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CROP ENTERPRISE AND PRINCIPAL ROTATION
BUDGETS FOR SUSTAINABLE AGRICULTURE CASE
FARMS IN SOUTH DAKOTA

by

David L. Becker, Thomas L. Dobbs, and Donald C. Taylor*

Economics Research Report 90-2

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**Corrections were made in Rotation U in July 1990.

Preface

Crop enterprise and rotation budgets for 12 South Dakota case study sustainable farms are presented in this research report. These case farms were selected from a total of 22 sustainable farms in the State, for which on-farm interviews with the operators were conducted during early 1989. Descriptive results of those on-farm interviews were reported in South Dakota State University (SDSU) Economics Research Report 89-5, **Crop and Livestock Enterprises, Risk Evaluation, and Management Strategies on South Dakota Sustainable Farms**, November 1989. Practices and views identified in the portions of the interviews pertaining to government farm programs and policies were reported in SDSU Economics Staff Paper 89-7, **Farm Program Participation and Policy Perspectives of Sustainable Farmers in South Dakota**, October 1989. Livestock budgets for case study sustainable farms are presently under development and will be published in a separate report.

The present research report provides a base for several types of analyses now underway and to be pursued further in the remainder of 1990 and in 1991. Those analyses include: (1) comparisons of net returns on "sustainable" and "conventional" farms in South Dakota; (2) estimations of the effects of changes in Federal farm programs and in other public programs and policies on the relative profitability of sustainable and conventional farming systems; and (3) assessments of the affects of conversions from sustainable to conventional systems on the strength of rural economies. Results of those analyses will be included in future reports. The program of research leading to the present research report, reports cited above, and future reports from the analyses just mentioned is supported by the SDSU Agricultural Experiment Station and by Grant No. 88-56 from the Northwest Area Foundation (in St. Paul, MN).

We wish to thank Rod Kappes for his assistance in much of the crop enterprise budgeting. Clarence Mends deserves appreciation for doing much of the work on the budgets for Rotation H; that rotation system is also being used in a companion study supported by the U.S. Department of Agriculture's "Low-Input/Sustainable Agriculture" research and education program. Mr. Mends also collaborated in development of the machine costs and reviewed the budgets and a draft of this report. Many thanks to Mrs. Verna Clark for patiently and accurately typing the manuscript and its revisions. Any remaining errors are the responsibility of the authors.

DLB, TLD, DCT
May 1990

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Introduction

The findings from 32 sustainable farmers in South Dakota who responded to a mail survey during the summer of 1988 were published in April 1989 (Taylor, et al., 1989b). On-farm, personal interviews were conducted with 22 of those 32 farmers during January-March 1989. Insights obtained through those interviews were reported in November 1989 (Taylor, et al., 1989a).

The present report contains crop enterprise and principal rotation budgets for 12 of those 22 farmers that were interviewed.¹ The principal rotation budget looks at the overall profitability of the system, rather than the profitability of each individual crop. These budgets were developed based on information acquired during the on-farm interviews. Figure 1 shows the location of the 12 farms for which the budgets were constructed.

Some of these principal rotation budgets will be used in the analysis of various economic and farm policy conditions affecting the profitability of sustainable farming systems. That analysis will be described in a future report.

In the first major section of this report, the procedures used in preparing the budgets are described in some detail. The second section contains the budget spreadsheets. The report concludes with an economic summary of the 12 farms.

Budgeting Procedures

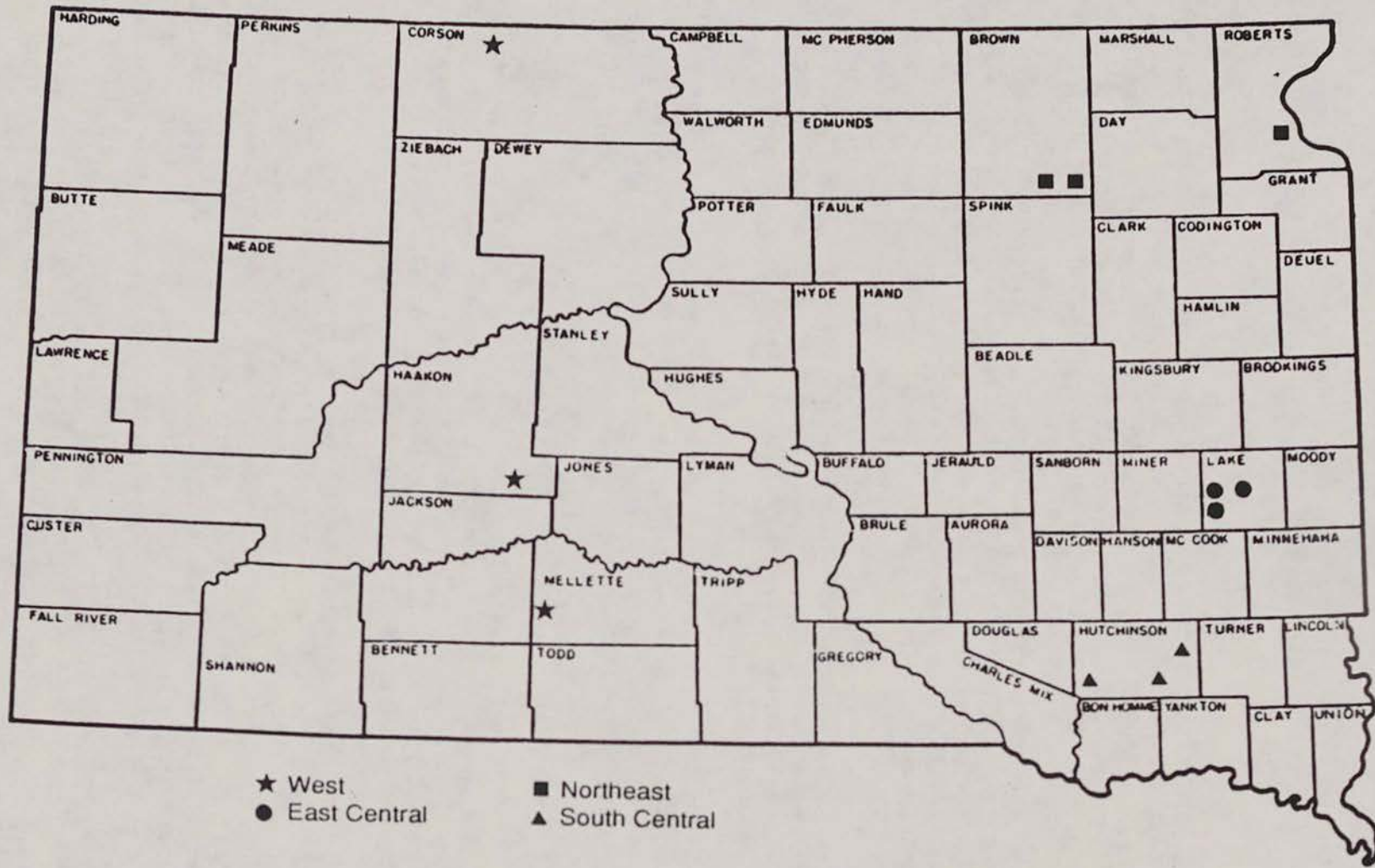
This section describes the general procedures and assumptions used to construct the budget spreadsheets for the case farms. These budget spreadsheets were developed on the basis of what each farmer described during the interview to be his "principal crop rotation". Refer to Taylor, et al. (1989a) for detailed descriptions of the crop rotations.

Types of Costs

The three types of costs used in these budgets are direct (or operating), fixed, and land costs. Direct costs are those expenses that result from planting, maintaining, and harvesting a crop. Items such as seed, fertilizer, pesticide, fuel and lubrication, machinery repairs, crop operating loan interest, and labor constitute direct costs. Fixed costs, which are incurred whether a crop is grown or not, include depreciation, real estate taxes,

¹At the time of this publication, only the crop budgets had been completed. The livestock budgets are in the process of being developed and will be published soon.

Figure 1. Location of 12 South Dakota farms for which budgets were prepared.



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interest on capital, housing of machinery, and insurance on buildings and equipment. Land cost is the charge for owning or renting farmland (Mends, et al., 1989).

Input Use and Price Assumptions

Principal assumptions about input use and prices are described in this section.

Seeding Rates. Most seeding rates were taken from the template used to develop South Dakota State University (SDSU) Cooperative Extension Service (CES) publication EMC-864 (Hoyt, et al., 1989). This publication divided South Dakota into nine regions and, if necessary, modified the seeding rates for similar crops in different regions. The location of each of the 12 farms with respect to these regional divisions determined the seeding rate used in the spreadsheet.

The seeding rate for sweet clover was based on SDSU Economics Research Report 89-3 (Mends, et al., 1989). For crops raised by farmers not covered by this publication and EMC-864 (e.g., flax, rye, millet, and buckwheat), seeding rates were taken from SDSU CES Extension Extra publication 8020 (Hall, 1985). There were no regional variations among seeding rates for crops in that publication.

For some farms, however, the chosen seeding rates differ from those given in the above sources. The reason for this is because of special circumstances discovered during the interviews.

Seeding units per acre are listed in 1,000s of kernels for corn; bushels for oats, spring wheat, soybeans, rye, flax, barley, and winter wheat; and pounds for sweet clover, forage sudan, buckwheat, millet, alfalfa, and sunflowers.

Seed Prices. See Table 1 for seed prices used in the budgets. The prices in Table 1 are 1988 estimates based on price lists from six individual seed dealers around South Dakota. These price lists were obtained from Robert J. Pollmann, Manager of the South Dakota Seed Certification Service. Clarence Mends, SDSU Economics Department Research Associate, calculated the average prices from the six lists and adjusted some prices to the nearest nickel. Mends then confirmed these estimated prices with Pollmann. Prices were based on specific varieties for some of the crops.

Because the small grain seeded on set-aside acres was assumed to be taken from the farmers' bins, the price for it was assumed to be less than the price for seeding the same small grain intended for harvesting. The seed cost for set-aside acres was assumed to be the same as the farmers' selling price plus a \$0.25/bu. charge for cleaning the seed.

Fertilizer Prices. Dry fertilizer prices used in the budgets are listed in Table 2. These estimated 1988 prices were determined by visiting with James R. Gerwing, of the SDSU Plant Science Department. Information on fertilizer application rates was furnished by the farmers.

Table 1. Estimated South Dakota
Seed Prices for 1988.

<u>Commodity</u>	<u>Price Per Unit</u>
Corn	\$ 0.80/1,000 kernels
Oats	\$ 4.48/bu.
Spring Wheat	\$ 6.55/bu.
Soybeans	\$11.05/bu.
Rye	\$ 4.80/bu.
Flax	\$ 9.25/bu.
Barley	\$ 4.80/bu.
Winter Wheat	\$ 7.00/bu.
Sweet Clover	\$ 0.50/lb.
Forage Sudan	\$ 0.30/lb.
Buckwheat	\$ 0.30/lb.
Millet	\$ 0.16/lb.
Alfalfa	\$ 1.95/lb.
Sunflowers	\$ 3.25/lb.

Table 2. Estimated South Dakota Dry
Fertilizer Prices for 1988

<u>Fertilizer</u>	<u>Price</u>
Nitrogen	\$0.20/lb. of N
Phosphorus	\$0.19/lb. of P ₂ O ₅
Potassium	\$0.13/lb. of K ₂ O

Some producers indicated that they used various "biological" or "organic" soil amendments. These items were accounted for under the "Other Fertilizer" category on the spreadsheets.

Herbicide Prices. The herbicide prices used in the budgets were taken from SDSU CES Extension Extra publication 8012 (Wrage and Johnson, 1988). The rates of herbicide application were provided by the farmers during the interviews.

Crop Insurance. Each farmer was assumed to purchase Federal Multiple Peril Crop Insurance (MPCI) on all crops for which insurance is available in each farmer's respective county. (Different counties can insure different crops.) In all budgets, we used the 65% coverage level, the 1988 medium price election, and premium coefficients based on the respective 1988 county rate tables. The premium coefficients were taken from CROP INSURE, a computer software package developed and copyrighted by the American Association of Crop Insurers.²

The cost of insurance was calculated as follows:

Farm						
Program		65%		Medium		Premium
Base	x	Coverage	x	Price	x	Coefficient
Yield		Level		Election		= Per
						Acre

For non-program crops that do not have a Federal farm program base yield (i.e., soybeans, flax, rye, and sunflowers), the estimated grain yield on the spreadsheet was also assumed to be the base yield for the purpose of calculating the crop insurance cost per acre.

Storage. The costs used in the budgets for storing silage and various types of grain are listed in Table 3.

Drying. An estimated drying cost of \$0.15/bu. was used in the budgets. This drying cost was applied to only the corn that was combined.

Overhead. Estimated overhead expenses used in the budgets are itemized in Table 4.

Corn Shelling. An estimated shelling cost of \$0.09/bu. was assumed for corn that was harvested with an ear corn picker. This shelling cost was entered on the spreadsheet in the "Harvesting" row under the "Custom Machine Hire" section.

Labor. For persons operating machinery, a wage rate of \$6.42/hr. was used. Some budgets required a labor charge for hand weeding. A wage rate of \$4.28/hr. was used for the hand weeding.

²Special thanks to Gerald Toland, Associate Professor, SDSU Economics Department, for allowing us to use the software.

Table 3. Estimated Storage Costs

<u>Crop</u>	<u>Storage Cost Per Unit</u>
Corn Silage	\$4.00/ton
Picked Corn	\$0.13/bu.
Sunflowers	\$0.003/lb.
All other grains	\$0.11/bu.

Table 4. Estimated Overhead Costs

<u>Type of Crop</u>	<u>Cost per Acre</u>
Row Crops	\$5.50
Small Grains & Alfalfa	\$5.00
Summer Fallow & Set-aside	\$2.50

Interest. The annual percentage rate of interest assumed on all direct costs except labor was 12 percent. It was also assumed that the money for direct costs would be borrowed for an average time period of 6 months.

Cropland Values. A cropland value of \$440/acre was used for the three farms in the south central region and \$420/acre was used for the three farms in the east central region. Two different cropland values were used in both the northeast and west regions. In the northeast region, a cropland value of \$300/acre was used for the two farms in Brown County and \$330/acre was used for the farm in Roberts County. In the west region, cropland was valued at \$200/acre for the farms in Haakon and Mellette counties and at \$180/acre for the farm in Corson County. Cropland values were based on Janssen (1988) and the South Dakota Agricultural Statistics Service (SDASS, 1989).

Real Estate Tax and Land Charge. Real estate tax and land charge rates of 1.5 percent and 7 percent of cropland value, respectively, were used in the budgets.

Machinery Assumptions

The machine costs used in the crop budgets are listed in Annex Table 1-1. The machine costs were separated into five components: (1) fuel and lubrication; (2) machinery repairs; (3) labor; (4) machinery housing, interest, and insurance; and (5) depreciation. Annex 1 also explains how the machine costs were derived.

During the on-farm interviews, each farmer was asked to describe the tillage practices followed in a "typical" year, from spring pre-plant through post-harvest, for each crop in the principal rotation (see Annex 3 in Taylor, et al., 1989a). Individual enterprise budgets were developed for each crop based on the machine cost components (Annex Table 1-1) and these tillage practices.

It was assumed that machine costs would be charged to the individual crop enterprise budgets based on the tillage practices performed during the calendar year. This resulted in unusually high machine costs for some individual crop enterprise budgets. For example, the pre-plant and planting operations for winter wheat following summer fallow are all charged to the summer fallow enterprise, since these tillage practices are performed during early Fall of the summer fallow year. (The seed cost for winter wheat is also charged to the summer fallow enterprise.)

It was also assumed that each farmer would use the same age, size, and type of implement for any given tillage practice, and that each farmer used that implement for the same number of acres or hours per year. This was done to isolate differences in enterprise costs due to differences in tillage practices, rather than differences due to variations in efficiency of machinery use.

Yield Assumptions

Yield data were acquired during the on-farm interviews. Each farmer was asked to estimate the yield for crops grown in his principal rotation, from the standpoint of growing conditions considered to be "most normal". These yield estimates were used in the budgets.

In cases where specific yield data were not obtained in the interview, yields were estimated on the basis of information in Hoyt, et al. (1989) and SDASS (1986, 1987, 1988, and 1989). (This is explained in greater detail in the next section on principal rotation budgets.) Some of the estimated yields were based on adjustments of data from these other sources, based on comments made about relative yields during the interview.

The yield information from SDASS covered 5 years. The estimated yields were determined by throwing out the high and low, and averaging the remaining yields.

Yields are expressed in pounds per acre for sunflowers, tons per acre for alfalfa hay and corn silage, and bushels per acre for all other crops.

Principal Rotation Analysis and Output Price and Federal Farm Program Assumptions

Estimated selling prices used in this report were taken from Hoyt, et al. (1989). These prices were based on 1988 expected local market prices. They do not reflect the impact of the drought that materialized in 1988. Thus, these 1988 expected prices were intended to reflect what would have been received under "normal" growing conditions. This was done to reflect more "normal" prices, rather than "drought-induced" prices, since the enterprise budgets were based on "normal" crop yields.

For those crops grown by farmers but not listed in Hoyt, et al. (1989), the following sources were used to determine a 1988 estimated selling price: (1) SDASS (1989); (2) Wietgreffe (1989); (3) local elevator quotes; and (4) a standardized formula for valuing silage compared to the market prices of corn and hay (obtained from Burton Pflueger, Associate Professor, SDSU Economics Department, October 5, 1989).

Base yields for program crops (i.e., corn, oats, barley, wheat, and grain sorghum) were obtained during the on-farm interview or from respective county Agricultural Stabilization and Conservation Service (ASCS) offices (county base yield averages). The base yields are explained in greater detail in the following section on principal rotation budgets.

Estimated payments made for different levels of participation in the 1988 Federal farm program are listed in Table 5. Deficiency payments were taken from Hoyt, et al. (1989). These were expected 1988 deficiency payments, not necessarily those that were actually paid as a result of the drought-induced market prices in 1988. Thus, they represent deficiency payments that could have been expected under "normal" growing conditions. The paid land diversion rates were taken from U.S. Department of Agriculture (USDA, 1989).

Table 5. Estimated Government Payments

Commodity	Payment in \$/bu.		
	Deficiency Payment	Paid Land Diversion	0-92 Payment ^a
Corn	0.89	1.75	0.82
Wheat	0.50	--	0.46
Oats	--	--	0.28 ^b
Barley	0.53	1.40	0.49

^aCalculated by taking deficiency payment times 92 percent. For example, $0.89 * .92 = 0.8188$ or 0.82.

^bThe 0-92 payment for oats is based on a \$0.30 projected deficiency payment. There actually was no deficiency payment for oats, since the market price was higher than the target price. The 0-92 payment is guaranteed, even though there may be no deficiency payment.

Acreage reduction (set-aside) requirements for different levels of participation in the 1988 Federal farm program are listed in Table 6. They were taken from USDA (1989).

During the on-farm interviews, farmers were asked to describe their level of participation in the Federal farm program. A higher level of participation would indicate participation in the paid diversion program and/or the 0-92 provision. The acreage distributions used in the spreadsheets were developed based on these participation levels and other statements made during the interviews about average planted acreages.

Principal Rotation Budgets

This section contains a brief summary of the principal crop rotation and a budget spreadsheet for each of the 12 case farms. Refer to Annex 2 in Taylor, et al. (1989a) for more information on these farms.

The method of labeling the rotations in this report is the same as that followed by Taylor, et al. (1989a). For example, Rotation A in this report is the same as Rotation A in Taylor, et al. (1989a).

The brief summary for each farm contains information about the crop rotation, yields, crop acreages, level of participation in the Federal farm program, and particular assumptions that were made.

The budget spreadsheets consist of an "Input Section" page, an "Input Summary and Results" page, and a "Whole-Farm Results" page.

The "Input Section" contains yield, price, and farm program data used to calculate total income per acre. The information for computing direct (or operating) and fixed costs also appears in this section.

