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Implications of a Mandatory Supply Control Program for Sustainable Agriculture in South Dakota

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IMPLICATIONS OF A MANDATORY SUPPLY CONTROL PROGRAM FOR SUSTAINABLE AGRICULTURE IN SOUTH DAKOTA

by

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Preface

This is one of a series of reports by the authors on implications for "conventional" and "sustainable" farming systems of various public policy options. Previously released was a report by Dobbs, Becker, and Taylor (1990) which provided an overview of the implications of several policy options. The present report focuses specifically on **mandatory supply controls**. A future report will deal with the implications of **flexibility** and **triple base** policy options.

The research leading to this series of sustainable agriculture policy reports is funded by the South Dakota State University (SDSU) Agricultural Experiment Station and by Grant No. 88-56 from the Northwest Area Foundation (in St. Paul, MN). Appreciation is extended to Larry Janssen and John Cole for reviewing a draft of this report.

DLB and TLD
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Introduction

Research on sustainable agriculture at South Dakota State University (SDSU) began in 1985. The Northwest Area Foundation (NWAF) in St. Paul, Minnesota provided a grant to SDSU in late 1988 to support research that focuses on the impacts of public policy options on sustainable and conventional farming systems in South Dakota. The results of applying four different policy options to five pairs of sustainable and conventional farms were recently reported by Dobbs, et al. (1990). Results of one of those four policy options -- the mandatory supply control program -- are explained in greater detail in this report.

A mandatory supply control program is designed to raise the price of a commodity by restricting the supply through mandatory means. The higher commodity price allows farm income to rise and government farm program outlays to decline.

Two examples of mandatory supply control programs are acreage controls and output controls. Acreage controls restrict supply of a commodity by limiting the number of acres that can be planted to that commodity. Output controls place limits on the amount of a commodity that can be produced or sold. Various versions of output controls have been proposed from time to time. Marketing certificates might be used to control the amount sold, but it is very difficult, if not impossible, to control the amount produced and fed on the same farm. For that reason, a combination of acreage and output marketing controls is sometimes proposed.

The mandatory supply control program analyzed in this report is an acreage control program. The assumptions for the program were adapted in part from the analysis of Senator Tom Harkin's "Save the Family Farm Act" in Knutson, et al.(1987). These assumptions will be explained later in the report.

In this report, the sustainable and conventional case farm

profitabilities are compared, first under a 1988 baseline and then a 1990 baseline. The mandatory supply control program assumptions are then explained. This is followed by the results of applying the mandatory supply control program to the case farms. The report concludes with a summary of the impact of a mandatory supply control program on sustainable agriculture.

Baseline Comparison of Conventional and Sustainable Farms

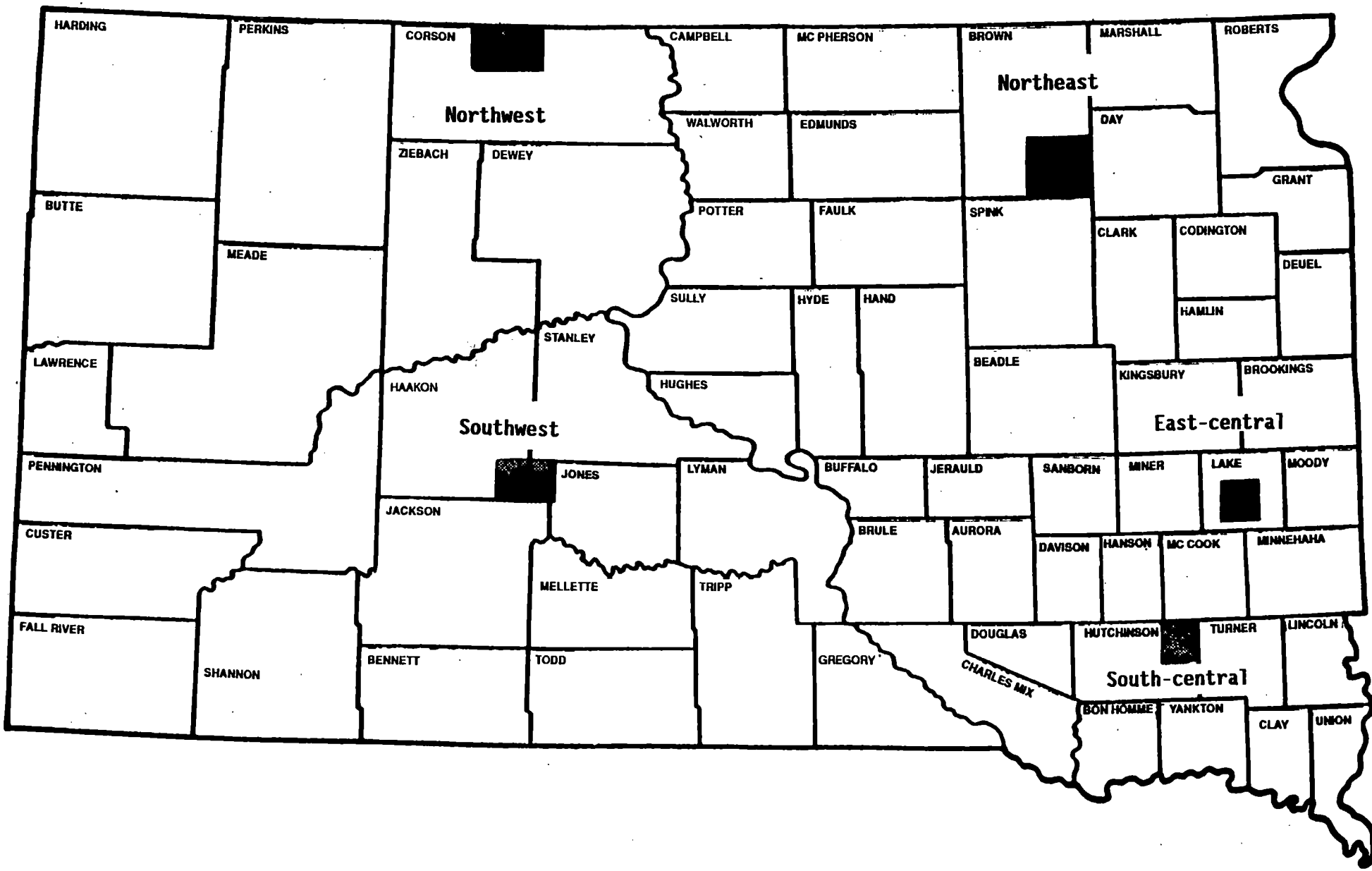
In this analysis, we will compare one sustainable and one conventional case farm from each of five different agroclimatic areas in South Dakota: south-central, east-central, northeast, northwest, and southwest areas. The approximate locations of these ten case farms are shown in Figure 1.

The five sustainable farms are actual operating farms. The operators of these farms responded to a mail survey and each participated in an on-farm interview. Information obtained during the on-farm interviews was used to develop crop enterprise and principal rotation budgets (Becker, et al., 1990). Additional findings from the mail survey and on-farm interviews were published in a series of reports (Taylor, et al., 1989a; Taylor, et al., 1989b; Dobbs, et al., 1989).

Of the five conventional farms, one is an actual operating farm (east-central area) and four are "synthetic". The "synthetic" farms are not actual farms; rather, they are hypothetical farms which are considered to be "typical" for each area. Crop enterprise and whole farm budgets for the "synthetic" farms were developed by interviewing key informants and reviewing Agricultural Census data and Soil Conservation and Cooperative Extension Service reports. Detailed information on these conventional case farms is reported in Cole and Dobbs (1990).

The conventional and sustainable farms in each area were compared under two sets of baseline conditions: 1988 and 1990. Two baselines were used in order to show the results under different Federal farm program requirements. The main differences between the 1988 and 1990 baselines are in the crop market prices, target prices, deficiency payments, loan rates, and acreage reduction requirements. (See Annex 1 for specific information on these differences.) Assumptions for crop yields, cultural practices, and input costs for each enterprise remained constant under the two baseline conditions. Value added from pasture and livestock was

Figure 1. Location of the case study farms in South Dakota



not included in the two baseline analyses.

"Expected" 1988 crop prices and deficiency payments were used in the 1988 baseline budgets. These prices were taken from Hoyt, et. al. (1989). Yields were based on growing conditions considered to be "normal". These price and yield assumptions were made because the drought in 1988 brought about lower crop yields and higher crop prices than normally would have occurred.

