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Livestock Budgets and Whole-Farm Economic Analysis: South Dakota Sustainable Agriculture Case Farms

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LIVESTOCK BUDGETS AND WHOLE-FARM ECONOMIC ANALYSIS: SOUTH DAKOTA SUSTAINABLE AGRICULTURE CASE FARMS

by

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PREFACE

The authors wish to thank (1) the nine South Dakota livestock producers who provided information on their various livestock enterprises; (2) David L. Becker, Research Assistant, who ably interviewed the livestock producers; (3) Dillon M. Feuz, livestock economist, and John J. Wagner, livestock nutritionist, for sharing with us their expertise as we developed the assumptions for and determined the livestock production coefficients for use in this study; (4) John Cole, current Research Assistant, and Rod Kappes and Brian Simon, former Research Assistants, in the Economics Department for their assistance in helping to develop and double-check the livestock production coefficients used in the study; (5) Dillon Feuz and John Cole for their detailed and helpful review of an earlier draft of this manuscript; (6) Verna Clark for her patience and expertise in typing the tables for the report; and (7) the Northwest Area Foundation, St. Paul, MN (through Grant No. 88-56) and the South Dakota Agricultural Experiment Station for the funds required to undertake the research reported in this study.

While acknowledging the help received from colleagues, we accept responsibility for any errors of fact or interpretation that may remain in the report.

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SUMMARY

In this report, livestock budgets for nine sustainable farmers in South Dakota who raise beef cattle and two of the same farmers who raise hogs are presented. Results of whole-farm economic analysis--in which the livestock, sustainable crop rotation, and non-sustainable rotation crop enterprise budgets on the respective farms are integrated with each other--are also presented. The final sections of the report cover results of analyses of (1) livestock price sensitivity and (2) on-farm manure production and disposition.

Seven of the nine cattle producers have beef cow herds, with herd sizes ranging from 15 cows to 150 cows each. Most of the cattle operations are rather modest in size, with only two having gross cattle receipts exceeding $36,000. With expected cattle prices for 1988 used in the analysis and with home-raised feeds priced at market values to the livestock, all nine cattle producers realize negative returns to management. With one exception, however, the negative returns do not exceed $6,800.

The two hog producers in the study have farrow-finish operations. One has 12 sows and the other 45 sows. With expected hog prices for 1988 used in the analysis and with home-raised feeds priced at market values to the hogs, both producers realize positive returns to management ($7,500 and $35,000).

Small grains, covering 15% to 66% of cropland, are consistently the most common type of crop on the case farms. Soybeans, alfalfa, and corn are also rather commonly included on the sustainable farms.

The percentages of feeds produced that are consumed by livestock on the case farms range from 40% on two farms to zero on one farm. Thus, each sustainable farm production unit sells on the market a majority of its crop production. On the other hand, with the exception of one producer, purchases of alfalfa, corn silage, and corn grain on the case farms are limited. Six of the seven case farms with cow herds graze between 32 and 1,922 acres of permanent pasture and five of the case farms graze between 98 and 555 acres of crop residues. These outcomes imply a rather close integration of relatively small livestock herds with the crop and pasture production enterprises for eight of the nine whole-farm production units in the study.[1]

Livestock price sensitivity analysis shows a wide range of responses in livestock net incomes to changes in livestock prices. For two producers, a 10% change in the level of livestock prices results in a $9,000-$12,000 change in income. For three producers, a 10% change in livestock prices results in only a $700-$900 change in income. The relative sensitivity of changes in returns to

[1]Three of the 12 personally interviewed farmers, however, do not have any livestock on their farms. None of the 12 farms had dairy cattle.

increased livestock prices for the individual producers is directly related to the gross value of livestock production for the respective producers.

A rough analysis of the production and disposition of manure by the nine livestock producers shows the estimated manure produced (after losses from storage and waste handling systems) annually on the case farms to range from 191 tons to 1,644 tons. The annual rates of manure droppings for the six producers having cow herds which graze permanent pasture range from 0.5 tons to 0.7 tons per acre of permanent pasture. Corresponding rates for grazed crop residues are 0.3 tons to 0.5 tons per acre of grazed land. The annually available residual amounts of manure that could be spread on the remaining cropland are less than 1.5 tons per acre for all except two producers. These modest synthetically calculated rates of manure availability are consistent with the low rates of manure application reported directly during our personal interviews with the sustainable farmers.

In general, it appears that the integration between livestock and crops on these South Dakota case farms is tighter in regard to feed production and use than to manure production and use. This conclusion is based on (1) relatively large proportions of the feed consumed by livestock on the farms being home-raised and (2) relatively small proportions of crop nutrient needs being met by livestock manure.

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INTRODUCTION

This report of livestock budgets and whole-farm economic analysis extends the results of South Dakota State University's (SDSU's) on-farm, survey-oriented research on sustainable agriculture in South Dakota. The earlier findings have been reported as follows:

- Results of a mail survey of 32 farmers conducted in the Summer of 1988 (Taylor, et al. 1989b);

- Results of personal interviews conducted in January-March 1989 with 22 of the 32 mail surveyed farmers (Dobbs, et al. 1989; Taylor, et al. 1989a);

- Crop enterprise and principal crop rotation budgets for 12 of the 22 personally interviewed farmers (Becker, et al. 1990); and

- Policy analyses for 5 of the 12 sustainable farms for which crop rotation budgets were developed (Becker and Dobbs 1990; Dobbs, et al. 1990).

In this report, livestock budgets for the farmers covered in Becker, et al. (1990) are presented and analyzed. This includes livestock enterprise budgets for 9 farmers who raise beef cattle and 2 of the same farmers who raise hogs. The other 3 of the 12 farmers in Becker, et al. (1990) have no livestock.

This report is comprised of five major sections. In the first two, the basic assumptions followed in developing the beef and hog budgets and the livestock production coefficients are indicated. Also included in these sections are overviews of the nature of the livestock enterprises and the production costs on the case farms/ranches. The third section presents the results of whole-farm analysis in which the enterprise budgets for the livestock, principal sustainable crop rotation, and crops not part of the principal sustainable crop rotation on the respective farms are integrated with each other. In the fourth and fifth sections, the results of analyses of (1) livestock price sensitivity and (2) on-farm livestock manure production and disposition are presented.

BEEF CATTLE BUDGETS

Basic assumptions

In this section, the basic assumptions and livestock production coefficients for beef cow-calf, backgrounding, stocker, and finished cattle are outlined.[2] Some of these assumptions were individualized for different

[2]One of the producers finishes Holstein steers. Except for the differences in feed requirements noted below, assumptions for the Holstein steers were not different from those for beef steers.

producers, in accordance with the information provided by the producers in personal interviews concerning (1) size of operation in 1988, (2) types of feed fed, (3) nature of housing and equipment, and (4) special sustainable livestock production practices [see Annex 1 in Taylor, et al. 1989a]. Other aspects of livestock production and marketing were assumed to be common for all nine producers. Unless otherwise indicated, the other assumptions were based on Lamp, et al. (1989), Madsen, et al. (1989), and the judgments of SDSU beef specialists and the authors.

Calf crop, replacement rate, culling rate, and death loss

In the cow-calf budgets, an 88% calf crop--defined as the number of calves weaned October 15 as a percent of the number of cows in the herd the previous October 15--was assumed. Brood cow replacements were assumed to be raised (rather than purchased), with heifer calves being retained from each calf crop to replace 18% of the cows in the herd. Bulls were assumed to be bought as late-yearlings and sold as 4-year olds after breeding use in the herd. Each bull was assumed to service up to 25 cows during a June 1-July 31 breeding season. Culling rates of 15%/yr. for brood cows and 10% for replacement heifers (as yearlings) were assumed.

Death losses were assumed as follows:

- 1.0%/yr. for brood cows;

- 2% for replacement heifers, from weaning on October 15 until late-yearlings on December 31st the following year;

- 1.0% for backgrounded calves, from October 15 to January 14;

- 0.5% for stocker cattle, from January 15 to April 30; and

- 0.5% for finishing cattle, from May 1 to November 1.

Cattle weights

Beef cows and bulls were assumed to be medium-framed, weighing at maturity 1,100 and 1,700 lb., respectively. The cows were assumed to calve in March and to have their calves weaned on October 15th, with steers weighing 475 lb. and heifers 425 lb.

Since the six producers who do not sell feeder calves rely on grain to meet only between 10% and 50% of the total dry matter feed intake for their fed cattle,[3] we assumed slower-than-average daily rates of gain as follows:

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[3]A recent cattle feedlot survey in South Dakota shows an average of 80% of total dry matter feed intake during the finishing period to come from concentrates (Taylor and Wagner 1990).

- Backgrounded calves, from October 15th to January 14th: 1.6 lb. for steers and 1.5 lb. for heifers;

- Stocker cattle, from January 15th to April 30th: 1.8 lb. for steers and 1.7 lb. for heifers;

- Finishing cattle, from May 1st to November 1st: 2.3 lb. for steers and 2.2 lb. for heifers; and

- Replacement heifers, from October 15th to April 30th, 1.0 lb.; from May 1st to August 31st, 1.5 lb.; and September 1st-December 31st, 1.0 lb.

The weights associated with these rates of gain are summarized in Table 1.

Feed requirements and computational procedures

The assumed feed requirements for the beef producers in our study were based on (1) the total digestible nutrient (TDN) intake requirements for medium-framed beef cattle[4] and feed composition data reported by the National Academy of Sciences (NAS 1984) and (2) the various types of feed--grazing, hay, silage, dry grain, and protein supplement--reported as fed to different types of cattle by the respective producers.

In computing TDN intake requirements, attention was paid to assumed rates of daily gain and average weights of cattle during respective feeding periods. When the average weights differed from those specified in NAS (1984), TDN requirements for the desired weights were interpolated assuming linear relationships. The TDN intake requirements resulting from application of these procedures for various types of cattle at different stages of growth are indicated in Table 3.

To compute the amount of feed required to meet the TDN intake requirements for the respective producers, the first step was to multiply the amounts of TDN intake per animal indicated in Table 3 by the numbers of cattle of different types in each herd. This total TDN herd requirement was then apportioned among different feedstuffs--permanent pasture and crop residue grazing, alfalfa, corn silage, corn grain, oats, wheat, and soybean meal--taking into account the reported percentages of various types of feed fed to each type of cattle by the respective producers. The apportioning process involved reconciling (1) the information provided by the producers on the demands for various feedstuffs for their livestock versus (2) the ability of the producers to meet those demands through available grazing and cropland resources.

The carrying capacity of permanent pasture for producers in various parts of the state varies considerably, depending most importantly on variations in

[4]The Holstein steer TDN requirement was assumed to be 6% greater than that for large-frame steers (personal communication, John Wagner, SDSU beef ruminant specialist, February 1990).

annual precipitation and the condition of pastures.[5] The following procedures were used in estimating permanent pasture production (Table 4). The numbers of cow-calf units (or animal units = AUs) for the various producers using permanent pasture for their cow herds were noted. Taking into account (1) the assumed annual precipitation and maximum feasible grazing periods for the respective producers and (2) pertinent pasture production rates reported by Lamp, et al. (1989), the acres required per AU for each producer were determined. These acreages range from 6 to 14.

The AUs that could be fully supported (i.e., that could be supported through the full grazing season) by permanent pasture were computed by dividing the cow-calf units by the acres required per AU for the respective herds. Multiplying the AUs thereby calculated by pertinent assumed maximum feasible grazing periods enabled determination of the estimated AUM (animal unit month) production levels from permanent pasture for the respective producers. These levels of AUM production vary from 29 to 1,304 among the six producers with permanent pasture.

All the grazing needs for the cow herds of some producers were met through permanent pasture.[6] For other producers, only part of their cow herds' grazing needs were met through permanent pasture. If so, the amounts of total reported "grazing" needs to be met by crop residue grazing (and harvested forages, if necessary) were computed.[7]

Based on Lamp, et al. (1989) and the judgment of SDSU crop and beef specialists, the following AUMs per acre were assumed for crop residue grazing: 1.0 for corn stalks, 0.5 for small grain stubble, and 0.25 for soybean stubble. The levels of AUM production for the five producers who graze crop residues range from 49 to 320 (Table 5). The equivalence between AUMs and TDN was established through assuming that 1.0 AUM of grazing = 1/3 ton of grass hay (Lamp, et al. 1989) and that grass hay contains 91% dry matter and 53% TDN (NAS 1984).

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[5]The acreages of permanent pasture reported by the respective farmers are as follows: A owned 106, rented 45; G owned 29, rented 2.5; H owned 70, rented 115; L and Q none; S owned 200, rented 0; T owned 884, rented 60; U owned 225, rented 410; and V owned 1,520, rented 402.

[6]Three producers were determined to have surplus permanent pasture: Producer H 185 acres, Producer T 554 acres, and Producer U 425 acres. In the whole-farm economic analysis, the surplus permanent pasture was disregarded--on the implied assumption that the ownership cost of the permanent pasture would be roughly offset by the income earned from renting out the pasture.

[7]During personal interviews, farmers indicated the acreages of crop residues that they grazed (shown in Table 5). In addition to crop residues, one farmer in the South Central Region grazes, in the spring, rye that he has planted as a green manure cover crop the prior fall.

Crop residue grazing was adequate to meet the deficit grazing requirements for some producers.[8] In those cases in which both permanent pasture grazing and crop residue grazing were inadequate to meet the TDN intake reported by the producer to be met from "grazing," the grazing deficit TDN was assumed to be met through corn silage and/or alfalfa.

The total herd TDN intake requirements from alfalfa, corn silage, corn grain, oats, and wheat were then converted to tons/bushels/cwt. of feedstuff that needed to be raised or purchased. The conversion first involved "inflating" the TDN intake requirement into a TDN as-raised/purchased basis, taking into account (1) feedstuff storage, shrinkage, and feeding losses assumed to amount to 25% for alfalfa, 20% for corn silage, and 5% for dry grain (Anonymous n.d.; personal communication, John Wagner, May 1990) and (2) the percentages of dry matter and TDN in the respective feedstuffs.[9]

The total TDN as-raised/purchased requirements for the respective herds were then converted into tons and bushels, as appropriate. Any part of the herd requirements not met through home-raised production was assumed to be purchased by the various producers.[10] The prices assumed to be paid for purchased feeds were the same as the assumed producer selling price for alfalfa, 10 cents per bushel more than the producer selling price for corn grain (personal communication, Richard Shane, SDSU grain marketing specialist, February 1990), and $14.95/cwt. for soybean meal (USDA 1989).

Cattle prices

Consistent with the procedures used in developing the sustainable crop budgets for the livestock farms, expected cattle prices for 1988 were used

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[8]Producer U had 517 acres of surplus small grain stubble for grazing.

[9]The percentages of TDN for the various feedstuffs are as follows: 58% for alfalfa, 66% for corn silage, 90% for corn grain, 89% for oats and wheat, and 84% for soybean meal. The percentages of dry matter for the various feedstuffs are as follows: 90% for alfalfa; 31% for corn silage; 88% for corn grain, oats, and wheat; and 89% for soybean meal (NAS 1984).

[10]Except for soybean meal, which is used by seven producers, the only purchased feedstuffs are as follows:

- Producer S purchases 123.5 tons of alfalfa (29% of his total requirement);

- Producer U purchases 13.4 bu. of corn (100% of his requirement);

- Producer V purchases 8.9 tons of alfalfa (8% of his requirement); and

- Producer Q purchases 28,070 bu. of corn and 177.7 tons of alfalfa (100% of his requirements).

in the livestock budgets. We judged that 1987 annual average cattle prices were the soundest indicator of the prices producers generally would have expected in 1988.[11]

The baseline cattle prices used in our analysis (Table 2) were based most directly on prices paid for various types of beef cattle at the Sioux Falls terminal market (USDA 1988; Feuz 1990). For cattle-types for which explicit Sioux Falls data were unavailable, reference was made to Kearl (1989) and the judgment of SDSU livestock marketing specialists.

Production costs

Total production costs are comprised of "direct" and "fixed" costs. They were developed with respect to a "cow-calf unit," defined to cover the brood cow, her calf until weaning at 6 months, that part of the heifer that replaces her (18% replacement rate), and that part of the bull credited to her (33% replacement rate, up to 25 cows that he services).

Direct costs. These consist of selected out-of-pocket costs reported by Madsen, et al. (1989) (Table 6), the value of home-raised feed,[12] purchased feed and feeder calves,[13] interest on the investment in cattle and selected variable costs, and labor costs. Brief elaboration on the handling of interest and labor costs follows.

Interest on the investment in cattle and selected variable costs was calculated at an annual rate of 12%. Interest on the investment in cattle was charged against the average "annualized" value of animals represented in a cow-calf unit. Based on the cattle prices in Table 2 and the judgment of SDSU beef specialists, average per-animal values during the time that each type of cattle is in the herd were determined (Table 7).

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[11]The actual prices for many farm commodities in South Dakota in 1988 were, of course, impacted by the rather widespread drought that year.

[12]The home-raised feedstuffs were valued at the market prices assumed in the crop enterprise budgets for the respective producers (Becker, et al. 1990). These prices vary somewhat regionally and were based on Hoyt, et al. (1989).

The costs for permanent pasture were determined taking into joint account (1) an average 5.72% rent-to-value ratio for pasture land in South Dakota over the past 10 years (S.D. Agric. Stat. Serv. 1990), (2) an assumed 1.5% real estate tax on pasture land (personal communication, Larry Janssen, SDSU agricultural economist, August 1990), and (3) average rangeland lease rates, by region in South Dakota, reported by Cole (1989). Resulting from these calculations were the following assumed per-acre ownership costs for permanent pasture: $3.25 for Producer V, $4.25 for Producer T, $5.50 for Producer U, $9.25 for Producer S, and $9.50 for Producers A and G.

[13]The assumed price for purchased feeder calves is the same as that assumed for sold feeder calves.