The "Input Summary and Results" section shows the costs and returns per acre for each crop enterprise. Preceding some of the calculated results are Roman numerals. Using corn in Rotation A, for example, Roman numerals highlight the following: (I) Total income per acre, \$169.80; (II) Total direct (operating) costs per acre, \$70.18; (III) Total fixed costs per acre, \$32.91; (IV) Production costs per acre, which is the sum of direct and fixed costs, \$103.09; (V) Land charges per acre, \$30.80; (VI) Total production and land costs per acre, \$133.89; and (VII) Income over all costs per acre, \$35.91.

Numbers that appear in parentheses in the budgets reflect negative values. Since costs were allocated on a calendar year basis, the costs of fall tillage and planting operations were assigned to the crop just harvested. In a similar manner, establishment costs for alfalfa were included with a small grain crop, since those costs take place during the calendar year in which the small grain is the primary crop. This approach to allocating costs was followed in all of the budgets. Because of these calculation procedures and economic trade-offs between different components in particular rotations, the budgets should be viewed from a collective rotation system or whole-farm standpoint, rather than from the standpoint of individual crop enterprises.

Table 6. Acreage Reduction Requirements
for 1988.

<u>Commodity</u>	<u>Non-Paid</u>	<u>Optional Paid Land Diversion</u>
Corn	20%	10%
Wheat	27.5%	--
Oats	5%	--
Barley	20%	10%

The "Whole-Farm Results" page contains a variety of information. Near the top of the page is a table displaying the acreage distribution and income over all costs on a dollar per acre and a dollar per crop enterprise basis. Below this table and to the left is an overview of the results. The overview contains the following items: (1) gross income; (2) direct costs excluding labor; (3) income over non-labor and non-land costs (i.e., return to land, labor, and management); (4) income over non-land costs (i.e., return to land and management); and (5) income over all costs (i.e., return to management). Finally, there is a table indicating the level of participation in the Federal farm program.

Farms in South Central Region*

*Rotations are for farms in Hutchinson County.

INPUT SECTION--ROTATION A.

	Corn Picked	Corn Combined	Soybeans Soybeans	Soybeans (Treflan)	Corn Silage	Oats Oats	Oats (2-4-D)	Oats w/Alf	Alfalfa Cont	Alfalfa Brk	Corn Pd Div	Set Aside
RECEIPTS:												
Estimated grain yield (units/ac.).....	60.0	60.0	30.0	30.0	8.3	60.0	60.0	60.0	3.5	3.5	0.0	0.0
Estimated selling price or value (\$/unit)..	\$1.94	\$1.94	\$6.50	\$6.50	\$19.26	\$1.80	\$1.80	\$1.80	\$50.00	\$50.00	\$0.00	\$0.00
GOVERNMENT PAYMENT:												
Base yield (units/ac.).....	60	60	30	30	60	48	48	48	0	0	60	0
Deficiency payment (\$/unit).....	\$0.89	\$0.89	\$0.00	\$0.00	\$0.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.75	\$0.00
DIRECT COSTS:												
Seed 1 (units/ac.).....	20.5	20.5	1	1	20.5	3	3	4.5	0	0	2	2
(\$/unit).....	\$0.80	\$0.80	\$11.05	\$11.05	\$0.80	\$4.48	\$4.48	\$4.48	\$0.00	\$0.00	\$2.05	\$2.05
Seed 2 (units/ac.).....	0	0	0	0	0	0	0	10	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	32	32	32	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.20	\$0.20	\$0.20	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	16	16	16	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.19	\$0.19	\$0.19	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	6	6	6	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.13	\$0.13	\$0.13	\$0.00	\$0.00	\$0.00	\$0.00
Other Fertilizer (units/acre).....	0	0	0	0	0	0	0	0	18	18	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.19	\$0.19	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0.7	0.7	0.05	1.5	0.7	0	0.5	0	0	0	0	0
(\$/unit).....	\$2.51	\$2.51	\$9.57	\$3.28	\$2.51	\$0.00	\$1.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0.12	0.12	0	0.05	0.12	0	0	0	0	0	0	0
(\$/unit).....	\$1.12	\$1.12	\$0.00	\$9.57	\$1.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$2.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$4.04	\$4.04	\$2.65	\$2.65	\$4.00	\$1.32	\$1.32	\$1.32	\$0.00	\$0.00	\$0.00	\$0.00
Storage (\$/unit).....	\$0.13	\$0.11	\$0.11	\$0.11	\$4.00	\$0.11	\$0.11	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00
Drying (\$/unit).....	\$0.00	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$2.50	\$2.50
Custom machine hire.....												
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$5.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$4.87	\$3.94	\$3.75	\$3.52	\$7.40	\$6.09	\$6.37	\$6.73	\$2.41	\$3.90	\$1.46	\$1.46
Machinery repair (\$/ac.).....	\$7.75	\$8.18	\$8.01	\$7.75	\$13.31	\$14.26	\$14.63	\$15.77	\$7.69	\$9.10	\$1.93	\$1.93
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	2.08	1.48	1.41	1.28	2.32	1.91	2.08	2.20	1.28	1.58	0.47	0.47
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	0.00	0.60	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:												
Interest, Housing, and Ins. on Machinery...	\$13.45	\$14.50	\$15.01	\$14.46	\$16.70	\$19.58	\$20.18	\$21.89	\$11.41	\$15.11	\$4.04	\$4.04
Depreciation on machinery & equipment.....	\$12.86	\$16.27	\$16.84	\$16.34	\$16.14	\$21.11	\$21.77	\$23.31	\$13.66	\$17.20	\$3.77	\$3.77
Land Cost (\$/acre).....	\$440	\$440	\$440	\$440	\$440	\$440	\$440	\$440	\$440	\$440	\$440	\$440
Real Estate Tax Percentage.....	1.58	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

-----end of Input Section)-----

INPUT SUMMARY AND RESULTS--ROTATION A.

	Corn Picked	Corn Combined	Soybeans Soybeans	Soybeans (Treflan)	Corn Silage	Oats Oats	Oats (2-4-D)	Oats w/Alf	Alfalfa Cont	Alfalfa Brk	Corn Pd Div	Set Aside
RECEIPTS:												
Estimated grain yield (units/ac.).....	60.0	60.0	30.0	30.0	8.3	60.0	60.0	60.0	3.5	3.5	0.0	0.0
Estimated selling price or value (\$/unit)...	\$1.94	\$1.94	\$6.50	\$6.50	\$19.26	\$1.80	\$1.80	\$1.80	\$50.00	\$50.00	\$0.00	\$0.00
GOVERNMENT PAYMENT:												
Base yield (units/ac.).....	60	60	30	30	60	48	48	48	0	0	60	0
Deficiency payment (\$/unit).....	\$0.89	\$0.89	\$0.00	\$0.00	\$0.89	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.75	\$0.00
I. Total income per acre.....	\$169.80	\$169.80	\$195.00	\$195.00	\$213.26	\$108.00	\$108.00	\$108.00	\$175.00	\$175.00	\$105.00	\$0.00
DIRECT COSTS:												
Seed (\$/ac.).....	\$16.40	\$16.40	\$11.05	\$11.05	\$16.40	\$13.44	\$13.44	\$39.66	\$0.00	\$0.00	\$4.10	\$4.10
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$10.22	\$10.22	\$10.22	\$3.42	\$3.42	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$1.89	\$1.89	\$0.48	\$5.40	\$1.89	\$0.00	\$0.56	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$2.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$4.04	\$4.04	\$2.65	\$2.65	\$4.00	\$1.32	\$1.32	\$1.32	\$0.00	\$0.00	\$0.00	\$0.00
Storage (\$/ac.).....	\$7.80	\$6.60	\$3.30	\$3.30	\$33.20	\$6.60	\$6.60	\$6.60	\$0.00	\$0.00	\$0.00	\$0.00
Drying (\$/ac.).....	\$0.00	\$9.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.50	\$5.50	\$5.50	\$5.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$2.50	\$2.50
Custom machine hire (\$/ac.).....	\$5.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$4.87	\$3.94	\$3.75	\$3.52	\$7.40	\$6.09	\$6.37	\$6.73	\$2.41	\$3.90	\$1.46	\$1.46
Machinery repair (\$/ac.).....	\$7.75	\$8.18	\$8.01	\$7.75	\$13.31	\$14.26	\$14.63	\$15.77	\$7.69	\$9.10	\$1.93	\$1.93
Interest on non labor direct costs (\$/ac)...	\$3.17	\$3.29	\$2.06	\$2.44	\$4.84	\$3.37	\$3.44	\$5.05	\$1.10	\$1.27	\$0.59	\$0.59
Labor charge(\$/ac.).....	\$13.35	\$9.50	\$11.62	\$10.79	\$14.89	\$12.26	\$13.35	\$14.12	\$8.22	\$10.14	\$3.02	\$3.02
II. Total direct (operating) costs.....	\$70.18	\$68.34	\$48.42	\$54.39	\$101.43	\$72.56	\$74.94	\$104.47	\$27.83	\$32.83	\$13.60	\$13.60
Income over direct costs (I minus II)....	\$99.62	\$101.46	\$146.58	\$140.61	\$111.82	\$35.44	\$33.06	\$3.53	\$147.17	\$142.17	\$91.40	(\$13.60)
Breakeven price per unit (direct costs)..	\$1.17	\$1.14	\$1.61	\$1.81	\$12.22	\$1.21	\$1.25	\$1.74	\$7.95	\$9.38	ERR	ERR
FIXED COSTS:												
Interest, Housing & Ins. on machinery (\$/ac)	\$13.45	\$14.50	\$15.01	\$14.46	\$16.70	\$19.58	\$20.18	\$21.89	\$11.41	\$15.11	\$4.04	\$4.04
Deprec. on machinery and equipment (\$/ac.)..	\$12.86	\$16.27	\$16.84	\$16.34	\$16.14	\$21.11	\$21.77	\$23.31	\$13.66	\$17.20	\$3.77	\$3.77
Real estate taxes (\$/ac.).....	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60
III. Total fixed costs.....	\$32.91	\$37.37	\$38.45	\$37.40	\$39.44	\$47.29	\$48.55	\$51.80	\$31.67	\$38.91	\$14.41	\$14.41
IV. Production costs (\$/ac., excluding land)	\$103.09	\$105.71	\$86.87	\$91.79	\$140.87	\$119.85	\$123.49	\$156.27	\$59.50	\$71.74	\$28.01	\$28.01
(II plus III)												
Production costs (\$/unit).....	\$1.72	\$1.76	\$2.90	\$3.06	\$16.97	\$2.00	\$2.06	\$2.60	\$17.00	\$20.50	ERR	ERR
V. Land charges (\$/ac.).....	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80
VI. Total production and land costs (\$/ac.)	\$133.89	\$136.51	\$117.67	\$122.59	\$171.67	\$150.65	\$154.29	\$187.07	\$90.30	\$102.54	\$58.81	\$58.81
(IV plus V)												
Production and land costs (\$/unit).....	\$2.23	\$2.28	\$3.92	\$4.09	\$20.68	\$2.51	\$2.57	\$3.12	\$25.80	\$29.30	ERR	ERR
Breakeven yield (units/ac.).....	69.0	70.4	18.1	18.9	8.9	83.7	85.7	103.9	1.8	2.1	ERR	ERR
(at selling price)												
VII. Income over all costs (\$/acre).....	\$35.91	\$33.29	\$77.33	\$72.41	\$41.58	(\$42.65)	(\$46.29)	(\$79.07)	\$84.70	\$72.46	\$46.19	(\$58.81)
(I minus VI)												
Income over all costs (\$/unit).....	\$0.60	\$0.55	\$2.58	\$2.41	\$5.01	(\$0.71)	(\$0.77)	(\$1.32)	\$24.20	\$20.70	ERR	ERR

WHOLE-FARM RESULTS--ROTATION A.

Acreage Distribution and Income Over All Costs

	Corn Picked	Corn Combined	Soybeans Soybeans	Soybeans (Treflan)	Corn Silage	Oats Oats	Oats (2-4-D)	Oats w/Alf	Alfalfa Cont	Alfalfa Brk	Corn Pd Div	Set Aside	Total
Crop Distribution (acres).....	37	37	20	30	38	32	31	6	24	6	16	32	309
Income Over All Costs..... (\$/acre)	\$35.91	\$33.29	\$77.33	\$72.41	\$41.58	(\$42.65)	(\$46.29)	(\$79.07)	\$84.70	\$72.46	\$46.19	(\$58.81)	\$19.13
Income Over All Costs..... (\$/crop)	\$1,329	\$1,232	\$1,547	\$2,172	\$1,580	(\$1,365)	(\$1,435)	(\$474)	\$2,033	\$435	\$739	(\$1,882)	\$5,910

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
		Non-Paid Acreage	Optional Acreage	Paid Rate
Gross Income	\$145			
Direct Costs (excl. labor)	\$49			
Income over non-labor & non-land costs	\$67			
Income over non-land costs	\$57			
Income over all costs	\$19			
		Crop	(%)	(\$/bu.)
		Corn	20	\$1.75
		Wheat	***	***
		Oats	***	***
		Barley	***	***
		Sorghum	***	***

South Central - Rotation D. Soybeans - Spring Wheat

This farm has 260 acres that are owned and 120 acres that are rented. The rotation on the owned land is divided so one-half of the acreage is in soybeans and the other half is in spring wheat. The rotation on the rented land is divided so one-half of the acreage is in corn and the other half is in a combination of soybeans and spring wheat.

For the spreadsheet, we used only the 260 acres of owned land. The acreage distribution, "normal" harvested yields, and farm program wheat base yield assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Soybeans	134	25.5 bu/ac.	--
Spring Wheat	91	29 bu/ac.	29 bu/ac.
Set-Aside	<u>35</u>	--	--
Total	260		

The "normal" harvested yield and base yield information were obtained during the on-farm interview.

Participation in the farm program is usually at the higher levels. This farmer likes to use the programs to rest approximately 35-40 acres of the owned land per year. We assumed a minimum participation level because it allowed the desired 35-40 acres of rested land. A spring wheat/sweet clover mix is planted on the set-aside acres and plowed down as a green manure crop sometime in late summer or early fall.

Spot spraying with a purchased chemical herbicide is done only as needed in the spring wheat.

INPUT SECTION--ROTATION D.

	Soybeans	Spring Wheat	Set Aside
RECEIPTS:			
Estimated grain yield (units/ac.).....	25.5	29.0	0.0
Estimated selling price or value (\$/unit)..	\$6.50	\$3.75	\$0.00
GOVERNMENT PAYMENT:			
Base yield (units/ac.).....	25.5	29	0
Deficiency payment (\$/unit).....	\$0.00	\$0.50	\$0.00
DIRECT COSTS:			
Seed 1 (units/ac.).....	1	1.25	1.25
(\$/unit).....	\$11.55	\$6.55	\$4.00
Seed 2 (units/ac.).....	0	0	9.5
(\$/unit).....	\$0.00	\$0.00	\$0.50
Fertilizer 1 (units/ac.).....	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0.12	0
(\$/unit).....	\$0.00	\$1.12	\$0.00
Herbicide 2 (units/ac.).....	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$2.65	\$2.16	\$0.00
Storage (\$/unit).....	\$0.11	\$0.11	\$0.00
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.00	\$2.50
Custom machine hire.....			
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$5.26	\$5.81	\$2.58
Machinery repair (\$/ac.).....	\$8.57	\$11.38	\$3.71
Crop operating loan borrowed (months).....	6	6	6
Interest APR(%).....	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	1.50	1.66	0.77
(\$/hr).....	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	1.29	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28
FIXED COSTS:			
Interest, Housing, and Ins. on Machinery...	\$16.21	\$16.83	\$5.11
Depreciation on machinery & equipment.....	\$17.27	\$17.97	\$4.95
Land Cost (\$/acre).....	\$440	\$440	\$440
Real Estate Tax Percentage.....	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION D.

	Soybeans	Spring Wheat	Set Aside
RECEIPTS:			
Estimated grain yield (units/ac.).....	25.5	29.0	0.0
Estimated selling price or value (\$/unit)...	\$6.50	\$3.75	\$0.00
GOVERNMENT PAYMENT:			
Base yield (units/ac.).....	26	29	0
Deficiency payment (\$/unit).....	\$0.00	\$0.50	\$0.00
I. Total income per acre.....	\$165.75	\$123.25	\$0.00
DIRECT COSTS:			
Seed (\$/ac.).....	\$11.55	\$8.19	\$9.75
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.13	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$2.65	\$2.16	\$0.00
Storage (\$/ac.).....	\$2.81	\$3.19	\$0.00
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.00	\$2.50
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$5.26	\$5.81	\$2.58
Machinery repair (\$/ac.).....	\$8.57	\$11.38	\$3.71
Interest on non labor direct costs (\$/ac)...	\$2.15	\$2.12	\$1.10
Labor charge(\$/ac.).....	\$15.15	\$10.66	\$4.94
II. Total direct (operating) costs.....	\$53.64	\$48.64	\$24.58
Income over direct costs (I minus II)....	\$112.11	\$74.61	(\$24.58)
Breakeven price per unit (direct costs)..	\$2.10	\$1.68	ERR
FIXED COSTS:			
Interest, Housing & Ins. on machinery (\$/ac)	\$16.21	\$16.83	\$5.11
Deprec. on machinery and equipment (\$/ac.)..	\$17.27	\$17.97	\$4.95
Real estate taxes (\$/ac.).....	\$6.60	\$6.60	\$6.60
III. Total fixed costs.....	\$40.08	\$41.40	\$16.66
IV. Production costs (\$/ac., excluding land) (II plus III)	\$93.72	\$90.04	\$41.24
Production costs (\$/unit)...	\$3.68	\$3.10	ERR
V. Land charges (\$/ac.).....	\$30.80	\$30.80	\$30.80
VI. Total production and land costs (\$/ac.) (IV plus V)	\$124.52	\$120.84	\$72.04
Production and land costs (\$/unit).....	\$4.88	\$4.17	ERR
Breakeven yield (units/ac.)..... (at selling price)	19.2	32.2	ERR
VII. Income over all costs (\$/acre)..... (I minus VI)	\$41.23	\$2.41	(\$72.04)
Income over all costs (\$/unit).....	\$1.62	\$0.08	ERR

WHOLE-FARM RESULTS--ROTATION D.

Acreage Distribution and Income Over All Costs

	Soybeans	Spring Wheat	Set Aside	Total
Crop Distribution (acres).....	134	91	35	260
Income Over All Costs..... (\$/acre)	\$41.23	\$2.41	(\$72.04)	\$12.39
Income Over All Costs..... (\$/crop)	\$5,525	\$219	(\$2,521)	\$3,222

Item	Dollars /acre	Farm Program Provisions: Acreage Reduction Requirements		
		Non-Paid Acreage (%)	Optional Paid Acreage (%)	Rate (\$/bu.)
Gross Income	\$129			
Direct Costs (excl. Labor)	\$36			
Income over non-labor & non-land costs	\$62	Corn ***	***	***
Income over non-land costs	\$50	Wheat 27.5	***	***
Income over all costs	\$12	Oats ***	***	***
		Barley ***	***	***
		Sorghum ***	***	***

South Central - Rotation G. Spring Wheat - Soybeans with a fall sowing of rye
- Rye - Soybeans - Rye seeded with alfalfa - Alfalfa (3 yrs.)

This rotation has 267 acres of cropland. The acreage distribution, "normal" harvested yields, and farm program wheat base yield assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Spring Wheat	17	26 bu/ac.	26 bu/ac.
Soybeans	98	25 bu/ac.	--
Rye	98	31 bu/ac.	--
Set-Aside	6	--	--
Alfalfa	<u>48</u>	3.5 ton/ac.	--
Total	267		

The "normal" yield for soybeans and the spring wheat base yield were obtained during the on-farm interview. The "normal" yield for alfalfa was taken from Hoyt, et al. (1989). The spring wheat "normal" yield was estimated by referring to Hoyt, et al. (1989) and by reducing the yield indicated in that source, since this farmer did not have a long history of raising spring wheat. The "normal" yield for rye is a 5-year average (high and low excluded) of data from the SDASS (1989).