Projected 1990 crop prices, target prices, deficiency payments, and loan rates were taken from Iowa State University-University of Missouri Food and Agricultural Policy Research Institute (FAPRI) data (Center for Agricultural and Rural Development, 1989). Adjustments were made to this data to reflect South Dakota market and farm support price levels. The average difference between the United States price and South Dakota price during the period 1981 through 1988 for each respective commodity was the basis for the market price adjustment. National loan rates were also adjusted to reflect South Dakota levels.

Baseline economic results for 1988 are shown in Table 1. The results for each sustainable farm (except for the farm in the south-central area, which has no organic marketings) are shown without (w/o) and with (w) premiums for commodities marketed as "organically certified". See Becker, et al.(1990) for more information on organic marketing assumptions. The baseline economic results for 1990, ignoring any organic premiums, are shown in Table 2.

The conclusions drawn by Dobbs, et al. (1990) about the 1988 baseline comparisons also apply to the 1990 baseline comparisons. Those conclusions are summarized as follows:

-Direct costs are lower for the sustainable systems in all areas.

-Gross income is higher for the conventional systems in all areas.

-The conventional systems are more profitable than the sustainable systems in the south-central and east-central areas, where corn and soybeans make up large portions of conventional systems.

-There appears to be little difference in the profitability of sustainable and conventional systems in the northeast, northwest, and southwest areas.

Table 1. Baseline (1988) Economic Comparison of Conventional and Sustainable Farms in South Dakota

Farms, by Region and Type	Direct Costs Other Than Labor	Gross Income*	Net Income Over: All Costs Except Land, Labor, and Management	Net Income Over: All Costs Except Land and Management	Net Income Over: All Costs Except Management
	$/Acre				
South-central					
Conventional	63	174	77	65	27
Sustainable w/o Organic Premiums	36	129	62	50	12
Sustainable w Organic Premiums	NA	NA	NA	NA	NA
East-central					
Conventional	79	214	106	99	63
Sustainable w/o Organic Premiums	39	129	61	50	14
Sustainable w Organic Premiums	39	134	66	55	19
Northeast					
Conventional	46	96	23	15	-11
Sustainable w/o Organic Premiums	24	64	18	11	-14
Sustainable w Organic Premiums	24	72	27	19	- 6
Northwest					
Conventional	29	50	1	- 6	-21
Sustainable w/o Organic Premiums	27	47	2	- 2	-18
Sustainable w Organic Premiums	27	50	6	1	-14
Southwest					
Conventional	27	78	32	25	8
Sustainable w/o Organic Premiums	23	70	29	23	6
Sustainable w Organic Premiums	23	76	35	29	12

NA = Not Applicable

*For organic premium details, see information for the following farming systems on pp. 77-79 of Becker, et al. (1990): East-central, Rotation H; Northeast, Rotation S; Northwest, Rotation V; and Southwest, Rotation T.

Sources: Becker, et al. (1990) and Cole and Dobbs (1990)

Table 2. Baseline (1990) Economic Comparison of Conventional and Sustainable Farms in South Dakota

Farms, by Region and Type	Direct Costs Other Than Labor	Gross Income	Net Income Over All Costs Except Land, Labor, and Management	Net Income Over All Costs Except Land and Management	Net Income Over All Costs Except Management
	$/Acre				
South-central					
Conventional	67	165	64	51	14
Sustainable w/o Organic Premiums	36	106	40	28	-10
East-central					
Conventional	90	204	84	76	41
Sustainable w/o Organic Premiums	42	130	56	44	9
Northeast					
Conventional	51	103	22	13	-12
Sustainable w/o Organic Premiums	24	60	14	7	-19
Northwest					
Conventional	30	51	0	- 8	-23
Sustainable w/o Organic Premiums	26	43	0	- 5	-20
Southwest					
Conventional	27	74	28	22	5
Sustainable w/o Organic Premiums	23	69	28	22	5

When organic premiums are included under the 1988 baseline, the sustainable systems in the northern and western wheat areas appear to be more profitable (or less unprofitable) than the conventional systems in those areas.

Supply Control Assumptions

Profitabilities of the sustainable and conventional farms under the 1988 and 1990 baselines are each compared to profitabilities under a mandatory supply control program. As stated earlier, the mandatory supply control program analyzed in this report is an acreage control program. The assumptions used in our analysis were adapted from the macroeconomic analysis of Senator Tom Harkin's "Save the Family Farm Act" by Knutson, et al.(1987).

Price Supports

Minimum price supports, in the form of loan rates, were set at 70 percent of parity in 1988. These prices would increase by 1 percentage point each year until the year 2000. Therefore, the 1990 price supports were set at 72 percent of parity. Program crops receiving support prices are corn, wheat, oats, barley, grain sorghum, and soybeans. Prices for non-program crops (millet, buckwheat, flax, and alfalfa) remained constant at baseline levels throughout the analysis. There are no target prices or deficiency payments under this supply control program.

Market prices for program crops were taken from the analysis by Knutson, et al. (1987) and adjusted to reflect South Dakota prices. Since prices for oats and barley were not reported in Knutson, et al. (1987), we reviewed parity price data from the United States Department of Agriculture (USDA) to develop prices for oats and barley (USDA, 1988). Market prices were assumed to be equal to the loan rates.

Mandatory Acreage Reduction

A mandatory acreage reduction requirement of 33 percent of the base acreage for all program crops, including soybeans, was used in an attempt to counter production incentives brought on by the high support prices and to maintain market prices at the parity support levels. No acreage reduction requirements were established for non-program crops.

Senator Harkin's bill contained a production control provision whereby producers can only market commodities for which they have marketing certificates. This provision was not included in our analysis.

Differences Between 1988 and 1990 Assumptions

The only difference in the assumptions between the 1988 and 1990 mandatory supply control program was in the support prices for program crops. Prices for non-program crops remained constant at baseline levels. The mandatory acreage reduction requirement remained at 33 percent for all program crops (see Annex 1).

Acreage Shifts

The 1988 and 1990 mandatory supply control programs cause acres devoted to program crops to decline and set-aside acres to increase, when compared to their respective baselines. In the wheat and fallow areas (northeast, northwest, and southwest), a non-program crop (e.g., sudan grass or millet) may be added to the rotation in order to keep the proper balance of cropland and fallow. For example, the sustainable farmer in the northwest area tries to maintain equal proportions of harvested cropland and summer fallow each year. However, applying the 33 percent mandatory acreage reduction to the program crops resulted in an imbalance between harvested cropland and summer fallow. The assumption was made that millet would be planted on the excess fallow -- i.e., on the number of acres necessary to correct the imbalance and still be in compliance with Federal farm program requirements.

The criteria used in determining which crop to grow included whether or not other farmers in the area were growing the crops, the crops' ability to fit into particular rotations, and profitability of the crops.

In some cases, the farmer was unable to plant all of his permitted acres (permitted acres equal the base acres minus the set-aside acres) in the baseline and supply control situations. This occurred when the farmer had a large acreage base but wanted to maintain his crop rotation. For example, the sustainable farm in the east-central area did not plant all of his permitted acres of corn and oats (in the baseline and supply control), in order to include the desired amount of alfalfa in his crop rotation.

Policy Analysis Results

The assumed 1988 and 1990 mandatory supply control crop prices for program crops are quite high in comparison to their respective baseline levels. See Annex 1 for market price information.

These higher crop prices result in an increase in net farm income for both the conventional and sustainable farms, when compared to the baseline (Figures 2-6). However, the magnitude of the increases are greater for the conventional farms. Profits increase by an average of $19/acre for the five conventional farms, compared to $6/acre for the five sustainable farms, in 1988; average increases are $47/acre for the five conventional farms, compared to $25/acre for the five sustainable farms, in 1990. (See Annex Tables 1-6 through 1-10 for economic results of 1988 and 1990 baseline and supply control options.) There appear to be two primary reasons for the greater profitability of the conventional farms under the supply control option.

First, the conventional systems generally have a greater proportion of their acres devoted to program crops or those crops which benefit from the high supply control support prices. The sustainable systems have a larger proportion of their acres planted to non-program crops. (Recall that prices for non-program crops were assumed not to change under the supply control options.)

