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Case Study of the Profitability of a South Dakota Farm Using the Integrated Farm Management Program

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Charles L. Prouty and Thomas L. Dobbs[1]

Econ Pamphlet 96-2

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ECONOMICS DEPARTMENT
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Preface

This report is one of five covering case study farms in the east-central South Dakota portion of the Big Sioux Aquifer area. The other four reports are South Dakota State University Econ Pamphlets 95-1 through 95-4, published in September 1995. Operators of each of the case study farms covered in the five reports were participating in some segment of the Federal farm program aimed specifically at improving the ecological sustainability of U.S. agriculture.

The case farm featured in this report was participating in the Integrated Farm Management (IFM) program of the 1990 Farm Bill. Since the data collection and analyses were completed for this report, the 1996 Farm Bill has been passed and put into law. The new bill changes many of the Federal farm program provisions described in this report. Nevertheless, for the sake of stylistic consistency with the other four case farm reports, this report is written as if the 1990 Farm Bill still were in effect. Readers can then compare, if the wish, the provisions and findings contained in this report with future analyses of provisions of the 1996 Farm Bill.

TLD, 7/8/96

Case Study of the Profitability of a South Dakota Farm Using the Integrated Farm Management Program

Introduction

This case study was conducted as part of an analysis to determine if economic incentives offered as part of the 1990 Farm Bill and existing programs such as the Agricultural Conservation Program (ACP) would entice producers to adopt changes and practices that are more environmentally friendly.

The Big Sioux Aquifer (BSA) is a shallow aquifer that lies in Eastern South Dakota. Because of the shallowness of this aquifer and its critical importance to the area, a USDA designed "Water Quality Demonstration Project Area" was created. This project promotes the voluntary usage of Best Management Practices (BMPs) to improve and protect the water in the aquifer.

Three programs were created in the 1990s to address problems associated with environmentally sensitive areas in agriculture. The 1990 Farm Bill created a pilot program called Integrated Farm Management (IFM). This program is a voluntary commodity-based program, developed to give farmers flexibility in developing diverse, resource-conserving crop rotations.

Another program also was authorized as part of the 1990 Farm Bill--the Water Quality Incentive Program (WQIP). The WQIP, focused specifically on water quality and is similar to a third, more broadly based Integrated Crop Management (ICM) program. The ICM is offered by the Agricultural Conservation and Stabilization Service (ASCS) under the existing Agriculture Conservation Program (ACP). ICM and WQIP incorporate pest and nutrient management, crop selection and rotation, and conservation measures into comprehensive management programs.

Producers who are eligible to participate in the ICM or the WQIP may develop a single farm plan that meets the terms of both the IFM program and either the ICM or WQIP. They will then be eligible to receive benefits of both programs.

This report uses data collected from one of five case farms in eastern South Dakota used for analyses of ICM, WQIP, or IFM participation. The data used in this report was collected from Case Farm No. 5, which was enrolled only in the IFM program.

Description of Case Farm

Case Farm No.5 is located in Minnehaha County, in southeastern South Dakota. The operation consisted of 720 acres in 1993. Of the 720 acres, 420 were enrolled in the IFM program; 365 acres of the 420 acres enrolled were being managed organically. This

allowed the products from those acres to qualify for organic price premiums when marketed. The remaining 55 acres (of the 420 in IFM) consist of pasture and farmstead area. All of the organically managed land has irrigation available from a center pivot system. The crops receiving irrigation are corn, soybeans, and alfalfa. The 365 acres of organic crop land is what was used in the economic modeling. The soils on this land consist of silt loam and silty clay loam. In this paper, the 365 acres modeled are called the "farm", "land", or "whole farm".

This land is kept in a highly diverse rotation. Corn and soybeans are planted using conventional tillage methods and practices. Alfalfa and sweet clover are planted using oats as a nurse crop. When the oat nurse crop is ready to be harvested, the oats are swathed and then combined. The remaining oat straw is baled and sold. Both the alfalfa and sweet clover are allowed to continue growing. In the spring of the next year the sweet clover is worked under to prepare for the next crop to be planted in the rotation. The alfalfa is kept as a hay crop and harvested for the next 3 years.

