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# Swine Marketing in South Dakota: Results of a Producer Survey

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SWINE MARKETING IN SOUTH DAKOTA:

Results of a Producer Survey

by

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Research Report 83-5  
October, 1983

To the Reader:

This bulletin reports the major findings from a 1980 pork marketing survey completed by nearly 600 South Dakota hog and pig producers. The subjects covered include organization of hog production and marketing in South Dakota, producer use of marketing methods and marketing channels, market movements and transportation, producer use of cash markets, forward contracts and future markets and the assessment by producers of factors limiting industry expansion.

Highlights of major findings are provided in the first section, Summary and Conclusions. Detailed information on procedures, major findings, comparisons with earlier studies and statistical tables are presented in the remainder of this report.

This report is for producers, lenders, educators, agri-business people, government policy makers and others who are interested in pork marketing.

Special thanks are extended to the South Dakota Pork Producers and their executive secretary, Doyce Freidow, for assistance with this project. The Council distributed the survey through their newsletter and provided some funding for this project.

We also wish to thank Professors Don Taylor, Richard Shane and Gene Murra of the Economics Department for their review and helpful comments. Thanks is also given to Mrs. Nancy Hurtig for her efficient typing of this report.

This study was conducted as part of Project H-409 "Economic Analysis of the Changing Structure of the South Dakota Pork Industry", funded by the SDSU Agricultural Experiment Station.

Sincerely,

Larry Janssen

Kevin Weischedel

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## SUMMARY AND CONCLUSIONS

South Dakota is one of the top 10 hog production states with about 3 million hogs and pigs marketed and 3.2 million hogs slaughtered in the state each year. This totals 3-4 percent of the nation's hog supply. With ample supplies of available land, labor, and feed grain there is considerable potential for further growth of the South Dakota pork industry if the expansion can be based on profitable production and marketing prospects for producers.

In 1980, a pork marketing study was initiated by SDSU to obtain current information on:

- 1) Organization of hog production and marketing in South Dakota,
- 2) The relative importance of specific marketing methods and market channels used by South Dakota pork producers,
- 3) Market movements and transportation of hogs and pigs in South Dakota,
- 4) South Dakota pork producers, use of cash markets, forward contracts and futures markets and reasons for using or not using each method,
- 5) South Dakota pork producers assessments of major factors limiting expansion of hog production on their own farm and in their local area.

The major source of data is a marketing survey completed by 587 South Dakota hog and pig producers. This study was aided by the South Dakota Pork Producers Council which printed and included the survey in a March, 1980 newsletter to hog and pig producers.

### Producer Characteristics

Respondents were located throughout South Dakota, but were concentrated in the east-central and southeastern regions of the state. Respondents represented five percent of South Dakota pork producers marketing 12-13 percent of all hogs and pigs sold from South Dakota farms.



Respondents were younger, had larger hog operations and higher gross farm sales than the average South Dakota hog and pig producer. They were most representative of South Dakota producers selling 100 to 2,500 hogs and pigs per year.

The typical respondent was a family farmer, 43 years of age, with 18 years of continuous pork production experience. He marketed 450-500 head of hogs and pigs annually and more than 45 percent of his total farm sales was from hogs and pigs. Gross farm sales were about \$100,000 annually. He raised most of the feed grain fed to his hogs.

Large-volume and highly specialized operations were fairly common in the sample. For instance, 45 percent of hogs and pigs sold were from farms selling more than 1,000 hogs and pigs annually. Sixteen percent of respondent farms were highly specialized in hog production, receiving 75-100 percent of total farm sales from the hog enterprise.

#### Swine Enterprise Mix

Five of six respondents farrowed pigs on their own farm. Fifty-four percent of respondents farrowed and finished all hogs sold from their farm. Six percent of respondents purchased additional feeder pigs for finishing while another five percent specialized in feeder pig production. Diversified swine enterprises (farrow-to-finish, purchased feeder pigs and/or feeder pig sales) were operated by 19 percent of respondents. Sixteen percent of respondents purchased feeder pigs for finishing and did not farrow any pigs. One of eight producers also sold raised breeding stock.

Overall, respondents were committed to hog production as a major farm enterprise. In most respects, they represented the mainstream and cutting

edge of the South Dakota hog industry today. Because of this, their report of existing marketing practices and perceptions about future prospects for their industry provides valuable insights about this major South Dakota industry.

#### Market Channels and Transportation Movements

There have been considerable changes in market channel used by South Dakota swine producers. Packers and buyers have increased their share of hog marketings while producer use of terminal markets has declined. Auction markets have maintained their share of slaughter hog marketings.

The most frequently used market channel for slaughter hogs was the terminal market. About 44 percent of the respondents sold some or all of their slaughter hogs through the terminal market. However, a greater volume of slaughter hogs were marketed directly to packing plants. Larger-volume hog producers (obtaining a majority of their farm sales from hogs) were more likely to sell directly to packing plants.

Terminal markets and auction markets were used by many producers to market smaller numbers of hogs. Order and packer buyers were used by one-fourth of the respondents.