Since bulls and brood cows are in the herd the entire year, the capital utilization period for them is the full year. Since backgrounded and stocker beef cattle and finishing Holstein steers are kept in the herd less than 1 year, appropriate fractions of the year are assumed for them. Since the periods that replacement heifers (covering October 15 to December 31 the following year) and finishing beef steers and heifers (covering October 15 to November 1 the following year) associated with a cow-calf unit are in the herd are greater than 1 year, the proportions of the year assumed for them exceed 1.0.

A direct cost interest charge was also assessed against all direct cost items except labor and home-raised feed, consistent with the procedures followed with the sustainable crop enterprise budgets (Becker, et al. 1990). An average loan/capital utilization period of 6 months was assumed for interest on the selected variable costs items.

The following per-animal, per-year (or period in the herd, if different from 1 year) labor requirements, based on Lamp, et al. (1989) and judgments of SDSU beef specialists, were assumed for the various types of cattle:

- Brood cow: ranging from 12 hr. for 15 head to 7 hr. for 150 head;

- Bull: 12 hr.;

- Replacement heifer: 10 hr.;

- Backgrounded calf: 2.1 hr.;

- Stockers: 4 hr.; and

- Finishing cattle: 10 hr. for up to 35 head and 4 hr. for 300 head.

Consistent with the handling of labor in the sustainable crop enterprise budgets, an hourly wage rate of $6.42 was assumed.

Fixed costs. These costs consist of (1) depreciation, taxes, interest, and insurance (DTII) on the investments in buildings and equipment for the cattle and (2) depreciation on the bull.

The average assumed new cost investments per cow-calf unit for buildings and equipment are $54 and $32, respectively (Madsen, et al. 1989). The annual assumed DTII charges of 15% and 20% of these respective investments amount to $7.25. This charge was assumed to increase to $8.00 per cow-calf unit in instances in which calves were retained and fed on the farm after weaning. For producers who purchase steers to feed along with their home-raised feeders, an annual fixed cost for buildings and equipment of $8.00 per head was assumed. For the producer with a specialized 300-steer feeding unit, the annual fixed cost per steer assumed for buildings and equipment was $23.25 (Schroeder and Blair, 1989).

The depreciation charge on the bull, per cow-calf unit, was computed by dividing the assumed value of the bull of $1,500 by (1) the number of years he is assumed to be in the herd (3 years) and (2) the number of cows he services.

Overview of budgets

The nine producers with beef cattle are as follows:[14]

- South Central Region: Producers A and G;
- East Central Region: Producers H and L;
- Northeast: Producers Q and S;[15] and
- West: Producers T, U, and V.

The general locations of these producers are portrayed on Figure 1. The individual budgets for them for the numbers of cattle they had in 1988 are shown in Annex A. Brief overview information about the beef cattle enterprises on these farms is summarized in Tables 8 and 9 and discussed below.

Nature of enterprises

Seven of the nine cattle producers have beef cow herds (Table 8). Herd sizes range from 15 cows to 150 cows each. Three of the producers who have beef cow herds also buy feeder calves to accompany their home-raised feeders. The number of purchased feeders ranges from 2 to 19. The two cattle producers without beef cows purchase feeders; one purchases 8 beef feeder calves and the other 300 Holstein feeder calves.

Gross receipts from cattle for the nine cattle producers range from about $5,800 to $234,300. Most of the operations are rather modest in size, with only two having gross cattle receipts exceeding $36,000. For the producers with beef cow herds, cull animals account for 16-26% of gross cattle receipts.

The six East River beef producers all market at least some of their cattle as finished animals. One realizes 34% of gross cattle receipts from finished cattle, another 51%, and the others more than 80%. The producer who realizes 34% of gross cattle receipts from finished cattle receives nearly one-half of his receipts from backgrounded calves. The producer who receives 51% of receipts from finished cattle receives another 28% of his gross cattle receipts from the sale of feeder calves.

None of the three West River producers finishes cattle. One markets his calves as feeders, one as backgrounded cattle, and one as stocker yearlings.

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[14]The letter designations for the nine producers below are the same as for their respective sustainable crop rotations, as reported in Becker, et al. (1990) and Taylor, et al. (1989a).

[15]Although Producer Q feeds out Holstein steers, for ease of exposition, he is termed here to be a "beef cattle" producer.

Production costs

The total annual costs of production for the nine producers range from about $7,200 to $241,100 (Table 9).

Direct costs account for well over 90% of the total production costs for each producer. The most important direct cost item for most producers is either the value of home-raised feed or the purchase of feeder calves. For example, for five producers, home-raised feed accounts for 36-46% of total production costs. For three producers, purchased calves account for 44-47% of total production costs. Production costs for the other producer are more evenly distributed, with 31% for interest on investment in cattle and variable costs, 29% for home-raised feed, 24% for labor, and 16% for other costs.

For the producers collectively, interest on investment in cattle and variable costs accounts for 11-31% of total production costs and labor accounts for 3-24% of total costs.

Returns to management

The profitability of beef production in the baseline analysis is measured in terms of income over all costs except management.[16] In other words, costs for all inputs except management were deducted from gross receipts. These costs include (1) all out-of-pocket costs plus (2) imputed values for (a) interest on investment and variable costs--even if producers didn't actually borrow money to finance the expenditures; (b) labor--even if the labor was provided by the producer and his family; (c) home-raised feed, at prices that could have been received if the feed had been sold, not for the costs of production by the producers; and (d) the investment in and real estate taxes for permanent pasture.[17] Thus, returns to management reflect profits after strict attention to all economic opportunity costs of production. In most cases, such returns considerably understate annual cash-flows available to producer families to meet living expenses.

With expected cattle prices for 1988 used in the analysis, all nine cattle producers realize negative returns to management (Table 10). With one exception, the negative returns do not exceed $6,800. In the exceptional case, our calculations show a negative return of about $14,200. This estimate of net income is undoubtedly biased down, however, because we assumed, for simplicity of analysis, that the entire cow herd on this farm consisted of cross-bred stocker cows. In actuality, more than one-half of the cows on this farm are high-valued, purebred cattle, from which the producer undoubtedly secures a

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[16]One omitted aspect in the analysis was giving no attention to the value of livestock manure produced. If the livestock manure produced had been valued, it could have been shown as a return to livestock and a cost to the crops whose nutrient needs were partially met through the manure spread on them.

[17]The costs on permanent pasture were for all permanent pasture reported by farmers, irrespective of whether the pasture was owned or rented.

higher margin of profit than if his entire herd were just cross-bred stocker cows.

Because of the negative returns to management from cattle production, with expected 1988 prices, we chose (1) to undertake some livestock price sensitivity analysis to determine break-even prices for the cattle and (2) to do this jointly with an examination of profitability measures other than just returns to management. The results of this analysis are reported in the section of the report following the results of the whole-farm economic analysis.

HOG BUDGETS

Basic assumptions

The two hog producers in this study have farrow-finish operations. Producer A uses confinement finishing for hogs, but is moving to an open-front (Cargill) system. He uses farrowing pens, with the sows turned out on concrete for feeding. He consciously tries to limit use of medications with his pigs.

Producer H farrows in an enclosed building with concrete floors, insulated walls and ceilings, farrowing pens, and exhaust fans. He beds with straw and has supplemental heat. His starter pigs are kept in an old horse barn with a concrete floor. He beds them with straw and has partition huts in which body heat from the pigs keeps them warm during the winter. His finishing hogs are fed outside on concrete feeding floors, with an old building bedded with straw for shelter. Gestating sows are kept outside in dirt lots, with old calf huts bedded with straw for shelter. Until now, he has followed conventional veterinary and medical practices.

The basic references for the non-feed cost data used in developing the hog budgets for these producers were Lamp, et al. (1989), Madsen, et al. (1989), and SDSU hog specialists. Feed nutrient requirements were based on Mayrose, et al. (n.d.) and Hamilton, et al. (n.d.). The input-output coefficients developed for the sustainable hog budgets were generally checked and fine-tuned against Holden and Stevermer (1990).

In the hog budgets for the sustainable farms, we assumed two litters per sow per year, the sale of the sow after her second litter, eight pigs per litter, 15 pigs sold per year as slaughter hogs, and 1 pig retained each year as a replacement gilt.[18] We assumed that the producers purchased their boars, and that one boar served 10-12 sows for two farrowings.

The hog budgets were developed for a "sow unit," defined to cover a yearling brood sow that farrows twice a year, her 15 pigs that are fed to slaughter, her replacement which is raised from the first of her two litters, and that part of the boar credited to her.

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[18]Since both producers report selling 15-15.5 pigs per sow per year, plus raising replacements, we assumed no death loss in the hog budgets.

We assumed slaughter hog weights of 225 lb. and mature breeding animal weights of 450 lb. for sows and 500 lb. for boars. As with beef cattle, the slaughter hog, cull sow, and cull boar prices were intended to represent expected prices for 1988. These prices were based on annual average prices for Sioux Falls for 1987, as reported by USDA (1988). Assumed prices per lb. were $0.53 for slaughter hogs, $0.44 for cull sows, and $0.43 for cull boars.

Thus, the gross receipts per sow unit per year are represented by the sale of (a) 15 slaughter hogs x 225 lb. x $0.53/lb. = $1,788.75; (b) 1 cull sow x 450 lb. x $0.44/lb. = $198.00; and (c) 1/10th to 1/12th of a cull boar x 500 lb. x $0.43/lb. = $215.00.

The total costs of hog production were defined to cover direct and fixed costs, as with beef production. The direct costs consist of selected variable costs reported by Madsen, et al. (1989), the value of home-raised feed, purchased protein supplement, interest on selected variable costs and investment, and labor costs.

The selected variable costs of hog production reported by Madsen, et al. (1989), per sow unit, are $28.80 veterinary and medicine, $13.00 supplies, $23.90 marketing, $4.05 power and fuel, and $7.38 building and equipment repair. Producer A, who consciously tries to limit use of medications with his hogs, was assumed to have one-half the above veterinary and medicine charge. Both hog producers in the study were assumed to have one-half the above buildings and equipment and power and fuel costs. The other variable costs of production assumed for them were the same as those reported by Madsen, et al.

The amounts of protein supplement, corn, and alfalfa hay required for the two producers were determined as follows. Average feed efficiencies, defined as the pounds of feed required per pound of gain by slaughter hogs, were assumed to be 4.1 for farrowing-to-finishing and 3.6 for 40 lb. feeders to market (Mayrose, et al. n.d.). Thus, the 3,600 lb. of gain for 16 pigs fed to 225 lb., per sow unit, requires a total of 14,760 lb. of feed. During the finishing period, the 2,960 lb. of gain (16 hogs x 185 lb. gain) requires 10,656 lb. of feed. This implies that the breeding animals in each sow unit consume 4,104 lb. (14,760 - 10,656 lb.) of feed.

Producer A reported feeding his sows and finishing hogs 80% corn and 20% protein supplement (we assumed soybean meal). Thus, for each sow unit, he was assumed to require 11,808 lb. or 211 bu. of corn and 2,952 lb. of soybean meal.

Producer H reported feeding his sows 80% corn, 15% protein supplement, and 5% alfalfa. He feeds his finishing hogs 85% corn and 15% protein supplement. Thus, for each sow unit, he has the following feed requirement: corn: 3,283 lb. + 9,058 lb. = 12,341 lb. = 220 bu.; soybean meal: 616 lb. + 1,598 lb. = 2,214 lb.; and alfalfa: 205 lb. The assumed prices of home-raised and purchased feed used for hogs were the same as those for beef cattle.

Interest costs were determined at an annual rate of 12% against (1) direct costs, other than for labor and home-raised feed, for an assumed average loan/utilization period of 6 months, and (2) the average value of animals

represented in a sow unit during the period the animals are in the herd. The assumed average annual animal values during the time the hogs are in the herd and the proportions of the year that the various animals are in the herd are as follows:

- Replacement gilt: $100 x 0.50;

- Brood sow (yearling): $200 x 1.00; and

- Boar: $250 x 0.7,[19] allocated among the 11-12 sows that he services.

The assumed labor requirements per sow unit per year are as follows: Producer A with 12 sows, 38 hr. and Producer H with 45 sows, 25 hr. The assumed hourly wage rate is $6.42.

The same types of fixed costs were assumed in the hog budgets as in the beef budgets. The average assumed new cost investments per sow unit for building and equipment for both producers were $275 and $175, respectively. The annual assumed DTII charges of 15% and 20% of these respective costs (Madsen, et al., 1989) amount to $76.25. The depreciation charge on the boar, per sow unit, was computed by dividing the assumed value of the boar ($250) by the number of sows he services.

Overview of budgets

The individual budgets for the two producers are presented in Annex B. An overview of the costs and returns for the two hog farrowing-finishing enterprises is presented in Table 11.

The direct costs for hogs, as for beef, account for over 90% of total production costs. Over 60% of the total production costs are represented by feed, with slightly more purchased than home-raised feed for one producer and slightly less purchased than home-raised feed for the other producer. Labor is the next most important expense, accounting for 13-18% of total production costs. Interest on the investment in hogs and variable costs amounts to only 5% of production costs with hogs.

The returns to management are about $7,500 for Producer A and $35,000 for Producer H. On a per-sow unit basis, the returns to management for Producer H are about 25% higher for Producer A. This difference arises because of (1) an assumed greater labor efficiency for a hog farrowing-finishing operation with 45 sows than with 12 sows and (2) a somewhat less costly feed-mix for Producer H.

WHOLE-FARM ECONOMIC ANALYSIS

In this section, we present the results of integrating the budgets for the principal sustainable crop rotation (see Becker, et al. 1990); beef cattle and

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[19]See Table 16 for the calculation of 255 days (0.7 of the year) that the boar is required in the herd.

hogs, as described above; and crops other than those in the sustainable crop rotations, for the respective producers. Since information on the latter has not yet been reported by our research team, we begin this section with information on the crops not included in the sustainable crop rotations for the three producers in the study.

Crops not part of the principal sustainable rotations

In addition to Producer A's 309 acres of a corn - soybeans - corn - rye or oats seeded with alfalfa - alfalfa sustainable crop rotation, he has 50 acres of a corn-soybean rotation grown under conventional practices. In addition to Producer Q's 177 acres of a summer fallow with fall seeded winter wheat or rye - winter wheat or rye - soybeans - sunflowers - millet sustainable crop rotation, he has 156 acres in a soybeans - wheat conventional rotation. In addition to Producer V's 890 acres of a corn - forage sudan summer fallow - oats seeded with sweet clover - sweet clover summer fallow - spring wheat seed with sweet clover - sweet clover summer fallow sustainable crop rotation, he has 100 acres of alfalfa grown with sustainable practices.

Budgets for these crops and rotations were developed with data from references as follows:[20]

- Hoyt, et al. (1989): seeding rates, including establishment of alfalfa; crop cultural practices, including fertilizer and chemical applications for Producers A and Q; machine costs; interest costs on variable expenses, but with an assumed 6 mo. rather than 12 mo. average loan/capital utilization period; and yield, base yield, selling price, and deficiency payments;[21] and

- Becker, et al. (1990): wage rate of $6.42/hr., land costs, and set-aside budgets.

Budgets for the crops not included in the sustainable crop rotations reported in Becker, et al. (1990) are included in Annex C. Returns to management from these crops are as follows: $2,262 Producer A; $3,028 Producer Q; and -$85 Producer V.

Overview of results from whole-farm economic analysis

Spreadsheets showing the results of the whole-farm economic analysis are included as Annex D. Summaries of the spreadsheet data are presented in Tables 12-14.

The distributions of cropland among crops differs considerably among the nine farms (Table 12). Soybeans and corn cover 36-58% of the cropland in the

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[20]Producer Q's winter wheat budget was based on the winter wheat budget in Area 2 (East North Central) because Hoyt, et al. (1989) did not report a winter wheat budget for Producer Q's home Area 1 (Northeast).

[21]It was assumed that these producers met the Federal Program minimum set-aside requirements for 1988.

South and East Central regions. In the Northeast, soybeans cover 11-42% of cropland and no corn is raised. In the West, no soybeans or corn are grown, except on one farm where corn covers 8% of the producer's cropland.

One sustainable producer raises no alfalfa and another has alfalfa on less than 1% of his cropland. For the other producers, alfalfa covers between 8% and 28% of their respective cropland acreages.

Small grains are consistently the most common type of crop grown, covering between 15% and 66% of total cropland on the respective case farms. In general, small grains are of greater relative importance in the West than in the other areas.

Set-aside and summer fallow acreages range from 2% to 45% of the cropland. These percentages tend to be highest in the West, followed by the Northeast.

The percentages of all feeds produced that are consumed by livestock on the case farms differ greatly among the different farms. For two producers, more than 40% of the crops produced are consumed by livestock on their farms (Table 13). For four producers, the percentages of home-raised crops marketed through on-farm livestock vary from 11% to 35%. At the other extreme, however, no home-raised feed is fed to livestock on one farm and less than 4% of the crops produced on two farms is consumed by livestock on the farms.

The most common individual home-raised feedstuff on the nine farms is alfalfa. On six of the eight farms that feed home-raised feedstuffs, 51% or more of the alfalfa produced is fed to the farmer's own livestock. Two farms feed their livestock all the alfalfa that they produce. At the other extreme, two farms feed as little as 8% and 12% of the alfalfa that they raise.

Corn is the second most commonly home-raised individual feedstuff fed to livestock. Three of the four producers who feed home-raised corn feed 61% or more of the total corn they produce. For one farm, the proportion of home-raised corn fed to on-farm livestock is as little as 11%. Three producers feed home-raised corn silage. One producer feeds home-raised oats and another feeds home-raised wheat to his livestock.

The acreages of permanent pasture grazed by livestock range from 32 to 1,922 on the six farms that use permanent pasture in their livestock feeding programs. The acreages of crop residues grazed range from 0 to 555, with small grain stubble being the most common type of grazed crop residue.

On five of the nine farms, the gross value of sales from livestock exceeds that (including government payments) from crops (Table 14). Three of these five farms are quite equally balanced (less than 17 percentage points difference in the relative importance of gross income from livestock versus from crops) between livestock and crops. The relative differential between livestock and crop gross incomes, however, is as great as 69 percentage points on one of the other two farms. For the four farms for which the gross value of crop sales and government payments exceeds that of livestock, the margin of gross income difference is quite considerable (a minimum relative difference of 51 percentage points). The

relative contribution of crops versus livestock to gross farm income for the case farms does not appear to be systematically related to location.