The 365 acres are broken into eight different parcels. Because, of the need to keep soil fertility up without the use of chemical fertilizers, a highly diverse rotation schedule is used for each parcel. The following table (Table 1) shows the name of the parcel, its total acreage, the rotation length in years, and the crop rotation used on the parcel. At the bottom of the table there is a key to decipher what the letters mean in the crop rotation column.

Table 1. Crop Rotations

Parcel Name	Total acres in parcel	Length of rotation in years	Crop Rotation
A	27.85	10	O/A,A,A,A,S,C,O/SC,S,O/SC,C
B	27.85	10	O/A,A,A,A,S,C,O/SC,S,O/SC,C
C	47.70	10	O/SC,S,O/SC,S,C,O/SC,S,O/SC,S,O/SC
D	46.70	10	O/A,A,A,A,S,C,O/SC,S,O/SC,C
E	35.80	10	C,O/SC,C,O/SC,O/A,A,A,A,C,O/SC
F	77.65	2	C,S (O/SC 1 yr. in 20 yrs.)
G	77.65	2	C,S (O/SC 1 yr. in 20 yrs.)
H	24.70	10	O/SC,S,O/SC,S,O/A,A,A,A,S,O/SC

Total ac. 365.90 (Due to rounding elsewhere, we refer to 365 acres in the text.)

Crop Rotation Key:

A = Alfalfa
C = Corn
S = Soybeans
O/SC = Oats and Sweet Clover
O/A = Oats and Alfalfa

Because of the diverse rotation for each parcel, the following table is used to show the annual average acres of each crop planted on each parcel. Those crops that were not planted on a certain parcel are designated N/A (Not Applicable). At the bottom of the chart is the total whole farm acreage for each crop.

Table 2. Crop Acres Planted in Each Parcel to Each Crop

Parcel Name	Total Acres	Acres planted to the following crops: Corn	Soybeans	Alfalfa	Oats/Sweet Clover	Oats/Alfalfa
Parcel A	27.85	5.57	5.57	8.35	5.57	2.79
Parcel B	27.85	5.57	5.57	8.35	5.57	2.79
Parcel C	47.70	4.77	19.08	N/A	23.85	N/A
Parcel D	46.70	9.34	9.34	14.01	9.34	4.67
Parcel E	35.80	10.74	N/A	10.74	10.74	3.58
Parcel F	77.65	34.94	38.825	N/A	3.88	N/A
Parcel G	77.65	34.94	38.825	N/A	3.88	N/A
Parcel H	24.70	N/A	7.41	7.41	7.41	2.47
Total*	365.90	106.00	124.00	49.00	70.00	16.00

* The individual crop acre totals are rounded to whole numbers, for a working total of 365 acres.

Crop budgets were generated using a program called CARE (Cost and Return Estimator). All machinery operations, inputs, etc. were entered into CARE. The results from the crop budgets generated by CARE were then entered into special spreadsheets to show economic performance for each crop grown on the farm and the total economic performance of the whole 365 organic crop acres of this farm.

Two crop pricing systems were used--one with organic prices and the other with nonorganic prices. The organic prices were based on crop prices received by the grower for the marketing of the 1993 crop (Appendix Table B-1).

The nonorganic pricing system was based on estimated local cash markets for the 1993 marketing year (Appendix Table B-1). By using both organic and nonorganic prices, profitability results are shown with and without the organic premiums.

Appendix Tables C-1 and C-2 show crop budget summaries by crop and on a whole-farm (365 acres) basis. Appendix Table C-1 shows costs and returns of crops using organic prices. Appendix Table C-2 shows the same information as Appendix table C-1, but uses nonorganic prices as the sale prices.

At the top of each table are the names of the crops. Oats 1, 2, 3, 4, 5, and 6 and Alf 1, 2 and 3 each have particular meanings that will be explained in the IFM program options and assumptions section of this report.