Participation in the farm program is usually at the minimum level. The set-aside acres are maintained with the use of a rotary mower and a minimum amount of tillage.

To accurately portray the alfalfa costs, it was assumed that each year 16 acres would be established and 16 acres would be broken up. Alfalfa is broadcast in the rye crop during the spring.

This farmer does not use any chemical herbicide or fertilizer. The "other fertilizer" applied to the soybeans is an organic adendment used to treat the seed at planting time to aid in germination.

INPUT SECTION--ROTATION G.

	Soybeans	Rye	Rye w/ Alfalfa	Alfalfa Cont	Alfalfa Brk	Spring Wheat	Set Aside
RECEIPTS:							
Estimated grain yield (units/ac.).....	25.0	31.0	31.0	3.5	3.5	26.0	0.0
Estimated selling price or value (\$/unit)..	\$6.50	\$1.66	\$1.66	\$50.00	\$50.00	\$3.75	\$0.00
GOVERNMENT PAYMENT:							
Base yield (units/ac.).....	25	0	0	0	0	26	0
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.50	\$0.00
DIRECT COSTS:							
Seed 1 (units/ac.....	1	0	0	0	0	1.25	0
(\$/unit).....	\$11.05	\$0.00	\$0.00	\$0.00	\$0.00	\$6.55	\$0.00
Seed 2 (units/ac.....	1.61	0	10	0	0	0	0
(\$/unit).....	\$4.80	\$0.00	\$1.95	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Fertilizer (units/ac.).....	0.8	0	0	0	0	0	0
(\$/unit).....	\$5.25	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$3.12	\$0.00	\$0.00	\$0.00	\$0.00	\$1.94	\$0.00
Storage (\$/unit).....	\$0.11	\$0.11	\$0.11	\$0.00	\$0.00	\$0.11	\$0.00
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$2.50
Custom machine hire.....							
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$6.96	\$2.08	\$1.19	\$2.35	\$4.45	\$3.10	\$1.05
Machinery repair (\$/ac.).....	\$15.18	\$4.55	\$3.88	\$7.61	\$9.35	\$7.11	\$1.51
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	2.52	0.45	0.35	1.25	1.57	0.94	0.55
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:							
Interest, Housing, and Ins. on Machinery...	\$22.57	\$8.88	\$7.15	\$11.19	\$15.75	\$12.22	\$2.14
Depreciation on machinery & equipment.....	\$24.36	\$10.48	\$8.84	\$13.44	\$17.80	\$14.12	\$2.18
Land Cost (\$/acre).....	\$440	\$440	\$440	\$440	\$440	\$440	\$440
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION G.

	Soybeans	Rye	Rye w/ Alfalfa	Alfalfa Cont	Alfalfa Brk	Spring Wheat	Set Aside
RECEIPTS:							
Estimated grain yield (units/ac.).....	25.0	31.0	31.0	3.5	3.5	26.0	0.0
Estimated selling price or value (\$/unit)...	\$6.50	\$1.66	\$1.66	\$50.00	\$50.00	\$3.75	\$0.00
GOVERNMENT PAYMENT:							
Base yield (units/ac.).....	25	0	0	0	0	26	0
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.50	\$0.00
I. Total income per acre.....	\$162.50	\$51.46	\$51.46	\$175.00	\$175.00	\$110.50	\$0.00
DIRECT COSTS:							
Seed (\$/ac.).....	\$18.78	\$0.00	\$19.50	\$0.00	\$0.00	\$8.19	\$0.00
Fertilizer (\$/ac.).....	\$4.20	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$3.12	\$0.00	\$0.00	\$0.00	\$0.00	\$1.94	\$0.00
Storage (\$/ac.).....	\$2.75	\$3.41	\$3.41	\$0.00	\$0.00	\$2.86	\$0.00
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$2.50
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$6.96	\$2.08	\$1.19	\$2.35	\$4.45	\$3.10	\$1.05
Machinery repair (\$/ac.).....	\$15.18	\$4.55	\$3.88	\$7.61	\$9.35	\$7.11	\$1.51
Interest on non labor direct costs (\$/ac)...	\$3.34	\$0.89	\$1.95	\$0.89	\$1.11	\$1.67	\$0.30
Labor charge(\$/ac.).....	\$16.18	\$2.89	\$2.25	\$8.03	\$10.08	\$6.03	\$3.53
II. Total direct (operating) costs.....	\$76.01	\$18.82	\$37.18	\$23.87	\$29.99	\$35.90	\$8.89
Income over direct costs (I minus II)....	\$86.49	\$32.64	\$14.28	\$151.13	\$145.01	\$74.60	(\$8.89)
Breakeven price per unit (direct costs)..	\$3.04	\$0.61	\$1.20	\$6.82	\$8.57	\$1.38	ERR
FIXED COSTS:							
Interest, Housing & Ins. on machinery (\$/ac)	\$22.57	\$8.88	\$7.15	\$11.19	\$15.75	\$12.22	\$2.14
Deprec. on machinery and equipment (\$/ac.)..	\$24.36	\$10.48	\$8.84	\$13.44	\$17.80	\$14.12	\$2.18
Real estate taxes (\$/ac.).....	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60	\$6.60
III. Total fixed costs.....	\$53.53	\$25.96	\$22.59	\$31.23	\$40.15	\$32.94	\$10.92
IV. Production costs (\$/ac., excluding land) (II plus III)	\$129.54	\$44.78	\$59.77	\$55.10	\$70.14	\$68.84	\$19.81
Production costs (\$/unit)....	\$5.18	\$1.44	\$1.93	\$15.74	\$20.04	\$2.65	ERR
V. Land charges (\$/ac.).....	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80	\$30.80
VI. Total production and land costs (\$/ac.) (IV plus V)	\$160.34	\$75.58	\$90.57	\$85.90	\$100.94	\$99.64	\$50.61
Production and land costs (\$/unit)....	\$6.41	\$2.44	\$2.92	\$24.54	\$28.84	\$3.83	ERR
Breakeven yield (units/ac.).....	24.7	45.5	54.6	1.7	2.0	26.6	ERR
(at selling price)							
VII. Income over all costs (\$/acre)..... (I minus VI)	\$2.16	(\$24.12)	(\$39.11)	\$89.10	\$74.06	\$10.86	(\$50.61)
Income over all costs (\$/unit).....	\$0.09	(\$0.78)	(\$1.26)	\$25.46	\$21.16	\$0.42	ERR

WHOLE-FARM RESULTS--ROATION G.

Acreage Distribution and Income Over All Costs

	Soybeans	Rye	Rye w/ Alfalfa	Alfalfa Cont	Alfalfa Brk	Spring Wheat	Set Aside	Total
Crop Distribution (acres).....	98	82	16	32	16	17	6	267
Income Over All Costs..... (\$/acre)	\$2.16	(\$24.12)	(\$39.11)	\$89.10	\$74.06	\$10.86	(\$50.61)	\$5.71
Income Over All Costs..... (\$/crop)	\$212	(\$1,978)	(\$626)	\$2,851	\$1,185	\$185	(\$304)	\$1,525

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
		Crop	Non-Paid Acreage (%)	Optional Paid Acreage Rate (\$/bu.)
Gross Income	\$117			
Direct Costs (excl. labor)	\$34			
Income over non-labor & non-land costs	\$52	Corn	***	***
		Wheat	27.5	***
		Oats	***	***
		Barley	***	***
Income over non-land costs	\$43	Sorghum	***	***
Income over all costs	\$6			

Farms in East Central Region*

*Rotations are for farms in Lake County

East Central - Rotation H. Soybeans - Corn - Small Grain (Oats, Spring Wheat, or Barley) seeded with alfalfa - Alfalfa (1 yr.)

The 720 acres of cropland are divided so approximately one-fourth of the acreage is used in each of the four parts of the rotation.

The acreage distribution, "normal" harvested yields, and farm program base yields assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Soybeans	172	24 bu/ac.	--
Corn	162	85 bu/ac.	70 bu/ac.
Oats	66	43 bu/ac.	60 bu/ac.
Spring Wheat	40	18 bu/ac.	30 bu/ac.
Alfalfa	140	2.5 ton/ac.	--
Set-Aside	<u>140</u>	--	--
Total	720		

The "normal" harvested yield for each crop is a 5-year (1985-1989) average (with the high and low yields thrown out) of yield data reported by the farmer. The farm program base yield information was obtained during the on-farm interview.

Participation in the farm program fluctuates between the minimum and higher levels. Small grain (oats and/or barley) is used as a cover crop on the farm program set-aside areas. Alfalfa is established on the set-aside acres by interseeding it with the small grain.

Some chemical herbicides are used on a small amount of the corn and soybean acreage. For budgeting purposes, it was decided to spread the herbicide costs over all the corn and soybean acres. These costs are shown in the "herbicide application" row of the budget spreadsheet.

INPUT SECTION--ROTATION H.

	Corn	Soybeans	Spring Wheat	Oats w/A non-paid Oats setaside	Barley w/A n-p setaside	Barley w/A p corn setaside	Barley w/A corn 0/92	Alfalfa	
RECEIPTS:									
Estimated grain yield (units/ac.).....	85.0	24.0	18.0	43.0	0.0	0.0	0.0	2.5	
Estimated selling price or value (\$/unit)..	\$1.90	\$6.50	\$3.75	\$1.76	\$0.00	\$0.00	\$0.00	\$50.00	
GOVERNMENT PAYMENT:									
Base yield (units/ac.).....	70	24	30	60	0	0	70	0	
Deficiency payment (\$/unit).....	\$0.89	\$0.00	\$0.50	\$0.00	\$0.00	\$0.00	\$1.75	\$0.00	
DIRECT COSTS:									
Seed 1 (units/ac.).....	18	1	1	2	2	2	2	0	
(\$/unit).....	\$0.80	\$11.05	\$6.55	\$4.48	\$2.01	\$2.15	\$2.15	\$0.00	
Seed 2 (units/ac.).....	0	0	0	0	5	5	5	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$1.95	\$1.95	\$1.95	\$0.00	
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide application (\$/ac.).....	\$0.50	\$3.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Crop insurance (\$/ac.).....	\$3.34	\$3.06	\$2.19	\$1.12	\$0.00	\$0.00	\$0.00	\$0.00	
Storage (\$/unit).....	\$0.11	\$0.11	\$0.11	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	
Drying (\$/unit).....	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Overhead (\$/ac.).....	\$5.50	\$5.50	\$5.00	\$5.00	\$2.50	\$2.50	\$2.50	\$5.00	
Custom machine hire.....									
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fuel and lubrication (\$/ac.).....	\$5.88	\$4.54	\$3.13	\$3.33	\$2.45	\$2.45	\$2.45	\$5.24	
Machinery repair (\$/ac.).....	\$10.92	\$8.85	\$9.46	\$9.82	\$5.59	\$5.59	\$5.59	\$8.92	
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6	
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
Labor 1 (hrs./ac.).....	2.13	1.64	1.12	1.21	1.07	1.07	1.07	1.77	
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	
Labor 2 (hrs./ac.).....	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	
FIXED COSTS:									
Interest, Housing, and Ins. on Machinery...	\$19.09	\$16.24	\$14.30	\$14.62	\$6.84	\$6.84	\$6.84	\$14.42	
Depreciation on machinery & equipment.....	\$20.44	\$17.82	\$16.07	\$16.37	\$7.14	\$7.14	\$7.14	\$15.21	
Land Cost (\$/acre).....	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420	
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	

------(end of Input Section)-----

INPUT SUMMARY AND RESULTS--ROTATION H.

	Corn	Soybeans	Spring Wheat	Oats w/A non-paid Oats	Barley w/A n-p setaside	Barley w/A p corn setaside	Barley w/A corn 0/92	Alfalfa	
RECEIPTS:									
Estimated grain yield (units/ac.).....	85.0	24.0	18.0	43.0	0.0	0.0	0.0	0.0	2.5
Estimated selling price or value (\$/unit)...	\$1.90	\$6.50	\$3.75	\$1.76	\$0.00	\$0.00	\$0.00	\$0.00	\$50.00
GOVERNMENT PAYMENT:									
Base yield (units/ac.).....	70	24	30	60	0	0	70	70	0
Deficiency payment (\$/unit).....	\$0.89	\$0.00	\$0.50	\$0.00	\$0.00	\$0.00	\$1.75	\$0.82	\$0.00
I. Total income per acre.....	\$223.80	\$156.00	\$82.50	\$75.68	\$0.00	\$0.00	\$122.50	\$57.40	\$125.00
DIRECT COSTS:									
Seed (\$/ac.).....	\$14.40	\$11.05	\$6.55	\$8.96	\$13.77	\$14.05	\$14.05	\$14.05	\$0.00
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.50	\$3.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$3.34	\$3.06	\$2.19	\$1.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Storage (\$/ac.).....	\$9.35	\$2.64	\$1.98	\$4.73	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Drying (\$/ac.).....	\$12.75	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.50	\$5.00	\$5.00	\$2.50	\$2.50	\$2.50	\$2.50	\$5.00
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$5.88	\$4.54	\$3.13	\$3.33	\$2.45	\$2.45	\$2.45	\$2.45	\$5.24
Machinery repair (\$/ac.).....	\$10.92	\$8.85	\$9.46	\$9.82	\$5.59	\$5.59	\$5.59	\$5.59	\$8.92
Interest on non labor direct costs (\$/ac)...	\$3.71	\$2.32	\$1.68	\$1.95	\$1.44	\$1.46	\$1.46	\$1.46	\$1.13
Labor charge(\$/ac.).....	\$13.67	\$12.58	\$7.19	\$7.77	\$6.87	\$6.87	\$6.87	\$6.87	\$11.36
II. Total direct (operating) costs.....	\$80.03	\$54.04	\$37.18	\$42.68	\$32.62	\$32.91	\$32.91	\$32.91	\$31.66
Income over direct costs (I minus II)....	\$143.77	\$101.96	\$45.32	\$33.00	(\$32.62)	(\$32.91)	\$89.59	\$24.49	\$93.34
Breakeven price per unit (direct costs)..	\$0.94	\$2.25	\$2.07	\$0.99	ERR	ERR	ERR	ERR	\$12.66
FIXED COSTS:									
Interest, Housing & Ins. on machinery (\$/ac)	\$19.09	\$16.24	\$14.30	\$14.62	\$6.84	\$6.84	\$6.84	\$6.84	\$14.42
Deprec. on machinery and equipment (\$/ac.)..	\$20.44	\$17.82	\$16.07	\$16.37	\$7.14	\$7.14	\$7.14	\$7.14	\$15.21
Real estate taxes (\$/ac.).....	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30
III. Total fixed costs.....	\$45.83	\$40.36	\$36.67	\$37.29	\$20.28	\$20.28	\$20.28	\$20.28	\$35.93
IV. Production costs (\$/ac., excluding land) (II plus III)	\$125.86	\$94.40	\$73.85	\$79.97	\$52.90	\$53.19	\$53.19	\$53.19	\$67.59
Production costs (\$/unit).....	\$1.48	\$3.93	\$4.10	\$1.86	ERR	ERR	ERR	ERR	\$27.03
V. Land charges (\$/ac.).....	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40
VI. Total production and land costs (\$/ac.) (IV plus V)	\$155.26	\$123.80	\$103.25	\$109.37	\$82.30	\$82.59	\$82.59	\$82.59	\$96.99
Production and land costs (\$/unit).....	\$1.83	\$5.16	\$5.74	\$2.54	ERR	ERR	ERR	ERR	\$38.79
Breakeven yield (units/ac.)..... (at selling price)	81.7	19.0	27.5	62.1	ERR	ERR	ERR	ERR	1.9
VII. Income over all costs (\$/acre)..... (I minus VI)	\$68.54	\$32.20	(\$20.75)	(\$33.69)	(\$82.30)	(\$82.59)	\$39.91	(\$25.19)	\$28.01
Income over all costs (\$/unit).....	\$0.81	\$1.34	(\$1.15)	(\$0.78)	ERR	ERR	ERR	ERR	\$11.21

WHOLE FARM RESULTS--ROTATION H.

Acreage Distribution and Income over All Costs.

	Corn	Soybeans	Spring Wheat	Oats w/A non-paid	Barley w/A n-p setaside	Barley w/A pcorn setaside	Barley w/A corn 0/92	Alfalfa	Total	
Crop Distribution (acres)..	162	172	40	66	34	63	29	14	140	720
Income Over All Costs..... (\$/acre)	\$68.54	\$32.20	(\$20.75)	(\$33.69)	(\$82.30)	(\$82.59)	\$39.91	(\$25.19)	\$28.01	\$14.33
Income Over All Costs..... (\$/crop)	\$11,104	\$5,539	(\$830)	(\$2,224)	(\$2,798)	(\$5,203)	\$1,157	(\$353)	\$3,922	\$10,314

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements			
		Non-Paid	Optional Paid		
		Acreage	Acreage	Rate	
		(%)	(%)	(\$/bu)	
Gross Income	\$129				
Direct cost (excl.labor)	\$39				
Income over non-labor & non-land costs	\$61				
Income over non-land costs	\$50				
Income over all costs	\$14				
		Corn	20.0	10.0	1.75
		Wheat	27.5	***	***
		Oats	5.0	***	***
		Barley	20.0	***	***
		Sorghum	***	***	***

East Central - Rotation K. Flax or Soybeans - Spring Wheat or Corn - Corn, Barley, or Spring Wheat seeded with Sweet Clover - Soybeans - Corn - Barley seeded with Alfalfa - Alfalfa (3 yrs.)

This farm of 500 acres has around 260 acres that are farmed without the use of purchased chemical fertilizers and herbicides. The other 240 acres are farmed using chemical fertilizers and herbicides.

In the spreadsheet, we modeled the acres farmed without the use of chemical fertilizers and herbicides. The acreage distribution, "normal" harvested yields, and farm program base yields are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Soybeans	58	25 bu/ac.	--
Spring Wheat	29	35 bu/ac.	30 bu/ac.
Set-Aside (Sweet Clover)	30	--	--
Corn	29	65 bu/ac.	65 bu/ac.
Barley	29	45 bu/ac.	45 bu/ac.
Alfalfa	<u>87</u>	2.8 ton/ac.	--
Total	262		

The "normal" harvested yields for barley, spring wheat, and alfalfa were taken from Hoyt, et al. (1989). The yields for corn and soybeans were also taken from Hoyt, et al. (1989); however, the yields indicated in that source were adjusted downward to reflect the farmer's opinion that corn and soybean yields obtained by one who uses chemical fertilizers and herbicides would be higher than his. Base yield information was obtained during the on-farm interview.

Participation in the farm program fluctuates between the minimum and higher levels. We used the higher level on corn and minimum level on wheat and barley. A cover crop of sweet clover is used on the set-aside acres. The sweet clover is usually plowed down in July and, in order to reduce erosion, some barley may be broadcast for winter cover. The costs for a barley cover crop were not included in the spreadsheet because this practice is not always done.

To accurately reflect the alfalfa costs, it was assumed that each year 29 acres would be established and 29 acres would be broken up. This farmer normally establishes alfalfa with barley as a nurse crop.

INPUT SECTION--ROTATION K.