In this analysis, based on expected crop and livestock prices for 1988, crops (inclusive of government payments) contribute more strongly than livestock to net income for eight of the nine case farms (Table 14). To more fully understand the potential economic contribution of livestock to the whole-farm production units, the results of some livestock price sensitivity analysis are presented in the next section.

LIVESTOCK PRICE SENSITIVITY ANALYSIS

Whole-farm returns to management

As noted above, the baseline enterprise budgeting analysis in this study was done with prices that we assumed producers in South Dakota might generally have expected in 1988. In all likelihood, the producers made their production decisions based on a range of possible expected prices for each of their various classes of livestock. To take into account some of those possible expected prices, we undertook some price sensitivity analysis.

The upper and lower price bounds for the whole-farm livestock price sensitivity analysis were determined on the basis of two sets of considerations. We first determined the ranges of variation over the past 5 years in the prices of slaughter steers, feeder calves, and backgrounded calves at the Sioux Falls terminal market (Feuz 1990). We found that the years of highest prices were 12%, 12%, and 15% higher than the baseline prices for the three respective classes of cattle and that the years of lowest prices were 11%, 23%, and 16% lower than the respective baseline prices.

Second, using the price indices for (1) all livestock and livestock products and (2) meat animals for South Dakota published by USDA (1990), we determined the ratios of both the highest and lowest index values to the index values for 1987 (the year of actual prices on which we based the 1988 expected prices). Resulting from these calculations was a determination that the high index values were 10% and 7% higher and the lows were 7% and 13% less than the index values in 1987 for the two respective price series.

Taking into account this information, we selected plus 12% and minus 15% as the bounds for the whole-farm livestock price sensitivity analysis. These price differences were applied to the prices paid for purchased feeder cattle and the prices received for all classes of livestock (both cattle and hogs) sold. By implication, the prices were assumed to not apply to (1) the value of home-raised feeder cattle and pigs placed on feed or (2) the assumed values of the livestock maintained in the cattle and hog breeding herds. Thus, the livestock price sensitivity analysis was undertaken only within the perspective of livestock markets external to the individual farms.

The results of the whole-farm livestock price sensitivity analysis are presented in Figure 2. The net farm incomes shown there represent the returns to management for both crops and livestock. The 12% higher livestock prices lead

to widely varying increases in the returns to management for the different whole-farm operations. For three of the nine producers, the increases are less than $1,150. For two of the producers, on the other hand, the increases in returns to management exceed $11,000. The increases in returns for the other four producers are about $3,100, $4,300, $6,100, and $7,400. The 12% increase in livestock prices is adequate to enable one of the three farms which experienced negative returns to management in the baseline analysis to realize positive returns to management with the increased livestock prices.

With 15% lower livestock prices, the decreases in whole-farm returns to management are again widely variant, ranging from less than $1,400 for three producers to more than $13,000 for two producers. The decreases in returns to management for the other four producers are about $3,900, $5,300, $7,600, and $9,300. The 15% decrease in livestock prices causes only one of the six farms with positive returns to management in the baseline analysis to have negative returns with the lower livestock prices. In this exceptional case, the farm's positive baseline net returns amounted to only $57.

Break-even livestock prices

Additional livestock price sensitivity analysis was undertaken to clarify the magnitude of livestock price increases required for livestock to contribute positively to net farm income for the case whole-farm production units. The above whole-farm price sensitivity analytic framework was modified in three ways. Attention on returns was restricted to the livestock enterprises on the individual case farms. Second, the bounds of price variation were expanded to cover 50%-lower-than to 50%-greater-than the baseline livestock prices. Third, two types of net livestock returns, in addition to returns to management, were considered: (1) returns to management and pasture land and (2) returns to management, pasture land, and labor.[22] The latter two measures undoubtedly more closely approximate the actual annual cash-flows for some producers than do returns to management.

Figure 3 portrays the results of this livestock price sensitivity analysis. The differential response of net livestock income to changes in livestock prices is reflected via the contrasting slopes for the net livestock income functions for the different producers. The slopes are steepest for Producers Q and H ($9,000-$12,000 change in net livestock income per 10% change in livestock prices) and shallowest for Producers G, T, and U ($750-$950 change in income per 10% change in livestock prices). The relative sensitivity of changes in returns to increased livestock prices for the individual producers is directly related to the gross value of livestock production for the respective producers.

A second interpretation of the data shown in Figure 3 involves identification of the break-even livestock prices for individual producers for each of the three measures of net livestock income. Those break-even prices are associated with the points of intersection between (1) the net livestock income

[22]The returns to management, permanent pasture, and labor and the returns to management and labor are, of course, identical for the three producers without permanent pasture.

functions for the respective producers and (2) the horizontal 0-level net income lines portrayed in Figure 3.

Table 15 summarizes the percentages by which livestock prices would need to change from baseline prices in order for farms with positive baseline livestock net incomes to begin to incur losses and for farms with negative baseline livestock net incomes to begin to incur positive net incomes. For the two case farms with positive baseline livestock returns to management, livestock prices would have to drop by 3% (Producer A) and 36% (Producer H) before these farms would begin to incur negative returns to management from their livestock. Greater drops in livestock prices (by 23% and 45%, respectively) would have to take place before their returns to management, pasture land, and labor would become negative.

For two producers with negative baseline livestock returns to management, livestock prices would have to increase by 3% and 15% (respectively, for Producers G and S) before even returns to management, pasture land, and labor would become positive. For returns to management for these producers to become positive, livestock prices would have to increase by 30% and 40%,[23] respectively.

The situation for the other five producers with negative baseline livestock returns to management is intermediate. Increases in livestock prices of as little as 0.01% (rounded to "0" in the table) or as much as 21% would be required before these producers would begin to experience positive net returns to management. On the other hand, livestock prices could drop by between 1% and 41% before the net livestock returns to management, pasture land, and labor for these five producers would begin to turn negative.

LIVESTOCK MANURE PRODUCTION AND DISPOSITION

Livestock are often described to play critical roles on sustainable farms because of (1) livestock's ability to make use of forages included in crop rotations, crop residues, and "failed" crops and (2) the manure that the livestock produce to enhance the fertility and overall productive capacity--via its effect on soil organic matter, soil structure and tilth, and nutrient- and water-holding capacities--of farmland.

In this section, a rough analysis of the production and disposition of manure by the nine livestock producers is undertaken.[24] The analysis is rough because of special difficulties in taking into satisfactory account (1) varying manure collection, storage, handling, and application (both method and timing) practices and associated manure nutrient losses for different producers; (2) differences among producers in roughage-to-concentrate feeding ratios and the

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[23]The 58% was interpolated for Producer G in Figure 3.

[24]The analysis builds, in part, on that reported by Leddy (1987) and Leddy, et al. (1988) in which the ability of various livestock enterprises to meet the requirement for manure as fertilizer on a "synthetic" whole farm in northeastern South Dakota was explored.

nutrient content (e.g., inorganic salts, feed additives) of various feeds fed to livestock; (3) differences in the nutrient content and availability to crops of different types of manure produced and handled under different environmental conditions; (4) differences in the characteristics of the soil and crop to which manure is applied; (5) differences in livestock bedding and water-additions-to-manure practices by various producers; and (6) both solid and liquid (urine) wastes voided by animals (Klausner 1989; Nelson and Shapiro 1989). Nevertheless, to gain a first approximation flavor of this type of linkage between livestock and crop production on the case farms, we attempted to estimate the production and disposition of manure on each of the case farms.

The two most important references for developing livestock manure production coefficients were MWPS (1985) and Van Dyne and Gilbertson (1978). MWPS (1985) shows the estimated daily raw manure production and various characteristics of the manure, including percent solids, for various classes and weights of animals. Van Dyne and Gilbertson (1978) report estimated average dry weights of manure produced by various classes of livestock in various regions of the country, after taking into account losses from storage and waste handling systems.

The two most pertinent reference points from Van Dyne and Gilbertson, in this study for the Northern Plains, are 1,971 lb. of dry weight manure/beef cow/yr. and 131 lb. of dry weight manure/finishing hog during a 120 day feeding period. The daily production levels represented by these total amounts are 5.4 and 1.1 lb., respectively. The percentages of solids in cattle and hog manure are 11.6 and 9.2, respectively (MWPS 1985). Thus, the amounts of raw manure produced daily (after accounting for losses from storage and waste handling systems) by beef cows and finishing hogs are 47 lb. and 12 lb., respectively.

These beef cow and finishing hog daily raw manure production levels were used as reference points in calculating the daily amounts of raw manure production for the other weights and classes of cattle and hogs in the study. The amounts computed for the other weights and classes of cattle and hogs were based on the proportional relationships of manure production, as reported by MWPS (1985), between each of the other pertinent livestock classes and beef cows or hogs (Table 16). The amounts for the various types of livestock considered range from 1,540 lb. for the 110 days that a sow is held for breeding to 26,280 lb./yr. for the 1,700 lb. bull.

Taking into account the amounts of manure produced per animal (Table 16) and the numbers of animals on each farm (shown in the first section of the livestock enterprise budgets in Annexes A and B), the total amounts of raw manure (after losses from storage and waste handling systems) produced per farm were determined (Table 17). Because of our desire to examine separately manure dropped by cattle while they graze versus manure assumed to accumulate and later be mechanically spread on cropland, the amounts of manure produced by cows and calves are reported separately from the amounts of manure produced by other classes of cattle. The total estimated manure produced annually on the case study farms ranges from 191 tons to 1,644 tons.

The total manure produced on each farm was assumed to be disposed of either as (1) droppings on grazed permanent pasture or on grazed crop residues or (2) mechanically spread on other cropland. The amounts of cow and calf manure assumed to be dropped on grazing land were based on the proportions of the year that the entire cow herds could have grazed on permanent pasture and crop residues. These grazing periods are shown in the final columns of Tables 4 and 5, respectively.

For the six producers having cow herds grazing permanent pasture, the annual rates of manure droppings range from 0.5 tons to 0.7 tons per acre of pasture (Table 18). For the five producers having cow herds grazing crop residues, the annual rates of manure droppings range from 0.3 tons to 0.5 tons per acre of crop residue. The annually available residual amounts of manure that could be spread on the remaining cropland vary from 0.03 tons to 4.07 tons per acre for the case farms. For only two producers, however, do the manure availability rates exceed 1.5 tons per acre per year.[25] These rather modest synthetically calculated rates of manure availability are consistent with the low rates of manure application reported directly to us in personal interviews with the sustainable producers (Taylor, et al. 1989a).

Readers are encouraged to return to the first section of the report to find the summary of findings from the study.

[25]An application of 1.5 tons of manure per acre would meet 6-26% of the nitrogen (N), 17-42% of the phosphorous (P_2O_5), and 13-45% of the potassium (K_2O) nutrient needs of corn yielding 80 bu./acre (Killorn 1985; MWPS 1985; Schmitt 1988).

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LIST OF TABLES

Table 1. Assumed weights of beef cattle.[a]

Cattle	Date	Weight (lb.)
Steer feeder calves	October 15	475
Heifer feeder calves	October 15	425
Backgrounded steers	January 15	620
Backgrounded heifers	January 15	565
Stocker steers	May 1	810
Stocker heifers	May 1	740
Finished steers	November 1	1,140
Finished heifers	November 1	1,055
Replacement heifers	May 1	625
	September 1	810
	January 1	920

[a]Holstein feeder calves are assumed to weigh 450 lb. on October 15th and to weigh 1,350 lb. when they are slaughtered on July 15th. This reflects an assumed daily rate of gain of 3.3 lb.

Table 2. Assumed baseline cattle prices, expected in 1988.

Cattle	Price ($/cwt.)
Beef steer feeder calves	89
Beef heifer feeder calves	81
Holstein feeder calves	83
Backgrounded steers	76
Backgrounded heifers	75
Stocker steers	69
Stocker heifers	67
Finished beef steers	65
Finished beef heifers	64
Finished Holstein steers	59
Cull cows	45
Cull bulls	56

Table 3. Assumed cattle TDN intake requirements.

Cattle	Period of year	TDN (lb.)	
Beef cow and calf until weaning	Year	4,260	
Beef bull	Year	5,475	
Backgrounded beef calves	Oct 15-Jan 14		
Steers		810	
Heifers		755	
Stocker beef cattle	Jan 15-Apr 30		
Steers		1,165	
Heifers		1,100	
Finishing beef cattle	May 1-Nov 1		
Steers		2,705	
Heifers		2,595	
Holstein steers	Oct 15-July 15	4,685	
Replacement heifers	Oct 15-Apr 30	1,487	4,000
	May 1-Aug 31	1,331	
	Sept 1-Jan 1	1,182	

Table 4. Permanent pasture and production, case livestock farms.

Farm/region[a]	No. of cow-calf units in herd	Acres grazed by cow herd[b]	Assumed annual precipitation (in.)[c]	Assumed maximum feasible grazing period (mo./yr)[d]	Acres required per animal unit[e]	AUs that could be fully supported by permanent pasture	AUMs produced	Months entire cow herd could be supported on permanent pasture
South Central								
A	45	151	24	6	6	25.2	151	3.36
G	16	32	23	6	6.6	4.8	29	1.80
Northeast								
S	75	200	19	6	8	25.0	150	2.00
West								
T	25	350	17	9.5	14	25.0	238	9.50
U	15	210	17	9.5	14	15.0	143	9.50
V	150	1,922	17	9.5	14	137.3	1,304	8.70

[a]Three livestock producers are not shown in this table: H and Q because they do not have beef cow herds (neither does Q have permanent pasture) and L because he has no permanent pasture.

[b]These are the acreages of permanent pasture determined to be grazed in the respective herds. Those producers were determined to have the following acreages of surplus permanent pasture: H 185, T 554 and U 425.

[c]Based on Westin and Malo (1978).

[d]Based on personal communication with Martin Beutler (March 1990).

[e]The acres required per AU were computed on the basis of data on pasture production rates (AUMs per acre) for varying pasture/range conditions with different levels of precipitation provided in Lamp, et al. (1989). The AUMs per acre for conditions represented on the respective case farms were converted to acres per AU by inverting the AUM per acre values and multiplying by the number of months per year of grazing.

Table 5. Crop residue production and grazing, case livestock farms.

Farm/region[a]	No. of cow-calf units in herd	Acres grazed by cow herd	AUM production[b]	Months of grazing provided to cow herd
South Central				
A	45	174	118	2.62
G	16	98	49	3.06
East Central				
L	42	555	320	7.62
Northeast				
S	75	290	123	1.63
West				
V	150	392	209	1.39

[a]Four livestock producers are not shown in the table: H, Q, and T because they do not graze crop residues on their farms and U, who has 517 acres that could be grazed, but who does not need it for his own cow herd.

[b]The crop residue AUMs shown below were computed through multiplying the number of acres of grazed corn stalk, small grain, and soybean stubble (see the final panel of data in Annex D) by the assumed rates of AUM and 0.25 for soybean stubble) for the respective producers.

Table 6. Assumed selected out-of-pocket beef production costs.[a]

	Cow-calf unit, with calf until:			
Cost item	October 10	January 15	May 1	November 1
Mineral and salt	$7.20	$7.80	$9.00	$10.80
Veterinary & medicine[b]	6.50	8.50	9.50	10.50
Supplies[c]	6.00	7.00	7.00	7.00
Marketing[d]	6.00	7.50	9.00	11.00
Power and fuel	5.20	6.20	7.20	8.20
Bldg & eqmt repairs	1.60	1.80	2.00	2.20

[a]The values for October 15, when the calves are weaned, are from Madsen et al, (1989). The values for the later dates reflect judgments of SDSU beef specialists.

[b]The "default" values shown in the table cover growth implants, routine shots, normal vaccinations, and insect control (a 1-in-10) assumed disease breakout). For those producers reporting "chemical free" livestock production practices, a zero expenditure was assumed. For those reporting the conscious reduction but not total elimination of medications and hormones, one-half the values shown in the table were assumed.

[c]Covers non-medication and implant expenses, e.g., ropes, hoses, feed pails. For purchased steers, an average cost for supplies of $6.00 per head was assumed.

[d]Covers information collection, transportation of cattle to sales barn, and sales commissions.

Table 7. Assumed average values of cattle and proportions of the year that cattle are in the herd.

Cattle	Average Value	Proportion of the year
Bull	$1,500	1.00
Brood cow	750	1.00
Replacement heifer	600	1.21
Backgrounded steer calf	445	0.25
Backgrounded heifer calf	385	0.25
Stocker steer	490	0.54
Stocker beef heifer	420	0.54
Finishing beef steer	580	1.04
Finishing beef heifer	510	1.04
Finishing Holstein steer	585	0.75

Table 8. Nature of beef cattle enterprises, case livestock farms.

Farm/region	Number of animals: Cow-calf units	Number of animals: Purchased feeders	Gross receipts, by animal type: Finished cattle Dollars	Finished cattle %	Feeder calves Dollars	Feeder calves %	Backgrounded calves Dollars	Backgrounded calves %	Stocker yearlings Dollars	Stocker yearlings %	Culled animals Dollars	Culled animals %	Total($)
South Central													
A	45	0	22,152	83.3	0	0	0	0	0	0	4,456	16.7	26,608
G	18	2	2,905	33.5	0	0	4,096	47.2	0	0	1,675	19.3	8,676
East Central													
H	0	8	5,809	100.0	0	0	0	0	0	0	0	0	5,809
L	42	3	22,854	84.5	0	0	0	0	0	0	4,200	15.5	27,054
Northeast													
Q	0	300	234,318	100.0	0	0	0	0	0	0	0	0	234,318
S	75	0	18,155	51.0	10,092	28.4	0	0	0	0	7,321	20.6	35,568
West													
T	25	0	0	0	6,889	73.8	0	0	0	0	2,440	26.2	9,329
U	15	19	0	0	0	0	0	0	16,001	91.0	1,590	9.0	17,591
V	150	0	0	0	0	0	47,145	76.3	0	0	14,643	23.7	61,788

Table 9. Overview of production costs for beef enterprises, case livestock farms, 1988.