The first row of data shows the number of acres planted to each crop in a typical year. The next row shows the expected per-acre yield of each crop in a typical year. The row following that shows the per acre amount of Federal farm program deficiency payments received for each crop. Total receipts (in the next row) result from multiplying the yield per acre times the sale price and adding the government deficiency payment received (if any). Miscellaneous income, such as from the sale of baled corn stalks and oat straw, is also added into total receipts.

Operating and ownership costs were obtained from the CARE program. Earnings per acre are indicated by "net returns to land and management". Net returns to land and management are obtained by taking total receipts and subtracting operating and ownership costs. At the bottom of the table are total crop returns; in other words, the last row shows net returns for the total acres in each crop.

Some crops receive irrigation and some do not. Appendix Table D-1 shows the total amount applied in inches to each crop receiving irrigation for a typical growing season and the number of times the crop is irrigated.

IFM Program Options and Assumptions

The Integrated Farm Management (IFM) program option is a voluntary commodity program with a flexible option designed to help producers in adopting more sustainable farming systems. Deficiency payments for crops such as corn, wheat, and oats are paid to produces on acres planted to Resource-Conserving-Crops (RCCs) just as if the program crop had been planted. The IFM program also allows some harvesting on set-aside acres.

Acres enrolled in the Acreage Reduction Program (ARP) planted to a grain/legume mixture may be hayed or grazed any time after the small grain has been harvested in kernel form. An example is if a producer planted oats and sweet clover together. After the oat crop was harvested by combining, the producer could graze livestock on the oat stubble and clover that grew with the oats. Or, instead of grazing livestock on the harvested oat/clover field, the producer could cut the clover and oats that have regrown for hay. Set-aside acres may also be harvested if planted to RCCs and special rules are followed. These special rules are:

- -haying or grazing may be done on up to half the acres anytime.
- -if the producer planted a small grain/legume mixture that contained a small grain other than wheat, oats or barley; they may hay or graze the set-aside acreage after the small grain has been harvested in kernel form.
- -the producer can also grow forages and cover crops for seed to use or to market for sale.

Case Farm No. 5 uses the IFM program to help take advantage of growing resource conserving crops such as legumes. By participating in the IFM program, base acres are protected. Those acres planted to RCCs are treated as if the program crop were planted.

The total base acres allowed on the 365 acres are 174 acres of corn, 41 acres of oats, and 27 acres of wheat. After subtracting a 10% set-aside, a 15% mandatory flex, and 10% optional flex, the number of acres left for corn deficiency payments are 114. The payable oat base is computed by subtracting a 15% mandatory flex and a 10% optional flex. Thirty-one oat base acres are available for possible deficiency payments. The wheat base has a 15% mandatory flex and a 10% optional flex. After accounting for both flex acreage and "Traditionally Under-planted Acres" (TUAs), no wheat acreage is available for deficiency payments. The acres eligible for deficiency payments are as follows: 113 acres for corn and 31 acres for oats.

In a typical year, Case Farm No. 5 grows an oat/legume mixture on oat fields 1 through 6. Oats 1 and 4 are planted to RCC crops. Because the crop mixture in these two fields is considered an RCC crop, both fields can be paid deficiency payments eligible to

another crop. The rules in the IFM program state that deficiency payments such as those for corn can be applied to acres used to grow RCCs.

Oats 1 and 4 receive the residual corn deficiency payments left over after subtracting the corn acres planted from the total payable corn acres. Oats 1 and 4 split the 8 remaining corn acres in half. Oats 1 is an oats/alfalfa mix, while Oats 4 is an oats/sweet clover mix.

Oats 2 is an oats/alfalfa mix that receives no deficiency payments. Oats 5 also does not receive any deficiency payments. Oats 5 is an oats/sweet clover mix. Oats 2 and 5 are considered flex and RCC acres. Oats 3 is an oats/alfalfa mix that could receive oats deficiency payments. Oats 6 is a mix of oats and sweet clover, and could also qualify for oats deficiency payments. However, Oats 3 and 6 did not receive oats deficiency payments in the study year because the market price was equal to the target price of $1.45.