	Soybeans	S.Wheat w/Clover	Clover non-paid Setaside	Clover paid Setaside	Corn	Barley w/ Alf	Alfalfa Cont	Alfalfa Brk
RECEIPTS:								
Estimated grain yield (units/ac.).....	25.0	35.0	0.0	0.0	65.0	45.0	2.8	2.8
Estimated selling price or value (\$/unit)..	\$6.50	\$3.75	\$0.00	\$0.00	\$1.90	\$1.90	\$50.00	\$50.00
GOVERNMENT PAYMENT:								
Base yield (units/ac.).....	25	30	0	65	65	45	0	0
Deficiency payment (\$/unit).....	\$0.00	\$0.50	\$0.00	\$1.75	\$0.89	\$0.53	\$0.00	\$0.00
DIRECT COSTS:								
Seed 1 (units/ac.).....	1	1.25	0	0	18	1.25	0	0
(\$/unit).....	\$11.05	\$6.55	\$0.00	\$0.00	\$0.80	\$4.80	\$0.00	\$0.00
Seed 2 (units/ac.).....	0	9.5	0	0	0	10	0	0
(\$/unit).....	\$0.00	\$0.50	\$0.00	\$0.00	\$0.00	\$1.95	\$0.00	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$3.19	\$2.19	\$0.00	\$0.00	\$3.11	\$2.27	\$0.00	\$0.00
Storage (\$/unit).....	\$0.11	\$0.11	\$0.00	\$0.00	\$0.11	\$0.11	\$0.00	\$0.00
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.15	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.00	\$2.50	\$2.50	\$5.50	\$5.00	\$5.00	\$5.00
Custom machine hire.....								
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$5.10	\$2.33	\$1.96	\$1.96	\$4.25	\$3.89	\$2.01	\$3.97
Machinery repair (\$/ac.).....	\$9.48	\$6.81	\$1.62	\$1.62	\$8.95	\$8.18	\$6.97	\$8.59
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	1.63	0.77	0.41	0.41	1.49	1.18	1.16	1.57
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	1.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:								
Interest, Housing, and Ins. on Machinery...	\$17.28	\$12.30	\$3.12	\$3.12	\$16.51	\$15.01	\$10.24	\$13.36
Depreciation on machinery & equipment.....	\$18.38	\$13.83	\$2.61	\$2.61	\$17.96	\$16.12	\$11.97	\$14.58
Land Cost (\$/acre).....	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

------(end of Input Section)-----

INPUT SUMMARY AND RESULTS--ROTATION K.

	Soybeans	S.Wheat w/Clover	Clover non-paid Setaside	Clover paid Setaside	Corn	Barley w/Alf	Alfalfa Cont	Alfalfa Brk
RECEIPTS:								
Estimated grain yield (units/ac.).....	25.0	35.0	0.0	0.0	65.0	45.0	2.8	2.8
Estimated selling price or value (\$/unit)...	\$6.50	\$3.75	\$0.00	\$0.00	\$1.90	\$1.90	\$50.00	\$50.00
GOVERNMENT PAYMENT:								
Base yield (units/ac.).....	25	30	0	65	65	45	0	0
Deficiency payment (\$/unit).....	\$0.00	\$0.50	\$0.00	\$1.75	\$0.89	\$0.53	\$0.00	\$0.00
I. Total income per acre.....	\$162.50	\$146.25	\$0.00	\$113.75	\$181.35	\$109.35	\$140.00	\$140.00
DIRECT COSTS:								
Seed (\$/ac.).....	\$11.05	\$12.94	\$0.00	\$0.00	\$14.40	\$25.50	\$0.00	\$0.00
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$3.19	\$2.19	\$0.00	\$0.00	\$3.11	\$2.27	\$0.00	\$0.00
Storage (\$/ac.).....	\$2.75	\$3.85	\$0.00	\$0.00	\$7.15	\$4.95	\$0.00	\$0.00
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$9.75	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.00	\$2.50	\$2.50	\$5.50	\$5.00	\$5.00	\$5.00
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$5.10	\$2.33	\$1.96	\$1.96	\$4.25	\$3.89	\$2.01	\$3.97
Machinery repair (\$/ac.).....	\$9.48	\$6.81	\$1.62	\$1.62	\$8.95	\$8.18	\$6.97	\$8.59
Interest on non labor direct costs (\$/ac)...	\$2.19	\$1.96	\$0.36	\$0.36	\$3.14	\$2.95	\$0.83	\$1.04
Labor charge(\$/ac.).....	\$15.47	\$4.94	\$2.63	\$2.63	\$9.57	\$7.58	\$7.45	\$10.08
II. Total direct (operating) costs.....	\$54.73	\$40.02	\$9.07	\$9.07	\$65.81	\$60.31	\$22.25	\$28.68
Income over direct costs (I minus II)....	\$107.77	\$106.23	(\$9.07)	\$104.68	\$115.54	\$49.04	\$117.75	\$111.32
Breakeven price per unit (direct costs)..	\$2.19	\$1.14	ERR	ERR	\$1.01	\$1.34	\$7.95	\$10.24
FIXED COSTS:								
Interest, Housing & Ins. on machinery (\$/ac)	\$17.28	\$12.30	\$3.12	\$3.12	\$16.51	\$15.01	\$10.24	\$13.36
Deprec. on machinery and equipment (\$/ac.)..	\$18.38	\$13.83	\$2.61	\$2.61	\$17.96	\$16.12	\$11.97	\$14.58
Real estate taxes (\$/ac.).....	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30
III. Total fixed costs.....	\$41.96	\$32.43	\$12.03	\$12.03	\$40.77	\$37.43	\$28.51	\$34.24
IV. Production costs (\$/ac., excluding land) (II plus III)	\$96.69	\$72.45	\$21.10	\$21.10	\$106.58	\$97.74	\$50.76	\$62.92
Production costs (\$/unit)....	\$3.87	\$2.07	ERR	ERR	\$1.64	\$2.17	\$18.13	\$22.47
V. Land charges (\$/ac.).....	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40
VI. Total production and land costs (\$/ac.) (IV plus V)	\$126.09	\$101.85	\$50.50	\$50.50	\$135.98	\$127.14	\$80.16	\$92.32
Production and land costs (\$/unit).....	\$5.04	\$2.91	ERR	ERR	\$2.09	\$2.83	\$28.63	\$32.97
Breakeven yield (units/ac.)..... (at selling price)	19.4	27.2	ERR	ERR	71.6	66.9	1.6	1.8
VII. Income over all costs (\$/acre)..... (I minus VI)	\$36.41	\$44.40	(\$50.50)	\$63.25	\$45.37	(\$17.79)	\$59.84	\$47.68
Income over all costs (\$/unit).....	\$1.46	\$1.27	ERR	ERR	\$0.70	(\$0.40)	\$21.37	\$17.03

WHOLE-FARM RESULTS--ROTATION K.

 Acreage Distribution and Income Over All Costs

	Soybeans	S.Wheat w/Clover	Clover non-paid Setaside	Clover paid Setaside	Corn	Barley w/Alf	Alfalfa Cont	Alfalfa Brk	Total
Crop Distribution (acres).....	58	29	26	4	29	29	58	29	262
Income Over All Costs..... (\$/acre)	\$36.41	\$44.40	(\$50.50)	\$63.25	\$45.37	(\$17.79)	\$59.84	\$47.68	\$30.50
Income Over All Costs..... (\$/crop)	\$2,112	\$1,287	(\$1,313)	\$253	\$1,316	(\$516)	\$3,470	\$1,383	\$7,992

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
		Non-Paid Acreage (%)	Optional Acreage (%)	Paid Rate (\$/bu)
Gross Income	\$133			
Direct costs (excl. labor)	\$31			
Income over non-labor & non-land costs	\$75	Corn 20	10	\$1.75
Income over non-land costs	\$66	Wheat 27.5	***	***
Income over all costs	\$31	Oats ***	***	***
		Barley 20	***	***
		Sorghum ***	***	***

East Central - Rotation L. Soybeans - Corn - Oats seeded with Sweet Clover or Alfalfa - Sweet Clover Summer Fallow

A majority of the 1,060 acres of cropland on this farm are grown with this rotation. However, some alfalfa, flax, and rye are also grown.

The acreage distribution, "normal" harvested yields, and farm program base yields assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Soybeans	180	27 bu/ac.	--
Corn (grain)	175	75 bu/ac.	69 bu/ac.
Corn (silage)	25	9.0 ton/ac.	69 bu/ac.
Oats	200	65 bu/ac.	59 bu/ac.
Set-Aside	180	--	--
Alfalfa	100	2.8 ton/ac.	--
Flax	100	22 bu/ac.	--
Rye	<u>100</u>	45 bu/ac.	--
Total	1,060		

All "normal" harvested yields, except for corn silage and alfalfa, were obtained during the on-farm interview. The silage yield is a 5-year average (high and low yield thrown out) of data from SDASS (1986, 1987, 1988, and 1989). The alfalfa yield was taken from Hoyt, et al. (1989). The farm program base yields were obtained during the interview.

Participation in the farm program is usually at the higher levels in order to maximize the sweet clover acreage in the rotation. Sweet clover seeded with oats provides set-aside acreage for the year after the oats is harvested. The sweet clover is usually incorporated with a disc during late summer. Sweet clover may also be harvested for seed, but provisions for this were not included in the spreadsheet, because all the sweet clover acreage was used to meet the set-aside requirements.

To accurately portray the alfalfa costs, it was assumed that each year 20 acres would be established and 20 acres would be broken up. The alfalfa is established with oats as a nurse crop.

Some purchased chemical fertilizers and herbicides are sometimes used, but costs for these were not included in the spreadsheet because they are not applied on a regular basis.

INPUT SECTION--ROTATION L.

	Corn Combine	Corn Silage	Oats w/ Swt Cl	Oats w/ Alfalfa	Corn Pd Div	Corn Pd 0-92	Barley Pd Div	Barley Pd 0-92	Set Asd Swt Cl	Soybean	Alfalfa Cont	Alfalfa Brk	Flax	Rye
RECEIPTS:														
Estimated grain yield (units/ac.).....	75.0	9.0	65.0	65.0	0.0	0.0	0.0	0.0	0.0	27.0	2.8	2.8	22.0	45.0
Estimated selling price or value (\$/unit)..	\$1.90	\$19.10	\$1.76	\$1.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.50	\$50.00	\$50.00	\$5.05	\$1.66
GOVERNMENT PAYMENT:														
Base yield (units/ac.).....	69	69	59	59	69	69	44	44	0	27	0	0	22	0
Deficiency payment (\$/unit).....	\$0.89	\$0.89	\$0.00	\$0.00	\$1.75	\$0.82	\$1.40	\$0.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DIRECT COSTS:														
Seed 1 (units/ac.).....	18	18	2.5	2.5	0	0	0	0	0	1	0	0	0.86	0
(\$/unit).....	\$0.80	\$0.80	\$4.48	\$4.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11.05	\$0.00	\$0.00	\$9.25	\$0.00
Seed 2 (units/ac.).....	0	0	9.5	10	0	0	0	0	0	0	0	0	1.61	0
(\$/unit).....	\$0.00	\$0.00	\$0.50	\$1.95	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.80	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$3.30	\$3.03	\$1.10	\$1.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.44	\$0.00	\$0.00	\$3.26	\$0.00
Storage (\$/unit).....	\$0.11	\$4.00	\$0.11	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.11	\$0.00	\$0.00	\$0.11	\$0.11
Drying (\$/unit).....	\$0.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.50	\$5.00	\$5.00	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$5.50	\$5.00	\$5.00	\$5.00	\$5.00
Custom machine hire.....														
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$4.27	\$6.80	\$3.96	\$3.96	\$0.88	\$0.88	\$0.88	\$0.88	\$0.88	\$5.16	\$3.39	\$5.35	\$4.42	\$2.27
Machinery repair (\$/ac.).....	\$8.50	\$12.89	\$12.53	\$12.53	\$1.08	\$1.08	\$1.08	\$1.08	\$1.08	\$9.00	\$10.93	\$12.55	\$11.02	\$6.05
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	1.57	2.20	1.51	1.51	0.29	0.29	0.29	0.29	0.29	1.76	1.63	2.04	1.64	0.65
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.00	0.00	0.00	0.00
(\$/hr).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:														
Interest, Housing, and Ins. on Machinery...	\$14.91	\$15.63	\$15.31	\$15.31	\$2.84	\$2.84	\$2.84	\$2.84	\$2.84	\$17.48	\$12.87	\$15.99	\$16.22	\$10.42
Depreciation on machinery & equipment.....	\$16.49	\$15.16	\$17.19	\$17.19	\$2.72	\$2.72	\$2.72	\$2.72	\$2.72	\$18.58	\$14.58	\$17.19	\$18.34	\$11.81
Land Cost (\$/acre).....	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420	\$420
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION L.

	Corn Combine	Corn Silage	Oats w/ Sut Cl	Oats w/ Alfalfa	Corn Pd Div	Corn Pd 0-92	Barley Pd Div	Barley Pd 0-92	Set Asd Sut Cl	Soybean	Alfalfa Cont	Alfalfa Brk	Flax	Rye
RECEIPTS:														
Estimated grain yield (units/ac.).....	75.0	9.0	65.0	65.0	0.0	0.0	0.0	0.0	0.0	27.0	2.8	2.8	22.0	45.0
Estimated selling price or value (\$/unit)...	\$1.90	\$19.10	\$1.76	\$1.76	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.50	\$50.00	\$50.00	\$5.05	\$1.66
GOVERNMENT PAYMENT:														
Base yield (units/ac.).....	69	69	59	59	69	69	44	44	0	27	0	0	22	0
Deficiency payment (\$/unit).....	\$0.89	\$0.89	\$0.00	\$0.00	\$1.75	\$0.82	\$1.40	\$0.49	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
I. Total income per acre.....	\$203.91	\$233.31	\$114.40	\$114.40	\$120.75	\$56.58	\$61.60	\$21.56	\$0.00	\$175.50	\$140.00	\$140.00	\$111.10	\$74.70
DIRECT COSTS:														
Seed (\$/ac.).....	\$14.40	\$14.40	\$15.95	\$30.70	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$11.05	\$0.00	\$0.00	\$15.68	\$0.00
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$3.30	\$3.03	\$1.10	\$1.10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.44	\$0.00	\$0.00	\$3.26	\$0.00
Storage (\$/ac.).....	\$8.25	\$36.00	\$7.15	\$7.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.97	\$0.00	\$0.00	\$2.42	\$4.95
Drying (\$/ac.).....	\$11.25	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.50	\$5.00	\$5.00	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$5.50	\$5.00	\$5.00	\$5.00	\$5.00
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$4.27	\$6.80	\$3.96	\$3.96	\$0.88	\$0.88	\$0.88	\$0.88	\$0.88	\$5.16	\$3.39	\$5.35	\$4.42	\$2.27
Machinery repair (\$/ac.).....	\$8.50	\$12.89	\$12.53	\$12.53	\$1.08	\$1.08	\$1.08	\$1.08	\$1.08	\$9.00	\$10.93	\$12.55	\$11.02	\$6.05
Interest on non labor direct costs (\$/ac.)...	\$3.28	\$4.65	\$2.70	\$3.58	\$0.26	\$0.26	\$0.26	\$0.26	\$0.26	\$2.20	\$1.14	\$1.36	\$2.47	\$1.08
Labor charge(\$/ac.).....	\$10.08	\$14.12	\$9.69	\$9.69	\$1.86	\$1.86	\$1.86	\$1.86	\$1.86	\$18.15	\$10.46	\$13.10	\$10.53	\$4.17
II. Total direct (operating) costs.....	\$68.83	\$97.40	\$58.09	\$73.72	\$6.59	\$6.59	\$6.59	\$6.59	\$6.59	\$57.46	\$30.93	\$37.35	\$54.81	\$23.52
Income over direct costs (I minus II)....	\$135.08	\$135.91	\$56.31	\$40.68	\$114.16	\$49.99	\$55.01	\$14.97	(\$6.59)	\$118.04	\$109.07	\$102.65	\$56.29	\$51.18
Breakeven price per unit (direct costs)..	\$0.92	\$10.82	\$0.89	\$1.13	ERR	ERR	ERR	ERR	ERR	\$2.13	\$11.05	\$13.34	\$2.49	\$0.52
FIXED COSTS:														
Interest, Housing & Ins. on machinery (\$/ac)	\$14.91	\$15.63	\$15.31	\$15.31	\$2.84	\$2.84	\$2.84	\$2.84	\$2.84	\$17.48	\$12.87	\$15.99	\$16.22	\$10.42
Deprec. on machinery and equipment (\$/ac.)..	\$16.49	\$15.16	\$17.19	\$17.19	\$2.72	\$2.72	\$2.72	\$2.72	\$2.72	\$18.58	\$14.58	\$17.19	\$18.34	\$11.81
Real estate taxes (\$/ac.).....	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30	\$6.30
III. Total fixed costs.....	\$37.70	\$37.09	\$38.80	\$38.80	\$11.86	\$11.86	\$11.86	\$11.86	\$11.86	\$42.36	\$33.75	\$39.48	\$40.86	\$28.53
IV. Production costs (\$/ac., excluding land)	\$106.53	\$134.49	\$96.89	\$112.52	\$18.45	\$18.45	\$18.45	\$18.45	\$18.45	\$99.82	\$64.68	\$76.83	\$95.67	\$52.05
(II plus III)														
Production costs (\$/unit)....	\$1.42	\$14.94	\$1.49	\$1.73	ERR	ERR	ERR	ERR	ERR	\$3.70	\$23.10	\$27.44	\$4.35	\$1.16
V. Land charges (\$/ac.).....	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40	\$29.40
VI. Total production and land costs (\$/ac.)..	\$135.93	\$163.89	\$126.29	\$141.92	\$47.85	\$47.85	\$47.85	\$47.85	\$47.85	\$129.22	\$94.08	\$106.23	\$125.07	\$81.45
(IV plus V)														
Production and land costs (\$/unit).....	\$1.81	\$18.21	\$1.94	\$2.18	ERR	ERR	ERR	ERR	ERR	\$4.79	\$33.60	\$37.94	\$5.68	\$1.81
Breakeven yield (units/ac.).....	71.5	8.6	71.8	80.6	ERR	ERR	ERR	ERR	ERR	19.9	1.9	2.1	24.8	49.1
(at selling price)														
VII. Income over all costs (\$/acre).....	\$67.98	\$69.42	(\$11.89)	(\$27.52)	\$72.90	\$8.73	\$13.75	(\$26.29)	(\$47.85)	\$46.28	\$45.92	\$33.77	(\$13.97)	(\$6.75)
(I minus VI)														
Income over all costs (\$/unit).....	\$0.91	\$7.71	(\$0.18)	(\$0.42)	ERR	ERR	ERR	ERR	ERR	\$1.71	\$16.40	\$12.06	(\$0.63)	(\$0.1

WHOLE-FARM RESULTS--ROTATION L.

Acreege Distribution and Income Over All Costs

	Corn Combine	Corn Silage	Oats w/ Swt Cl	Oats w/ Alfalfa	Corn Pd Div	Corn Pd 0-92	Barley Pd Div	Barley Pd 0-92	Set Asd Swt Cl	Soybean	Alfalfa Cont	Alfalfa Brk	Flax	Rye	Total
Crop Distribution (acres).....	175	25	180	20	34	38	4	28	76	180	80	20	100	100	1060
Income Over All Costs..... (\$/acre)	\$67.98	\$69.42	(\$11.89)	(\$27.52)	\$72.90	\$8.73	\$13.75	(\$26.29)	(\$47.85)	\$46.28	\$45.92	\$33.77	(\$13.97)	(\$6.75)	\$18.91
Income Over All Costs..... (\$/crop)	\$11,897	\$1,736	(\$2,141)	(\$550)	\$2,479	\$332	\$55	(\$736)	(\$3,636)	\$8,330	\$3,674	\$675	(\$1,397)	(\$675)	\$20,042

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
		Non-Paid		Optional Paid
		Acreage	Acreage	Rate
		(%)	(%)	(\$/bu)
Gross Income	\$128			
Direct costs (excl. labor)	\$37			
Income over non-labor & non-land costs	\$64	Corn 20	10	\$1.75
		Wheat ***	***	***
		Oats ***	***	***
		Barley 20	10	\$1.40
		Sorghum ***	***	***
Income over non-land costs	\$55			
Income over all costs	\$19			

Farms in Northeast Region*

*In the Northeast Region, Rotations R and S are for farms in Brown County and Rotation Q is for a farm in Roberts County.