Farm/region	Direct costs: Value of home-raised feed Dollars	%	Purchased feed/calves Dollars[b]	%	Interest on investment in cattle and variable costs Dollars	%	Labor Dollars	%	Other Dollars	%	Fixed Costs: DTII[a] on buildings & equipment Dollars	%	Bull replacement Dollars	%	Total($)
South Central															
A	14,570	44.9	1,147	3.5	7,482	23.1	5,874	18.1	2,000	6.2	360	1.1	1,000	3.1	32,433
G	4,599	42.4	202 846*	1.9 7.8	2,229	20.6	1,740	16.1	585	5.4	132	1.2	500	4.6	10,832
East Central															
H	2,229	30.9	3,384*	46.9	796	11.1	514	7.1	226	3.1	64	0.9	0	0	7,212
L	14,856	45.9	1,269*	3.9	7,241	22.4	5,688	17.6	1,946	6.0	360	1.1	1,000	3.1	32,360
Northeast															
Q	0	0	78,656 112,200*	32.6 46.5	27,718	11.5	7,704	3.2	7,860	3.3	6,975	2.9	0	0	241,114
S	20,713	41.7	6,638	13.3	10,821	21.8	7,036	14.1	2,445	4.9	574	1.2	1,500	3.0	49,727
West															
T	-2,658	28.5	257	2.7	2,876	30.8	2,215	23.7	650	7.0	181	1.9	500	5.4	9,337
U	2,825	15.5	139 8,037*	0.8 44.2	3,235	17.8	2,164	11.9	997	5.5	272	1.5	500	2.8	18,168
V	22,586	35.7	2,161	3.4	18,704	29.6	10,355	16.4	5,183	8.2	1,200	1.9	3,000	4.8	63,190

[a]DTII = depreciation, taxes, interest, and insurance.

[b]Non-starred cost items represent the cost of purchased feed. Starred (*) cost items represent the cost of purchased calves.

Table 10. Returns to management from beef enterprises, case livestock farms. 1988.

Farm/region	Returns ($)	Farm/region	Returns ($)
South Central		Northeast	
A	- 5,825	Q	- 6,796
G	- 2,301	S	-14,159
East Central		West	
H	- 1,403	T	- 8
L	- 5,306	U	- 577
		V	- 1,402

Table 11. Overview of production costs and returns for hog farrowing-finishing enterprises, case livestock farms, 1988.[a]

Production cost item	Farmer A South Central Dollars	Percent	Farmer H East Central Dollars	Percent
Direct cost				
Value of home-raised feed	4,912	29.6	19,041	34.4
Purchased feed	5,296	31.9	14,895	26.9
Interest on investment in hogs and variable costs	789	4.8	2,744	5.0
Labor	2,928	17.6	7,223	13.1
Other	1,505	9.1	6,941	12.6
Sub total	15,430	93.0	50,844	92.0
Fixed Costs				
Depreciation, taxes, interest, and insurance on buildings and equipment	915	5.5	3,431	6.2
Replacement of boar	250	1.5	1,000	1.8
Sub-total	1,165	7.0	4,431	8.0
Total	16,595	100.0	55,275	100.0

[a]The gross returns from Producers A and H were about $24,100 and $90,250, respectively. The net returns to management were about $7,500 and $35,000.

Table 12. Distribution of cropland acres, case livestock farms, 1988.

Crop	Percentage of cropland								
	South Central		East Central		Northeast		West		
	Farm A	Farm G	Farm H	Farm L	Farm Q	Farm S	Farm T	Farm U	Farm V
Soybeans	20.9	36.7	23.9	17.0	42.1	11.3	0	0	0
Corn	36.8	0	22.5	18.9	0	0	0	0	7.9
Alfalfa	8.3	18.0	19.5	9.4	0	25.0	0.8	27.7	10.1
Small grains	19.2	43.1	14.7	28.3	31.5	29.4	66.1	49.3	37.1
Set-aside and summer fallow	14.8	2.2	19.4	17.0	15.6	28.1	33.1	23.0	44.9
Other	0	0	0	9.4	10.8	6.2	0	0	0

Table 13. Livestock consumption of home-raised feeds, case livestock farms, 1988.

Crop	South Central		East Central		Northeast		West		
	Farm A	Farm G	Farm H	Farm L	Farm Q	Farm S	Farm T	Farm U	Farm V
Percentage of home-raised feeds consumed by livestock									
All crops ($ value)	35.3	14.7	22.9	11.0	0	40.5	1.5	3.3	45.8
Corn grain (bu)	61.7	n/a	73.2	10.7	0	n/a	n/a	n/a	100.0
Oats (bu)	0	n/a	0	0	0	n/a	n/a	0	28.5
Wheat (bu)	n/a	0	0	n/a	0	20.6	0	0	0
Alfalfa (ton)	88.0	51.2	12.1	56.4	0	100.0	100.0	7.7	72.6
Corn silage fed to livestock (tons)	315	0	0	225	0	0	0	0	318
Livestock grazing (acres)									
Permanent pasture	151	32	0	0	0	200	390	210	1,922
Corn stubble	99	0	0	175	0	0	0	0	25
Small grain stubble	0	98	0	200	0	200	0	517	367
Soybean stubble	75	0	0	180	0	90	0	0	0

Table 14. Crop and livestock contributions to income, case livestock farms, 1988.

Types of Income	South Central		East Central		Northeast		West		
	Farm A	Farm G	Farm H	Farm L	Farm Q	Farm S	Farm T	Farm U	Farm V
Gross income (percentages)									
Crop	41.4	75.4	42.7	81.7	15.6	46.2	95.0	82.7	30.2
Livestock	58.6	24.6	57.3	18.3	84.4	53.8	5.0	17.3	69.8
Net income ($)									
Crop	8,172	1,525	10,314	20,042	6,853	-11,504	15,038	8,539	-15,737
Livestock	1,636	-2,301	33,587	- 5,306	-6,796	-14,159	- 8	- 577	- 1,402
Total	9,808	- 776	43,901	14,736	57	-25,663	15,030	7,962	-17,139

Table 15. Break-even livestock prices, by type of livestock net income, case livestock farms.

Farm/region	Baseline livestock returns management ($)	Break-even livestock prices (as a percent of baseline prices) for net returns to livestock above all costs except: Management, pasture land, and labor	Management and pasture land	Management
South Central				
A	1,636	-23	- 6	- 3
G	- 2,301	+ 3	+26	+30
East Central				
H	33,587	-45	-36	-36
L	- 5,306	- 2	+21	+21
Northeast				
Q	- 6,796	- 1	+ 6	+ 6
S	-14,159	+15	+34	+40
West				
T	- 8	-41	-18	0
U	- 577	-29	- 6	+ 6
V	- 1,402	-24	- 7	+ 3

Table 16. Assumed manure production coefficients, by type of animal.

Animal/body weight	Days assumed to be in herd[b]	Total reported manure production, by type of animal (lb.)[a] Per day per animal	Per lb. of body weight	Assumed manure production, after losses from storage and waste handling systems (lb.) Per day per animal	Per animal in herd
Beef cow, 1,100 lb.	365	66	0.060	47	17,155
Backgrounded calf (450-590) 520 lb	91	31	0.060	22	2,002
Stocker yearling (450-775) 615 lb	197	37	0.060	26	5,122
Replacement heifer (425-920) 675 lb	442	41	0.060	29	12,818
Finishing cattle (450-1,100) 775 lb	380[c]	47	0.060	33	12,540
Bull 1,700 lb	365	102	0.060	72	26,280
Finishing hog (45-225) 135 lb	150	8.8	0.065	12	1,800
Sow (225-450)					
Growing period (45-225) 135 lb	150	8.8	0.065	12	1,800
"Holding period, while waiting to be bred 330 lb "avg"	110	10.4	0.031	14	1,540
Gestating period 350 lb. "avg"	230	11.2	0.032	15	3,450
Lac pd (sow/litter) 400 lb "avg"	60	35.2	0.088	48	2,880
Boar (225-500) 400 lb "avg"	225	12.4	0.031	17	4,335

[a]The source of these data is MWPS (1985).

[b]The days for cattle are based on the proportions of the year that cattle are in the herd, as shown in Table 5. The days for hogs were developed as follows:

- Finishing hogs (and "growing period" for replacement gilts): an assumed feeding period of 150 days;
- Sow "holding" period: the replacement gilt is assumed to be bred for her first litter about 70 days after she enters the breeding herd at 180 days of age; after her first litter is weaned, she is assumed to be held about 40 days before being bred for her second litter;
- Sow gestating period: 115 days per litter times two litters;
- Sow lactation period: 30 days each times two lactations; and
- Boar: assumed to be purchased at 180 days and to be in the herd about 255 days (70 days holding period, including the first breeding season; 115 days first gestation period; 30 days first sow lactation period; and 40 day holding period, including his second breeding season).

[c]Holstein steers, however, are assumed to be fed for 274 days only.

Table 17. Estimated manure production, after losses from storage and waste handling systems, case livestock farms.

Farm/region	Beef cattle: Cows and calves	Beef cattle: Other	Hogs	Total
		(tons/year)		
South Central				
A	386	276	222	884
G	137	54	0	191
East Central				
H	0	50	833	883
L	360	278	0	683
Northeast				
Q	0	1,356	0	1,356
S	643	283	0	926
West				
T	214	42	0	256
U	129	106	0	235
V	1,287	357	0	1,644

Table 18. Estimated manure disposition, case livestock farms.

Farm/region	Permanent pasture			Crop residues			Manure spread on cropland[a]		
	Tons	Acres	T/acre/yr.	Tons	Acres	T/acre/yr.	Tons	Acres	T/acre/yr.
South Central									
A	108	151	0.71	84	174	0.48	692	185	3.74
G	21	32	0.66	35	98	0.36	135	169	0.80
East Central									
H	0	0	n/a	0	0	n/a	883	720	1.23
L	0	0	n/a	229	555	0.41	409	505	0.81
Northeast									
Q	0	0	n/a	0	0	n/a	1,356	333	4.07
S	107	200	0.54	87	290	0.30	732	510	1.44
West									
T	169	350	0.48	0	0	n/a	87	2,576	0.03
U	102	210	0.49	0	0	n/a	133	1,048	0.13
V	933	1,922	0.49	149	392	0.38	562	598	0.94

[a]We assumed that manure would not be spread on grazed crop residue cropland.

LIST OF FIGURES

Figure 1. Location of nine South Dakota sustainable case livestock farms

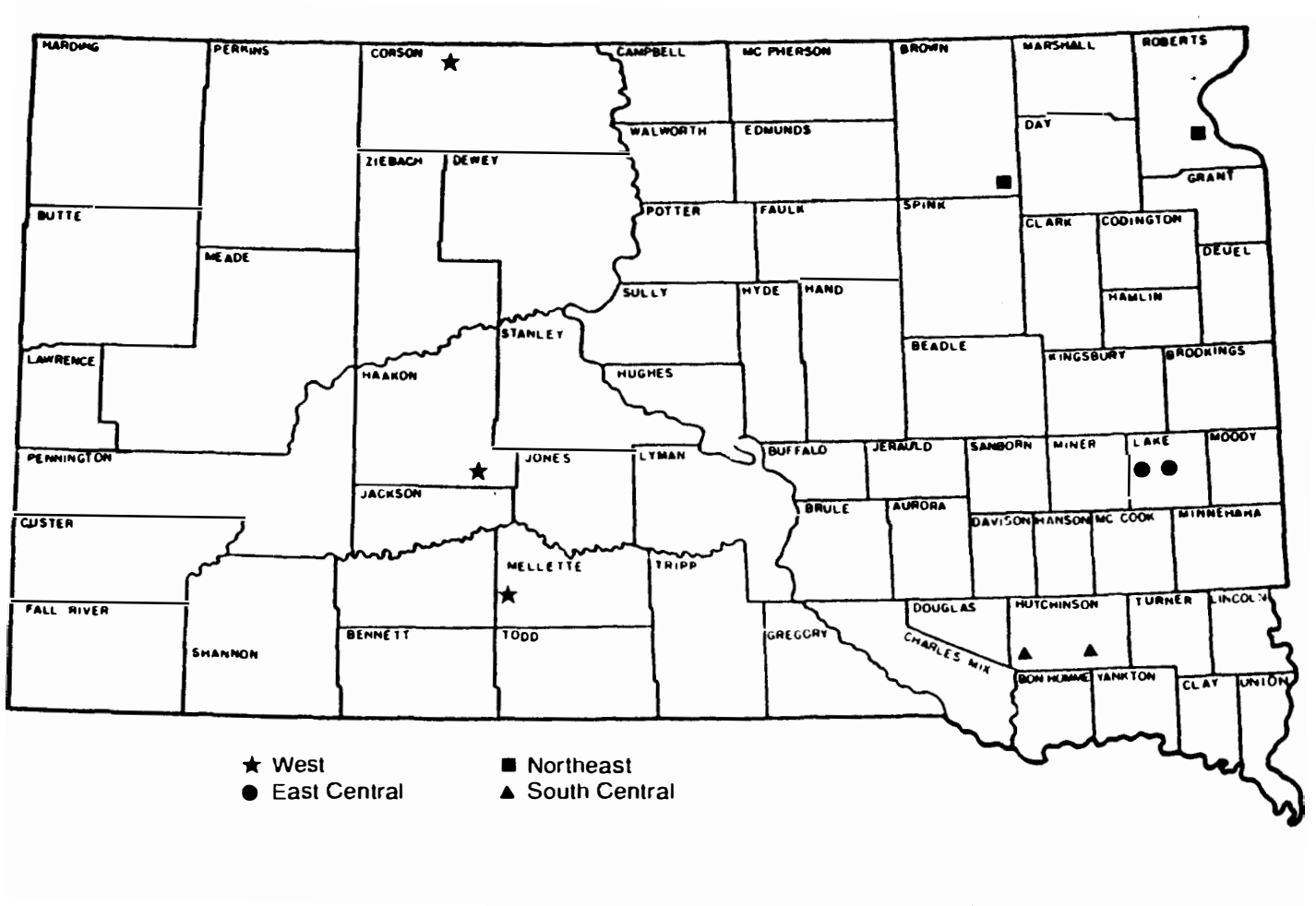

Figure 2. Whole-farm livestock price sensitivity analysis, nine case livestock farms.

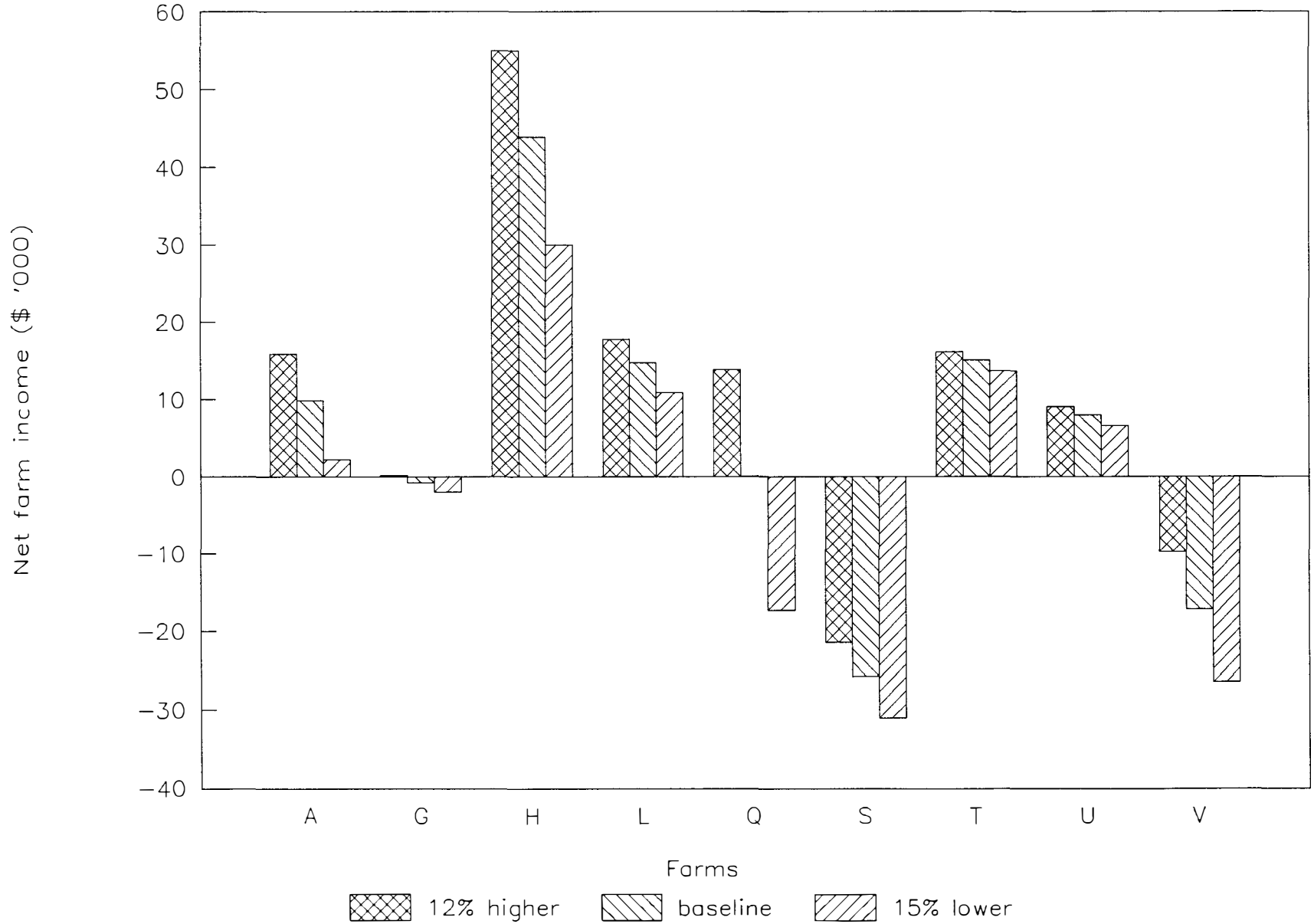

Figure 3. Break-even livestock price sensitivity analysis, nine case livestock farms.