Second, the conventional systems experience a greater reduction in total direct costs under the supply control option. Direct costs decline by an average of $6/acre on the conventional farms, compared to $2/acre on the sustainable farms, in 1988; average declines are $10/acre on the conventional farms, compared to $3/acre on the sustainable farms, in 1990. The reason for this is that the supply control option reduces the number of acres planted to program crops and increases the number of acres of set-aside. The conventional systems' program crop acres are costly to farm because of the use of chemical fertilizers and herbicides. When reducing program crop acres and increasing set-aside acres, the conventional farms experience substantial declines in total direct costs, because there are fewer acres that require chemical fertilizers and herbicides. The declines in direct costs in the sustainable systems are not as great because few or no chemical fertilizers and herbicides are used on those farms. This combination of a larger proportion of acreage in crops which receive the high support prices and a larger reduction in total

Figure 2.

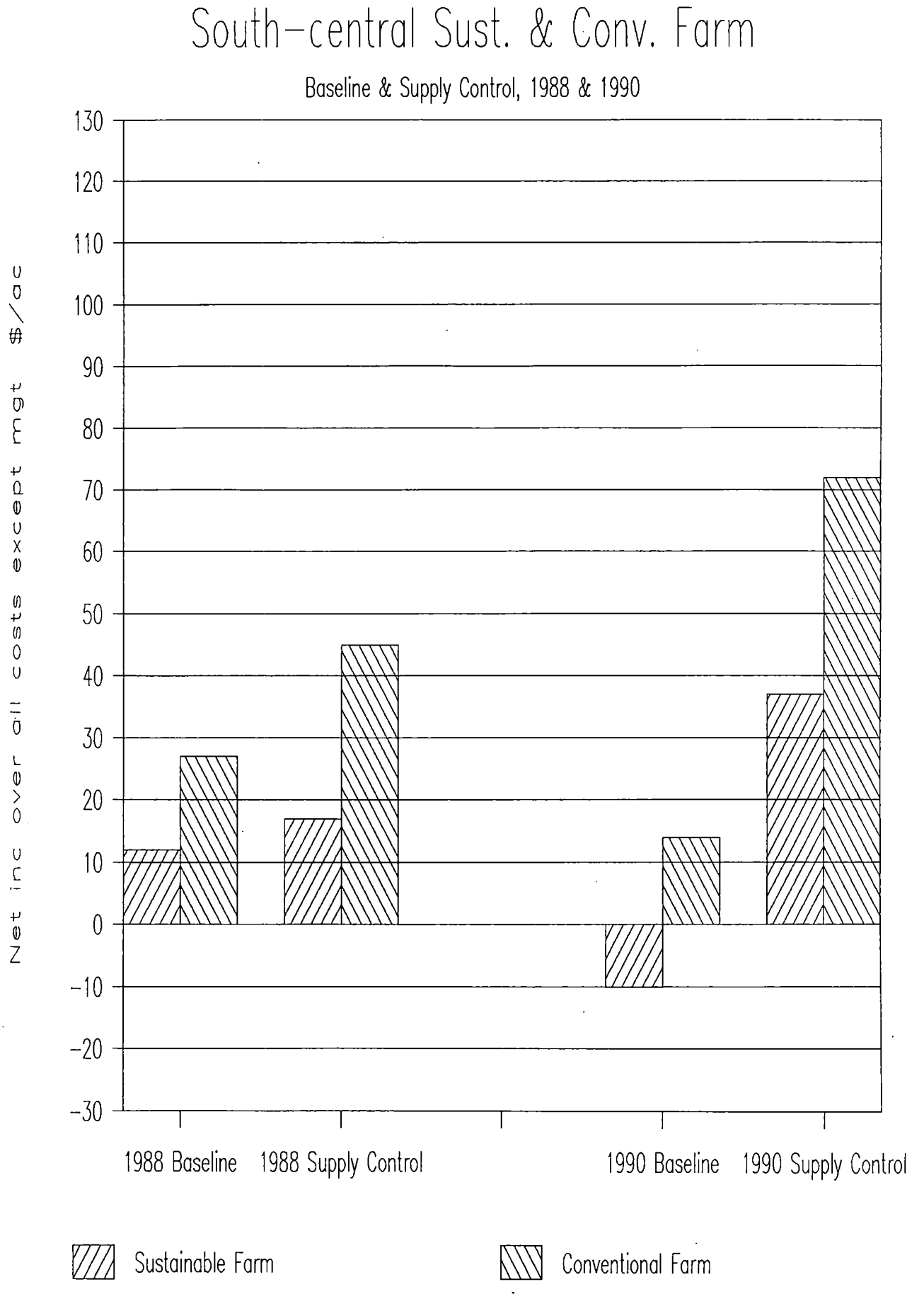

South-central Sust. & Conv. Farm
Baseline & Supply Control, 1988 & 1990
Net inc over all costs except mgt $/ac
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
1988 Baseline
1988 Supply Control
1990 Baseline
1990 Supply Control
Sustainable Farm
Conventional Farm

Figure 3.

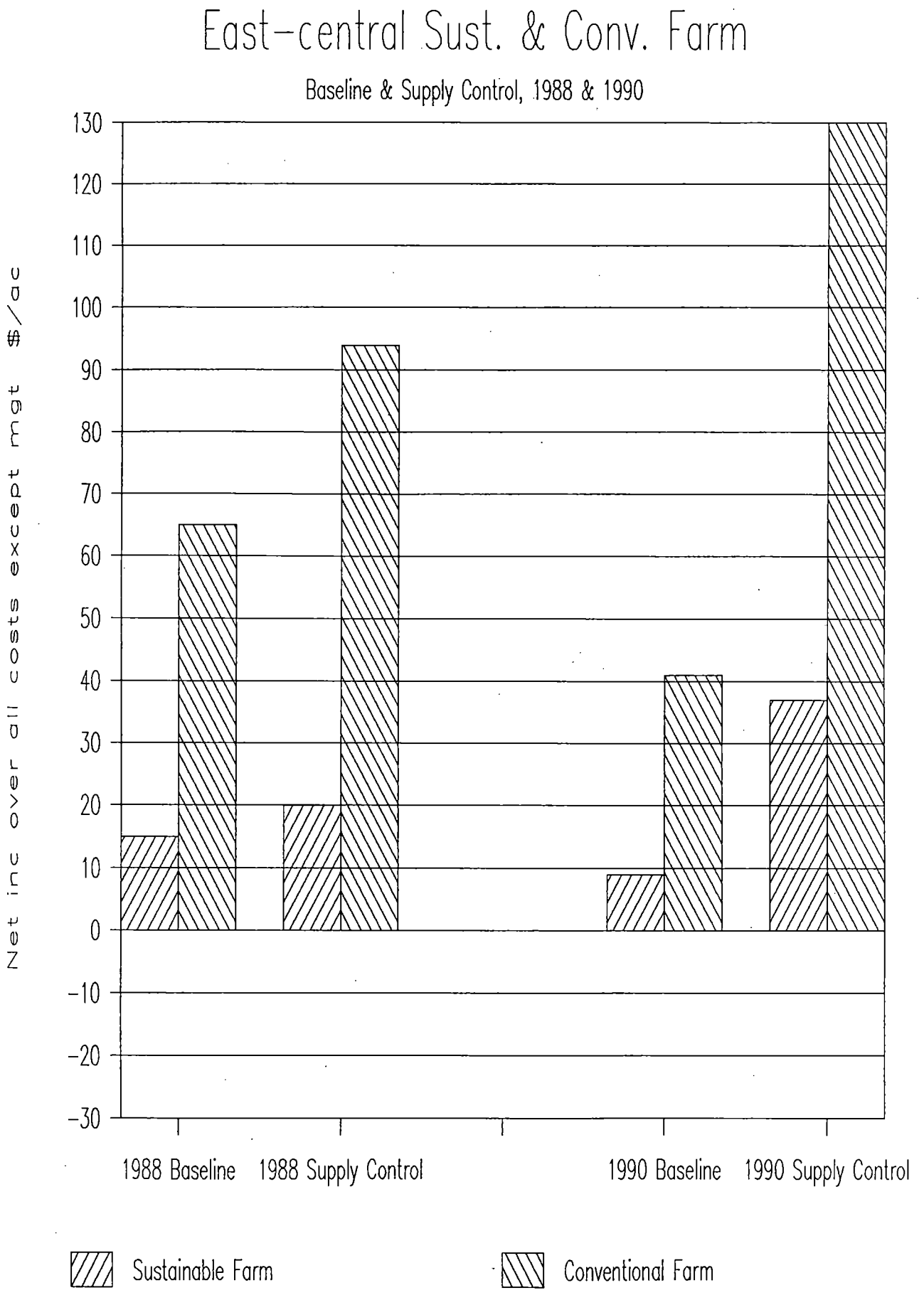

East-central Sust. & Conv. Farm
Baseline & Supply Control, 1988 & 1990
Net inc over all costs except mgt $/ac
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
1988 Baseline
1988 Supply Control
1990 Baseline
1990 Supply Control
Sustainable Farm
Conventional Farm

Figure 4.

