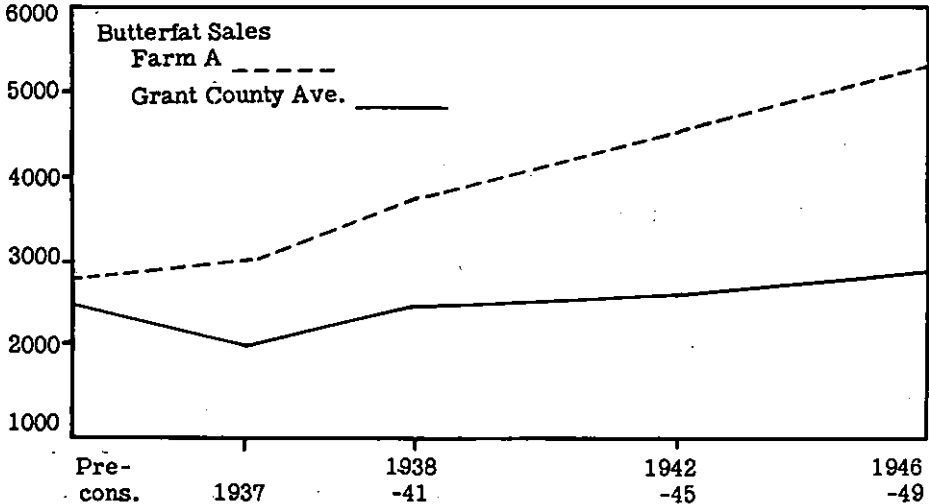
On this farm, conservation farming did not mean a smaller production of grain consuming animals. Higher corn and small grain production from 1937 to 1949 made possible an increase in hog production from an average of 10,800 pounds per year for the pre-conservation period to an annual average of 16,200 pounds for the last four years. Terracing one field helped make it possible to raise more hogs.

The increased feed grown on this farm was used by feeding more to dairy cattle as well as through an increase in livestock numbers..

In other words, livestock production was geared to the soil conserving crop production program. This is important if maximum income is to be obtained. Higher quality of livestock consumed larger quantities of feed and used it more efficiently. While this farmer is a good livestock man, other farmers who may not be so successful in handling livestock can make the needed adjustments with profit.

Trends in Butterfat Sales

Butterfat sales, lbs.



The Pay-Off - Larger Net Income

To rule out the influence of price changes, prices which prevailed in 1945 were used in figuring income and expense throughout this study.

Gross income from the dairy herd was almost \$2400 per year higher during the last four-year period than it was in the pre-conservation period, an increase of about 80 per cent. That is an average increase of \$200 per month.

Likewise, the gross income from hogs averaged almost \$60 per month or over 50 per cent more during the last four years of the study than the average before the conservation program was established.

All principal types of cash farm expenses went up considerably during most of the period covered by the study. For one thing, prices for livestock and livestock products made it profitable to feed more concentrates, and these feed costs increased.

Power and equipment costs more than doubled from 1933-36 to 1946-49, because the farmer changed from horses to tractors. Higher

crop yields and greater numbers of livestock added to the labor load on this farm.

Breakdown of Earnings, Figured at 1945 Prices

	1933	1938	1942	1946
	-36	-41	-45	-49
<u>Income:</u>				
Livestock	\$4742	\$6373	\$7838	\$7902
Miscellaneous	698	1228	572	397
Total income	\$5440	\$7601	\$8410	\$8299
<u>Expenses:</u>				
All farm expenses	\$1981	\$2670	\$4017	\$3678
Interest on investment	723	800	871	944
Total expense	\$2704	\$3470	\$4888	\$4622
Operator's labor earnings	\$2736	\$4131	\$3522	\$3677
Net income per crop acre	\$ 30	\$46	\$39	\$41

Crop expenses also were higher for the latter periods of this study. More purchases of lime, fertilizers, and twine, and higher threshing and silo filling costs raised expenses. The increase in fertilizer purchases, however, was only slightly greater than the average per farm for the state.

Conservation Costs Were Small

Total soil treatment, both for permanent pastures and for hayland, cost \$195 over the twelve-year period.

Very few of these costs should be charged directly against the soil conservation program. The cost of lime, fertilizer and legume seed probably should not be classified solely as soil conservation expense even though their use contributed to more vigorous plant growth and thus are important in reducing soil losses.

The construction cost for the terraces and dam totalled \$531. About one-half of these contributions were made in 1937 and the other half in 1939.

Since farmers ordinarily build and repair fences during slack periods, it is assumed that any changes in fence arrangement could have been made without additional "out-of-pocket" costs.

Materials and Hired Labor for Pasture Renovation, Alfalfa Seeding, Terracing and Woodlot.

Item	Amount	Cost	Amortized Cost	
			years	per year
Lime	36 tons	\$ 36	9	\$4
Seed	223 lbs.	28	5	5
Fertilizer 0-20-20	1500 lbs.	30	5	6
Total for pasture renovation		\$ 92		\$15
Lime for alfalfa	103 tons	\$103	9	\$12
Terraces	2	\$ 67	30	\$2
Terrace outlet	1	100	30	4
Dam	1	364	30	12
Total for terrace construction		\$531		\$18
Tree seedlings	5210	\$ 14		
Shrubs	800	3		
Total woodlot contribution		\$ 17	20	\$ 1

The same is true of tree planting. It is estimated that from 6 to 10 hours of labor is needed to plant an acre. An additional 10 hours of scalping is necessary if a plow can not be used.

Even though labor costs were added to the annual cost of fence construction and tree planting, these would be relatively unimportant.

Net Results Were Satisfactory

When figured at 1945 price levels, net incomes for the farm were \$900 (or \$75 a month) higher in the last four-year period than the average for 1933-36.

The higher net income was reflected, in part, in the growth in total farm assets which increased from about \$14,500 in 1936 to \$19,000 in 1949. While the value of the land was left constant for the purposes of this study, an increase in the net income per acre of from \$30 to \$41, will be reflected in time in higher land values. Maintaining the value of investments in land is an important consideration in an erosion control program.

Results of the Conservation Program on This Farm

1. Sheet and gully erosion are no longer major problems on this farm.
2. Crop yields improved steadily. Greater production has meant more liberal feeding of dairy cattle as well as an increase in numbers of dairy cattle and hogs.

3. Good management of this farm has resulted in above-average returns both in terms of yields and in net earnings. This has been achieved by maintaining a soil conserving program and adjusting livestock numbers and production to the larger supply of feed.
4. The revised conservation program used by this farmer shows the possibilities of using conservation measures that best fit the individual farm.

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