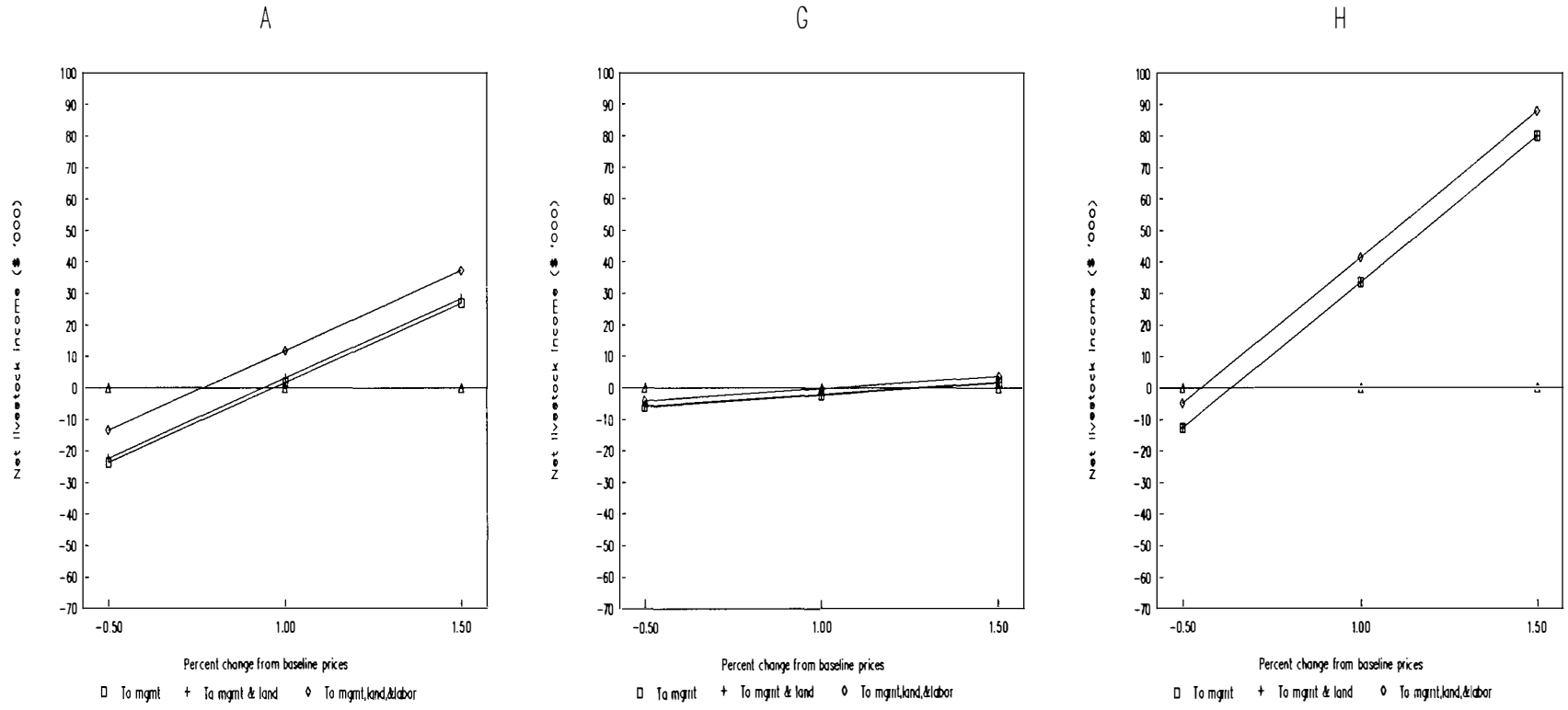

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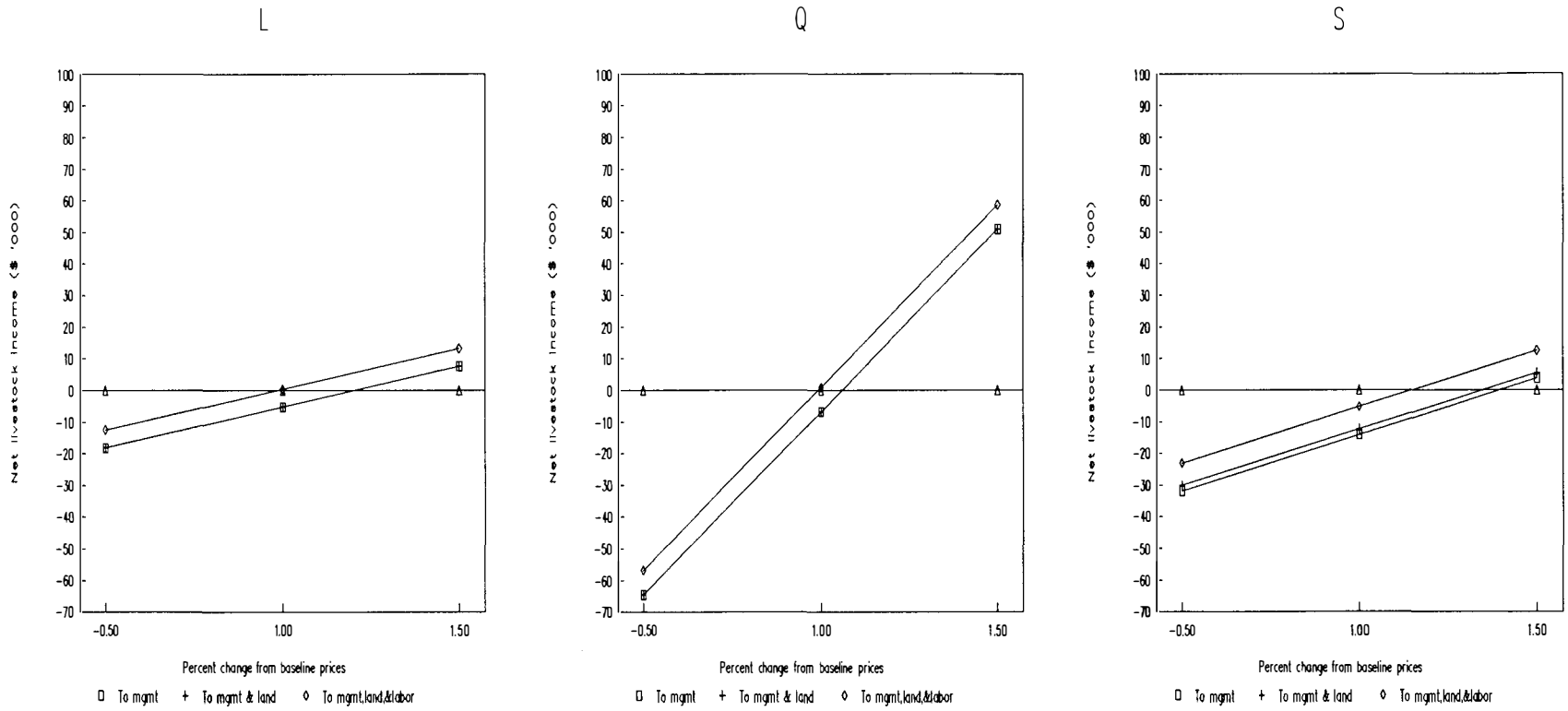
Figure 3 cont'd



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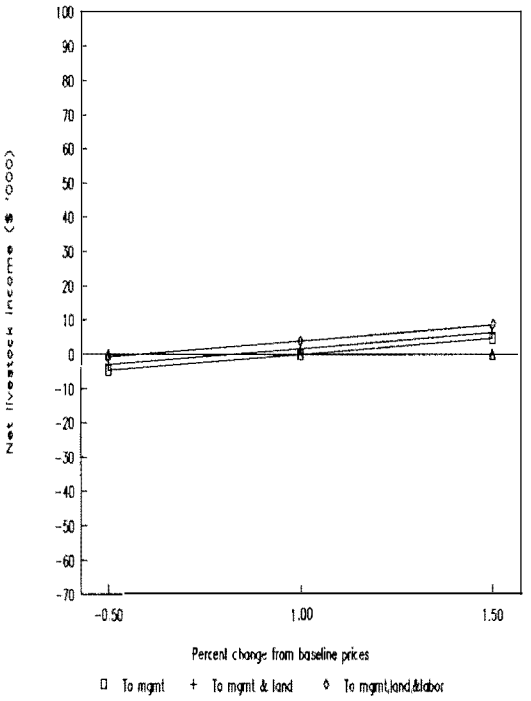

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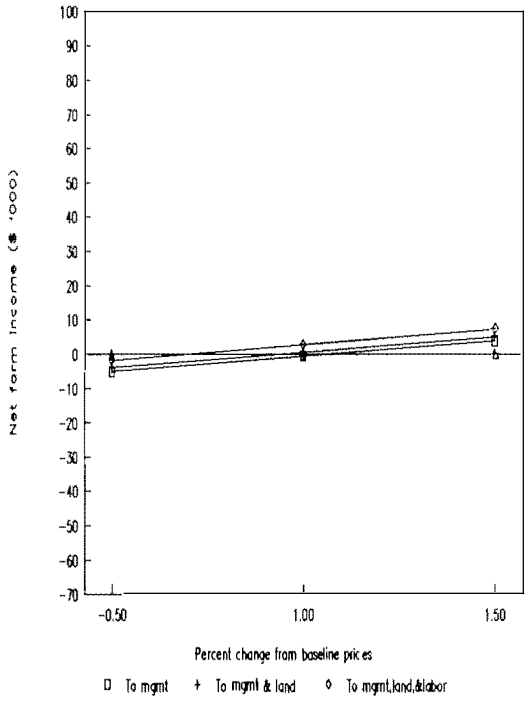

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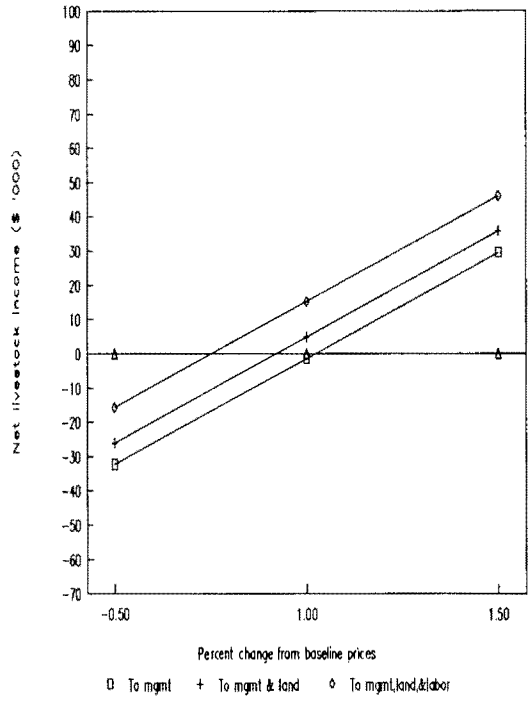

LIST OF ANNEXES

ANNEX A

BEEF BUDGETS FOR NINE PRODUCERS

PRODUCER A, SOUTH CENTRAL AREA

INPUT SECTION

1. RECEIPTS:

	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES.....	0.00	0.00	0.00	$423	$0
HEIFER CALVES.....	0.00	0.00	0.00	$344	$0
BACKGROUND STEERS.....	0.00	0.00	0.00	$471	$0
BACKGROUND HEIFERS.....	0.00	0.00	0.00	$424	$0
STOCKER STEERS.....	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS.....	0.00	0.00	0.00	$496	$0
FINISHED STEERS.....	0.98	19.80	19.40	$741	$14,378
FINISHED HEIFERS.....	0.98	11.70	11.47	$678	$7,774
CULL COWS.....	0.15	45.00	6.75	$495	$3,341
CULL YEARLING HEIFERS....	0.10	8.10	0.81	$600	$486
CULL BULLS.....	0.33	2.00	0.66	$952	$628
FINISHED HOLSTEIN STEERS.	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS.....					$26,608

2. DIRECT COSTS:

	COW-CALF UNITS 45		PURCHASED FEEDERS 0		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT.....	$10.80	486.00	$0.00	$0.00	$486
VETERINARY AND MEDICINE..	$5.25	236.25	$0.00	$0.00	$236
SUPPLIES.....	$7.00	315.00	$0.00	$0.00	$315
MARKETING.....	$11.00	495.00	$0.00	$0.00	$495
POWER AND FUEL.....	$8.20	369.00	$0.00	$0.00	$369
BLDG AND EQPMT REPAIRS...	$2.20	99.00	$0.00	$0.00	$99
SUB-TOTAL.....		$2,000		$0	$2,000

	WHOLE-FARM PRICE	QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	76.7	$1,147	
PURCHASED CALVES ($/HEAD)	$0.00	0	$0	
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL.....			$3,147	
INTEREST COSTS.....			$7,482	(see next page for calculation)
LABOR ($/HR).....	$6.42	915	$5,874	
SUB-TOTAL (EXC.R.FEED)			$16,504	
RAISED FEED.....				
CORN ($/BU).....	$1.94	1258	$2,441	
OATS ($/BU).....	$0.00	0	$0	
WHEAT ($/BU).....	$0.00	0	$0	
ALFALFA HAY ($/TON)...	$50.00	92.4	$4,620	
CORN SILAGE ($/TON)...	$19.26	315.4	$6,075	
PASTURE ($/AC).....	$9.50	151	$1,435	
SUB-TOTAL (RAISED FEED)			$14,570	
TOTAL DIRECT COSTS...			$31,073	

PRODUCER A, SOUTH CENTRAL AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$8.00	$360.00	$0.00	$0.00	$360
REPLACEMENT OF BULL.....	$22.22	$999.90			$1,000
TOTAL FIXED COSTS....					$1,360
TOTAL DIRECT & FIXED COSTS					$32,433
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($5,825)

****

CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	2.00	1.00	$3,000
COW.....	$750	45.00	1.00	$33,750
REPLACEMENT HEIFER.....	$600	8.10	1.21	$5,881
BACKGROUNDED STEER CALF..	$445	0.00	0.25	$0
BACKGROUNDED HEIFER CALF.	$385	0.00	0.25	$0
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	19.80	1.04	$11,943
FINISHING HEIFER.....	$510	11.70	1.04	$6,206
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$60,780
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$3,147	0.5	$1,573
GRAND TOTAL.....				$62,353
TOTAL INTEREST CHARGE....		$62,353	0.12	$7,482

PRODUCER G, SOUTH CENTRAL AREA

INPUT SECTION

1. RECEIPTS:

	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES	0.00	0.00	0.00	$423	$0
HEIFER CALVES	0.00	0.00	0.00	$344	$0
BACKGROUND STEERS	0.99	5.04	4.99	$471	$2,350
BACKGROUND HEIFERS	0.99	4.16	4.12	$424	$1,746
STOCKER STEERS	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS	0.00	0.00	0.00	$496	$0
FINISHED STEERS	0.98	4.00	3.92	$741	$2,905
FINISHED HEIFERS	0.00	0.00	0.00	$678	$0
CULL COWS	0.15	16.00	2.40	$495	$1,188
CULL YEARLING HEIFERS	0.10	2.88	0.29	$600	$173
CULL BULLS	0.33	1.00	0.33	$952	$314
FINISHED HOLSTEIN STEERS	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS					$8,676

2. DIRECT COSTS:

	COW-CALF UNITS 16		PURCHASED FEEDERS 2		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT	$7.80	124.80	$3.00	$6.00	$131
VETERINARY AND MEDICINE	$4.25	68.00	$1.00	$2.00	$70
SUPPLIES	$7.00	112.00	$6.00	$12.00	$124
MARKETING	$7.50	120.00	$3.50	$7.00	$127
POWER AND FUEL	$6.20	99.20	$2.00	$4.00	$103
BLDG AND EQPMT REPAIRS	$1.80	28.80	$0.40	$0.80	$30
SUB-TOTAL		$553		$32	$585

	WHOLE-FARM PRICE	QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	13.5		$202
PURCHASED CALVES ($/HEAD)	$423.00	2		$846
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL				$1,632
INTEREST COSTS				$2,374 (see next page for calculation)
LABOR ($/HR)	$6.42	271		$1,740
SUB-TOTAL (EXC.R.FEED)				$5,746
RAISED FEED				
CORN ($/BU)	$0.00	0		$0
OATS ($/BU)	$0.00	0		$0
WHEAT ($/BU)	$0.00	0		$0
ALFALFA HAY ($/TON)	$50.00	86		$4,300
CORN SILAGE ($/TON)	$0.00	0		$0
PASTURE ($/AC)	$9.50	31.5		$299
SUB-TOTAL (RAISED FEED)				$4,599
TOTAL DIRECT COSTS				$10,345

PRODUCER G, SOUTH CENTRAL AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$7.25	$116.00	$8.00	$16.00	$132
REPLACEMENT OF BULL.....	$31.25	$500.00			$500
TOTAL FIXED COSTS....					$632
TOTAL DIRECT & FIXED COSTS					$10,977
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($2,301)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	1.00	1.00	$1,500
COW.....	$750	16.00	1.00	$12,000
REPLACEMENT HEIFER.....	$600	2.88	1.21	$2,091
BACKGROUNDED STEER CALF..	$445	5.04	0.25	$561
BACKGROUNDED HEIFER CALF.	$385	4.16	0.25	$400
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	4.00	1.04	$2,413
FINISHING HEIFER.....	$510	0.00	1.04	$0
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$18,965
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$1,632	0.5	$816
GRAND TOTAL.....				$19,781
TOTAL INTEREST CHARGE....		$19,781	0.12	$2,374