Northeast - Rotation Q. Summer Fallow with a fall seeding of Winter Wheat or Rye - Rye or Winter Wheat - Soybeans - Sunflowers - Millet

This farm of 330 acres has about 175 acres that are farmed without the use of purchased chemical herbicides and fertilizers. The other 155 acres are in a soybean-soybean-wheat rotation on which some chemical herbicides and fertilizers are used.

In the spreadsheet, we modeled the acres farmed without the use of chemical fertilizers and herbicides. The "other fertilizer" is an organic amendment used to treat the seed at planting time to aid in germination. The approximate acreage distribution, "normal" harvested yields, and farm program wheat base yield assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Summer Fallow	38	--	--
Winter Wheat	31	35 bu/ac.	25 bu/ac.
Soybeans	36	30 bu/ac.	--
Sunflowers	36	1400 lbs/ac.	--
Millet	<u>36</u>	2,000 lbs/ac. (35.7 bu/ac.)	--
Total	177		

The "normal" harvested yields for soybeans, sunflowers, and millet were obtained during the on-farm interview. The winter wheat yield came from Hoyt, et al. (1989). The farm program base yield was obtained during the interview.

Participation in the farm program is usually at the higher levels. The required and paid set-aside acreage for the Federal farm program is satisfied by the summer fallow ground. Fallow is maintained with frequent tillage throughout the summer. Winter wheat is planted on this fallow ground in the fall.

INPUT SECTION--ROTATION Q.

	Winter				Sum	Fal	Corn	Corn	Oats	Barley	Barley
	Wheat	Soybeans	Sunflower	Millet	Set	Aside	Pd	0-92	0-92	Pd	0-92
RECEIPTS:											
Estimated grain yield (units/ac.).....	35.0	30.0	1400.0	35.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Estimated selling price or value (\$/unit)..	\$3.60	\$6.50	\$0.10	\$2.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GOVERNMENT PAYMENT:											
Base yield (units/ac.).....	25	30	1400	0	0	68	68	65	40	40	
Deficiency payment (\$/unit).....	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$1.75	\$0.82	\$0.28	\$1.40	\$0.49	
DIRECT COSTS:											
Seed 1 (units/ac.).....	0	1	5	20	1.25	1.25	1.25	1.25	1.25	1.25	0
(\$/unit).....	\$0.00	\$11.05	\$3.25	\$0.16	\$7.00	\$7.00	\$7.00	\$7.00	\$7.00	\$7.00	\$0.00
Seed 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Fertilizer (units/ac.).....	0	0.8	0.18	0.36	1.25	1.25	1.25	1.25	1.25	1.25	0
(\$/unit).....	\$0.00	\$5.25	\$5.25	\$5.25	\$5.25	\$5.25	\$5.25	\$5.25	\$5.25	\$5.25	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$0.00	\$2.50	\$1.91	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Storage (\$/unit).....	\$0.11	\$0.11	\$0.003	\$0.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.00	\$5.50	\$5.50	\$5.00	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50
Custom machine hire.....											
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$2.60	\$3.75	\$4.60	\$3.71	\$5.05	\$5.05	\$5.05	\$5.05	\$5.05	\$5.05	\$4.01
Machinery repair (\$/ac.).....	\$5.40	\$7.95	\$8.93	\$9.79	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$6.26
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	0.80	1.27	1.65	1.29	1.74	1.74	1.74	1.74	1.74	1.74	1.27
(\$/hr.).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:											
Interest, Housing, and Ins. on Machinery...	\$10.19	\$13.92	\$16.91	\$13.09	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$5.40
Depreciation on machinery & equipment.....	\$11.84	\$15.59	\$18.54	\$15.11	\$8.49	\$8.49	\$8.49	\$8.49	\$8.49	\$8.49	\$5.64
Land Cost (\$/acre).....	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION Q.

	Winter		Sunflower	Millet	Sum	Corn	Corn	Oats	Barley	Barley
	Wheat	Soybeans			Fal	Pd Div	0-92	0-92	Pd Div	0-92
RECEIPTS:										
Estimated grain yield (units/ac.).....	35.0	30.0	1400.0	35.7	0.0	0.0	0.0	0.0	0.0	0.0
Estimated selling price or value (\$/unit)...	\$3.60	\$6.50	\$0.10	\$2.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GOVERNMENT PAYMENT:										
Base yield (units/ac.).....	25	30	1400	0	0	68	68	65	40	40
Deficiency payment (\$/unit).....	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$1.75	\$0.82	\$0.28	\$1.40	\$0.49
I. Total income per acre.....	\$138.50	\$195.00	\$140.00	\$99.96	\$0.00	\$119.00	\$55.76	\$18.20	\$56.00	\$19.60
DIRECT COSTS:										
Seed (\$/ac.).....	\$0.00	\$11.05	\$16.25	\$3.20	\$8.75	\$8.75	\$8.75	\$8.75	\$8.75	\$0.00
Fertilizer (\$/ac.).....	\$0.00	\$4.20	\$0.95	\$1.89	\$6.56	\$6.56	\$6.56	\$6.56	\$6.56	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$0.00	\$2.50	\$1.91	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Storage (\$/ac.).....	\$3.85	\$3.30	\$4.20	\$3.93	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.00	\$5.50	\$5.50	\$5.00	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50	\$2.50
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$2.60	\$3.75	\$4.60	\$3.71	\$5.05	\$5.05	\$5.05	\$5.05	\$5.05	\$4.01
Machinery repair (\$/ac.).....	\$5.40	\$7.95	\$8.93	\$9.79	\$9.00	\$9.00	\$9.00	\$9.00	\$9.00	\$6.26
Interest on non labor direct costs (\$/ac.)...	\$1.00	\$2.26	\$2.51	\$1.63	\$1.89	\$1.89	\$1.89	\$1.89	\$1.89	\$0.76
Labor charge(\$/ac.).....	\$5.14	\$15.00	\$10.59	\$8.28	\$11.17	\$11.17	\$11.17	\$11.17	\$11.17	\$8.15
II. Total direct (operating) costs.....	\$22.98	\$55.51	\$55.43	\$37.43	\$44.92	\$44.92	\$44.92	\$44.92	\$44.92	\$21.68
Income over direct costs (I minus II)....	\$115.52	\$139.49	\$84.57	\$62.53	(\$44.92)	\$74.08	\$10.84	(\$26.72)	\$11.08	(\$2.08)
Breakeven price per unit (direct costs)..	\$0.66	\$1.85	\$0.04	\$1.05	ERR	ERR	ERR	ERR	ERR	ERR
FIXED COSTS:										
Interest, Housing & Ins. on machinery (\$/ac)	\$10.19	\$13.92	\$16.91	\$13.09	\$8.04	\$8.04	\$8.04	\$8.04	\$8.04	\$5.40
Deprec. on machinery and equipment (\$/ac.)..	\$11.84	\$15.59	\$18.54	\$15.11	\$8.49	\$8.49	\$8.49	\$8.49	\$8.49	\$5.64
Real estate taxes (\$/ac.).....	\$4.95	\$4.95	\$4.95	\$4.95	\$4.95	\$4.95	\$4.95	\$4.95	\$4.95	\$4.95
III. Total fixed costs.....	\$26.98	\$34.46	\$40.40	\$33.15	\$21.48	\$21.48	\$21.48	\$21.48	\$21.48	\$15.99
IV. Production costs (\$/ac., excluding land) (II plus III)	\$49.96	\$89.97	\$95.83	\$70.58	\$66.40	\$66.40	\$66.40	\$66.40	\$66.40	\$37.67
Production costs (\$/unit)...	\$1.43	\$3.00	\$0.07	\$1.98	ERR	ERR	ERR	ERR	ERR	ERR
V. Land charges (\$/ac.).....	\$23.10	\$23.10	\$23.10	\$23.10	\$23.10	\$23.10	\$23.10	\$23.10	\$23.10	\$23.10
VI. Total production and land costs (\$/ac.) (IV plus V)	\$73.06	\$113.07	\$118.93	\$93.68	\$89.50	\$89.50	\$89.50	\$89.50	\$89.50	\$60.77
Production and land costs (\$/unit).....	\$2.09	\$3.77	\$0.08	\$2.62	ERR	ERR	ERR	ERR	ERR	ERR
Breakeven yield (units/ac.)..... (at selling price)	20.3	17.4	1189.3	33.5	ERR	ERR	ERR	ERR	ERR	ERR
VII. Income over all costs (\$/acre)..... (I minus VI)	\$65.44	\$81.93	\$21.07	\$6.28	(\$89.50)	\$29.50	(\$33.74)	(\$71.30)	(\$33.50)	(\$41.17)
Income over all costs (\$/unit).....	\$1.87	\$2.73	\$0.02	\$0.18	ERR	ERR	ERR	ERR	ERR	ERR

WHOLE-FARM RESULTS--ROTATION Q.

Acreage Distribution and Income Over All Costs

	Winter Wheat	Soybeans	Sunflower	Millet	Sum Fal Set Aside	Corn Pd Div	Corn 0-92	Oats 0-92	Barley Pd Div	Barley 0-92	Total
Crop Distribution (acres).....	31	36	36	36	16	2	11	1	1	7	177
Income Over All Costs..... (\$/acre)	\$65.44	\$81.93	\$21.07	\$6.28	(\$89.50)	\$29.50	(\$33.74)	(\$71.30)	(\$33.50)	(\$41.17)	\$21.61
Income Over All Costs..... (\$/crop)	\$2,029	\$2,949	\$758	\$226	(\$1,432)	\$59	(\$371)	(\$71)	(\$33)	(\$288)	\$3,825

Item -----	Dollars/acre -----	Farm Program Provisions: Acreage Reduction Requirements -----		
			Non-Paid Acreage (%)	Optional Paid Acreage Rate (\$/bu)
Gross Income	\$119			
Direct costs (excl. labor)	\$33	Crop		
Income over non-labor & non-land costs	\$60	Corn	20	10 \$1.75
		Wheat	27.5	***
		Oats	5	***
		Barley	20	10 \$1.40
		Sorghum	***	***
Income over non-land costs	\$50			
Inc. over all costs	\$22			

Northeast - Rotation R. Spring Wheat seeded with Sweet Clover - Sweet Clover Summer Fallow - Spring Wheat - Spring Wheat with a fall seeding of Rye - Sunflowers, Soybeans, Millet, Flax or Rye

This rotation has 745 acres of cropland. All cropland is farmed without the use of purchased chemical herbicides and fertilizers. The acreage distribution, "normal" harvested yields, and farm program wheat base yield assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Spring Wheat	363	22 bu/ac.	22 bu/ac.
Sweet Clover	137	--	--
Rye	49	36 bu/ac.	--
Flax	49	11 bu/ac.	--
Millet	49	26 bu/ac.	--
Soybeans	49	20 bu/ac.	--
Sunflowers	<u>49</u>	1200 lbs/ac.	--
Total	745		

The "normal" harvested yields for spring wheat and sunflowers were obtained during the on-farm interview. The yields for the other crops came from a variety of sources, including Hoyt, et al. (1989), SDASS (1989), and comparisons to a nearby sustainable farmer. The base yield information was obtained during the interview.

Participation in the farm program is usually at the minimum level. The set-aside acreage for the Federal farm program is satisfied on the sweet clover acreage. The sweet clover is incorporated with a disc during late summer.

INPUT SECTION--ROTATION R.

	Sp. Wht w/Swt.Cl	Sp/ w/Cl aft Sunfl	Sweet Clover	Spring Wheat	Sp.Wht w/ Rye	Rye	Flax	Millet	Soybeans	Sunflower
RECEIPTS:										
Estimated grain yield (units/ac.).....	22.0	22.0	0.0	22.0	22.0	36.0	11.0	26.0	20.0	1200.0
Estimated selling price or value (\$/unit)..	\$3.75	\$3.75	\$0.00	\$3.75	\$3.75	\$1.66	\$5.05	\$2.80	\$6.50	\$0.10
GOVERNMENT PAYMENT:										
Base yield (units/ac.).....	22	22	0	22	22	36	11	0	20	1200
Deficiency payment (\$/unit).....	\$0.50	\$0.50	\$0.00	\$0.50	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
DIRECT COSTS:										
Seed 1 (units/ac.).....	1.25	1.25	0	1.25	1.25	0	0.86	20	1	3.5
(\$/unit).....	\$6.55	\$6.55	\$0.00	\$6.55	\$6.55	\$0.00	\$9.25	\$0.16	\$11.05	\$3.25
Seed 2 (units/ac.).....	9.5	9.5	0	0	1.61	0	0	0	0	0
(\$/unit).....	\$0.50	\$0.50	\$0.00	\$0.00	\$4.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$1.96	\$1.96	\$0.00	\$1.96	\$1.96	\$1.21	\$1.89	\$0.00	\$2.91	\$1.97
Storage (\$/unit).....	\$0.11	\$0.11	\$0.00	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.11	\$0.003
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.00	\$5.00	\$2.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.50	\$5.50
Custom machine hire.....										
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$3.40	\$3.84	\$0.44	\$3.84	\$4.46	\$1.90	\$4.23	\$4.35	\$5.14	\$5.32
Machinery repair (\$/ac.).....	\$8.87	\$9.41	\$0.54	\$9.41	\$11.50	\$5.78	\$9.46	\$9.67	\$8.76	\$9.09
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	0.83	0.98	0.15	0.98	1.34	0.62	1.00	1.05	1.57	1.65
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	0.80
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:										
Interest, Housing, and Ins. on Machinery...	\$13.49	\$14.91	\$1.42	\$14.91	\$16.90	\$9.49	\$14.94	\$15.13	\$16.63	\$16.92
Depreciation on machinery & equipment.....	\$15.38	\$16.74	\$1.36	\$16.74	\$19.08	\$11.21	\$17.19	\$17.38	\$17.66	\$17.94
Land Cost (\$/acre).....	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION R.

	Sp. Wht w/Swt.Cl	SpW w/Cl aft Sunfl	Sweet Clover	Spring Wheat	Sp.Wht w/ Rye	Rye	Flax	Millet	Soybeans	Sunflower
RECEIPTS:										
Estimated grain yield (units/ac.).....	22.0	22.0	0.0	22.0	22.0	36.0	11.0	26.0	20.0	1200.0
Estimated selling price or value (\$/unit)...	\$3.75	\$3.75	\$0.00	\$3.75	\$3.75	\$1.66	\$5.05	\$2.80	\$6.50	\$0.10
GOVERNMENT PAYMENT:										
Base yield (units/ac.).....	22	22	0	22	22	36	11	0	20	1200
Deficiency payment (\$/unit).....	\$0.50	\$0.50	\$0.00	\$0.50	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
I. Total income per acre.....	\$93.50	\$93.50	\$0.00	\$93.50	\$93.50	\$59.76	\$55.55	\$72.80	\$130.00	\$120.00
DIRECT COSTS:										
Seed (\$/ac.).....	\$12.94	\$12.94	\$0.00	\$8.19	\$15.92	\$0.00	\$7.96	\$3.20	\$11.05	\$11.38
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$1.96	\$1.96	\$0.00	\$1.96	\$1.96	\$1.21	\$1.89	\$0.00	\$2.91	\$1.97
Storage (\$/ac.).....	\$2.42	\$2.42	\$0.00	\$2.42	\$2.42	\$3.96	\$1.21	\$2.86	\$2.20	\$3.60
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.00	\$5.00	\$2.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00	\$5.50	\$5.50
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$3.40	\$3.84	\$0.44	\$3.84	\$4.46	\$1.90	\$4.23	\$4.35	\$5.14	\$5.32
Machinery repair (\$/ac.).....	\$8.87	\$9.41	\$0.54	\$9.41	\$11.50	\$5.78	\$9.46	\$9.67	\$8.76	\$9.09
Interest on non labor direct costs (\$/ac.)...	\$2.05	\$2.10	\$0.21	\$1.82	\$2.44	\$1.06	\$1.76	\$1.48	\$2.10	\$2.18
Labor charge(\$/ac.).....	\$5.33	\$6.29	\$0.96	\$6.29	\$8.60	\$3.98	\$6.42	\$6.74	\$16.93	\$14.02
II. Total direct (operating) costs.....	\$41.97	\$43.97	\$4.65	\$38.94	\$52.30	\$22.88	\$37.92	\$33.31	\$54.59	\$53.05
Income over direct costs (I minus II)....	\$51.53	\$49.53	(\$4.65)	\$54.56	\$41.20	\$36.88	\$17.63	\$39.49	\$75.41	\$66.95
Breakeven price per unit (direct costs)..	\$1.91	\$2.00	ERR	\$1.77	\$2.38	\$0.64	\$3.45	\$1.28	\$2.73	\$0.04
FIXED COSTS:										
Interest, Housing & Ins. on machinery (\$/ac)	\$13.49	\$14.91	\$1.42	\$14.91	\$16.90	\$9.49	\$14.94	\$15.13	\$16.63	\$16.92
Deprec. on machinery and equipment (\$/ac.)..	\$15.38	\$16.74	\$1.36	\$16.74	\$19.08	\$11.21	\$17.19	\$17.38	\$17.66	\$17.94
Real estate taxes (\$/ac.).....	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50
III. Total fixed costs.....	\$33.37	\$36.15	\$7.28	\$36.15	\$40.48	\$25.20	\$36.63	\$37.01	\$38.79	\$39.36
IV. Production costs (\$/ac., excluding land) (II plus III)	\$75.34	\$80.12	\$11.93	\$75.09	\$92.78	\$48.08	\$74.55	\$70.32	\$93.38	\$92.41
Production costs (\$/unit)....	\$3.42	\$3.64	ERR	\$3.41	\$4.22	\$1.34	\$6.78	\$2.70	\$4.67	\$0.08
V. Land charges (\$/ac.).....	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00
VI. Total production and land costs (\$/ac.)... (IV plus V)	\$96.34	\$101.12	\$32.93	\$96.09	\$113.78	\$69.08	\$95.55	\$91.32	\$114.38	\$113.41
Production and land costs (\$/unit)....	\$4.38	\$4.60	ERR	\$4.37	\$5.17	\$1.92	\$8.69	\$3.51	\$5.72	\$0.09
Breakeven yield (units/ac.)..... (at selling price)	25.7	27.0	ERR	25.6	30.3	41.6	18.9	32.6	17.6	1134.1
VII. Income over all costs (\$/acre)..... (I minus VI)	(\$2.84)	(\$7.62)	(\$32.93)	(\$2.59)	(\$20.28)	(\$9.32)	(\$40.00)	(\$18.52)	\$15.62	\$6.59
Income over all costs (\$/unit).....	(\$0.13)	(\$0.35)	ERR	(\$0.12)	(\$0.92)	(\$0.26)	(\$3.64)	(\$0.71)	\$0.78	\$0.01

WHOLE-FARM RESULTS--ROTATION R.

Acreage Distribution and Income Over All Costs

	Sp. Wht w/Swt.Cl	SpW w/Cl aft Sunfl	Sweet Clover	Spring Wheat	Sp.Wht w/ Rye	Rye	Flax	Millet	Soybeans	Sunflower	Total
Crop Distribution (acres).....	88	49	137	177	49	49	49	49	49	49	745
Income Over All Costs..... (\$/acre)	(\$2.84)	(\$7.62)	(\$32.93)	(\$2.59)	(\$20.28)	(\$9.32)	(\$40.00)	(\$18.52)	\$15.62	\$6.59	(\$11.84)
Income Over All Costs..... (\$/crop)	(\$250)	(\$373)	(\$4,511)	(\$458)	(\$994)	(\$457)	(\$1,960)	(\$907)	\$765	\$323	(\$8,822)

Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
	Non-Paid Acreage (%)	Optional Paid Acreage (%)	Rate (\$/bu)
Gross Income	\$74		
Direct costs (excl. labor)	\$28		
Income over non-labor & non-land costs	\$20		
Income over non-land costs	\$14		
Income over all costs	(\$12)		
	Crop		
	Corn	***	***
	Wheat	27.5	***
	Oats	***	***
	Barley	***	***
	Sorghum	***	***

Northeast - Rotation S. Summer Fallow - Soybeans - Spring Wheat or Oats - Millet - Summer Fallow with a fall seeding of Rye or Millet - Millet or Flax seeded with Alfalfa - Alfalfa (3-5 yrs.)