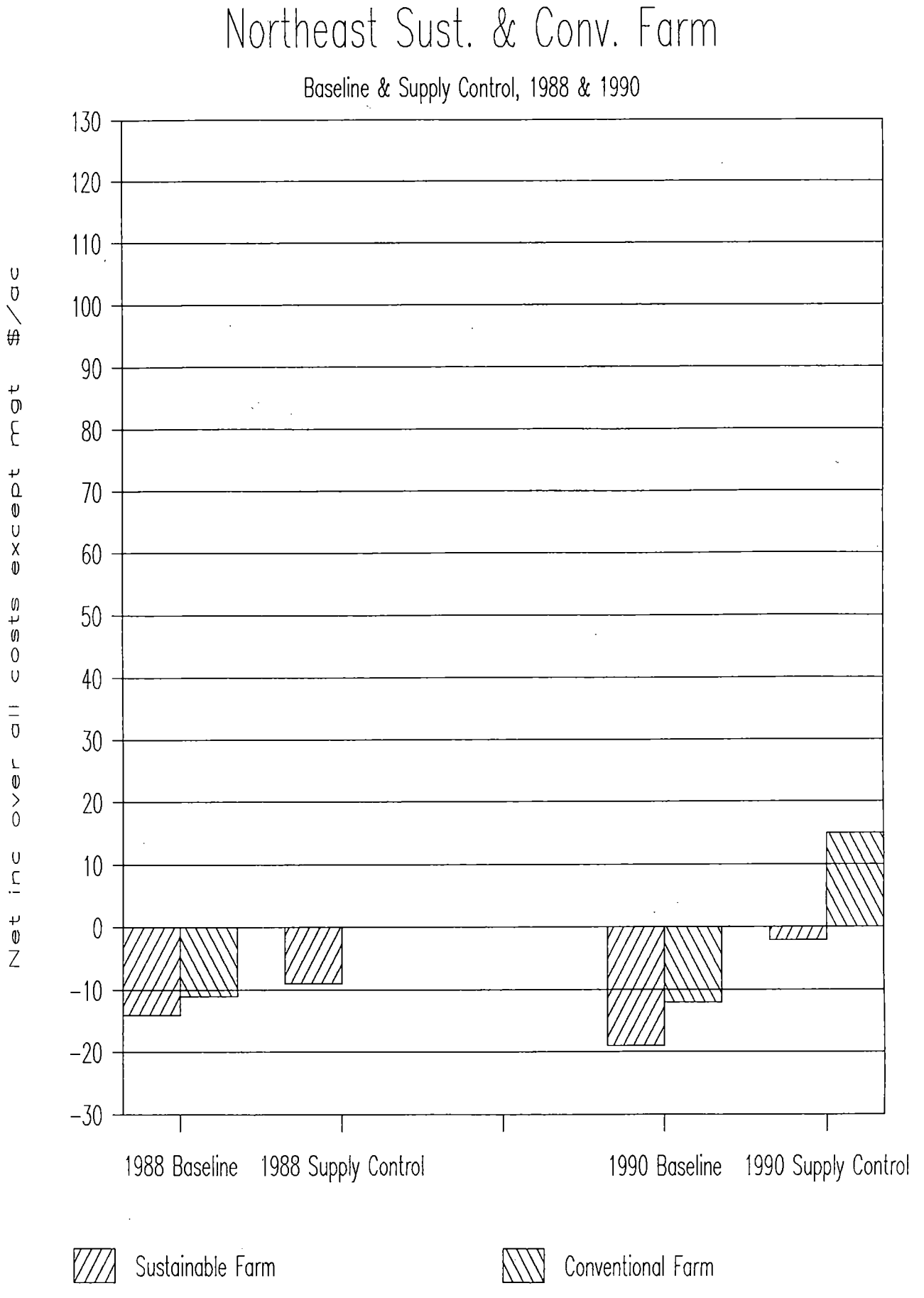

Northeast Sust. & Conv. Farm
Baseline & Supply Control, 1988 & 1990
Net inc over all costs except mgt $/ac
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
1988 Baseline
1988 Supply Control
1990 Baseline
1990 Supply Control
Sustainable Farm
Conventional Farm

Figure 5.