Alfalfa 1 thru 3 received no payment of any kind. Alfalfa 1 consists of those acres that are just 1 or 2 years into their production life. Alfalfa 2 acres are in their last year of production. When comparing Alfalfa 1 to Alfalfa 2 (Appendix Table C-1), there is a $ 17.66 difference in the net returns to land and management. This difference is because of the operating and ownership costs of the tillage operation figured into the alfalfa 2 budget at the end of the year. This tillage is to turn under the Alfalfa after the last harvest operation.

Alfalfa 3 is kept strictly for set-aside. The only machinery operations used on Alfalfa 3 are mowing to control weeds and harvesting for hay after the middle of September. It is assumed that the value of the hay harvested at this time is equal to the cost of harvesting and of mowing to control weeds earlier in the growing season.

Case Farm No. 5 also uses the IFM program to protect its crop base and yield base. By participating in the IFM program, the base acres the farmer plants to RCCs will be treated in the future just as if the producer had planted the program crop. The yield base also is protected. Program payment yields cannot be reduced even if a decline in crop yields is experienced due to the new cropping system. The yields used to calculate payments while enrolled in IFM and after exiting IFM are what they were before enrolling in the IFM program. (Note: Payment yields have been frozen at 1985 levels for some time now.)

Baseline Analysis

Economic analysis of Case Farm No. 5 shows total crop returns for the whole farm at $98,881 (Appendix Table C-1). The crop sale

prices used here include organic premium prices. Nonorganic prices yielded total crop returns for the whole farm of $31,937 (Appendix Table C-2). Federal payments received under this option were corn and oat deficiency payments. Corn deficiency payments amounted to $7,638. There were no oat deficiency payments received because the market price was equal to or above the target price of $1.45. These baseline results were then compared with results derived from other policy assumptions.

Policy Analysis

Because of changing government policy and the call for government to reduce crop subsidy payments and involvement in agriculture, three different options were examined. These options were analyzed during 1995. They were related because of budgetary and other political pressures at the Federal level.

To aid in understanding the policy analysis, Table 3 has been created. On the left-hand side are shown the different policy options analyzed. The Baseline is the current policy (as of 1995) which has deficiency payments and set-aside requirements. Option 1 analyzes what whole farm net returns would be if there were no deficiency payments but set-aside acreage was still required at the same level as in the baseline policy.

Under Option 2, there are no deficiency payments and no set-aside acres. Alfalfa, Corn, Soybeans, and Oats appear as sub options. These sub options pertain to placing all the former set-aside acres into one or the other of these four crops.

Option 3 is just like Option 2 in that former set-aside acreage is assumed to be planted to one or the other of these four crops. However, under this option, deficiency payments are received. The amount of the deficiency payment received under this option remains the same as in the baseline option. The addition of the set-aside acreage does not change the deficiency payment received under Option 3.

The first column of data in Table 3 shows what total whole farm net returns would be under each option or sub option if prices included organic premiums. The next column shows those whole farm net returns on a per acre basis. The last two columns show total whole farm net returns and whole farm net returns on a per acre basis when the crop prices are without organic premiums.

Option 1: No deficiency payments but set-aside acres

This analysis eliminates all deficiency payments. As an example, corn and oat deficiency payment acres are eliminated. All other assumptions made in the baseline system are the same in this option. The amount of the deficiency payment is $67 per acre on 114 acres of eligible corn base, or $7,638 for the whole farm. Oat

Table 3. Net Returns for Various Options

Policy Option	Organic Premium Assumptions			
	With Premiums		Without Premiums	
	Total Whole Farm Net Returns	Whole Farm Net Returns Per Acre	Total Whole Farm Net Returns	Whole Farm Net Returns Per Acre
Baseline (current policy)*	98,881	271	31,937	87
Option 1 (no deficiency payments but set-aside acres)	91,243	250	24,299	67
Option 2 (no deficiency payments) Set-aside acres planted to:				
Alfalfa	91,886	252	24,942	68
Corn	93,991	258	24,824	68
Soybeans	94,318	258	24,674	68
Oats	93,330	256	25,270	69
Option 3 (deficiency payments) Set-aside acres planted to:				
Alfalfa	99,524	273	32,580	89
Corn	101,629	278	32,462	89
Soybeans	101,956	279	32,312	89
Oats	100,968	277	32,908	90