The 800 acres of cropland are roughly divided in thirds among summer fallow, legumes (alfalfa and soybeans), and small grains (wheat, oats, millet, flax, and buckwheat). We attempted to simulate this in the spreadsheet.

The acreage distribution, "normal" harvested yields, and farm program wheat base yield assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Summer Fallow	225	--	--
Soybeans	90	16 bu/ac.	--
Spring Wheat	200	25 bu/ac.	22 bu/ac.
Millet	35	30 bu/ac.	--
Flax	50	12 bu/ac.	--
Alfalfa	<u>200</u>	1.5 ton/ac.	--
Total	800		

All "normal" harvested yields were obtained during the on-farm interview. The farm program wheat base yield is an estimate of the county average for the area, obtained from the county ASCS office.

Participation in the farm program varies between the minimum and higher levels, depending on weather conditions. A minimum level was assumed in the spreadsheet. The set-aside acreage for the Federal farm program is satisfied by the summer fallow ground.

To accurately reflect the alfalfa costs, it was assumed that each year 50 acres would be established and 50 acres would be broken up. The alfalfa is established with flax as a nurse crop. The alfalfa is broken up in the spring and treated as summer fallow. This is shown in the summer fallow (Sum. Fal.) alfalfa breaking (Alf. Brk.) column.

INPUT SECTION--ROTATION S.

	Sum Fal	Summer		Spring		Sum Fal	Flax w/	
	Alf Brk	Fallow Soybeans		Wheat	Millet	w/ Rye	Alfalfa	Alfalfa
RECEIPTS:								
Estimated grain yield (units/ac.).....	0.0	0.0	16.0	25.0	30.0	0.0	12.0	1.5
Estimated selling price or value (\$/unit)..	\$0.00	\$0.00	\$6.50	\$3.75	\$2.80	\$0.00	\$5.05	\$50.00
GOVERNMENT PAYMENT:								
Base yield (units/ac.).....	0	0	16	22	0	0	12	0
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00
DIRECT COSTS:								
Seed 1 (units/ac.).....	0	0	1	1.25	20	1.61	0.86	0
(\$/unit).....	\$0.00	\$0.00	\$11.05	\$6.55	\$0.16	\$1.91	\$9.25	\$0.00
Seed 2 (units/ac.).....	0	0	0	0	0	0	10	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.95	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$0.00	\$0.00	\$2.79	\$1.96	\$0.00	\$0.00	\$2.06	\$0.00
Storage (\$/unit).....	\$0.00	\$0.00	\$0.11	\$0.11	\$0.11	\$0.00	\$0.11	\$0.00
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$2.50	\$2.50	\$5.50	\$5.00	\$5.00	\$2.50	\$5.00	\$5.00
Custom machine hire.....								
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$4.80	\$3.45	\$3.36	\$4.63	\$5.26	\$7.10	\$3.16	\$1.09
Machinery repair (\$/ac.).....	\$3.62	\$2.97	\$7.36	\$11.42	\$10.17	\$10.79	\$7.29	\$3.00
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	1.00	1.00	1.16	1.20	1.76	1.93	0.69	0.78
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:								
Interest, Housing, and Ins. on Machinery...	\$7.56	\$5.16	\$14.33	\$14.00	\$15.87	\$12.64	\$11.23	\$4.36
Depreciation on machinery & equipment.....	\$6.49	\$4.70	\$15.87	\$15.89	\$17.41	\$12.37	\$13.18	\$5.31
Land Cost (\$/acre).....	\$300	\$300	\$300	\$300	\$300	\$300	\$300	\$300
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION S.

	Sum Fal	Summer		Spring		Sum Fal	Flax w/	
	Alf Brk	Fallow	Soybeans	Wheat	Millet	w/ Rye	Alfalfa	Alfalfa
RECEIPTS:								
Estimated grain yield (units/ac.).....	0.0	0.0	16.0	25.0	30.0	0.0	12.0	1.5
Estimated selling price or value (\$/unit)...	\$0.00	\$0.00	\$6.50	\$3.75	\$2.80	\$0.00	\$5.05	\$50.00
GOVERNMENT PAYMENT:								
Base yield (units/ac.).....	0	0	16	22	0	0	12	0
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.50	\$0.00	\$0.00	\$0.00	\$0.00
I. Total income per acre.....	\$0.00	\$0.00	\$104.00	\$104.75	\$84.00	\$0.00	\$60.60	\$75.00
DIRECT COSTS:								
Seed (\$/ac.).....	\$0.00	\$0.00	\$11.05	\$8.19	\$3.20	\$3.08	\$27.46	\$0.00
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$0.00	\$0.00	\$2.79	\$1.96	\$0.00	\$0.00	\$2.06	\$0.00
Storage (\$/ac.).....	\$0.00	\$0.00	\$1.76	\$2.75	\$3.30	\$0.00	\$1.32	\$0.00
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$2.50	\$2.50	\$5.50	\$5.00	\$5.00	\$2.50	\$5.00	\$5.00
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$4.80	\$3.45	\$3.36	\$4.63	\$5.26	\$7.10	\$3.16	\$1.09
Machinery repair (\$/ac.).....	\$3.62	\$2.97	\$7.36	\$11.42	\$10.17	\$10.79	\$7.29	\$3.00
Interest on non labor direct costs (\$/ac)...	\$0.65	\$0.53	\$1.88	\$2.01	\$1.59	\$1.39	\$2.74	\$0.54
Labor charge(\$/ac.).....	\$6.42	\$6.42	\$7.45	\$7.70	\$11.30	\$12.39	\$4.43	\$5.01
II. Total direct (operating) costs.....	\$17.99	\$15.87	\$41.15	\$43.66	\$39.82	\$37.24	\$53.45	\$14.64
Income over direct costs (I minus II)....	(\$17.99)	(\$15.87)	\$62.85	\$61.09	\$44.18	(\$37.24)	\$7.15	\$60.36
Breakeven price per unit (direct costs)..	ERR	ERR	\$2.57	\$1.75	\$1.33	ERR	\$4.45	\$9.76
FIXED COSTS:								
Interest, Housing & Ins. on machinery (\$/ac)	\$7.56	\$5.16	\$14.33	\$14.00	\$15.87	\$12.64	\$11.23	\$4.36
Deprec. on machinery and equipment (\$/ac.)..	\$6.49	\$4.70	\$15.87	\$15.89	\$17.41	\$12.37	\$13.18	\$5.31
Real estate taxes (\$/ac.).....	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50	\$4.50
III. Total fixed costs.....	\$18.55	\$14.36	\$34.70	\$34.39	\$37.78	\$29.51	\$28.91	\$14.17
IV. Production costs (\$/ac., excluding land)	\$36.54	\$30.23	\$75.85	\$78.05	\$77.60	\$66.75	\$82.36	\$28.81
(II plus III)								
Production costs (\$/unit)....	ERR	ERR	\$4.74	\$3.12	\$2.59	ERR	\$6.86	\$19.20
V. Land charges (\$/ac.).....	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00	\$21.00
VI. Total production and land costs (\$/ac.)..	\$57.54	\$51.23	\$96.85	\$99.05	\$98.60	\$87.75	\$103.36	\$49.81
(IV plus V)								
Production and land costs (\$/unit).....	ERR	ERR	\$6.05	\$3.96	\$3.29	ERR	\$8.61	\$33.20
Breakeven yield (units/ac.).....	ERR	ERR	14.9	26.4	35.2	ERR	20.5	1.0
(at selling price)								
VII. Income over all costs (\$/acre).....	(\$57.54)	(\$51.23)	\$7.15	\$5.70	(\$14.60)	(\$87.75)	(\$42.76)	\$25.19
(I minus VI)								
Income over all costs (\$/unit).....	ERR	ERR	\$0.45	\$0.23	(\$0.49)	ERR	(\$3.56)	\$16.80

WHOLE-FARM RESULTS--ROTATION S.

Acreage Distribution and Income Over All Costs

	Sum Alf	Fal Brk	Summer Fallow	Soybeans	Spring Wheat	Millet	Sum Fal w/ Rye	Flax w/ Alfalfa	Alfalfa	Total
Crop Distribution (acres).....	50		70	90	200	35	105	50	200	800
Income Over All Costs..... (\$/acre)	(\$57.54)		(\$51.23)	\$7.15	\$5.70	(\$14.60)	(\$87.75)	(\$42.76)	\$25.19	(\$14.38)
Income Over All Costs..... (\$/crop)	(\$2,877)		(\$3,586)	\$644	\$1,139	(\$511)	(\$9,214)	(\$2,138)	\$5,039	(\$11,504)

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
		Non-Paid Acreage	Optional Acreage	Paid Rate
Gross Income	\$64			
Direct costs (excl. labor)	\$24			
Income over non-labor & non-land costs	\$18			
Income over non-land costs	\$11			
Income over all costs	(\$14)			
		Crop	(%)	(\$/bu)
		Corn	***	***
		Wheat	27.5	***
		Oats	***	***
		Barley	***	***
		Sorghum	***	***

Farms in West Region*

*In the West Region, Rotations T and U are in the southwest winter wheat area, and Rotation V is in the northwest spring wheat area.

West - Rotation T. Buckwheat - Summer Fallow with a fall seeding of Winter Wheat - Winter Wheat - Millet - Summer Fallow with a fall seeding of Winter Wheat - Winter Wheat

The 2,575 acres of cropland are divided in thirds among millet and/or buckwheat, summer fallow, and winter wheat. Also, 20 acres of alfalfa (included in the 2,575 acres) are left growing for 5 years after establishment.

The acreage distribution, "normal" harvested yields, and farm program wheat base yield assumed for the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Buckwheat	426	17.5 bu/ac.	--
Millet	426	30 bu/ac.	--
Summer Fallow	852	--	--
Winter Wheat	852	30 bu/ac.	28 bu/ac.
Alfalfa	<u>20</u>	1 ton/ac.	--
Total	2,576		

The "normal" harvested yield and base yield information came from the on-farm interview.

Participation in the farm program is generally at the minimum level. The required set-aside acreage for the Federal farm program is satisfied by the summer fallow ground.

To accurately reflect the alfalfa costs, it was assumed that each year 4 acres would be established and 4 acres would be broken up. The alfalfa is established during late summer, after winter wheat harvest, with oats as a nurse crop. An occasional alfalfa seed crop may be taken. This was not accounted for in the spreadsheet. The alfalfa is broken up in the spring and treated as summer fallow. This is shown in the summer fallow (Sum. Fal.) alfalfa breaking (Alf. Brk.) column.

INPUT SECTION--ROTATION T.

	Buckwheat	Sum Fal w/W.Wht	Winter Wheat	Millet	W.Wht w/ Oats& Alf	Alfalfa Cont	Sum Fal Alf Brk
RECEIPTS:							
Estimated grain yield (units/ac.).....	17.5	0.0	30.0	30.0	30.0	1.0	0.0
Estimated selling price or value (\$/unit)..	\$5.28	\$0.00	\$3.60	\$2.80	\$3.60	\$50.00	\$0.00
GOVERNMENT PAYMENT:							
Base yield (units/ac.).....	0	0	28	0	28	0	0
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.50	\$0.00	\$0.50	\$0.00	\$0.00
DIRECT COSTS:							
Seed 1 (units/ac.).....	48	1.25	0	20	1	0	1.25
(\$/unit).....	\$0.30	\$7.00	\$0.00	\$0.16	\$2.05	\$0.00	\$7.00
Seed 2 (units/ac.).....	0	0	0	0	10	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$1.95	\$0.00	\$0.00
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$0.00	\$0.00	\$2.78	\$0.00	\$2.78	\$0.00	\$0.00
Storage (\$/unit).....	\$0.11	\$0.00	\$0.11	\$0.11	\$0.11	\$0.00	\$0.00
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.00	\$2.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Custom machine hire.....							
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$3.03	\$3.26	\$2.07	\$3.13	\$2.69	\$0.86	\$4.31
Machinery repair (\$/ac.).....	\$8.18	\$4.41	\$4.54	\$8.36	\$6.63	\$2.57	\$5.28
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	1.11	1.17	0.45	1.16	0.81	0.71	1.33
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:							
Interest, Housing, and Ins. on Machinery...	\$11.94	\$4.79	\$8.87	\$12.11	\$10.86	\$3.73	\$7.07
Depreciation on machinery & equipment.....	\$14.09	\$5.42	\$10.47	\$14.25	\$12.81	\$4.33	\$7.60
Land Cost (\$/acre).....	\$200	\$200	\$200	\$200	\$200	\$200	\$200
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION T.

	Buckwheat	Sum Fal w/W.Wht	Winter Wheat	Millet	W.Wht w/ Oats& Alf	Alfalfa Cont	Sum Fal Alf Brk
RECEIPTS:							
Estimated grain yield (units/ac.).....	17.5	0.0	30.0	30.0	30.0	1.0	0.0
Estimated selling price or value (\$/unit)...	\$5.28	\$0.00	\$3.60	\$2.80	\$3.60	\$50.00	\$0.00
GOVERNMENT PAYMENT:							
Base yield (units/ac.).....	0	0	28	0	28	0	0
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.50	\$0.00	\$0.50	\$0.00	\$0.00
I. Total income per acre.....	\$92.40	\$0.00	\$122.00	\$84.00	\$122.00	\$50.00	\$0.00
DIRECT COSTS:							
Seed (\$/ac.).....	\$14.40	\$8.75	\$0.00	\$3.20	\$21.55	\$0.00	\$8.75
Fertilizer (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$0.00	\$0.00	\$2.78	\$0.00	\$2.78	\$0.00	\$0.00
Storage (\$/ac.).....	\$1.93	\$0.00	\$3.30	\$3.30	\$3.30	\$0.00	\$0.00
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.00	\$2.50	\$5.00	\$5.00	\$5.00	\$5.00	\$5.00
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$3.03	\$3.26	\$2.07	\$3.13	\$2.69	\$0.86	\$4.31
Machinery repair (\$/ac.).....	\$8.18	\$4.41	\$4.54	\$8.36	\$6.63	\$2.57	\$5.28
Interest on non labor direct costs (\$/ac.)...	\$1.93	\$1.12	\$1.05	\$1.36	\$2.48	\$0.50	\$1.38
Labor charge(\$/ac.).....	\$7.13	\$7.51	\$2.89	\$7.45	\$5.20	\$4.56	\$8.54
II. Total direct (operating) costs.....	\$41.59	\$27.55	\$21.63	\$31.80	\$49.64	\$13.49	\$33.26
Income over direct costs (I minus II)....	\$50.81	(\$27.55)	\$100.37	\$52.20	\$72.36	\$36.51	(\$33.26)
Breakeven price per unit (direct costs)..	\$2.38	ERR	\$0.72	\$1.06	\$1.65	\$13.49	ERR
FIXED COSTS:							
Interest, Housing & Ins. on machinery (\$/ac)	\$11.94	\$4.79	\$8.87	\$12.11	\$10.86	\$3.73	\$7.07
Deprec. on machinery and equipment (\$/ac.)..	\$14.09	\$5.42	\$10.47	\$14.25	\$12.81	\$4.33	\$7.60
Real estate taxes (\$/ac.).....	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00
III. Total fixed costs.....	\$29.03	\$13.21	\$22.34	\$29.36	\$26.67	\$11.06	\$17.67
IV. Production costs (\$/ac., excluding land) (II plus III)	\$70.62	\$40.76	\$43.97	\$61.16	\$76.31	\$24.55	\$50.93
Production costs (\$/unit)....	\$4.04	ERR	\$1.47	\$2.04	\$2.54	\$24.55	ERR
V. Land charges (\$/ac.).....	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00
VI. Total production and land costs (\$/ac.) (IV plus V)	\$84.62	\$54.76	\$57.97	\$75.16	\$90.31	\$38.55	\$64.93
Production and land costs (\$/unit).....	\$4.84	ERR	\$1.93	\$2.51	\$3.01	\$38.55	ERR
Breakeven yield (units/ac.)..... (at selling price)	16.0	ERR	16.1	26.8	25.1	0.8	ERR
VII. Income over all costs (\$/acre)..... (I minus VI)	\$7.78	(\$54.76)	\$64.03	\$8.84	\$31.69	\$11.45	(\$64.93)
Income over all costs (\$/unit).....	\$0.44	ERR	\$2.13	\$0.29	\$1.06	\$11.45	ERR

WHOLE-FARM RESULTS--ROTATION T.

Acreage Distribution and Income Over All Costs

	Buckwheat	Sum Fal w/W.Wht	Winter Wheat	Millet	W.Wht w/ Oats& Alf	Alfalfa Cont	Sum Fal Alf Brk	Total
Crop Distribution (acres).....	426	848	848	426	4	20	4	2576
Income Over All Costs..... (\$/acre)	\$7.78	(\$54.76)	\$64.03	\$8.84	\$31.69	\$11.45	(\$64.93)	\$5.84
Income Over All Costs..... (\$/crop)	\$3,316	(\$46,437)	\$54,297	\$3,767	\$127	\$229	(\$260)	\$15,038

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
		Non-Paid Acreage (%)	Optional Acreage (%)	Paid Rate (\$/bu)
Gross Income	\$70			
Direct costs (excl. labor)	\$23			
Income over non-labor & non-land costs	\$29	Corn ***	***	***
		Wheat 27.5	***	***
		Oats ***	***	***
		Barley ***	***	***
		Sorghum ***	***	***
Income over non-land costs	\$23			
Income over all costs	\$6			

West - Rotation U. Oats seeded with Sweet Clover - Millet with a fall seeding of Winter Wheat - Winter Wheat - Summer Fallow with a fall seeding of Winter Wheat - Winter Wheat - Oats seeded with alfalfa - Alfalfa (5 yrs.)

About 1,050 acres of cropland are in this rotation. The acreage distribution, "normal" harvested yields, and farm program base yields assumed in the spreadsheet are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Oats	130	58 bu/ac.	26 bu/ac.
Millet	130	30 bu/ac.	--
Winter Wheat	257	35-45 bu/ac.	26 bu/ac.
Summer Fallow	183	--	--
Alfalfa	290	1.5 ton/ac.	--
Set-Aside	<u>58</u>	--	--
Total	1,048		

All "normal" harvested yields and farm program base yields were reported by the farmer during the on-farm interview. Winter wheat yields ranging from 35 to 45 bu/ac. were used, since wheat after summer fallow has a higher reported yield (45 bu/ac.) than does wheat after millet (35 bu/ac.).

The cropland is farmed without the use of purchased chemical herbicides and fertilizers. An organic amendment is applied to the seed at planting time to aid in germination. The cost is included in the "other fertilizer" row.

Participation in the farm program is usually at the minimum level. The set-aside acreage for the Federal farm program is satisfied on the set-aside oats-with-alfalfa acres and other summer fallow acres.

Alfalfa is seeded with oats on some of the set-aside acreage. The oats are clipped before heading out. To accurately reflect the costs of alfalfa, it was assumed that each year 58 acres would be established and 58 acres would be broken up. The actual breaking of the alfalfa does not occur until the spring after the last year of production. When conditions permit, an alfalfa seed crop is taken. This was not included in the spreadsheet, however.

This farmer performs a significant amount of custom haying and combining. The income from these operations is not included in the spreadsheet.

INPUT SECTION--ROTATION U.