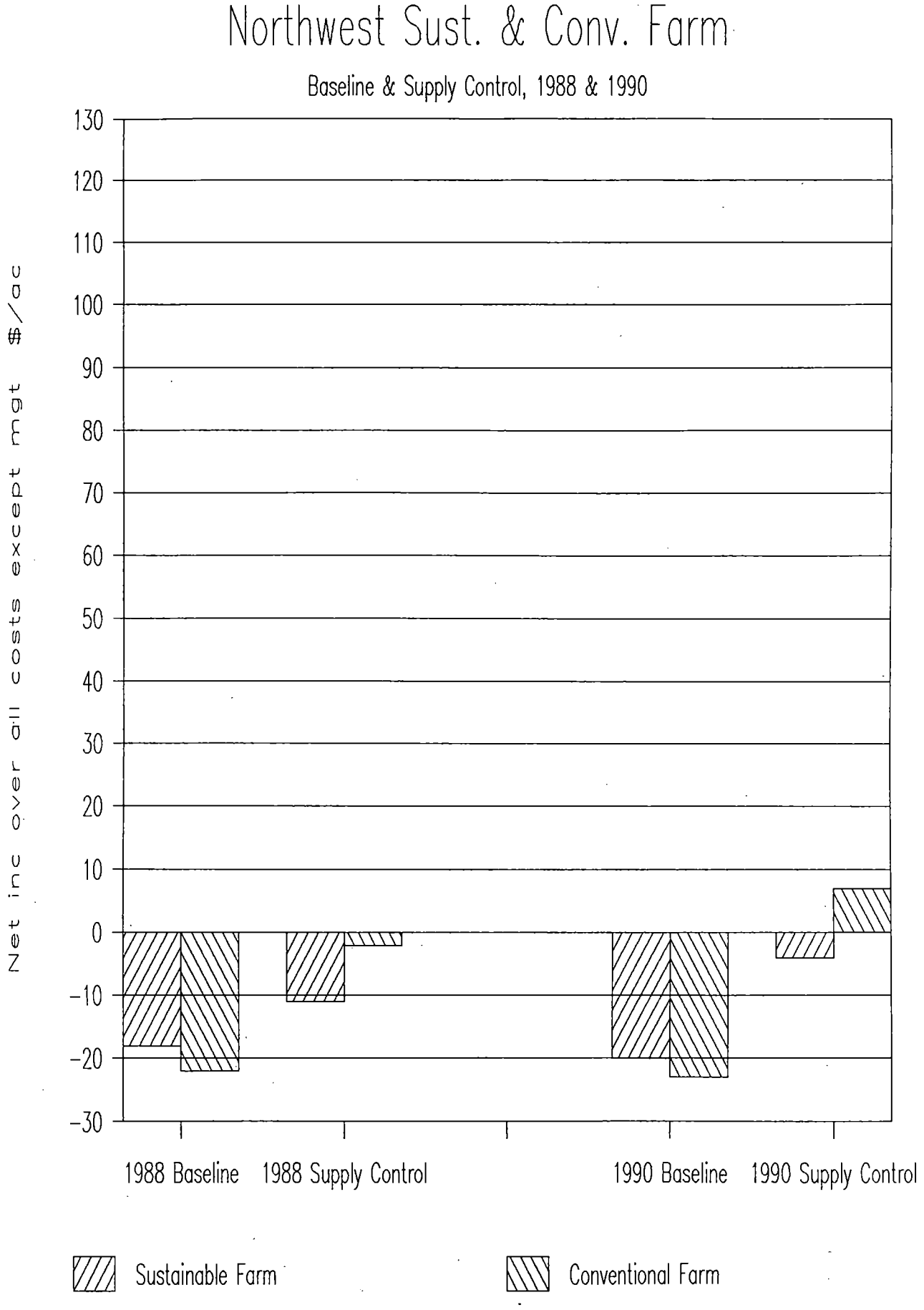
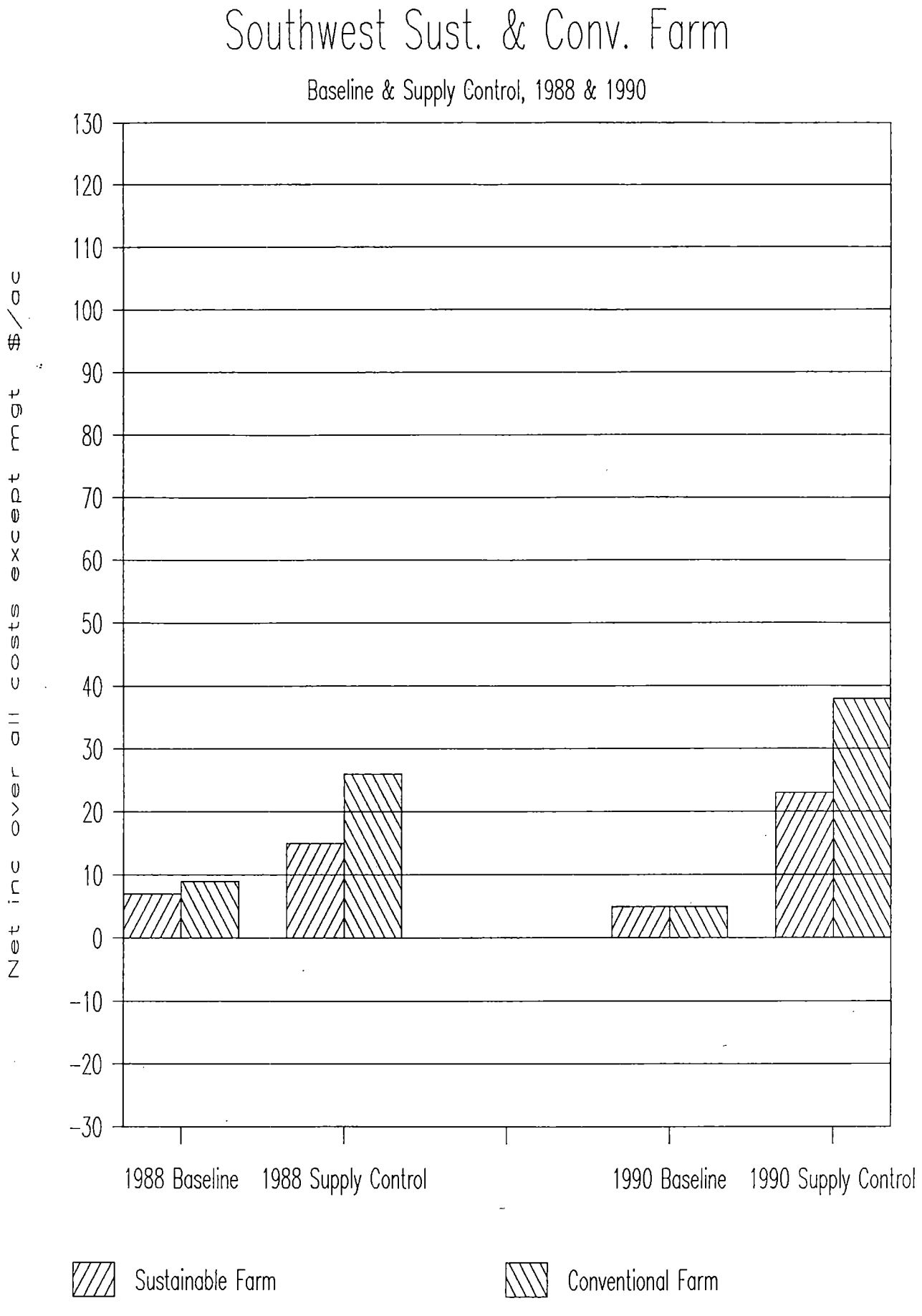

Northwest Sust. & Conv. Farm
Baseline & Supply Control, 1988 & 1990
Net inc over all costs except mgt $/ac
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
1988 Baseline
1988 Supply Control
1990 Baseline
1990 Supply Control
Sustainable Farm
Conventional Farm

Figure 6.


Southwest Sust. & Conv. Farm
Baseline & Supply Control, 1988 & 1990
Net inc over all costs except mgt $/ac
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
1988 Baseline
1988 Supply Control
1990 Baseline
1990 Supply Control
Sustainable Farm
Conventional Farm

direct costs results in greater increases in profitability for the conventional systems in comparison to the sustainable systems -- under the supply control option.

When comparing the baseline and supply control option in 1988 and 1990, profits are greater in 1990. The reason for this is that most baseline prices declined and supply control prices increased between 1988 and 1990.

Hertel (1990) notes that under acreage controls there is an incentive to raise yields through more intensive use of purchased inputs on those acres left in production. We did not make this assumption in our analysis. Had we made this assumption, the reduction in direct costs realized by the conventional systems would not have been as great as indicated by our analysis.

Under acreage reduction programs, average yields can increase because producers tend to set aside their least productive land. This is one form of "slippage". Sensitivity analysis was done with the 1988 mandatory supply control option under the assumption that yields of program crops would increase due to this kind of slippage.

The Federal farm program acreage reduction requirements for 1988 were as follows: corn, 20 percent (with optional 10 percent paid diversion); wheat, 27.5 percent; oats 5 percent; barley, 20 percent; grain sorghum, 20 percent; and soybeans, no acreage reduction requirement. All of the above program crops were subject to a 33 percent mandatory acreage reduction requirement under the 1988 supply control option.

The increase in yields due to slippage for each crop was dependent upon the change in the acreage reduction requirement. For example, a crop such as soybeans that goes from no acreage reduction requirement to 33 percent experiences a larger yield increase than does a crop such as barley that goes from 20 percent to a 33 percent acreage reduction requirement. The information on yield increases due to slippage was adapted from Knutson, et al. (1987).

Table 3 shows the economic results for the conventional and sustainable farms under the 1988 supply control option both with and without slippage. When yield increases due to slippage are

Table 3. "Slippage" (1988) Economic Comparison of Conventional and Sustainable Farms in South Dakota

Farms, by Region and Type	Net Income Over All Costs Except Management ($/acre) 1988 Supply Control Without "Slippage"	1988 Supply Control With "Slippage"
South-central		
Conventional	45	59
Sustainable	17	27
East-central		
Conventional	94	108
Sustainable	20	26
Northeast		
Conventional	0	4
Sustainable	-9	-8
Northwest		
Conventional	-2	-1
Sustainable	-11	-9
Southwest		
Conventional	26	27
Sustainable	15	15

accounted for, the conventional farms average an additional increase in net income of about $7/acre, compared to about $4/acre for the sustainable farms. The reason for the larger increase on the conventional farms appears to be the fact that the conventional farms generally have a greater proportion of their acreage devoted to program crops. (Only the program crops received yield increases due to slippage; the non-program crops received no adjustments.)

Hertel (1990) indicates that "slippage" can also occur under an acreage control program because there is an incentive to raise yields by using purchased inputs more intensively. This would result in an increase in per planted acre gross returns, as well as an increase in per acre direct costs.

We did not do a separate analysis of the impact of slippage on the 1990 supply control option. It would have been necessary to assume different yield increases since the acreage reduction requirements were different in 1990 than in 1988. For example, corn had a 20 percent acreage reduction requirement in 1988, compared to 10 percent in 1990. One might assume that the yield increase (slippage) would be slightly greater in 1990, in this case, due to the lower baseline acreage reduction requirement.

Conclusions

A mandatory supply control program implemented through high acreage reduction requirements on program crops (including soybeans) tends to favor conventional farming systems. This results in part from the high prices on program crops which tend to make up a larger share of the acreage on conventional farms.