* Current (as of 1995) policy of paying deficiency payments on eligble crops and allowable acres, using IFM program options. Under the IFM program, this farm was required to set aside 9 unharvested acres.

deficiency payments were zero because the market price was equal to the target price.

Whole farm net returns with organic price premiums would total $91,243, or $250 per acre (Table 3).

Whole farm returns without organic price premiums would total $24,299, or $67 per acre (Table 3).

Option 1 ranks the lowest of any of the options. In per acre net returns, it is $29 less than the top paying option, which was Option 3 with soybeans being grown on the set-aside acreage. It is $21 less than the baseline.

Option 2: No deficiency payments and no set-aside acres

In the baseline, $67 per acre is received on 114 acres of eligible corn base, for a total of $7,638. Also, 9 acres is allocated as set-aside acres. This acreage is Alfalfa 3. This option looks at ending deficiency payments and ending the requirement that some acres be idled each year to serve as set-aside. In this option, those set-aside acres (Alfalfa 3 in the baseline) are planted to alfalfa, corn, soybeans, or oats and harvested.

With the 9 acres planted to alfalfa, whole farm net returns with organic price premiums would total $91,886 or $252 per acre. Whole farm net returns with no organic price premiums would total $24,942 or $68 per acre (Table 3).

If the 9 acres of former set-aside were planted to corn, using premium prices, whole farm net returns would increase by $2,748, relative to Option 1. Using nonpremium prices, whole farm net returns would increase by $525 (Table 3).

If the set-aside acres were planted to soybeans, whole farm net returns would increase by $3,075 under organic premium prices and only $375 for nonpremium prices, relative to Option 1.

Oats planted on the set-aside acres and sold at premium prices would increase whole farm net returns by $2,087, relative to Option 1. If the oats were sold at nonorganic premium prices, whole farm net returns would increase by $971.

Within this option, planting the set-aside to soybeans yields the highest total whole farm net returns-- followed by corn, oats, and alfalfa--when premium prices are obtained.

The order of profitability changes when premium prices are not used. With this price scenario, oats comes out on top--followed by alfalfa, corn, and soybeans. The change in crop order by total whole farm net returns can be explained as follows.

This comparison examines the named crops' net returns when priced at premium and nonpremium prices. The following criteria control this net return analysis. Only the mentioned crop's prices are being changed. Net returns per acre are only for the mentioned crop and compare per acre net returns using premium prices and per acre net returns using nonpremium prices.

For soybeans the difference between the premium and nonpremium price is $7.50/bu. The difference for corn is $1.50/bu., while the price difference for oats is $1.55/bu. Alfalfa's price is the same on the premium and nonpremium market.

Going from premium priced to nonpremium priced soybeans, the net returns fall by $300 per acre planted to soybeans. Net returns for corn fall by $180 per acre and oats by $124 per acre when premium prices are removed. In looking at the drop in net returns on a per acre basis, clearly the oats sub option loses the least amount of value, other than alfalfa, when organic premiums are removed. Even with the loss of organic premium value, oats still retains enough net returns to put it ahead of the alfalfa sub option. The drop in both corn and soybeans net returns place them below oats and alfalfa.

The ranking of oats and alfalfa when compared to corn and soybeans comes as a surprise when non premium prices are used and no deficiency payments are paid. These two crops have sometimes been considered as low-pay or break-even crops, and were only planted for rotational purposes or because the farmer had some livestock that needed forage.