PRODUCER H, EAST CENTRAL AREA

INPUT SECTION

1. RECEIPTS:	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES.....	0.00	0.00	0.00	$423	$0
HEIFER CALVES.....	0.00	0.00	0.00	$344	$0
BACKGROUND STEERS.....	0.00	0.00	0.00	$471	$0
BACKGROUND HEIFERS.....	0.00	0.00	0.00	$424	$0
STOCKER STEERS.....	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS.....	0.00	0.00	0.00	$496	$0
FINISHED STEERS.....	0.98	8.00	7.84	$741	$5,809
FINISHED HEIFERS.....	0.00	0.00	0.00	$678	$0
CULL COWS.....	0.00	0.00	0.00	$495	$0
CULL YEARLING HEIFERS....	0.00	0.00	0.00	$600	$0
CULL BULLS.....	0.00	0.00	0.00	$952	$0
FINISHED HOLSTEIN STEERS.	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS.....					$5,809

2. DIRECT COSTS:

	COW-CALF UNITS 0		PURCHASED FEEDERS 8		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT.....	$0.00	0.00	$3.60	$28.80	$29
VETERINARY AND MEDICINE..	$0.00	0.00	$4.00	$32.00	$32
SUPPLIES.....	$0.00	0.00	$6.00	$48.00	$48
MARKETING.....	$0.00	0.00	$11.00	$88.00	$88
POWER AND FUEL.....	$0.00	0.00	$3.00	$24.00	$24
BLDG AND EQPMT REPAIRS...	$0.00	0.00	$0.60	$4.80	$5
SUB-TOTAL.....		$0		$226	$226

	WHOLE-FARM PRICE	QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	0.0	$0	
PURCHASED CALVES ($/HEAD)	$423.00	8	$3,384	
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL.....			$3,610	
INTEREST COSTS.....			$796	(see next page for calculation)
LABOR ($/HR).....	$6.42	80	$514	
SUB-TOTAL (EXC.R.FEED)			$4,919	
RAISED FEED.....				
CORN ($/BU).....	$1.90	176	$334	
OATS ($/BU).....	$0.00	0	$0	
WHEAT ($/BU).....	$0.00	0	$0	
ALFALFA HAY ($/TON)...	$50.00	37.9	$1,895	
CORN SILAGE ($/TON)...	$0.00	0	$0	
PASTURE ($/AUM).....	$0.00	0	$0	
SUB-TOTAL (RAISED FEED)			$2,229	
TOTAL DIRECT COSTS...			$7,148	

PRODUCER H, EAST CENTRAL AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$0.00	$0.00	$8.00	$64.00	$64
REPLACEMENT OF BULL.....	$0.00	$0.00			$0
TOTAL FIXED COSTS....					$64
TOTAL DIRECT & FIXED COSTS					$7,212
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($1,403)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	0.00	1.00	$0
COW.....	$750	0.00	1.00	$0
REPLACEMENT HEIFER.....	$600	0.00	1.21	$0
BACKGROUNDED STEER CALF..	$445	0.00	0.25	$0
BACKGROUNDED HEIFER CALF.	$385	0.00	0.25	$0
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	8.00	1.04	$4,826
FINISHING HEIFER.....	$510	0.00	1.04	$0
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$4,826
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$3,610	0.5	$1,805
GRAND TOTAL.....				$6,630
TOTAL INTEREST CHARGE....		$6,630	0.12	$796

PRODUCER L, EAST CENTRAL AREA

INPUT SECTION

1. RECEIPTS:

	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES	0.00	0.00	0.00	$423	$0
HEIFER CALVES	0.00	0.00	0.00	$344	$0
BACKGROUND STEERS	0.00	0.00	0.00	$471	$0
BACKGROUND HEIFERS	0.00	0.00	0.00	$424	$0
STOCKER STEERS	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS	0.00	0.00	0.00	$496	$0
FINISHED STEERS	0.98	21.48	21.05	$741	$15,598
FINISHED HEIFERS	0.98	10.92	10.70	$678	$7,256
CULL COWS	0.15	42.00	6.30	$495	$3,119
CULL YEARLING HEIFERS	0.10	7.56	0.76	$600	$454
CULL BULLS	0.33	2.00	0.66	$952	$628
FINISHED HOLSTEIN STEERS	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS					$27,054

2. DIRECT COSTS:

	COW-CALF UNITS 42		PURCHASED FEEDERS 3		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT	$10.80	453.60	$3.60	$10.80	$464
VETERINARY AND MEDICINE	$5.25	220.50	$2.00	$6.00	$227
SUPPLIES	$7.00	294.00	$6.00	$18.00	$312
MARKETING	$11.00	462.00	$11.00	$33.00	$495
POWER AND FUEL	$8.20	344.40	$3.00	$9.00	$353
BLDG AND EQPMT REPAIRS	$2.20	92.40	$0.60	$1.80	$94
SUB-TOTAL		$1,867		$79	$1,946

	WHOLE-FARM PRICE	QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	0.0	$0	
PURCHASED CALVES ($/HEAD)	$423.00	3	$1,269	
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL			$3,215	
INTEREST COSTS			$7,241	(see next page for calculation)
LABOR ($/HR)	$6.42	886	$5,688	
SUB-TOTAL (EXC.R.FEED)			$16,144	
RAISED FEED				
CORN ($/BU)	$1.90	1402	$2,664	
OATS ($/BU)	$0.00	0	$0	
WHEAT ($/BU)	$0.00	0	$0	
ALFALFA HAY ($/TON)	$50.00	157.9	$7,895	
CORN SILAGE ($/TON)	$19.10	225	$4,298	
PASTURE ($/AUM)	$0.00	0	$0	
SUB-TOTAL (RAISED FEED)			$14,856	
TOTAL DIRECT COSTS			$31,000	

PRODUCER L, EAST CENTRAL AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$8.00	$336.00	$8.00	$24.00	$360
REPLACEMENT OF BULL.....	$23.81	$1,000			$1,000
TOTAL FIXED COSTS....					$1,360
TOTAL DIRECT & FIXED COSTS					$32,360
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($5,306)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	2.00	1.00	$3,000
COW.....	$750	42.00	1.00	$31,500
REPLACEMENT HEIFER.....	$600	7.56	1.21	$5,489
BACKGROUNDED STEER CALF..	$445	0.00	0.25	$0
BACKGROUNDED HEIFER CALF.	$385	0.00	0.25	$0
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	21.48	1.04	$12,957
FINISHING HEIFER.....	$510	10.92	1.04	$5,792
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$58,737
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$3,215	0.5	$1,607
GRAND TOTAL.....				$60,345
TOTAL INTEREST CHARGE....		$60,345	0.12	$7,241

PRODUCER Q, NORTHEAST AREA

INPUT SECTION

1. RECEIPTS:

	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES.....	0.00	0.00	0.00	$423	$0
HEIFER CALVES.....	0.00	0.00	0.00	$344	$0
BACKGROUND STEERS.....	0.00	0.00	0.00	$471	$0
BACKGROUND HEIFERS.....	0.00	0.00	0.00	$424	$0
STOCKER STEERS.....	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS.....	0.00	0.00	0.00	$496	$0
FINISHED STEERS.....	0.00	0.00	0.00	$741	$0
FINISHED HEIFERS.....	0.00	0.00	0.00	$678	$0
CULL COWS.....	0.00	0.00	0.00	$495	$0
CULL YEARLING HEIFERS....	0.00	0.00	0.00	$600	$0
CULL BULLS.....	0.00	0.00	0.00	$952	$0
FINISHED HOLSTEIN STEERS.	0.98	300.00	294.00	$797	$234,318
TOTAL RECEIPTS.....					$234,318

2. DIRECT COSTS:

	COW-CALF UNITS 0		PURCHASED FEEDERS 300		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT.....	$0.00	0.00	$3.60	$1,080	$1,080
VETERINARY AND MEDICINE..	$0.00	0.00	$2.00	$600	$600
SUPPLIES.....	$0.00	0.00	$6.00	$1,800	$1,800
MARKETING.....	$0.00	0.00	$11.00	$3,300	$3,300
POWER AND FUEL.....	$0.00	0.00	$3.00	$900	$900
BLDG AND EQPMT REPAIRS...	$0.00	0.00	$0.60	$180	$180
SUB-TOTAL.....		$0		$7,860	$7,860

	WHOLE-FARM PRICE	QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	930.6	$13,912	
PURCHASED CORN ($/BU)....	$1.99	28070	$55,859	
ALFALFA HAY ($/TON).....	$50.00	177.7	$8,885	
PURCHASED CALVES ($/HEAD)	$374.00	300	$112,200	
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL.....			$198,717	
INTEREST COSTS.....			$27,718	(see next page for calculation)
LABOR ($/HR).....	$6.42	1200	$7,704	
SUB-TOTAL (EXC.R.FEED)			$234,139	
RAISED FEED.....				
CORN ($/BU).....	$0.00	0	$0	
OATS ($/BU).....	$0.00	0	$0	
WHEAT ($/BU).....	$0.00	0	$0	
ALFALFA HAY ($/TON)...	$0.00	0	$0	
CORN SILAGE ($/TON)...	$0.00	0	$0	
PASTURE ($/AUM).....	$0.00	0	$0	
SUB-TOTAL (RAISED FEED)			$0	
TOTAL DIRECT COSTS...			$234,139	

PRODUCER Q, NORTHEAST AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$0.00	$0.00	$23.25	$6,975	$6,975
REPLACEMENT OF BULL.....	$0.00	$0.00			$0
TOTAL FIXED COSTS....					$6,975
TOTAL DIRECT & FIXED COSTS					$241,114
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($6,796)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	0.00	1.00	$0
COW.....	$750	0.00	1.00	$0
REPLACEMENT HEIFER.....	$600	0.00	1.21	$0
BACKGROUNDED STEER CALF..	$445	0.00	0.25	$0
BACKGROUNDED HEIFER CALF.	$385	0.00	0.25	$0
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	0.00	1.04	$0
FINISHING HEIFER.....	$510	0.00	1.04	$0
HOLSTEIN STEER PURCHASED.	$585	300.00	0.75	$131,625
TOTAL ANIMAL VALUE.....				$131,625
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$198,717	0.5	$99,358
GRAND TOTAL.....				$230,983
TOTAL INTEREST CHARGE....		$230,983	0.12	$27,718

PRODUCER S, NORTHEAST AREA

INPUT SECTION

1. RECEIPTS:

	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES	1.00	8.00	8.00	$423	$3,384
HEIFER CALVES	1.00	19.50	19.50	$344	$6,708
BACKGROUND STEERS	0.00	0.00	0.00	$471	$0
BACKGROUND HEIFERS	0.00	0.00	0.00	$424	$0
STOCKER STEERS	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS	0.00	0.00	0.00	$496	$0
FINISHED STEERS	0.98	25.00	24.50	$741	$18,155
FINISHED HEIFERS	0.00	0.00	0.00	$678	$0
CULL COWS	0.15	75.00	11.25	$495	$5,569
CULL YEARLING HEIFERS	0.10	13.50	1.35	$600	$810
CULL BULLS	0.33	3.00	0.99	$952	$942
FINISHED HOLSTEIN STEERS	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS					$35,568

2. DIRECT COSTS:

	COW-CALF UNITS 75		PURCHASED FEEDERS 0		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT	$9.00	675.00	$0.00	$0.00	$675
VETERINARY AND MEDICINE	$0.00	0.00	$0.00	$0.00	$0
SUPPLIES	$6.50	487.50	$0.00	$0.00	$488
MARKETING	$8.50	637.50	$0.00	$0.00	$638
POWER AND FUEL	$6.70	502.50	$0.00	$0.00	$503
BLDG AND EQPMT REPAIRS	$1.90	142.50	$0.00	$0.00	$143
SUB-TOTAL		$2,445		$0	$2,445

	WHOLE-FARM PRICE	QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	31.0	$463	
ALFALFA HAY ($/TON)	$50.00	123.5	$6,175	
PURCHASED CALVES ($/HEAD)	$0.00	0	$0	
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL			$9,083	
INTEREST COSTS			$10,821	(see next page for calculation)
LABOR ($/HR)	$6.42	1096	$7,036	
SUB-TOTAL (EXC.R.FEED)			$26,940	
RAISED FEED				
CORN ($/BU)	$0.00	0	$0	
OATS ($/BU)	$0.00	0	$0	
WHEAT ($/BU)	$3.75	1030	$3,863	
ALFALFA HAY ($/TON)	$50.00	300	$15,000	
CORN SILAGE ($/TON)	$0.00	0	$0	
PASTURE ($/AC)	$9.25	200	$1,850	
SUB-TOTAL (RAISED FEED)			$20,713	
TOTAL DIRECT COSTS			$47,653	

PRODUCER S, NORTHEAST AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$7.65	$573.75	$0.00	$0.00	$574
REPLACEMENT OF BULL.....	$20.00	$1,500			$1,500
TOTAL FIXED COSTS....					$2,074
TOTAL DIRECT & FIXED COSTS					$49,727
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($14,159)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	3.00	1.00	$4,500
COW.....	$750	75.00	1.00	$56,250
REPLACEMENT HEIFER.....	$600	13.50	1.21	$9,801
BACKGROUNDED STEER CALF..	$445	0.00	0.25	$0
BACKGROUNDED HEIFER CALF.	$385	0.00	0.25	$0
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	25.00	1.04	$15,080
FINISHING HEIFER.....	$510	0.00	1.04	$0
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$85,631
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$9,083	0.5	$4,542
GRAND TOTAL.....				$90,173
TOTAL INTEREST CHARGE....		$90,173	0.12	$10,821

PRODUCER T, SOUTHWEST AREA

INPUT SECTION

1. RECEIPTS:	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES	1.00	11.00	11.00	$423	$4,653
HEIFER CALVES	1.00	6.50	6.50	$344	$2,236
BACKGROUND STEERS	0.00	0.00	0.00	$471	$0
BACKGROUND HEIFERS	0.00	0.00	0.00	$424	$0
STOCKER STEERS	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS	0.00	0.00	0.00	$496	$0
FINISHED STEERS	0.00	0.00	0.00	$741	$0
FINISHED HEIFERS	0.00	0.00	0.00	$678	$0
CULL COWS	0.15	25.00	3.75	$495	$1,856
CULL YEARLING HEIFERS	0.10	4.50	0.45	$600	$270
CULL BULLS	0.33	1.00	0.33	$952	$314
FINISHED HOLSTEIN STEERS	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS					$9,329

2. DIRECT COSTS:

	COW-CALF UNITS 25		PURCHASED FEEDERS 0		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT	$7.20	180.00	$0.00	$0.00	$180
VETERINARY AND MEDICINE	$0.00	0.00	$0.00	$0.00	$0
SUPPLIES	$6.00	150.00	$0.00	$0.00	$150
MARKETING	$6.00	150.00	$0.00	$0.00	$150
POWER AND FUEL	$5.20	130.00	$0.00	$0.00	$130
BLDG AND EQPMT REPAIRS	$1.60	40.00	$0.00	$0.00	$40
SUB-TOTAL		$650		$0	$650

	WHOLE-FARM PRICE	WHOLE-FARM QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	17.2		$257
PURCHASED CALVES ($/HEAD)	$0.00	0		$0
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL				$907
INTEREST COSTS				$2,876 (see next page for calculation)
LABOR ($/HR)	$6.42	345		$2,215
SUB-TOTAL (EXC.R.FEED)				$5,999
RAISED FEED				
CORN ($/BU)	$0.00	0		$0
OATS ($/BU)	$0.00	0		$0
WHEAT ($/BU)	$0.00	0		$0
ALFALFA HAY ($/TON)	$50.00	20		$1,000
CORN SILAGE ($/TON)	$0.00	0		$0
PASTURE ($/AC)	$4.25	390		$1,658
SUB-TOTAL (RAISED FEED)				$2,658
TOTAL DIRECT COSTS				$8,656

PRODUCER T, SOUTHWEST AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$7.25	$181.25	$0.00	$0.00	$181
REPLACEMENT OF BULL.....	$20.00	$500.00			$500
TOTAL FIXED COSTS....					$681
TOTAL DIRECT & FIXED COSTS					$9,337
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($8)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	1.00	1.00	$1,500
COW.....	$750	25.00	1.00	$18,750
REPLACEMENT HEIFER.....	$600	4.50	1.21	$3,267
BACKGROUNDED STEER CALF..	$445	0.00	0.25	$0
BACKGROUNDED HEIFER CALF.	$385	0.00	0.25	$0
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	0.00	1.04	$0
FINISHING HEIFER.....	$510	0.00	1.04	$0
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$23,517
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$907	0.5	$454
GRAND TOTAL.....				$23,971
TOTAL INTEREST CHARGE....		$23,971	0.12	$2,876

PRODUCER U, SOUTHWEST AREA

INPUT SECTION

1. RECEIPTS:	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES	0.00	0.00	0.00	$423	$0
HEIFER CALVES	0.00	0.00	0.00	$344	$0
BACKGROUND STEERS	0.00	0.00	0.00	$471	$0
BACKGROUND HEIFERS	0.00	0.00	0.00	$424	$0
STOCKER STEERS	0.99	25.60	25.22	$559	$14,096
STOCKER HEIFERS	0.99	3.90	3.84	$496	$1,905
FINISHED STEERS	0.00	0.00	0.00	$741	$0
FINISHED HEIFERS	0.00	0.00	0.00	$678	$0
CULL COWS	0.15	15.00	2.25	$495	$1,114
CULL YEARLING HEIFERS	0.10	2.70	0.27	$600	$162
CULL BULLS	0.33	1.00	0.33	$952	$314
FINISHED HOLSTEIN STEERS.	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS					$17,591

2. DIRECT COSTS:

	COW-CALF UNITS 15		PURCHASED FEEDERS 19		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT	$9.00	135.00	$2.80	$53.20	$188
VETERINARY AND MEDICINE	$4.75	71.25	$1.50	$28.50	$100
SUPPLIES	$7.00	105.00	$6.00	$114.00	$219
MARKETING	$9.00	135.00	$9.00	$171.00	$306
POWER AND FUEL	$7.20	108.00	$2.00	$38.00	$146
BLDG AND EQPMT REPAIRS	$2.00	30.00	$0.40	$7.60	$38
SUB-TOTAL		$584		$412	$997