Some aspects of a mandatory acreage control program are positive for sustainable agriculture, however. For example, set-aside acres planted to soil building cover crops would have positive implications. Although not analyzed in this paper, production controls would be more compatible with sustainable agriculture than would acreage controls. Hertel (1990) states that under output controls the usage of purchased inputs falls, because land is more abundant, when compared to acreage controls.

In principle, one could design a mandatory acreage control program which requires compliance with certain sustainable practices, such as the use of crop rotations which include legumes. We have not explicitly analyzed such a program in this paper,

however.

A mandatory supply control program resembling the one discussed in this report will probably not appear in farm policy in the near future. Hertel (1990) and Young, et al. (1989) have analyzed and discussed consequences of a mandatory supply control program that may prevent their adoption. Some of these consequences include higher food costs for consumers, higher feed costs for livestock producers, adverse effects on agribusinesses and export markets, and ineffectiveness over the long term.

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Annex 1

The tables in Annex 1 contain selected information about the conventional and sustainable farms from each of the five areas under the 1988 and 1990 baseline and supply control provisions. Annex Tables 1-1 through 1-5 contain information on crop acreages (listed in acres as well as percent of total acres), prices, set-aside requirements, deficiency payments, and costs of commercial fertilizers and herbicides. Annex Tables 1-6 through 1-10 contain economic results for the 1988 baseline compared to the 1988 supply control option and for the 1990 baseline compared to the 1990 supply control option.

Figures in parentheses stand for negative numbers, in Tables 1-6 through 1-10.

Annex Table 1-1. South-central Area Summary Table

	1988 Baseline				1988 Supply Control				1990 Baseline				1990 Supply Control			
	Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional	
CROP ACREAGE																
Spring Wheat.....	91	35.0%	---	0.0%	84	32.3%	---	0.0%	91	35.0%	---	0.0%	84	32.3%	---	0.0%
Corn.....	---	0.0%	148	37.0%	---	0.0%	124	31.0%	---	0.0%	166	41.5%	---	0.0%	124	31.0%
Oats.....	---	0.0%	61	15.3%	---	0.0%	43	10.8%	---	0.0%	61	15.3%	---	0.0%	43	10.8%
Soybeans.....	134	51.5%	121	30.3%	90	34.6%	81	20.3%	134	51.5%	121	30.3%	90	34.6%	81	20.3%
Alfalfa.....	---	0.0%	30	7.5%	---	0.0%	30	7.5%	---	0.0%	30	7.5%	---	0.0%	30	7.5%
Set-Aside.....	35	13.5%	40	10.0%	86	33.1%	122	30.5%	35	13.5%	22	5.5%	86	33.1%	122	30.5%
TOTAL.....	260		400		260		400		260		400		260		400	
TARGET PRICE ($/bu.)																
Spring Wheat.....	4.23		---		---		---		4.00		---		---		---	
Corn.....	---		2.93		---		---		---		2.75		---		---	
Oats.....	---		1.55		---		---		---		1.44		---		---	
S.D. FARM PRICE ($/bu.)																
Spring Wheat.....	3.75		---		4.98		---		3.27		---		5.77		---	
Corn.....	---		1.90		---		3.51		---		2.07		---		4.09	
Oats.....	---		1.76		---		2.02		---		1.68		---		2.34	
Soybeans.....	6.50		6.50		8.66		8.66		4.99		4.99		10.09		10.09	
Alfalfa ($/TON)...	---		50.00		---		50.00		---		50.00		---		50.00	
DEFICIENCY PAYMENTS ($/bu.)																
Spring Wheat.....	0.51		---		---		---		0.76		---		---		---	
Corn.....	---		0.93		---		---		---		0.58		---		---	
Oats.....	---		0.00		---		---		---		0.00		---		---	
SET-ASIDE REQUIREMENTS																
Spring Wheat.....	27.5%		---		33%		---		5%		---		33%		---	
Corn.....	---		20%		---		33%		---		10%		---		33%	
Oats.....	---		5%		---		33%		---		5%		---		33%	
Soybeans.....	---		---		33%		33%		---		---		33%		33%	
GOVT. DEFICIENCY PMTS. ($)																
Whole Farm.....	1,346		8,396		0		0		2,006		5,873		0		0	
per 100 Acres.....	518		2,099		0		0		772		1,468		0		0	
COST OF FERTILIZER ($)																
Whole Farm.....	0		3,917		0		3,210		0		4,258		0		3,210	
per 100 Acres.....	0		979		0		803		0		1,065		0		803	
COST OF HERBICIDE ($)																
Whole Farm.....	12		2,042		11		1,712		12		2,193		11		1,712	
per 100 Acres.....	5		511		4		428		5		548		4		428	

Annex Table 1-2. East-central Area Summary Table

	1988 Baseline				1988 Supply Control				1990 Baseline				1990 Supply Control			
	Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional	
CROP ACREAGE																
Corn	162	22.5%	336	41.7%	135	18.8%	322	40.0%	180	25.0%	432	53.7%	135	18.8%	322	40.0%
Soybeans	172	23.9%	325	40.4%	115	16.0%	218	27.1%	180	25.0%	325	40.4%	115	16.0%	218	27.1%
Spring Wheat	40	5.6%	---	0.0%	43	6.0%	---	0.0%	61	8.5%	---	0.0%	43	6.0%	---	0.0%
Oats	66	9.2%	---	0.0%	63	8.8%	---	0.0%	74	10.3%	---	0.0%	63	8.8%	---	0.0%
Alfalfa	140	19.4%	---	0.0%	135	18.8%	---	0.0%	180	25.0%	---	0.0%	135	18.8%	---	0.0%
Non-Pd Set-Aside	97	13.5%	96	11.9%	229	31.8%	265	32.9%	45	6.3%	48	6.0%	229	31.8%	265	32.9%
Pd Set-Aside	43	6.0%	48	6.0%	---	0.0%	---	0.0%	---	0.0%	---	0.0%	---	0.0%	---	0.0%
TOTAL	720		805		720		805		720		805		720		805	
TARGET PRICE ($/bu.)																
Corn	2.93		2.93		---		---		2.75		2.75		---		---	
Spring Wheat	4.23		---		---		---		4.00		---		---		---	
Oats	1.55		---		---		---		1.44		---		---		---	
Barley	---		---		---		---		---		---		---		---	
S.D. FARM PRICE ($/bu.)																
Corn	1.90		1.90		3.51		3.51		2.07		2.07		4.09		4.09	
Soybeans	6.50		6.50		8.66		8.66		4.99		4.99		10.09		10.09	
Spring Wheat	3.75		---		4.98		---		3.27		---		5.77		---	
Oats	1.76		---		2.02		---		1.68		---		2.34		---	
Alfalfa ($/ton)	50.00		---		50.00		---		50.00		---		50.00		---	
Millet Hay ($/ton)	---		25.00		---		25.00		---		25.00		---		25.00	
DEFICIENCY PAYMENTS ($/bu.)																
Corn	0.93		0.93		---		---		0.58		0.58		---		---	
Spring Wheat	0.51		---		---		---		0.76		---		---		---	
Oats	0.00		---		---		---		0.00		---		---		---	
Barley	---		---		---		---		---		---		---		---	
SET-ASIDE REQUIREMENTS																
Corn	20%		20%		33%		33%		10%		10%		33%		33%	
Soybeans	---		---		33%		33%		---		---		33%		33%	
Spring Wheat	27.5%		---		33%		---		5%		---		33%		---	
Oats	5%		---		33%		---		5%		---		33%		---	
Barley	20%		---		33%		---		10%		---		33%		---	
GOVT. DEFICIENCY PMTS. ($)																
Whole Farm	15,554		28,150		0		0		8,699		17,790		0		0	
per 100 Acres	2,160		3,497		0		0		1,208		2,210		0		0	
COST OF FERTILIZER ($)																
Whole Farm	0		10,036		0		8,991		0		12,281		0		8,991	
per 100 Acres	0		1,247		0		1,117		0		1,526		0		1,117	
COST OF HERBICIDE ($)																
Whole Farm	683		14,224		470		11,102		720		15,775		470		11,102	
per 100 Acres	95		1,767		65		1,379		100		1,960		65		1,379	