Option 3: Deficiency payments and no set-aside acres

In this option, deficiency payments were determined the same way as in the baseline policy option. There are 114 acres of corn base and 31 acres of oat base. The only base acres that are receiving deficiency payments are the corn acres because market prices are below target prices for that crop. The thing that makes this option different from the baseline option is that it has no mandatory set-aside requirements. The set-aside acres are planted to one of the following four sub option crops : alfalfa, corn, soybeans, or oats. Table 3 shows what whole farm net returns would be for Option 3 on a total net return and a per acre basis, for prices with and without organic premiums.

When the whole farm net returns are examined under this policy option, the ranking of the sub options is the same as in Option 2. The only difference between Option 2 and Option 3 is $7,638, which is the amount of the deficiency payment received in Option 3.

When ranking all the options by highest whole farm net returns, Option 3 is the number one option. In this option the lowest total whole farm net returns sub option is soybeans with no

premiums; when compared to any other option, that is $375 higher than the next highest option-- the baseline policy option. There is an $8,013 difference between Option 3's lowest sub option-- soybeans with no premium-- and the lowest option, Option 1.

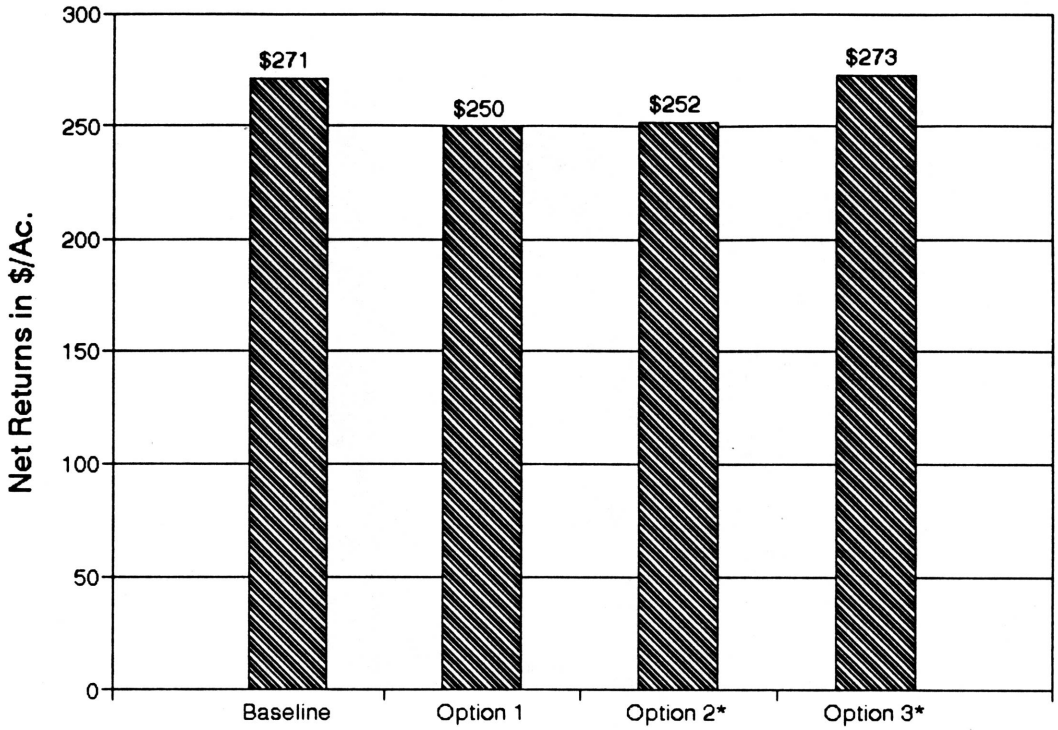
Summary

The IFM program is a complex program and the simple explanation given here about the program is just a quick overview. The program has some good features for those producers who want to try to adopt more environmentally friendly cropping systems. It also provides incentives to producers to experiment with nontraditional crops.

As the data showed (Table 3), Option 3 with the former set-aside acres planted to soybeans yielded the highest whole farm net returns using organic prices, while oats yielded the highest using non-organic price assumptions. The next most profitable option after Option 3 is the baseline, or current (as of 1995), policy option.