	Oats w/		Millet W.Wht aft		Summer	Sum Fal	Setaside		Alfalpa	Alfalpa
	Swt Cl	w/W.Wht	Millet	Fallow	w/ W.Wht	Sum Fal	Oats w/	Alfalpa	Alfalpa	Brk
							Alfalpa	Cont		
RECEIPTS:										
Estimated grain yield (units/ac.).....	58.0	30.0	35.0	0.0	0.0	45.0	0.0	1.5	1.5	
Estimated selling price or value (\$/unit)..	\$1.80	\$2.80	\$3.60	\$0.00	\$0.00	\$3.60	\$0.00	\$50.00	\$50.00	
GOVERNMENT PAYMENT:										
Base yield (units/ac.).....	26	0	26	0	0	26	0	0	0	
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.50	\$0.00	\$0.00	\$0.50	\$0.00	\$0.00	\$0.00	
DIRECT COSTS:										
Seed 1 (units/ac.).....	2	20	0	0	1.25	0	2	0	0	
(\$/unit).....	\$4.48	\$0.16	\$0.00	\$0.00	\$7.00	\$0.00	\$2.05	\$0.00	\$0.00	
Seed 2 (units/ac.).....	9.5	1.25	0	0	0	0	10	0	0	
(\$/unit).....	\$0.50	\$7.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1.95	\$0.00	\$0.00	
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Other Fertilizer (units/ac.).....	8	8	0	0	4	0	8	0	0	
(\$/unit).....	\$0.005	\$0.005	\$0.00	\$0.00	\$0.005	\$0.00	\$0.005	\$0.00	\$0.00	
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide 1 (units/ac.).....	0	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide 2 (units/ac.).....	0	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Insecticide (units/ac.).....	0	0	0	0	0	0	0	0	0	
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Crop insurance (\$/ac.).....	\$0.89	\$0.00	\$3.95	\$0.00	\$0.00	\$3.88	\$0.00	\$0.00	\$0.00	
Storage (\$/unit).....	\$0.11	\$0.11	\$0.11	\$0.00	\$0.00	\$0.11	\$0.00	\$0.00	\$0.00	
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Overhead (\$/ac.).....	\$5.00	\$5.00	\$5.00	\$2.50	\$2.50	\$5.00	\$2.50	\$5.00	\$5.00	
Custom machine hire.....										
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Harvesting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fuel and lubrication (\$/ac.).....	\$6.79	\$8.15	\$2.02	\$8.40	\$9.02	\$2.52	\$4.83	\$1.18	\$1.09	
Machinery repair (\$/ac.).....	\$12.96	\$13.48	\$4.47	\$5.11	\$7.20	\$5.26	\$7.79	\$3.11	\$3.00	
Crop operating loan borrowed (months).....	6	6	6	6	6	6	6	6	6	
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
Labor 1 (hrs./ac.).....	2.05	2.31	0.50	1.55	1.91	0.65	1.66	0.81	0.78	
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	
Labor 2 (hrs./ac.).....	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	
FIXED COSTS:										
Interest, Housing, and Ins. on Machinery...	\$19.23	\$21.67	\$8.16	\$10.57	\$12.56	\$8.94	\$9.74	\$4.64	\$4.36	
Depreciation on machinery & equipment.....	\$20.57	\$22.71	\$9.61	\$8.82	\$11.16	\$10.24	\$9.89	\$5.58	\$5.31	
Land Cost (\$/acre).....	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	\$200	
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	1.50	

------(end of Input Section)-----

INPUT SUMMARY AND RESULTS--ROTATION U.

	Oats w/		Millet W.Wht aft		Summer	Sum Fal	Setaside		Alfalfa	Alfalfa
	Swt Cl	w/W.Wht	Millet	Fallow	w/ W.Wht	W.Wht aft	Oats w/	Alfalfa	Alfalfa	Alfalfa
						Sum Fal	Alfalfa	Cont	Brk	
RECEIPTS:										
Estimated grain yield (units/ac.).....	58.0	30.0	35.0	0.0	0.0	45.0	0.0	1.5	1.5	
Estimated selling price or value (\$/unit)...	\$1.80	\$2.80	\$3.60	\$0.00	\$0.00	\$3.60	\$0.00	\$50.00	\$50.00	
GOVERNMENT PAYMENT:										
Base yield (units/ac.).....	26	0	26	0	0	26	0	0	0	
Deficiency payment (\$/unit).....	\$0.00	\$0.00	\$0.50	\$0.00	\$0.00	\$0.50	\$0.00	\$0.00	\$0.00	
I. Total income per acre.....	\$104.40	\$84.00	\$139.00	\$0.00	\$0.00	\$175.00	\$0.00	\$75.00	\$75.00	
DIRECT COSTS:										
Seed (\$/ac.).....	\$13.71	\$11.95	\$0.00	\$0.00	\$8.75	\$0.00	\$23.60	\$0.00	\$0.00	
Fertilizer (\$/ac.).....	\$0.04	\$0.04	\$0.00	\$0.00	\$0.02	\$0.00	\$0.04	\$0.00	\$0.00	
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Crop insurance (\$/ac.).....	\$0.89	\$0.00	\$3.95	\$0.00	\$0.00	\$3.88	\$0.00	\$0.00	\$0.00	
Storage (\$/ac.).....	\$6.38	\$3.30	\$3.85	\$0.00	\$0.00	\$4.95	\$0.00	\$0.00	\$0.00	
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Overhead (\$/ac.).....	\$5.00	\$5.00	\$5.00	\$2.50	\$2.50	\$5.00	\$2.50	\$5.00	\$5.00	
Custom machine hire (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	
Fuel and lubrication (\$/ac.).....	\$6.79	\$8.15	\$2.02	\$8.40	\$9.02	\$2.52	\$4.83	\$1.18	\$1.09	
Machinery repair (\$/ac.).....	\$12.96	\$13.48	\$4.47	\$5.11	\$7.20	\$5.26	\$7.79	\$3.11	\$3.00	
Interest on non labor direct costs (\$/ac)...	\$2.71	\$2.48	\$1.14	\$0.95	\$1.63	\$1.28	\$2.29	\$0.55	\$0.54	
Labor charge(\$/ac.).....	\$13.16	\$14.83	\$3.21	\$9.95	\$12.26	\$4.17	\$10.66	\$5.20	\$5.01	
II. Total direct (operating) costs.....	\$61.64	\$59.23	\$23.65	\$26.91	\$41.38	\$27.06	\$51.71	\$15.04	\$14.64	
Income over direct costs (I minus II)....	\$42.76	\$24.77	\$115.35	(\$26.91)	(\$41.38)	\$147.94	(\$51.71)	\$59.96	\$60.36	
Breakeven price per unit (direct costs)..	\$1.06	\$1.97	\$0.68	ERR	ERR	\$0.60	ERR	\$10.03	\$9.76	
FIXED COSTS:										
Interest, Housing & Ins. on machinery (\$/ac)	\$19.23	\$21.67	\$8.16	\$10.57	\$12.56	\$8.94	\$9.74	\$4.64	\$4.36	
Deprec. on machinery and equipment (\$/ac.)..	\$20.57	\$22.71	\$9.61	\$8.82	\$11.16	\$10.24	\$9.89	\$5.58	\$5.31	
Real estate taxes (\$/ac.).....	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	\$3.00	
III. Total fixed costs.....	\$42.80	\$47.38	\$20.77	\$22.39	\$26.72	\$22.18	\$22.63	\$13.22	\$12.67	
IV. Production costs (\$/ac., excluding land)	\$104.44	\$106.61	\$44.42	\$49.30	\$68.10	\$49.24	\$74.34	\$28.26	\$27.31	
(II plus III)										
Production costs (\$/unit)...	\$1.80	\$3.55	\$1.27	ERR	ERR	\$1.09	ERR	\$18.84	\$18.20	
V. Land charges (\$/ac.).....	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	\$14.00	
VI. Total production and land costs (\$/ac.)	\$118.44	\$120.61	\$58.42	\$63.30	\$82.10	\$63.24	\$88.34	\$42.26	\$41.31	
(IV plus V)										
Production and land costs (\$/unit).....	\$2.04	\$4.02	\$1.67	ERR	ERR	\$1.41	ERR	\$28.17	\$27.54	
Breakeven yield (units/ac.).....	65.8	43.1	16.2	ERR	ERR	17.6	ERR	0.8	0.8	
(at selling price)										
VII. Income over all costs (\$/acre).....	(\$14.04)	(\$36.61)	\$80.58	(\$63.30)	(\$82.10)	\$111.76	(\$88.34)	\$32.74	\$33.69	
(I minus VI)										
Income over all costs (\$/unit).....	(\$0.24)	(\$1.22)	\$2.30	ERR	ERR	\$2.48	ERR	\$21.83	\$22.46	

WHOLE-FARM RESULTS--ROTATION U.

 Acreage Distribution and Income Over All Costs

	Setaside									Total
	Oats w/ Swt Cl	Millet w/W.Wht	W.Wht aft Millet	Summer Fallow	Sum Fal w/ W.Wht	W.Wht aft Sum Fal	Oats w/ Alfalfa	Alfalfa Cont	Alfalfa Brk	
Crop Distribution (acres).....	130	130	130	56	127	127	58	232	58	1048
Income Over All Costs..... (\$/acre)	(\$14.04)	(\$36.61)	\$80.58	(\$63.30)	(\$82.10)	\$111.76	(\$88.34)	\$32.74	\$33.69	\$8.15
Income Over All Costs..... (\$/crop)	(\$1,825)	(\$4,759)	\$10,476	(\$3,545)	(\$10,427)	\$14,193	(\$5,124)	\$7,596	\$1,954	\$8,539

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements			
		Non-Paid		Optional Paid	
		Crop	Acreage (%)	Acreage (%)	Rate (\$/bu)
Gross Income	\$83				
Direct costs (excl. labor)	\$26				
Income over non-labor & non-land costs	\$34	Corn	***	***	***
		Wheat	27.5	***	***
		Oats	5	***	***
		Barley	***	***	***
		Sorghum	***	***	***
Income over non-land costs	\$25				
Income over all costs	\$8				

West - Rotation V. Corn - Forage Sudan Summer Fallow - Oats seeded with Sweet Clover - Sweet Clover Summer Fallow - Spring Wheat seeded with Sweet Clover - Sweet Clover Summer Fallow

This 1,000 acre farm has about 900 acres of rotated cropland and 100 acres of permanent alfalfa. In the spreadsheet, we modeled the 900 acres of cropland. The alfalfa was not included. In any one year, the 900 acres are divided so that approximately 50 percent are in fallow and 50 percent are in cropland.

The acreage distribution, "normal" harvested yields and farm program base yields are as follows:

<u>Crop</u>	<u>Acres</u>	<u>"Normal" Harvested Yield</u>	<u>Farm Program Base Yield</u>
Corn (grain)	25	35 bu/ac.	30 bu/ac.
Corn (silage)	53	6 ton/ac.	
Forage Sudan	78	--	--
Oats	119	50 bu/ac.	40 bu/ac.
Spring Wheat	248	20 bu/ac.	18 bu/ac.
Sweet Clover	<u>367</u>	--	--
Total	890		

The "normal" harvested yields and farm program base yields were all obtained during the on-farm interview.

Participation in the farm program is usually at the minimum level. The set-aside acreage for the Federal farm program is satisfied on the forage sudan and/or sweet clover summer fallow acres. These two crops are incorporated with an offset disc in late summer.

The cropland is farmed without the use of purchased chemical fertilizers and herbicides. However, an organic fertilizer of naturally mined trace minerals is applied. The cost for this is shown in the "other fertilizer" row of the spreadsheet.

INPUT SECTION--ROTATION V.

	Corn Picked	Corn Silage	Sum Fal Sudan	Oats w/ Swt Cl	Sum Fal Swt Cl	Sp. Wht w/Swt Cl
RECEIPTS:						
Estimated grain yield (units/ac.).....	35.0	6.0	0.0	50.0	0.0	20.0
Estimated selling price or value (\$/unit)..	\$1.95	\$19.30	\$0.00	\$1.80	\$0.00	\$3.75
GOVERNMENT PAYMENT:						
Base yield (units/ac.).....	30	30	0	40	0	18
Deficiency payment (\$/unit).....	\$0.89	\$0.89	\$0.00	\$0.00	\$0.00	\$0.50
DIRECT COSTS:						
Seed 1 (units/ac.).....	9	9	17.5	2	0	1
(\$/unit).....	\$0.80	\$0.80	\$0.30	\$4.48	\$0.00	\$6.55
Seed 2 (units/ac.).....	0	0	0	4	0	4
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.50	\$0.00	\$0.50
Fertilizer 1 (units/ac.).....	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 2 (units/ac.).....	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fertilizer 3 (units/ac.).....	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Other Fertilizer (units/ac.).....	100	100	0	100	0	100
(\$/unit).....	\$0.09	\$0.09	\$0.00	\$0.09	\$0.00	\$0.09
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 1 (units/ac.).....	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide 2 (units/ac.).....	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (units/ac.).....	0	0	0	0	0	0
(\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$2.90	\$3.28	\$0.00	\$1.06	\$0.00	\$1.87
Storage (\$/unit).....	\$0.13	\$4.00	\$0.00	\$0.11	\$0.00	\$0.11
Drying (\$/unit).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.50	\$2.50	\$5.00	\$2.50	\$5.00
Custom machine hire.....						
Tillage (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Planting (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Harvesting (\$/ac.).....	\$3.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$5.16	\$6.48	\$3.77	\$2.45	\$2.10	\$2.15
Machinery repair (\$/ac.).....	\$7.37	\$11.90	\$4.70	\$8.35	\$1.74	\$7.57
Crop operating loan borrowed (months).....	6	6	6	6	6	6
Interest APR(%).....	12.00	12.00	12.00	12.00	12.00	12.00
Labor 1 (hrs./ac.).....	1.96	1.93	0.85	0.84	0.32	0.73
(\$/hr).....	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42	\$6.42
Labor 2 (hrs./ac.).....	0.00	0.00	0.00	0.00	0.00	0.00
(\$/hr.).....	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28	\$4.28
FIXED COSTS:						
Interest, Housing, and Ins. on Machinery...	\$14.68	\$16.01	\$8.83	\$11.30	\$4.56	\$10.79
Depreciation on machinery & equipment.....	\$13.82	\$15.34	\$8.88	\$13.55	\$4.36	\$13.04
Land Cost (\$/acre).....	\$180	\$180	\$180	\$180	\$180	\$180
Real Estate Tax Percentage.....	1.50	1.50	1.50	1.50	1.50	1.50

----- (end of Input Section) -----

INPUT SUMMARY AND RESULTS--ROTATION V.

	Corn Picked	Corn Silage	Sum Fal Sudan	Oats w/ Swt Cl	Sum Fal Swt Cl	Sp. Wht w/Swt Cl
RECEIPTS:						
Estimated grain yield (units/ac.).....	35.0	6.0	0.0	50.0	0.0	20.0
Estimated selling price or value (\$/unit)...	\$1.95	\$19.30	\$0.00	\$1.80	\$0.00	\$3.75
GOVERNMENT PAYMENT:						
Base yield (units/ac.).....	30	30	0	40	0	18
Deficiency payment (\$/unit).....	\$0.89	\$0.89	\$0.00	\$0.00	\$0.00	\$0.50
I. Total income per acre.....	\$94.95	\$142.50	\$0.00	\$90.00	\$0.00	\$84.00
DIRECT COSTS:						
Seed (\$/ac.).....	\$7.20	\$7.20	\$5.25	\$10.96	\$0.00	\$8.55
Fertilizer (\$/ac.).....	\$9.00	\$9.00	\$0.00	\$9.00	\$0.00	\$9.00
Fertilizer application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Herbicide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Insecticide application (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Crop insurance (\$/ac.).....	\$2.90	\$3.28	\$0.00	\$1.06	\$0.00	\$1.87
Storage (\$/ac.).....	\$4.55	\$24.00	\$0.00	\$5.50	\$0.00	\$2.20
Drying (\$/ac.).....	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Overhead (\$/ac.).....	\$5.50	\$5.50	\$2.50	\$5.00	\$2.50	\$5.00
Custom machine hire (\$/ac.).....	\$3.15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Fuel and lubrication (\$/ac.).....	\$5.16	\$6.48	\$3.77	\$2.45	\$2.10	\$2.15
Machinery repair (\$/ac.).....	\$7.37	\$11.90	\$4.70	\$8.35	\$1.74	\$7.57
Interest on non labor direct costs (\$/ac)...	\$2.65	\$3.99	\$0.96	\$2.50	\$0.38	\$2.15
Labor charge(\$/ac.).....	\$12.58	\$12.39	\$5.46	\$5.39	\$2.05	\$4.69
II. Total direct (operating) costs.....	\$60.06	\$83.73	\$22.64	\$50.22	\$8.77	\$43.18
Income over direct costs (I minus II)....	\$34.89	\$58.77	(\$22.64)	\$39.78	(\$8.77)	\$40.82
Breakeven price per unit (direct costs)..	\$1.72	\$13.96	ERR	\$1.00	ERR	\$2.16
FIXED COSTS:						
Interest, Housing & Ins. on machinery (\$/ac)	\$14.68	\$16.01	\$8.83	\$11.30	\$4.56	\$10.79
Deprec. on machinery and equipment (\$/ac.)..	\$13.82	\$15.34	\$8.88	\$13.55	\$4.36	\$13.04
Real estate taxes (\$/ac.).....	\$2.70	\$2.70	\$2.70	\$2.70	\$2.70	\$2.70
III. Total fixed costs.....	\$31.20	\$34.05	\$20.41	\$27.55	\$11.62	\$26.53
IV. Production costs (\$/ac., excluding land) (II plus III)	\$91.26	\$117.78	\$43.05	\$77.77	\$20.39	\$69.71
Production costs (\$/unit)...	\$2.61	\$19.63	ERR	\$1.56	ERR	\$3.49
V. Land charges (\$/ac.).....	\$12.60	\$12.60	\$12.60	\$12.60	\$12.60	\$12.60
VI. Total production and land costs (\$/ac.) (IV plus V)	\$103.86	\$130.38	\$55.65	\$90.37	\$32.99	\$82.31
Production and land costs (\$/unit).....	\$2.97	\$21.73	ERR	\$1.81	ERR	\$4.12
Breakeven yield (units/ac.)..... (at selling price)	53.3	6.8	ERR	50.2	ERR	21.9
VII. Income over all costs (\$/acre)..... (I minus VI)	(\$8.91)	\$12.12	(\$55.65)	(\$0.37)	(\$32.99)	\$1.69
Income over all costs (\$/unit).....	(\$0.25)	\$2.02	ERR	(\$0.01)	ERR	\$0.08

WHOLE-FARM RESULTS--ROTATION V.

Acreage Distribution and Income Over All Costs

	Corn Picked	Corn Silage	Sum Fal Sudan	Oats w/ Swt Cl	Sum Fal Swt Cl	Sp. Wht w/Swt Cl	Total
Crop Distribution (acres).....	25	53	78	119	367	248	890
Income Over All Costs..... (\$/acre)	(\$8.91)	\$12.12	(\$55.65)	(\$0.37)	(\$32.99)	\$1.69	(\$17.59)
Income Over All Costs..... (\$/crop)	(\$223)	\$642	(\$4,340)	(\$44)	(\$12,107)	\$420	(\$15,652)

Item	Dollars/acre	Farm Program Provisions: Acreage Reduction Requirements		
		Non-Paid Acreage (%)	Optional Paid Acreage (%)	Rate (\$/bu)
Gross Income	\$47			
Direct costs (excl. labor)	\$27			
Income over non-labor & non-land costs	\$2	Corn 20	***	***
		Wheat 27.5	***	***
		Oats 5	***	***
		Barley ***	***	***
		Sorghum ***	***	***
Income over non-land costs	(\$2)			
Income over all costs	(\$18)			

Summary

Economic Overview of the Case Farms

Table 7 summarizes the "whole-farm results" on gross income, direct costs excluding labor, and three measures of income for the 12 case farms. In calculating the gross incomes in this table, any price premiums for grain sold through organic market outlets were not taken into account. Livestock were not directly accounted for. Operator and family labor charges were deducted, in arriving at "net income over all costs except land and management". Land values used in arriving at land charges for each farm may not be completely accurate, since they are based on regional averages.

Effects of Organic Premiums

Table 8 lists the prices for organically- and conventionally-marketed grain. These organic prices were determined on the basis of percentages by which the prices for organically-raised and marketed products have tended to exceed the prices for conventionally-raised and marketed products (see mail survey results in Taylor, et al., 1989b).