Annex Table 1-3. Northeast Area Summary Table

	1988 Baseline				1988 Supply Control				1990 Baseline				1990 Supply Control			
	Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional	
CROP ACREAGE																
Spring Wheat.....	200	25.0%	272	36.3%	200	25.0%	251	33.5%	200	25.0%	356	47.5%	200	25.0%	251	33.5%
Corn.....	---	0.0%	100	13.3%	---	0.0%	84	11.2%	---	0.0%	112	14.9%	---	0.0%	84	11.2%
Barley.....	---	0.0%	100	13.3%	---	0.0%	84	11.2%	---	0.0%	112	14.9%	---	0.0%	84	11.2%
Soybeans.....	90	11.3%	75	10.0%	60	7.5%	50	6.7%	90	11.3%	75	10.0%	60	7.5%	50	6.7%
Millet.....	35	4.4%	---	0.0%	35	4.4%	---	0.0%	35	4.4%	---	0.0%	35	4.4%	---	0.0%
Flax.....	50	6.3%	---	0.0%	50	6.3%	---	0.0%	50	6.3%	---	0.0%	50	6.3%	---	0.0%
Alfalfa.....	200	25.0%	50	6.7%	200	25.0%	50	6.7%	200	25.0%	50	6.7%	200	25.0%	50	6.7%
Summer Fallow.....	225	28.1%	153	20.4%	255	31.9%	231	30.8%	225	28.1%	45	6.0%	255	31.9%	231	30.8%
TOTAL.....	800		750		800		750		800		750		800		750	
TARGET PRICE ($/bu.)																
Spring Wheat.....	4.23		4.23		---		---		4.00		4.00		---		---	
Corn.....	---		2.93		---		---		---		2.75		---		---	
Barley.....	---		2.51		---		---		---		2.35		---		---	
S.D. FARM PRICE ($/bu.)																
Spring Wheat.....	3.75		3.75		4.98		4.98		3.27		3.27		5.77		5.77	
Corn.....	---		1.90		---		3.51		---		2.07		---		4.09	
Barley.....	---		1.90		---		2.98		---		1.90		---		3.49	
Soybeans.....	6.50		6.50		8.66		8.66		4.99		4.99		10.09		10.09	
Millet.....	2.80		---		2.80		---		2.80		---		2.80		---	
Flax.....	5.05		---		5.05		---		5.05		---		5.05		---	
Alfalfa ($/ton)....	50.00		50.00		50.00		50.00		50.00		50.00		50.00		50.00	
Brly Silage ($/ton)	---		19.10		---		25.54		---		19.78		---		27.86	
DEFICIENCY PAYMENTS ($/bu.)																
Spring Wheat.....	0.51		0.51		---		---		0.76		0.76		---		---	
Corn.....	---		0.93		---		---		---		0.58		---		---	
Barley.....	---		0.41		---		---		---		0.25		---		---	
SET-ASIDE REQUIREMENTS																
Spring Wheat.....	27.5%		27.5%		33%		33%		5%		5%		33%		33%	
Corn.....	---		20%		33%		33%		---		10%		---		33%	
Barley.....	---		20%		33%		33%		---		10%		---		33%	
Soybeans.....	---		---		33%		33%		---		---		33%		33%	
GOVT. DEFICIENCY PMTS. ($)																
Whole Farm.....	2,244		9,758		0		0		3,344		11,132		0		0	
per 100 Acres.....	281		1,301		0		0		418		1,484		0		0	
COST OF FERTILIZER ($)																
Whole Farm.....	0		5,894		0		5,111		0		7,064		0		5,111	
per 100 Acres.....	0		786		0		681		0		942		0		681	
COST OF HERBICIDE ($)																
Whole Farm.....	0		4,420		0		4,505		0		4,255		0		4,505	
per 100 Acres.....	0		589		0		601		0		567		0		601	

Annex Table 1-4. Northwest Area Summary table

	1988 Baseline				1988 Supply Control				1990 Baseline				1990 Supply Control			
	Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional	
CROP ACREAGE																
Corn	78	8.8%	80	13.0%	65	7.3%	67	10.9%	78	8.8%	80	13.0%	65	7.3%	67	10.9%
Spring Wheat	248	27.9%	185	30.1%	229	25.7%	171	27.8%	325	36.5%	203	33.0%	229	25.7%	171	27.8%
Oats	119	13.4%	---	0.0%	84	9.4%	---	0.0%	42	4.7%	---	0.0%	84	9.4%	---	0.0%
Barley	---	0.0%	60	9.8%	---	0.0%	50	8.1%	---	0.0%	67	10.9%	---	0.0%	50	8.1%
Summer Fallow	445	50.0%	290	47.2%	445	50.0%	221	35.9%	445	50.0%	265	43.1%	445	50.0%	221	35.9%
Millet	---	0.0%	---	0.0%	67	7.5%	---	0.0%	---	0.0%	---	0.0%	67	7.5%	---	0.0%
Sudan Grass	---	0.0%	---	0.0%	---	0.0%	106	17.2%	---	0.0%	---	0.0%	---	0.0%	106	17.2%
TOTAL	890		615		890		615		890		615		890		615	
TARGET PRICE ($/bu.)																
Corn	2.93		2.93		---		---		2.75		2.75		---		---	
Spring Wheat	4.23		4.23		---		---		4.00		4.00		---		---	
Oats	1.55		---		---		---		1.44		---		---		---	
Barley	---		2.51		---		---		---		2.35		---		---	
S.D. FARM PRICE ($/bu.)																
Corn	1.90		1.90		3.51		3.51		2.07		2.07		4.09		4.09	
Spring Wheat	3.75		3.75		4.98		4.98		3.27		3.27		5.77		5.77	
Oats	1.76		---		2.02		---		1.68		---		2.34		---	
Barley	---		1.90		---		2.98		---		1.90		---		3.49	
Corn Silage ($/ton)	19.10		19.10		25.54		25.54		19.78		19.78		27.86		27.86	
Millet	---		---		2.80		---		---		---		2.80		---	
Sudan Grass ($/ton)	---		---		---		36.00		---		---		---		36.00	
DEFICIENCY PAYMENTS ($/bu.)																
Corn	0.93		0.93		---		---		0.58		0.58		---		---	
Spring Wheat	0.51		0.51		---		---		0.76		0.76		---		---	
Oats	0.00		---		---		---		0.00		---		---		---	
Barley	---		0.41		---		---		---		0.25		---		---	
SET-ASIDE REQUIREMENTS																
Corn	20%		20%		33%		33%		10%		10%		33%		33%	
Spring Wheat	27.5%		27.5%		33%		33%		5%		5%		33%		33%	
Oats	5%		---		33%		---		5%		---		33%		---	
Barley	---		20%		---		33%		---		10%		---		33%	
GOVT. DEFICIENCY PMTS. ($)																
Whole Farm	4,453		4,644		0		0		5,803		4,655		0		0	
per 100 Acres	500		755		0		0		652		757		0		0	
COST OF FERTILIZER ($)																
Whole Farm	4,005		2,412		4,005		3,208		4,005		2,574		4,005		3,208	
per 100 Acres	450		392		450		522		450		419		450		522	
COST OF HERBICIDE ($)																
Whole Farm	0		690		0		602		0		728		0		602	
per 100 Acres	0		112		0		98		0		118		0		98	