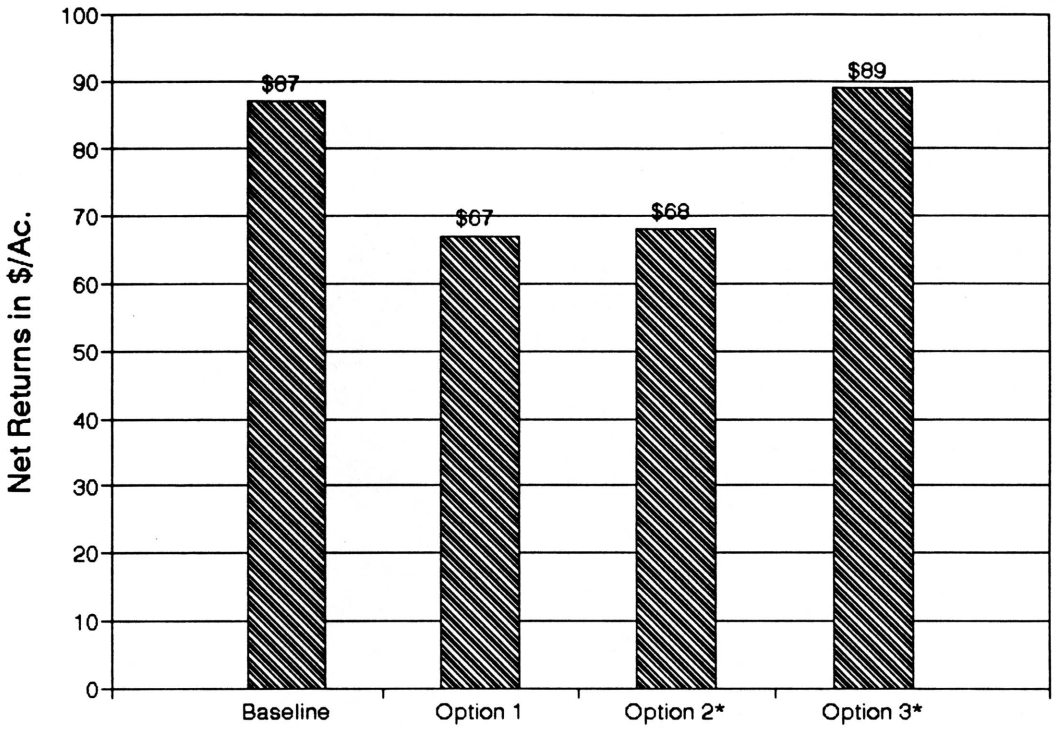
Figures 1 and 2 compare the different options. Figure 1 show's how the options would compare with organic premium prices, and Figure 2 shows how the options would compare without such premium prices. In the options where there are no set-aside acres, it is assumed that the set-aside acres are planted to alfalfa. As we saw in Table 3, both figures show that Option 1 has the lowest net returns per acre, while Option 3 has the highest.

Fig. 1 Policy Analysis: Case Farm No.5 With Organic Price Premiums



* Net returns are based on alfalfa being planted and harvested on on the former set-aside acres.

Fig. 2 Policy Analysis: Case Farm No.5 With No Organic Price Premiums



* Net returns are based on alfalfa being planted and harvested on the former set-aside acres.

Appendix A. Additional Explanations

At the start of this study, the operator of Case Farm No.5 was interviewed about tillage practices used and yields of the crops s/he raised. The information obtained from this initial interview was used to formulate crop budgets, set-aside acreage, and crop rotations. The initial interview took place in February of 1994. Follow-up interviews were conducted in the spring of 1995 to verify information obtained and to compare the yields obtained in 1994 with what was used in our budgets as "typical" yields.