	WHOLE-FARM PRICE	QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	7.5	$112	
PURCHASED CORN ($/BU)	$2.05	13.4	$27	
PURCHASED CALVES ($/HEAD)	$423.00	19	$8,037	
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL			$9,173	
INTEREST COSTS			$3,235	(see next page for calculation)
LABOR ($/HR)	$6.42	337	$2,164	
SUB-TOTAL (EXC.R.FEED)			$14,571	
RAISED FEED				
CORN ($/BU)	$0.00	0	$0	
OATS ($/BU)	$0.00	0	$0	
WHEAT ($/BU)	$0.00	0	$0	
ALFALFA HAY ($/TON)	$50.00	33.4	$1,670	
CORN SILAGE ($/TON)	$0.00	0	$0	
PASTURE ($/AC)	$5.50	210	$1,155	
SUB-TOTAL (RAISED FEED)			$2,825	
TOTAL DIRECT COSTS			$17,396	

PRODUCER U, SOUTHWEST AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$8.00	$120.00	$8.00	$152.00	$272
REPLACEMENT OF BULL.....	$33.33	$499.95			$500
TOTAL FIXED COSTS....					$772
TOTAL DIRECT & FIXED COSTS					$18,168
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($577)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	1.00	1.00	$1,500
COW.....	$750	15.00	1.00	$11,250
REPLACEMENT HEIFER.....	$600	2.70	1.21	$1,960
BACKGROUNDED STEER CALF..	$445	0.00	0.25	$0
BACKGROUNDED HEIFER CALF.	$385	0.00	0.25	$0
STOCKER STEER.....	$490	25.60	0.54	$6,774
STOCKER HEIFER.....	$420	3.90	0.54	$885
FINISHING STEER.....	$580	0.00	1.04	$0
FINISHING HEIFER.....	$510	0.00	1.04	$0
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$22,368
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$9,173	0.5	$4,587
GRAND TOTAL.....				$26,955
TOTAL INTEREST CHARGE....		$26,955	0.12	$3,235

PRODUCER V, NORTHWEST AREA

INPUT SECTION

1. RECEIPTS:

	AFTER DEATH LOSS	UNITS OF ANIMALS	UNITS SOLD	DOLLARS PER HEAD	GROSS RECEIPTS
STEER CALVES.....	0.00	0.00	0.00	$423	$0
HEIFER CALVES.....	0.00	0.00	0.00	$344	$0
BACKGROUND STEERS.....	0.99	66.00	65.34	$471	$30,775
BACKGROUND HEIFERS.....	0.99	39.00	38.61	$424	$16,371
STOCKER STEERS.....	0.00	0.00	0.00	$559	$0
STOCKER HEIFERS.....	0.00	0.00	0.00	$496	$0
FINISHED STEERS.....	0.00	0.00	0.00	$741	$0
FINISHED HEIFERS.....	0.00	0.00	0.00	$678	$0
CULL COWS.....	0.15	150.00	22.50	$495	$11,138
CULL YEARLING HEIFERS....	0.10	27.00	2.70	$600	$1,620
CULL BULLS.....	0.33	6.00	1.98	$952	$1,885
FINISHED HOLSTEIN STEERS.	0.00	0.00	0.00	$797	$0
TOTAL RECEIPTS.....					$61,788

2. DIRECT COSTS:

	COW-CALF UNITS 150		PURCHASED FEEDERS 0		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
MINERAL AND SALT.....	$7.80	1170.00	$0.00	$0.00	$1,170
VETERINARY AND MEDICINE..	$4.25	637.50	$0.00	$0.00	$638
SUPPLIES.....	$7.00	1050.00	$0.00	$0.00	$1,050
MARKETING.....	$7.50	1125.00	$0.00	$0.00	$1,125
POWER AND FUEL.....	$6.20	930.00	$0.00	$0.00	$930
BLDG AND EQPMT REPAIRS...	$1.80	270.00	$0.00	$0.00	$270
SUB-TOTAL.....		$5,183		$0	$5,183

	WHOLE-FARM PRICE	WHOLE-FARM QUANTITY		
PROTEIN SUPPLEMENT ($/CWT)	$14.95	114.8		$1,716
ALFALFA HAY ($/TON).....	$50.00	8.9		$445
PURCHASED CALVES ($/HEAD)	$0.00	0		$0
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL.....				$7,344
INTEREST COSTS.....				$18,704 (see next page for calculation)
LABOR ($/HR).....	$6.42	1613		$10,355
SUB-TOTAL (EXC.R.FEED)				$36,404
RAISED FEED.....				
CORN ($/BU).....	$1.95	875		$1,706
OATS ($/BU).....	$1.80	1695		$3,051
WHEAT ($/BU).....	$0.00	0		$0
ALFALFA HAY ($/TON)...	$50.00	108.9		$5,445
CORN SILAGE ($/TON)...	$19.30	318		$6,137
PASTURE ($/AC).....	$3.25	1922		$6,247
SUB-TOTAL (RAISED FEED)				$22,586
TOTAL DIRECT COSTS...				$58,990

PRODUCER V, NORTHWEST AREA (cont'd)

3. FIXED COSTS:	COW-CALF UNITS		PURCHASED FEEDERS		
	UNIT COSTS	TOTAL COSTS	UNIT COSTS	TOTAL COSTS	TOTAL ALL CATTLE
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$8.00	$1,200	$0.00	$0.00	$1,200
REPLACEMENT OF BULL.....	$20.00	$3,000			$3,000
TOTAL FIXED COSTS....					$4,200
TOTAL DIRECT & FIXED COSTS					$63,190
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT					($1,402)

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CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BULL.....	$1,500	6.00	1.00	$9,000
COW.....	$750	150.00	1.00	$112,500
REPLACEMENT HEIFER.....	$600	27.00	1.21	$19,602
BACKGROUNDED STEER CALF..	$445	66.00	0.25	$7,343
BACKGROUNDED HEIFER CALF.	$385	39.00	0.25	$3,754
STOCKER STEER.....	$490	0.00	0.54	$0
STOCKER HEIFER.....	$420	0.00	0.54	$0
FINISHING STEER.....	$580	0.00	1.04	$0
FINISHING HEIFER.....	$510	0.00	1.04	$0
HOLSTEIN STEER PURCHASED.	$585	0.00	0.75	$0
TOTAL ANIMAL VALUE.....				$152,198
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED).....		$7,344	0.5	$3,672
GRAND TOTAL.....				$155,870
TOTAL INTEREST CHARGE....		$155,870	0.12	$18,704

ANNEX B

HOG BUDGETS FOR TWO PRODUCERS

PRODUCER A, SOUTH CENTRAL AREA

INPUT SECTON

1. RECEIPTS:	UNIT	HEAD SOLD	WEIGHT	PRICE PER UNIT	GROSS RECEIPTS
SLAUGHTER HOGS.....	CWT.	180	2.25	$53	$21,465
CULL BOARS.....	CWT.	1	5.00	$43	$215
CULL SOWS.....	CWT.	12	4.50	$44	$2,376
TOTAL RECEIPTS.....					$24,056

2. DIRECT COSTS:	COST PER LITTER	NO. OF LITTERS	NUMBER OF SOWS	TOTAL COSTS
VETERINARY AND MEDICINE..	$14.40	2	12	$346
SUPPLIES.....	$13.00	2	12	$312
MARKETING.....	$23.90	2	12	$574
POWER AND FUEL.....	$4.05	2	12	$97
BLDG AND EQPMT REPAIRS...	$7.37	2	12	$177
SUB-TOTAL.....				$1,505

	UNIT	PRICE	QUANTITY	
PROTEIN SUPPLEMENT.....	CWT.	$14.95	354.24	$5,296
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL.....				$6,801
INTEREST COSTS.....				$789 (see next page for calculation)
LABOR ($/HR).....	HR.	$6.42	456	$2,928
SUB-TOTAL (EXC.R.FEED)				$10,518
RAISED FEED.....				
CORN.....	BU.	$1.94	2532	$4,912
ALFALFA HAY.....	TON	$50.00	0.00	$0
SUB-TOTAL (FEED).....				$4,912
TOTAL DIRECT COSTS...				$15,430

3. FIXED COSTS:			
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$76.25	12	$915
REPLACEMENT OF BOAR.....	$250.00	1	$250
TOTAL FIXED COSTS....			$1,165
TOTAL DIRECT & FIXED COSTS			$16,595
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT			$7,461

PRODUCER A, SOUTH CENTRAL AREA (cont'd)

CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BROOD SOW	$200	12.00	1.00	$2,400
BOAR	$250	1.00	0.70	$175
REPLACEMENT GILTS	$100	12.00	0.50	$600
TOTAL ANIMAL VALUE				$3,175
DIRECT COSTS (OTHER THAN INTEREST, LABOR AND RAISED FEED)		$6,801	0.5	$3,401
GRAND TOTAL				$6,576
TOTAL INTEREST CHARGE		$6,576	0.12	$789

PRODUCER H, EAST CENTRAL AREA

INPUT SECTON

1. RECEIPTS:	UNIT	HEAD SOLD	WEIGHT	PRICE PER UNIT	GROSS RECEIPTS
SLAUGHTER HOGS.....	CWT.	675	2.25	$53	$80,494
CULL BOARS.....	CWT.	4	5.00	$43	$860
CULL SOWS.....	CWT.	45	4.50	$44	$8,910
TOTAL RECEIPTS.....					$90,264

2. DIRECT COSTS:	COST PER LITTER	NO. OF LITTERS	NUMBER OF SOWS	TOTAL COSTS
VETERINARY AND MEDICINE..	$28.80	2	45	$2,592
SUPPLIES.....	$13.00	2	45	$1,170
MARKETING.....	$23.90	2	45	$2,151
POWER AND FUEL.....	$4.05	2	45	$365
BLDG AND EQPMT REPAIRS...	$7.37	2	45	$663
SUB-TOTAL.....				$6,941

	UNIT	PRICE	QUANTITY	
PROTEIN SUPPLEMENT.....	CWT.	$14.95	996.30	$14,895
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED) :SUB-TOTAL.....				$21,835
INTEREST COSTS.....				$2,744 (see next page for calculation)
LABOR ($/HR).....	HR.	$6.42	1125	$7,223
SUB-TOTAL (EXC.R.FEED)				$31,802
RAISED FEED.....				
CORN.....	BU.	$1.90	9900	$18,810
ALFALFA HAY.....	TON	$50.00	4.61	$231
SUB-TOTAL (FEED).....				$19,041
TOTAL DIRECT COSTS...				$50,843

3. FIXED COSTS:			
BLDG & EQMT DEP,TAXES, INTEREST AND INSURANCE...	$76.25	45	$3,431
REPLACEMENT OF BOAR.....	$250.00	4	$1,000
TOTAL FIXED COSTS....			$4,431
TOTAL DIRECT & FIXED COSTS			$55,274
4. NET INCOME OVER ALL COSTS EXCEPT MANAGEMENT			$34,990

PRODUCER H, EAST CENTRAL AREA (cont'd)

CALCULATION OF TOTAL INTEREST COSTS

ANIMAL	AVE VALUE OF ANIMAL WHILE IN HERD	NO. OF ANIMALS	PROP. OF YEAR IN HERD	TOTAL "ANNUAL" VALUE
BROOD SOW	$200	45.00	1.00	$9,000
BOAR	$250	4.00	0.70	$700
REPLACEMENT GILTS	$100	45.00	0.50	$2,250
TOTAL ANIMAL VALUE				$11,950
DIRECT COSTS (OTHER THAN INTEREST,LABOR AND RAISED FEED)		$21,835	0.5	$10,918
GRAND TOTAL				$22,868
TOTAL INTEREST CHARGE		$22,868	0.12	$2,744

ANNEX C

CROPS OTHER THAN SUSTAINABLE ROTATION CROPS FOR THREE PRODUCERS

Note: With minor exception, the input-output coefficients in the budgets in this annex are taken directly from Hoyt, et al. (1989). Only in our last-round review of the coefficients did we become aware of some minor inconsistencies in Hoyt, et al. in the assumed prices of nitrogen among crops and regions. Because a standardizing of the prices would have had only very minor impacts on the costs of production, we chose to continue to use the coefficients as reported by Hoyt, et al.

PRODUCER A, SOUTH CENTRAL AREA

INPUT SECTION	Corn	Soybeans	Set Aside
RECEIPTS:			
Estimated grain yield (units/ac.)	85.0	35.0	0.0
Estimated selling price or value ($/unit)	$1.94	$6.50	$0.00
GOVERNMENT PAYMENT:			
Base yield (units/ac.)	80.0	0	0
Deficiency payment ($/unit)	$0.89	$0.00	$0.00
DIRECT COSTS:			
Seed 1 (units/ac	20.5	60	2
($/unit)	$0.78	$0.13	$2.05
Seed 2 (units/ac	0	0	0
($/unit)	$0.00	$0.00	$0.00
Fertilizer 1 (units/ac.)	50	35	0
($/unit)	$0.22	$0.24	$0.00
Fertilizer 2 (units/ac.)	100	0	0
($/unit)	$0.16	$0.00	$0.00
Fertilizer 3 (units/ac.)	0	0	0
($/unit)	$0.00	$0.00	$0.00
Fertilizer application ($/ac.)	$2.00	$0.00	$0.00
Herbicide 1 (units/ac.)	3.5	1	0
($/unit)	$3.60	$9.50	$0.00
Herbicide 2 (units/ac.)	0	0	0
($/unit)	$0.00	$0.00	$0.00
Herbicide application ($/ac.)	$0.00	$2.00	$0.00
Insecticide (units/ac.)	1	0	0
($/unit)	$6.00	$0.00	$0.00
Insecticide application ($/ac.)	$2.00	$0.00	$0.00
Crop insurance ($/ac.)	$5.50	$5.50	$0.00
Storage ($/unit)	$0.09	$0.09	$0.00
Drying ($/unit)	$0.13	$0.00	$0.00
Overhead ($/ac.)	$5.50	$5.50	$2.50
Custom machine hire			
Tillage ($/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.)	$9.75	$8.50	$1.46
Machinery repair ($/ac.)	$12.50	$11.20	$1.93
Crop operating loan borrowed (months)	6	6	6
Interest APR(%)	12.00	12.00	12.00
Labor 1 (hrs./ac.)	2.65	2.40	0.47
($/hr)	$6.42	$6.42	$6.42
Labor 2 (hrs./ac.)	0.00	0.00	0.00
($/hr.)	$4.28	$4.28	$4.28
FIXED COSTS:			
Interest, Housing, and Ins. on Machinery	$15.80	$15.58	$4.04
Depreciation on machinery & equipment	$18.36	$10.10	$3.77
Land Cost ($/acre)	$440	$440	$440
Real Estate Taxes Percentage	1.50	1.50	1.50

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

INPUT SUMMARY AND RESULTS--PRODUCER A, SOUTH CENTRAL AREA (cont'd)

	Corn	Soybeans	Set Aside
RECEIPTS:			
Estimated grain yield (units/ac.)	85.0	35.0	0.0
Estimated selling price or value ($/unit)	$1.94	$6.50	$0.00
GOVERNMENT PAYMENT:			
Base yield (units/ac.)	80	0	0
Deficiency payment ($/unit)	$0.89	$0.00	$0.00
I. Total income per acre	$236.10	$227.50	$0.00
DIRECT COSTS:			
Seed ($/ac.)	$15.99	$7.80	$4.10
Fertilizer ($/ac.)	$27.00	$8.40	$0.00
Fertilizer application ($/ac.)	$2.00	$0.00	$0.00
Herbicide ($/ac.)	$12.60	$9.50	$0.00
Herbicide application ($/ac.)	$0.00	$2.00	$0.00
Insecticide ($/ac.)	$6.00	$0.00	$0.00
Insecticide application ($/ac.)	$2.00	$0.00	$0.00
Crop insurance ($/ac.)	$5.50	$5.50	$0.00
Storage ($/ac.)	$7.65	$3.15	$0.00
Drying ($/ac.)	$11.05	$0.00	$0.00
Overhead ($/ac.)	$5.50	$5.50	$2.50
Custom machine hire ($/ac.)	$0.00	$0.00	$0.00
Fuel and lubrication ($/ac.)	$9.75	$8.50	$1.46
Machinery repair ($/ac.)	$12.50	$11.20	$1.93
Interest on non labor direct costs ($/ac)	$6.96	$3.64	$0.59
Labor charge($/ac.)	$17.01	$15.41	$3.02
II. Total direct (operating) costs	$141.51	$80.60	$13.60
Income over direct costs (I minus II)	$94.59	$146.90	($13.60)
Breakeven price per unit (direct costs)	$1.66	$2.30	ERR
FIXED COSTS:			
Interest, Housing & Ins. on machinery ($/ac)	$15.80	$15.58	$4.04
Deprec. on machinery and equipment ($/ac.)	$18.36	$10.10	$3.77
Real estate taxes ($/ac.)	$6.60	$6.60	$6.60
III. Total fixed costs	$40.76	$32.28	$14.41
IV. Production costs ($/ac., excluding land) (II plus III)	$182.27	$112.88	$28.01
Production costs ($/unit)	$2.14	$3.23	ERR
V. Land charges ($/ac.)	$30.80	$30.80	$30.80
VI. Total production and land costs ($/ac.). (IV plus V)	$213.07	$143.68	$58.81
Production and land costs ($/unit)	$2.51	$4.11	ERR
Breakeven yield (units/ac.) (at selling price)	109.8	22.1	ERR
VII. Income over all costs ($/acre) (I minus VI)	$23.03	$83.82	($58.81)
Income over all costs ($/unit)	$0.27	$2.39	ERR

Acreage Distribution and Income Over All Costs

	Corn	Soybeans	Set Aside	Total
Crop Distribution (acres).....	20	25	5	50
Income Over All Costs..... ($/acre)	$23.03	$83.82	($58.81)	$45.24
Income Over All Costs..... ($/crop)	$461	$2,095	($294)	$2,262