Annex Table 1-5. Southwest Area Summary Table

	1988 Baseline				1988 Supply Control				1990 Baseline				1990 Supply Control			
	Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional		Sustainable		Conventional	
CROP ACREAGE																
Winter Wheat.....	852	33.1%	852	34.1%	852	33.1%	787	31.5%	852	33.1%	855	34.2%	852	33.1%	787	31.5%
Grain Sorghum.....	---	0.0%	452	18.1%	---	0.0%	379	15.2%	---	0.0%	450	18.0%	---	0.0%	379	15.2%
Oats.....	---	0.0%	165	6.6%	---	0.0%	117	4.7%	---	0.0%	165	6.6%	---	0.0%	117	4.7%
Buckwheat.....	426	16.5%	---	0.0%	426	16.5%	---	0.0%	426	16.5%	---	0.0%	426	16.5%	---	0.0%
Millet.....	426	16.5%	---	0.0%	426	16.5%	---	0.0%	426	16.5%	---	0.0%	426	16.5%	---	0.0%
Forage Sorghum.....	---	0.0%	50	2.0%	---	0.0%	50	2.0%	---	0.0%	50	2.0%	---	0.0%	50	2.0%
Alfalfa.....	20	0.8%	125	5.0%	20	0.8%	125	5.0%	20	0.8%	125	5.0%	20	0.8%	125	5.0%
Summer Fallow.....	852	33.1%	856	34.2%	852	33.1%	787	31.5%	852	33.1%	855	34.2%	852	33.1%	787	31.5%
Sudan Grass.....	---	0.0%	---	0.0%	---	0.0%	255	10.2%	---	0.0%	---	0.0%	---	0.0%	255	10.2%
TOTAL.....	2,576		2,500		2,576		2,500		2,576		2,500		2,576		2,500	
TARGET PRICE ($/bu.)																
Winter Wheat.....	4.23		4.23		---		---		4.00		4.00		---		---	
Grain Sorghum.....	---		2.78		---		---		---		2.60		---		---	
Oats.....	---		1.55		---		---		---		1.44		---		---	
S.D. FARM PRICE ($/bu.)																
Winter Wheat.....	3.75		3.75		4.98		4.98		3.27		3.27		5.77		5.77	
Grain Sorghum.....	---		1.80		---		3.16		---		1.82		---		3.71	
Oats.....	---		1.76		---		2.02		---		1.68		---		2.34	
Buckwheat.....	5.28		---		5.28		---		5.28		---		5.28		---	
Millet.....	2.80		---		2.80		---		2.80		---		2.80		---	
Forage Sorghum($/ton)	---		36.00		---		36.00		---		36.00		---		36.00	
Alfalfa ($/ton).....	50.00		50.00		50.00		50.00		50.00		50.00		50.00		50.00	
Sudan Grass ($/ton)..	---		---		---		36.00		---		---		---		36.00	
Oats Hay ($/ton).....	---		45.00		---		45.00		---		45.00		---		45.00	
DEFICIENCY PAYMENTS ($/bu.)																
Winter Wheat.....	0.51		0.51		---		---		0.76		0.76		---		---	
Grain Sorghum.....	---		0.71		---		---		---		0.51		---		---	
Oats.....	---		0.00		---		---		---		0.00		---		---	
SET-ASIDE REQUIREMENTS																
Winter Wheat.....	27.5%		27.5%		33%		33%		5%		5%		33%		33%	
Grain Sorghum.....	---		20%		---		33%		---		10%		---		33%	
Oats.....	---		5%		---		33%		---		5%		---		33%	
GOVT. DEFICIENCY PMTS. ($)																
Whole Farm.....	12,167		21,681		0		0		18,131		24,659		0		0	
per 100 Acres.....	472		867		0		0		704		986		0		0	
COST OF FERTILIZER ($)																
Whole Farm.....	0		8,379		0		9,965		0		8,371		0		9,965	
per 100 Acres.....	0		335		0		399		0		335		0		399	
COST OF HERBICIDE ($)																
Whole Farm.....	0		1,756		0		1,519		0		1,758		0		1,519	
per 100 Acres.....	0		70		0		61		0		70		0		61	

Annex Table 1-6. South-central Area Cost and Return Indicators

Sustainable Farm (260 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre).....	129	123	106	143
Direct Costs Other Than Labor ($/acre).....	36	32	36	32
Net Income Over All Costs Except Land, Labor, and Management ($/acre).....	62	65	40	85
Net Income Over All Costs Except Land & Mgt. ($/acre)	50	55	28	75
Net Income Over All Costs Except Management ($/acre).	12	17	(10)	37
Net Income Over All Costs Except Mgt. ($/whole farm).	3,249	4,453	(2,518)	9,659

Conventional Farm (400 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre).....	173	175	165	201
Direct Costs Other Than Labor ($/acre).....	63	53	67	53
Net Income Over All Costs Except Land, Labor, and Management ($/acre).....	76	93	64	120
Net Income Over All Costs Except Land & Mgt. ($/acre)	64	82	51	109
Net Income Over All Costs Except Management ($/acre).	27	45	14	72
Net Income Over All Costs Except Mgt. ($/whole farm).	10,609	18,012	5,423	28,632

Annex Table 1-7. East-central Area Cost and Return Indicators

Sustainable Farm (720 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre)	130	126	130	142
Direct Costs Other Than Labor ($/acre)	39	34	42	34
Net Income Over All Costs Except Land, Labor, and Management ($/acre)	61	65	56	82
Net Income Over All Costs Except Land & Mgt. ($/acre)	51	56	44	72
Net Income Over All Costs Except Management ($/acre).	15	20	9	37
Net Income Over All Costs Except Mgt. ($/whole farm).	10,819	14,350	6,173	26,431

Conventional Farm (805 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre)	216	235	204	271
Direct Costs Other Than Labor ($/acre)	79	70	90	70
Net Income Over All Costs Except Land, Labor, and Management ($/acre)	108	138	84	174
Net Income Over All Costs Except Land & Mgt. ($/acre)	100	130	76	166
Net Income Over All Costs Except Management ($/acre).	65	94	41	130
Net Income Over All Costs Except Mgt. ($/whole farm).	51,996	75,839	32,786	104,929

Annex Table 1-8. Northeast Area Cost and Return Indicators

Sustainable Farm (800 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre)	64	68	60	74
Direct Costs Other Than Labor ($/acre)	24	23	24	23
Net Income Over All Costs Except Land, Labor, and Management ($/acre)	19	24	14	30
Net Income Over All Costs Except Land & Mgt. ($/acre)	11	16	7	23
Net Income Over All Costs Except Management ($/acre)	(14)	(9)	(19)	(2)
Net Income Over All Costs Except Mgt. ($/whole farm)	(11,460)	(7,232)	(14,935)	(1,909)

Conventional Farm (750 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre)	96	100	103	115
Direct Costs Other Than Labor ($/acre)	46	42	51	42
Net Income Over All Costs Except Land, Labor, and Management ($/acre)	23	33	22	48
Net Income Over All Costs Except Land & Mgt. ($/acre)	14	25	13	40
Net Income Over All Costs Except Management ($/acre)	(11)	0	(12)	15
Net Income Over All Costs Except Mgt. ($/whole farm)	(8,259)	(118)	(9,342)	11,104

Annex Table 1-9. Northwest Area Cost and Return Indicators

Sustainable Farm (890 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre).....	46	52	43	59
Direct Costs Other Than Labor ($/acre).....	27	26	26	26
Net Income Over All Costs Except Land, Labor, and Management ($/acre).....	2	9	0	16
Net Income Over All Costs Except Land & Mgt. ($/acre)	(3)	5	(5)	11
Net Income Over All Costs Except Management ($/acre).	(18)	(11)	(20)	(4)
Net Income Over All Costs Except Mgt. ($/whole farm).	(15,859)	(9,516)	(17,812)	(3,554)

Conventional Farm (615 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre).....	50	55	51	64
Direct Costs Other Than Labor ($/acre).....	29	25	30	25
Net Income Over All Costs Except Land, Labor, and Management ($/acre).....	1	19	0	28
Net Income Over All Costs Except Land & Mgt. ($/acre)	(6)	14	(8)	22
Net Income Over All Costs Except Management ($/acre).	(22)	(2)	(23)	7
Net Income Over All Costs Except Mgt. ($/whole farm).	(13,370)	(1,084)	(14,073)	4,164

Annex Table 1-10. Southwest Area Cost and Return Indicators

Sustainable Farm (2,576 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre).....	71	79	69	87
Direct Costs Other Than Labor ($/acre).....	23	23	23	23
Net Income Over All Costs Except Land, Labor, and Management ($/acre).....	30	38	28	46
Net Income Over All Costs Except Land & Mgt. ($/acre)	24	32	22	40
Net Income Over All Costs Except Management ($/acre).	7	15	5	23
Net Income Over All Costs Except Mgt. ($/whole farm).	19,111	38,383	12,806	58,575

Conventional Farm (2,500 acres)

	1988 Baseline	1988 Supply Control	1990 Baseline	1990 Supply Control
Gross Income ($/acre).....	78	85	74	97
Direct Costs Other Than Labor ($/acre).....	27	24	27	24
Net Income Over All Costs Except Land, Labor, and Management ($/acre).....	32	48	28	61
Net Income Over All Costs Except Land & Mgt. ($/acre)	26	43	22	55
Net Income Over All Costs Except Management ($/acre).	9	26	5	38
Net Income Over All Costs Except Mgt. ($/whole farm).	22,706	63,763	11,437	95,237