The types and proportions of grain sold on the organic market vary among the case farms. Annex Table 2-1 shows information on the percent of each crop's production for which it was assumed the various farmers received a price premium. Taking these proportions and the respective organic and conventional prices into account, weighted prices used in the budget for each farm were calculated, as shown in Annex Table 2-2.

The impacts these organic price premiums could have on the profitability of the case farms are shown in Table 9. A comparison of "Net Income Over All Costs Except Management" with and without inclusion of organic premiums is shown in Figure 2. The farmers following Rotation A and Rotation D do not sell any products on the organic market.

Table 7. Summary Results Without Organic Premiums Included

Rotation	Direct Costs Other Than Labor	Gross Income	----- \$/Acre -----		
			All Costs Except Land, Labor, and Management	All Costs Except Land and Management	All Costs Except Management
-----Net Income Over-----					
South Central					
A	49	145	67	57	19
D	36	129	62	50	12
G	34	117	52	43	6
East Central					
H	39	129	61	50	14
K	31	133	75	66	31
L	37	128	64	55	19
Northeast					
Q	33	119	60	50	22
R	28	74	20	14	-12
S	24	64	18	11	-14
West					
T	23	70	29	23	6
U	26	83	34	25	8
V	27	47	2	-2	-18

Table 8. Assumed Organic Prices

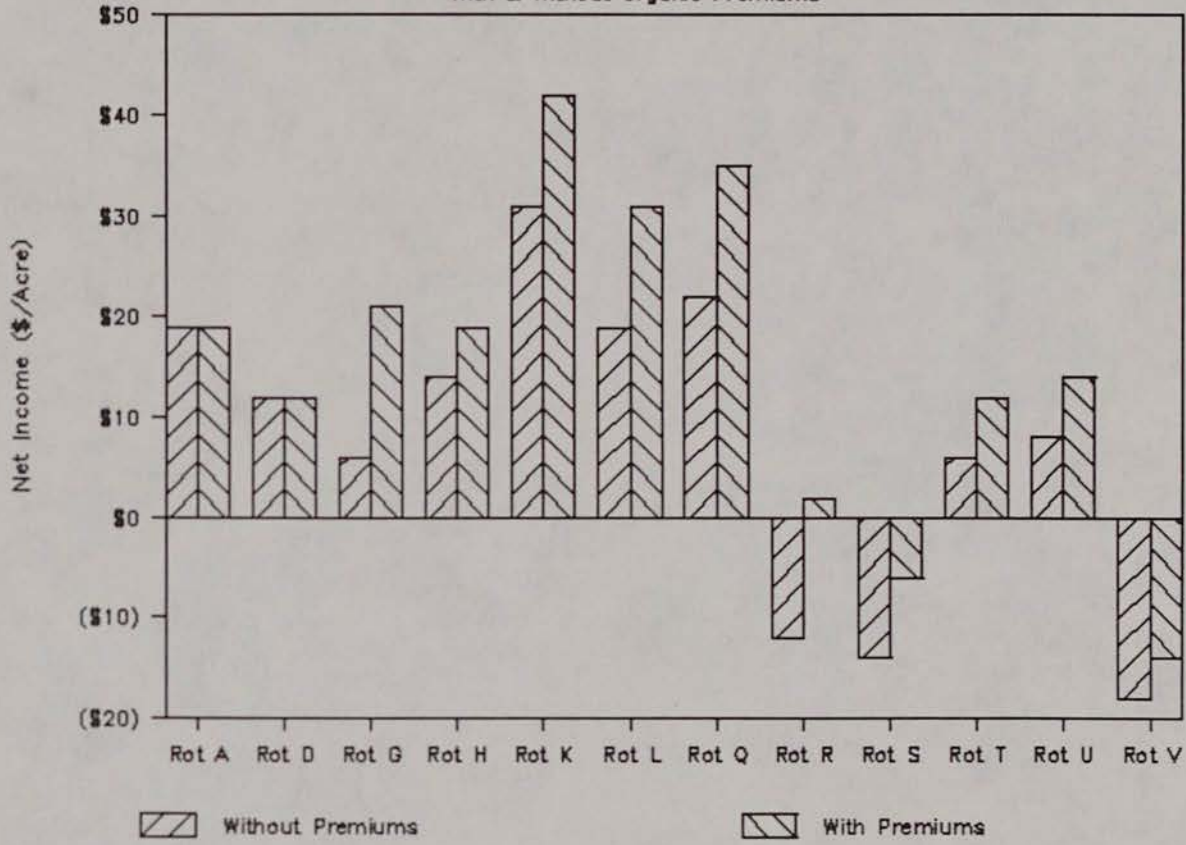
Crop	Organic Price	Conventional Price
Soybeans	\$ 9.10/bu.	\$6.50/bu.
Millet	\$ 4.90/bu.	\$2.80/bu.
Flax	\$10.10/bu.	\$5.05/bu.
Buckwheat	\$ 8.45/bu.	\$5.28/bu.
Spring Wheat	\$ 4.88/bu.	\$3.75/bu.
Winter Wheat	\$ 4.68/bu.	\$3.60/bu.
Sunflowers	\$ 0.15/lb.	\$0.10/lb.

Table 9. Summary Results With Organic Premiums Included

Rotation	\$/Acre				
	Direct Costs Other Than Labor	Gross Income	All Costs Except Land, Labor, and Management	All Costs Except Land and Management	All Costs Except Management
South Central					
A	49	145	67	57	19
D	36	129	62	50	12
G	34	133	68	59	21
East Central					
H	39	134	66	55	19
K	31	144	87	78	42
L	37	140	77	67	31
Northeast					
Q	33	132	73	63	35
R	28	88	34	28	2
S	24	72	27	19	-6
West					
T	23	76	35	29	12
U	26	89	40	31	14
V	27	50	6	1	-14

Net Income Over All Costs Except Mgmt.

With & Without Organic Premiums



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Annex 1

Assumed Machine Costs

Machine costs used in the budgets were obtained from the following sources: (1) Taylor, et al., 1988; (2) Dobbs, et al., 1987a; (3) Dobbs, et al., 1987b; and (4) Allen, 1986. The 1986-based machine costs from these sources were adjusted for inflation to reflect 1988 costs. Inflation adjustments were obtained from USDA (1989). The re-estimated and newly estimated machine costs are shown in Annex Table 1-1. Costs for machinery not covered in the above sources, or which were covered but needed some further cost adjustments, are explained in the following paragraphs.

Manure Spreader: The machine costs for the manure spreader were obtained from Dobbs, et al. (1987a). They were adjusted for inflation and compared with 1988 machine costs from the University of Minnesota (Fuller and McGuire, 1988). Based on this comparison, it was decided that our costs were "too high". Therefore, the fuel and lubrication component was the only portion of the machine cost adjusted for inflation.

Swather: The cost used in Dobbs, et al. (1987b) appeared to be "somewhat high" when compared to two other sources (Thaden, 1987, and Fuller and McGuire, 1988). It was decided that a more reasonable cost for a swather was \$6.53/acre. To obtain the \$6.53 cost, a cut was made in each of the five components of machinery costs. The cut was as follows:

$$[1 - (6.53 \div 7.87)] = 17 \text{ percent.}$$

Field Cultivator: The assumed acres of use per year were changed from 595 (Dobbs, et al., 1987b) to 800 acres. Machine costs were recalculated, based on Allen's (1986) formulas and cost coefficients. These new machine costs were then adjusted for inflation to reflect 1988 costs.

Soil Finisher: The soil finisher combines the operations of a disk, field cultivator, and drag into one implement. The capital cost of the soil finisher was obtained from an implement dealer. We averaged the cost coefficients (Allen, 1986) for the disk, field cultivator, and drag. These averaged cost coefficients were used to calculate the machine costs for the soil finisher. These machine costs were then adjusted for inflation to reflect 1988 costs.

Noble Blade: We used a 3-bottom Noble blade, each bottom having a 5-foot sweep. Since a Noble blade was not used in any previous reports, we used formulas and cost coefficients (Allen, 1986) to calculate the machine costs. For the Noble blade, we assumed the same cost coefficients as for the 15-foot chisel plow. A 125 horsepower tractor was used to pull the Noble blade. Prices for the 125 horsepower tractor and Noble blade were obtained from an implement dealer. Since these were 1988-1989 prices, no inflation adjustments were needed.

Offset Disk: Machine costs for the offset disk were developed on the basis of information from Fuller and McGuire (1988). (Hand written calculations are available upon request).

Pony Press: The pony press is a plow, drill, and packer pulled in tandem. The machine costs for the plow are the same as those used in Dobbs, et al. (1987b), except that they have been adjusted for inflation, as stated previously. Selling prices for the drill and packer were obtained from an implement dealer. Machine costs for the drill and packer were then calculated using formulas and cost coefficients from Allen (1986). We assumed that the cost coefficients for the packer would be the same as for the 15-foot rotary hoe. This assumption for the packer was the same as the procedure used in calculations for Dobbs, et al. (1987b).

Field Cultivator and Drill: The field cultivator and drill are sometimes pulled in tandem. Machine costs for the field cultivator were calculated from the coefficients and formulas in Allen (1986). These machine costs were then adjusted for inflation, as described earlier. Machine costs for the drill were the same as those calculated for the pony press drill.

Ear Corn Picker: Machine costs for the ear corn picker were taken from Dobbs, et al. (1987a) and adjusted for inflation.

Rotary Mower: We used the formulas and cost coefficients from Allen (1986). Cost coefficients for the rotary mower were assumed to be the same as for the 7-foot sickle mower. Since the selling price for the rotary mower and power unit were obtained from an implement dealer for 1988, no inflation adjustments were needed.

Forage Harvester: To obtain machinery costs for the forage harvester, figures were initially taken directly from Dobbs, et al. (1987a). These costs were then adjusted for inflation. This resulted in a cost of \$30.23 per acre. It was then decided that a more reasonable cost would be \$22.67 per acre, based on custom rates of around \$20.00 per acre reported by Thaden (1987). To obtain this \$22.67 cost, a prorated cut was made in each of the components of machinery costs. The cut was as follows: $[1 - (22.67 \div 30.23)] = 25$ percent.

Forage Wagon: To arrive at hauling costs for the forage wagon, we used the formulas and machine cost coefficients in Allen (1986) and then adjusted them for inflation. The machinery repair cost component was calculated to be \$9.38 per hour. This figure seemed to be rather high, so it was reduced to \$4.00 per hour. These machine costs were calculated on a per hour basis. To change per hour costs to per acre costs, the following assumptions were made: (1) approximately 1,400 tons of forage are hauled each year; (2) with a 7-ton forage wagon, it would require 200 loads per year ($1,400 \div 7 = 200$); and (3) it takes approximately one-half hour to haul one load of forage (2 loads per hour). Per hour costs are roughly equal to per acre costs for a crop yielding 14 tons per acre, since two 7-ton loads per hour equal 14 tons. To adjust for yields other than 14 tons per acre, divide the actual yield by 14 and multiply this figure by the component costs for the forage wagon. For example: (6 tons per acre yield \div 14 tons per acre \times \$2.75 per hr. fuel and lube = \$1.18 per acre fuel and lube charge.

Bean Buggy: Information on the bean buggy was obtained from a company in Sioux Falls, SD. The entire cost of the bean buggy kit was \$335. The kit includes all materials except the bar that mounts on the tractor. We assumed the total cost of the bean buggy to be \$800. This cost included the material and labor needed to assemble the machine. The following assumptions were made to calculate the machine costs:

- (1) The bean buggy is mounted on the front of a 60 horsepower tractor. Machine costs for the tractor were calculated using formulas and coefficients in Allen (1986).
- (2) The bean buggy was assumed to be 20 feet wide, travel at a speed of 4 mph, to have a field efficiency of 70 percent, and to be used on 200 acres per year.
- (3) Repair cost of the bean buggy was assumed to be \$50 per year.
- (4) Depreciation cost of the bean buggy was calculated on 10 years of life, with no salvage value.
- (5) Housing, interest, and insurance costs for the bean buggy were calculated using the formula from Allen (1986).
- (6) The labor cost for the riders was entered under Labor 2 on the spreadsheet.

Annex Table 1-1.

Machine Costs Used In Crop Budgets (1988)

Assumed Acres/Yr for Mach. Use	Machine Operation	Direct (Operating) Costs			Fixed Costs**		Total \$/Acre
		Fuel & Lube	Machinery Repair	Labor*	Mach. Int., Hou. & In Deprec.		
		-----			\$/acre	-----	
731	Fall Plow 5/16"	1.96	1.62	2.63	3.12	2.61	11.94
599	Chisel 15'	0.96	0.73	1.29	1.51	1.26	5.75
	Sweep	0.24		0.13			0.37
599	Chisel w/Sweep 15'	1.20	0.73	1.42	1.51	1.26	6.12
500	Noble Blade 15'	0.91	0.74	1.31	1.59	1.95	6.50
1000	Soil Finisher 24'	0.64	0.68	0.63	1.73	2.16	5.84
820	Tandem Disk 17'	0.44	0.54	0.94	1.42	1.36	4.70
740	Offset Disk 17'	1.05	0.87	1.04	2.28	2.18	7.42
917	Rotary Hoe 20'	0.23	0.26	0.83	0.55	0.50	2.37
	Field Cult. and Drill 10'	1.04	2.60	2.39	2.20	2.80	11.03
800	Field Cultivator 17'	0.66	0.58	1.29	0.70	0.77	4.00
	Spike Harrow 24'	0.06	0.35		0.13	0.14	0.68
	Field Cult. w/Harrow	0.72	0.93	1.29	0.83	0.91	4.68
1075	Spike Harrow 24'	0.42	0.65	0.71	0.65	0.51	2.94
330	Pony Press 8'	2.28	3.88	3.02	4.88	5.11	19.17
330	Ordinary Press Drill 10'	0.62	2.09	2.33	1.99	2.34	9.37
	Packer	0.06	0.22		0.29	0.31	0.88
330	Drill w/Packer	0.68	2.31	2.33	2.28	2.65	10.25
330	No Till or Hoe Press Drill	0.83	2.21	2.33	2.12	2.39	9.88
371	Row Planter 6 row 30"	0.44	1.35	1.24	3.27	3.35	9.65
371	R. T. Row Planter 6 x 30"	0.93	2.00	1.24	4.71	4.71	13.59
525	Cultivator Conv. 6 x 30"	0.53	0.49	1.47	0.95	0.82	4.26
525	R. T. Cultivator 6 row 30"	1.09	1.19	1.47	2.36	2.11	8.22
740	Sprayer 8 row 26'	0.28	0.37	1.05	0.60	0.66	2.96
2046	Spray Coupe	0.04	0.11	0.19	0.39	0.41	1.14

- cont. -

Annex Table 1-1. cont.

Assumed Acres/Yr for Mach. Use	Machine Operation	Direct (Operating) Costs			Fixed Costs**		
		Fuel & Lube	Machinery Repair	Labor*	Mach. Int., Hou. & In Deprec.	Total \$/Acre	
200	Bean Buggy 20'	0.41	0.49	1.16	0.47	0.67	3.20
962	Fert. Spreader 45'	0.16	0.20	0.40	0.55	0.54	1.85
	Manure Spreader	1.37	3.94	3.00	2.60	2.56	13.47
878	Combine SP 6 row	0.87	3.61	1.21	6.88	8.81	21.38
878	Combine Small Grain	0.78	3.24	1.09	6.20	7.92	19.23
230	Ear Corn Picker 2 row	1.80	3.18	5.04	5.83	5.40	21.25
292	Forage Harvester 2 row	2.22	6.50	2.98	5.70	5.27	22.67
per hour per bu.	Gravity Box (260 bu.)***	2.06	3.72	6.42	3.34	3.17	18.71 7.2c/bu
per hour per ton	Forage Wagon (14 ton)****	2.75	4.00	6.42	4.45	4.85	22.47 1.61/ton
636	Swather SP 16.5'	0.17	1.44	0.71	2.13	2.08	6.53
270	Rotary Mower 6'	0.61	0.97	2.62	0.72	0.82	5.74
196	Sickle Mower 9'	0.41	1.07	1.97	1.10	1.29	5.84
	Raking (Wheel) 18'	0.24	0.45	0.87	0.48	0.65	2.69
per bale	Baling (large round)*****	0.34	0.64	0.60	0.95	1.47	4.00
per acre	Bale Stacking (large round)	0.24	0.28	3.08	0.33	0.29	4.22

*Labor @ \$6.42/hr

**Includes tractor for non self propelled machines

***Costs NOT on per ACRE basis. Per acre costs can be calculated by dividing the grain yield in bushels by 260 and multiplying this figure by each machine cost component.

****Costs NOT on a per ACRE basis. Per acre costs can be calculated by dividing the forage yield in tons per acre by 14 (two 7 ton loads per hour is 14 tons per hour) and multiplying this figure by each machine cost component.

*****Costs NOT on a per ACRE basis. Per acre costs can be calculated by the following formula:
 Bales per Acre = (yield in tons per acre X 2,000 lbs per ton) DIVIDED by 1,500 lbs per bale.
 The figure from the above calculation can then be multiplied by each machine cost component to arrive at the per acre cost.

Annex 2

Organic Marketing Information

The information in Annex Table 2-1 was taken from individual responses to the mail survey for most of the farmers. Where no response was given in the survey, assumptions were derived from information on organic marketing reported in Taylor, et al. (1989b).

The weighted crop prices in Annex Table 2-2 were calculated using the following formula:

$$\text{Weighted Price} = (\text{percent marketed organically} * \text{organic price} * 90 \text{ percent clean basis}) + (\text{percent marketed conventionally} * \text{conventional price}).$$

Using the above formula and soybeans in Rotation H as an example:

$$\begin{aligned} \text{Weighted Price} &= (50\% * \$9.10/\text{bu} * 90\%) + (50\% * \$6.50/\text{bu}) \\ &= \$4.10/\text{bu} + \$3.25/\text{bu} \\ &= \$7.35/\text{bu} \end{aligned}$$

The 90 percent clean basis implies that for every 1.0 bushel of grain delivered by the farmer, once cleaned, 0.9 bushel would meet the standards for human consumption and receive the organic price. No value was given to the remaining 0.1 bushel which was assumed to not meet the standards.

Annex Table 2-1. Percent of Crop Production Assumed to Receive a Price Premium.

Rotation	Soybeans	Millet	Flax	Buckwheat	Spring Wheat	Winter Wheat	Sunflowers
South Central							
A	---	---	---	---	---	---	---
D	---	---	---	---	---	---	---
G	100	---	---	---	---	---	---
East Central							
H	50	---	---	---	---	---	---
K	100	---	---	---	100	---	---
L	50	---	100	---	---	---	---
Northwest							
Q	---	50	---	---	---	50	50
R	---	100	100	---	100	---	50
S	50	75	100	---	50	---	---
West							
T	---	50	---	30	---	---	---
U	---	100	---	---	---	---	---
V	---	---	---	---	100	---	---

Annex Table 2-2. Weighted Crop Prices Used in the Budgets.

Rotation	Soybeans	Millet	Flax	Buckwheat	Spring Wheat	Winter Wheat	Sunflowers
South Central							
A	--	--	--	--	--	--	--
D	--	--	--	--	--	--	--
G	\$8.19/bu	--	--	--	--	--	--
East Central							
H	\$7.35/bu	--	--	--	--	--	--
K	\$8.19/bu	--	--	--	\$4.39/bu	--	--
L	\$7.35/bu	--	\$9.09/bu	--	--	--	--
Northeast							
Q	--	\$3.61/bu	--	--	--	\$3.91/bu	\$0.12/lb
R	--	\$4.41/bu	\$9.09/bu	--	\$4.39/bu	--	\$0.12/lb
S	\$7.35/bu	\$4.01/bu	\$9.09/bu	--	\$4.07/bu	--	--
West							
T	--	\$3.61/bu	--	\$5.98/bu	--	--	--
U	--	\$4.41/bu	--	--	--	--	--
V	--	--	--	--	\$4.39/bu	--	--