Item	Dollars /acre
Gross Income	$208
Direct Costs (excl. Labor)	$83
Income over non-labor & non-land costs	$97
Income over non-land costs	$83
Income over all costs	$45

Farm Program Provisions:
Acreage Reduction Requirements

Crop	Non-Paid Acreage (%)	Optional Paid Acreage (%)	Optional Paid Rate ($/bu.)
Corn	20.0	***	***
Wheat	***	***	***
Oats	***	***	***
Barley	***	***	***
Sorghum	***	***	***

PRODUCER Q, NORTHEAST AREA

INPUT SECTION	Soybeans	W.Wheat	Sum Fal Set Aside
RECEIPTS:			
Estimated grain yield (units/ac.)	25.0	35.0	0.0
Estimated selling price or value ($/unit)	$6.50	$3.60	$0.00
GOVERNMENT PAYMENT:			
Base yield (units/ac.)	0.0	25	0
Deficiency payment ($/unit)	$0.00	$0.50	$0.00
DIRECT COSTS:			
Seed 1 (units/ac	60	1.25	1.25
($/unit)	$0.13	$6.25	$7.00
Seed 2 (units/ac	0	0	0
($/unit)	$0.00	$0.00	$0.00
Fertilizer 1 (units/ac.)	25	30	1.25
($/unit)	$0.24	$0.22	$5.25
Fertilizer 2 (units/ac.)	0	0	0
($/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	$0.00
Herbicide 1 (units/ac.)	2	2	0
($/unit)	$1.50	$1.50	$0.00
Herbicide 2 (units/ac.)	0	0	0
($/unit)	$0.00	$0.00	$0.00
Herbicide application ($/ac.)	$2.00	$2.00	$0.00
Insecticide (units/ac.)	0	0	0
($/unit)	$0.00	$0.00	$0.00
Insecticide application ($/ac.)	$0.00	$0.00	$0.00
Crop insurance ($/ac.)	$5.00	$2.75	$0.00
Storage ($/unit)	$0.09	$0.09	$0.00
Drying ($/unit)	$0.00	$0.00	$0.00
Overhead ($/ac.)	$5.50	$8.00	$2.50
Custom machine hire			
Tillage ($/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.)	$7.40	$8.20	$5.05
Machinery repair ($/ac.)	$10.40	$9.00	$9.00
Crop operating loan borrowed (months)	6	6	6
Interest APR(%)	12.00	12.00	12.00
Labor 1 (hrs./ac.)	2.00	1.75	1.74
($/hr)	$6.42	$6.42	$6.42
Labor 2 (hrs./ac.)	0.00	0.00	0.00
($/hr.)	$4.28	$4.28	$4.28
FIXED COSTS:			
Interest, Housing, and Ins. on Machinery	$15.29	$14.96	$8.04
Depreciation on machinery & equipment	$17.77	$17.39	$8.49
Land Cost ($/acre)	$330	$330	$330
Real Estate Taxes Percentage	1.50	1.50	1.50

(end of Input Section)

INPUT SUMMARY AND RESULTS--PRODUCER Q, NORTHEAST AREA (cont'd)

	Soybeans	W.Wheat	Sum Fal Set Aside
RECEIPTS:			
Estimated grain yield (units/ac.).....	25.0	35.0	0.0
Estimated selling price or value ($/unit)...	$6.50	$3.60	$0.00
GOVERNMENT PAYMENT:			
Base yield (units/ac.).....	0	25	0
Deficiency payment ($/unit).....	$0.00	$0.50	$0.00
I. Total income per acre.....	$162.50	$138.50	$0.00
DIRECT COSTS:			
Seed ($/ac.).....	$7.80	$7.81	$8.75
Fertilizer ($/ac.).	$6.00	$6.60	$6.56
Fertilizer application ($/ac.).....	$0.00	$0.00	$0.00
Herbicide ($/ac.).....	$3.00	$3.00	$0.00
Herbicide application ($/ac.).....	$2.00	$2.00	$0.00
Insecticide ($/ac.).....	$0.00	$0.00	$0.00
Insecticide application ($/ac.).....	$0.00	$0.00	$0.00
Crop insurance ($/ac.).....	$5.00	$2.75	$0.00
Storage ($/ac.).....	$2.25	$3.15	$0.00
Drying ($/ac.).....	$0.00	$0.00	$0.00
Overhead ($/ac.).....	$5.50	$8.00	$2.50
Custom machine hire ($/ac.).....	$0.00	$0.00	$0.00
Fuel and lubrication ($/ac.).....	$7.40	$8.20	$5.05
Machinery repair ($/ac.).....	$10.40	$9.00	$9.00
Interest on non labor direct costs ($/ac)...	$2.92	$2.99	$1.89
Labor charge($/ac.).....	$12.84	$11.24	$11.17
II. Total direct (operating) costs.....	$65.11	$64.74	$44.92
Income over direct costs (I minus II)....	$97.39	$73.76	($44.92)
Breakeven price per unit (direct costs)..	$2.60	$1.85	ERR
FIXED COSTS:			
Interest, Housing & Ins. on machinery ($/ac)	$15.29	$14.96	$8.04
Deprec. on machinery and equipment ($/ac.)..	$17.77	$17.39	$8.49
Real estate taxes ($/ac.).....	$4.95	$4.95	$4.95
III. Total fixed costs.....	$38.01	$37.30	$21.48
IV. Production costs ($/ac., excluding land) (II plus III)	$103.12	$102.04	$66.40
Production costs ($/unit)...	$4.12	$2.92	ERR
V. Land charges ($/ac.).....	$23.10	$23.10	$23.10
VI. Total production and land costs ($/ac.). (IV plus V)	$126.22	$125.14	$89.50
Production and land costs ($/unit).....	$5.05	$3.58	ERR
Breakeven yield (units/ac.)..... (at selling price)	19.4	34.8	ERR
VII. Income over all costs ($/acre)..... (I minus VI)	$36.28	$13.36	($89.50)
Income over all costs ($/unit).....	$1.45	$0.38	ERR

Acreage Distribution and Income Over All Costs

	Soybeans	W.Wheat	Sum Fal Set Aside	Total
Crop Distribution (acres).....	104	38	14	156
Income Over All Costs..... ($/acre)	$36.28	$13.36	($89.50)	$19.41
Income Over All Costs..... ($/crop)	$3,773	$508	($1,253)	$3,028

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Item	Dollars /acre
Gross Income	$142
Direct Costs (excl. Labor)	$51
Income over non-labor & non-land costs	$60
Income over non-land costs	$47
Income over all costs	$19

Farm Program Provisions:
Acreage Reduction Requirements

Crop	Non-Paid Acreage (%)	Optional Paid Acreage (%)	Optional Paid Rate ($/bu.)
Corn	***	***	***
Wheat	27.5	***	***
Oats	***	***	***
Barley	***	***	***
Sorghum	***	***	***

PRODUCER V, NORTHWEST AREA

INPUT SECTION

	Alfalfa
RECEIPTS:	
Estimated grain yield (units/ac.)	1.5
Estimated selling price or value ($/unit)	$50.00
GOVERNMENT PAYMENT:	
Base yield (units/ac.)	0.0
Deficiency payment ($/unit)	$0.00
DIRECT COSTS:	
Seed 1 (units/ac	2
($/unit)	$2.80
Seed 2 (units/ac	0
($/unit)	$0.00
Fertilizer 1 (units/ac.)	20
($/unit)	$0.25
Fertilizer 2 (units/ac.)	0
($/unit)	$0.00
Fertilizer 3 (units/ac.)	0
($/unit)	$0.00
Fertilizer application ($/ac.)	$0.00
Herbicide 1 (units/ac.)	0
($/unit)	$0.00
Herbicide 2 (units/ac.)	0
($/unit)	$0.00
Herbicide application ($/ac.)	$0.00
Insecticide (units/ac.)	0
($/unit)	$0.00
Insecticide application ($/ac.)	$0.00
Crop insurance ($/ac.)	$0.00
Storage ($/unit)	$4.00
Drying ($/unit)	$0.00
Overhead ($/ac.)	$3.50
Custom machine hire	
Tillage ($/ac.)	$0.00
Planting ($/ac.)	$0.00
Harvesting ($/ac.)	$0.00
Fuel and lubrication ($/ac.)	$2.20
Machinery repair ($/ac.)	$4.10
Crop operating loan borrowed (months)	6
Interest APR(%)	12.00
Labor 1 (hrs./ac.)	1.90
($/hr)	$6.42
Labor 2 (hrs./ac.)	0.00
($/hr.)	$4.28
FIXED COSTS:	
Interest, Housing, and Ins. on Machinery	$9.43
Depreciation on machinery & equipment	$10.96
Land Cost ($/acre)	$180
Real Estate Taxes Percentage	1.50

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

INPUT SUMMARY AND RESULTS--PRODUCER V, NORTHWEST AREA (cont'd)

	Alfalfa
RECEIPTS:	
Estimated grain yield (units/ac.)	1.5
Estimated selling price or value ($/unit)	$50.00
GOVERNMENT PAYMENT:	
Base yield (units/ac.)	0
Deficiency payment ($/unit)	$0.00
I. Total income per acre	$75.00
DIRECT COSTS:	
Seed ($/ac.)	$5.60
Fertilizer ($/ac.)	$5.00
Fertilizer application ($/ac.)	$0.00
Herbicide ($/ac.)	$0.00
Herbicide application ($/ac.)	$0.00
Insecticide ($/ac.)	$0.00
Insecticide application ($/ac.)	$0.00
Crop insurance ($/ac.)	$0.00
Storage ($/ac.)	$6.00
Drying ($/ac.)	$0.00
Overhead ($/ac.)	$3.50
Custom machine hire ($/ac.)	$0.00
Fuel and lubrication ($/ac.)	$2.20
Machinery repair ($/ac.)	$4.10
Interest on non labor direct costs ($/ac)	$1.56
Labor charge($/ac.)	$12.20
II. Total direct (operating) costs	$40.16
Income over direct costs (I minus II)	$34.84
Breakeven price per unit (direct costs)	$26.77
FIXED COSTS:	
Interest, Housing & Ins. on machinery ($/ac)	$9.43
Deprec. on machinery and equipment ($/ac.)	$10.96
Real estate taxes ($/ac.)	$2.70
III. Total fixed costs	$23.09
IV. Production costs ($/ac., excluding land) (II plus III)	$63.25
Production costs ($/unit)	$42.17
V. Land charges ($/ac.)	$12.60
VI. Total production and land costs ($/ac.). (IV plus V)	$75.85
Production and land costs ($/unit)	$50.57
Breakeven yield (units/ac.) (at selling price)	1.5
VII. Income over all costs ($/acre) (I minus VI)	($0.85)
Income over all costs ($/unit)	($0.57)

WHOLE-FARM RESULTS--PRODUCER V, NORTHWEST AREA (cont'd)

Acreage Distribution and Income Over All Costs

	Alfalfa	Total
Crop Distribution (acres).....	100	100
Income Over All Costs..... ($/acre)	($0.85)	($0.85)
Income Over All Costs..... ($/crop)	($85)	($85)

Item	Dollars /acre
Gross Income	$75
Direct Costs (excl. Labor)	$28
Income over non-labor & non-land costs	$27
Income over non-land costs	$14
Income over all costs	($1)

Farm Program Provisions:
Acreage Reduction Requirements

	Non-Paid Acreage	Optional Paid Acreage	Optional Paid Rate
Crop	(%)	(%)	($/bu.)
Corn	***	***	***
Wheat	***	***	***
Oats	***	***	***
Barley	***	***	***
Sorghum	***	***	***

ANNEX D

SUMMARY OF RESULTS OF WHOLE-FARM ECONOMIC ANALYSIS FOR NINE LIVESTOCK PRODUCERS

SUMMARY OF THE WHOLE FARM RESULTS

Major farm enterprises	South Central		East Central	
	Prod. A	Prod. G	Prod. H	Prod. L
Principal sustainable crop rotation (acres)				
Soybeans	50	98	172	180
Corn	112	0	162	200
Alfalfa	30	48	140	100
Small grains	69	115	106	300
Set aside and Summer fallow	48	6	140	180
Other	0	0	0	100
Total	309	267	720	1060
Crops other than sustainable crop rotation (acres)	50	0	0	0
Total cropland acres	359	267	720	1060
Livestock				
Beef cows weaning calves (head)	45.0	16	0	42
Backgrounded calves sold Jan 15th (head)	0	9.2	0	0
Stocker yearlings sold May 1st (head)	0	0	0	0
Finished cattle sold Nov 1st (head)	31.5	2	8	32.4
Hog farrowing-finishing (sows)	12.0	0	45	0
Gross farm income ($)				
Crop enterprises				
Principal sustainable crop rotation (acres)	$44,805	$31,239	$92,880	$135,680
Crops other than sustainable crop rotation (acres)	$10,400	$0	$0	$0
Gross value of crop production	$55,205	$31,239	$92,880	$135,680
Home-raised feeds fed to livestock	$19,482	$4,599	$21,270	$14,856
Gross value of crops sold & gov't payments	$35,723	$26,640	$71,610	$120,824
Livestock enterprises				
Cattle	$26,608	$8,676	$5,809	$27,054
Hogs	$24,056	$0	$90,264	$0
Gross value of livestock sold	$50,664	$8,676	$96,073	$27,054
Total gross farm income	$86,387	$35,316	$167,683	$147,878
Net farm income ($)				
Crops	$8,172	$1,525	$10,314	$20,042
Livestock				
Cattle	($5,825)	($2,301)	($1,403)	($5,306)
Hogs	$7,461	$0	$34,990	$0
Livestock sub-total	$1,636	($2,301)	$33,587	($5,306)
Total net farm income	$9,808	($776)	$43,901	$14,736

SUMMARY OF THE WHOLE FARM RESULTS (cont'd)

Disposition of crop production

	South Central		East Central	
	Prod. A	Prod. G	Prod. H	Prod. L
Corn grain (bu)				
Fed to livestock	3790	0	10076	1402
Sold for cash	2350	0	3694	11723
Total	6140	0	13770	13125
Oats (bu)				
Fed to livestock	0	0	0	0
Sold for cash	4140	0	2838	13000
Total	4140	0	2838	13000
Wheat (bu)				
Fed to livestock	0	0	0	0
Sold for cash	0	442	720	0
Total	0	442	720	0
Alfalfa (tons)				
Fed to livestock	92.4	86	42.5	157.9
Sold for cash	12.6	82.0	307.5	122.1
Total	105.0	168	350	280
Corn silage fed to livestock (tons)	315.4	0	0	225
Livestock grazing (acres)				
Permanent pasture	151	31.5	0	0
Corn stubble	99	0	0	175
Small grain stubble	0	98	0	200
Soybeans stubble	75	0	0	180

SUMMARY OF THE WHOLE FARM RESULTS

Major farm enterprises	Northeast		West		
	Prod. Q	Prod. S	Prod. T	Prod. U	Prod. V
Principal sustainable crop rotation (acres)					
Soybeans	36	90	0	0	0
Corn	0	0	0	0	78
Alfalfa	0	200	20	290	0
Small grains	67	235	1704	517	367
Set aside and Summer fallow	38	225	852	241	445
Other	36	50	0	0	0
Total	177	800	2576	1048	890
Crops other than sustainable crop rotation (acres)	156	0	0	0	100
Total cropland acres	333	800	2576	1048	990
Livestock					
Beef cows weaning calves (head)	0	75	25	15	150
Backgrounded calves sold Jan 15th (head)	0	0	0	0	105
Stocker yearlings sold May 1st (head)	0	0	0	29.5	0
Finished cattle sold Nov 1st (head)	300	25	0	0	0
Hog farrowing-finishing (sows)	0	0	0	0	0
Gross farm income ($)					
Crop enterprises					
Principal sustainable crop rotation (acres)	$21,063	$51,200	$180,320	$86,984	$41,830
Crops other than sustainable crop rotation (acres)	$22,152	$0	$0	$0	$7,500
Gross value of crop production	$43,215	$51,200	$180,320	$86,984	$49,330
Home-raised feeds fed to livestock	$0	$20,713	$2,658	$2,825	$22,586
Gross value of crops sold & gov't payments	$43,215	$30,487	$177,662	$84,159	$26,744
Livestock enterprises					
Cattle	$234,318	$35,568	$9,329	$17,591	$61,788
Hogs	$0	$0	$0	$0	$0
Gross value of livestock sold	$234,318	$35,568	$9,329	$17,591	$61,788
Total gross farm income	$277,533	$66,055	$186,991	$101,750	$88,532
Net farm income ($)					
Crops	$6,853	($11,504)	$15,038	$8,539	($15,737)
Livestock					
Cattle	($6,796)	($14,159)	($8)	($577)	($1,402)
Hogs	$0	$0	$0	$0	$0
Livestock sub-total	($6,796)	($14,159)	($8)	($577)	($1,402)
Total net farm income	$57	($25,663)	$15,030	$7,962	($17,139)

SUMMARY OF THE WHOLE FARM RESULTS (cont'd)

Disposition of crop production

	Northeast		West		
	Prod. Q	Prod. S	Prod. T	Prod. U	Prod. V
Corn grain (bu)					
Fed to livestock	0	0	0	0	875
Sold for cash	0	0	0	0	0
Total	0	0	0	0	875
Oats (bu)					
Fed to livestock	0	0	0	0	1695
Sold for cash	0	0	0	7540	4255
Total	0	0	0	7540	5950
Wheat (bu)					
Fed to livestock	0	1030	0	0	0
Sold for cash	2415	3970	25560	10265	4960
Total	2415	5000	25560	10265	4960
Alfalfa (tons)					
Fed to livestock	0	300	20	33.4	108.9
Sold for cash	0.0	0.0	0.0	401.6	41.1
Total	0	300	20	435	150
Corn silage fed to livestock (tons)	0	0	0	0	318
Livestock grazing (acres)					
Permanent pasture	0	200	390	210	1922
Corn stubble	0	0	0	0	25
Small grain stubble	0	200	0	517	367
Soybeans stubble	0	90	0	0	0