Because soil moisture levels were higher in 1994 than in a typical year, yields that year were higher than what we estimated for a "typical" year. Our yields were based on "typical" year yields for the type of soils that made up our model farm. Alfalfa yielded 5 tons per acre in 1994, compared to our estimate of 4 tons. Oats yielded 55 bushels per acre in 1994, compared to our estimate of 80 bushels per acre. Corn yielded between 135 and 140 bushels per acre in 1994, while soybean yields averaged 43 to 45 bushels per acre in 1994. Our estimated "typical" year yields were 120 bushels per acre for corn and 40 bushels per acre for soybeans.

Because of the high soil moisture and the unknown amount of rainfall received at Case Farm No. 5, it is not known if the amount of irrigation water used in 1994 was lower than the amount budgeted for in our "typical" year budgets. The floods of 1993 created soils with very high levels of soil moisture going into the 1994 planting and growing season, so irrigation was likely less than normal in 1994.

Appendix Table B-1 Organic and Nonorganic Prices for Major Crops on Case Farm No. 5

Crop:	Organic Price in $/bu.	Nonorganic Price in $/bu.
Corn	$3.50	$2.00
Soybeans	$13.00	$5.50
Oats	$3.00	$1.45
Alfalfa $/ton	$55.00	$55.00

Appendix Table C-1. Whole Farm Budget Spreadsheet with Organic Premiums

	CROPS											
	Corn	Soybeans	Oats 1	Oats 2	Oats 3	Oats 4	Oats 5	Oats 6	Alf 1	Alf 2	Alf 3	WHOLE FARM
Units	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Tons	Tons	Tons	
Acres	106	124	4	8	4	4	39	27	24	16	9	365
Yield/ac	120	40	80	80	80	80	80	80	4	4	0	
Defc. Pmts./ac	$67.00	$0.00	$67.00	$0.00	$0.00	$67.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Total Receipts* ($/acre)	$487.00	$520.00	$387.00	$320.00	$320.00	$387.00	$320.00	$320.00	$220.00	$220.00	$0.00	
Operating Costs ($/acre)	$148.85	$138.95	$51.83	$51.83	$51.83	$36.21	$36.22	$36.22	$46.22	$53.66	$0.00	
Net Returns to Land & Management ($/acre)	$305.33	$341.67	$298.89	$231.89	$231.89	$314.51	$247.51	$247.51	$71.48	$53.82	$0.00	
Total Crop Returns ($/crop)	32,365	42,367	1,196	1,855	928	1,258	9,653	6,683	1,716	861	0	98,881

* Total receipts for the oat crops also include the value of the baled oat straw.

Appendix Table C-2. Whole Farm Budget Spreadsheet Without Organic Premiums

	CROPS											
	Corn	Soybeans	Oats 1	Oats 2	Oats 3	Oats 4	Oats 5	Oats 6	Alf 1	Alf 2	Alf 3	WHOLE FARM
Units	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Tons	Tons	Tons	
Acres	106	124	4	8	4	4	39	27	24	16	9	365
Yield/ac	120	40	80	80	80	80	80	80	4	4	0	
Defc. Pmts./ac	$67.00	$0.00	$67.00	$0.00	$0.00	$67.00	$0.00	$0.00	$0.00	$0.00	$0.00	
Total Receipts* ($/acre)	$307.00	$220.00	$263.00	$196.00	$196.00	$263.00	$196.00	$196.00	$220.00	$220.00	$0.00	
Operating Costs ($/acre)	$148.85	$138.95	$51.83	$51.83	$51.83	$36.21	$36.22	$36.22	$46.22	$53.66	$0.00	
Net Returns to Land & Management ($/acre)	$125.33	$41.67	$174.89	$107.89	$107.89	$190.51	$123.51	$123.51	$71.48	$53.82	$0.00	
Total Crop Returns ($/crop)	13,285	5,167	700	863	432	762	4,817	3,335	1,716	861	0	31,937

* Total receipts for the oat crops also include the value of the baled oat straw.

Appendix Table D-1. Net Irrigation Application Depths (Inches) and Frequency of Application for Different Crops

Crop	Number of Times Irrigation Used	Total of all Irrigation Water Applied During Season (in.)
Corn	6	7.2
Soybeans	4	4.8
Alfalfa	5	4