About 38 percent of the respondents used more than one market channel during the year. Younger respondents with higher levels of education tended to use multiple channels. The most frequently used market channel combinations were terminal-packer, auction-packer and auction-buyers.

About 75 percent of slaughter hogs marketed were farrowed on the respondents' own farms. Auction markets and terminal markets accounted for one-half of feeder pig purchases, while direct farm purchases and feeder pig cooperatives each accounted for a fourth of purchased feeder pigs.

More feeder pigs were sold by direct marketing to other farms than any other method. However, auction markets were used by more feeder pig producers to market their pigs.

Transportation of hogs and pigs from farm to point of first sale were generally short distance movements. Three-fourths of hogs and pigs were shipped less than 50 miles from the home farm. Small trucks (single axle) and trailers are the most common transport modes for feeder pig and slaughter hog shipments. Semi-truck and tandem axle trucks were normally used for longer distance-larger volume shipments.

#### Slaughter Hog Marketing Methods

More than 90 percent of the slaughter hogs were marketed from 200-240 pounds. About 60 percent of the respondents indicated that marketing their hogs at the "right" weight was the determining factor for selecting marketing dates. Other producers indicated market weight was an important factor, but they also studied daily price behavior to determine the best day of the week to market their hogs.

Liveweight pricing method was used by 76 percent of the respondents as the only means of pricing their slaughter hogs. A few respondents (4 percent) used grade-and-yield pricing only, while 20 percent used both pricing methods. Grade-and-yield pricing was used to market 23 percent of the slaughter hogs. Larger-volume producers were more likely to use grade-and-yield pricing methods.

#### Alternative Pricing Methods

All except three respondents reported using the cash market. The most important benefits of the cash market to respondents (in order of importance) were uncomplicated marketing method, location of market, known price at time of sale, and satisfactory profits.

A limited number of respondents (2.4 percent) engaged in forward contracting or used futures markets as part of their marketing plan. The most important benefits of these forward pricing techniques were, in order, assured "locked-

in" price, acceptable profits, and planning of swine enterprise is less uncertain.

The main reasons cited by most producers not using forward contracts or futures markets were ranked in the following order: do not produce a large enough volume of hogs to warrant a contract, do not fully understand the complexities of contracting, and prefer to use cash market only.

#### Limiting Factors to South Dakota Pork Industry Expansion

Nearly all producers indicated one or more factors were limiting expansion of their own operation. The cost of replacing or building new facilities and obtaining necessary financing was cited by three fourths of all respondents as a limiting factor and by 39 percent as the most limiting factor. Family labor availability at peak times was mentioned by one-half of the respondents, although only 15 percent considered family labor as the most limiting factor. Surprisingly only one-fourth of respondents mentioned low hog prices despite the fact that responses were obtained at a time when most producers had been losing money on their hog operation for more than a year.

Respondents' perceptions of factors limiting expansion was linked to their own production plans and influenced by personal characteristics (especially their age and years of production).

The younger, less experienced producer found that the lack of credit and the cost of replacing or building new facilities were the most important problems facing the industry. A high proportion of these producers planned to expand their operations and found lack of credit to be a critical issue.

Many older, more experienced producers felt that the low price level and lack of profits were much greater problems than the lack of credit. Most of these producers were not planning to expand their swine operations, so availability of credit was perceived as less of a problem.

## INTRODUCTION

Hog production and marketing are major economic activities in South Dakota and the state's hog producers are important contributors to the nation's pork industry. South Dakota is one of the 10 leading states in hog production.

South Dakota producers marketed 3.14 million hogs in 1980. The commercial value of these hog marketings was \$278 million or 11 percent of total farm marketing receipts generated in South Dakota.<sup>1</sup>

The economic structure of hog production and marketing is rapidly changing. Key trends are fewer farms, rapidly increasing numbers of hogs and pigs sold per farm, and increased enterprise specialization. For example, one sixth of all slaughter hogs in 1977 were marketed from less than 3,000 U.S. farms, each annually marketing more than 2,500 hogs. As recently as 1964, less than five percent of the nation's hogs were marketed from farms in this size category.<sup>2</sup>

This rapid growth in production unit size coincides with developments in hog confinement technology, improved breeding herd management practices, improved nutrition and disease control practices and other management practices that have benefited many swine producers and helped maintain consumer acceptance of pork products. These changes also require higher levels of marketing management abilities by swine producers.

### Objectives and Purpose of Study

This study was conducted to examine changing characteristics in the production and marketing of hogs and pigs by South Dakota farmers and ranchers.

Specific objectives were:

- (1) To examine structural characteristics of South Dakota swine production including operator, farm business and swine enterprise characteristics.
- (2) To identify the relative importance and use of specific market channels by South Dakota pork producers for:
  - a. slaughter hog sales.
  - b. feeder pig sales.
  - c. feeder pig procurement.
- (3) To examine market movement patterns and transportation modes for shipment of feeder pigs and slaughter hogs by South Dakota pork producers.
- (4) To examine producer use of selected pricing and marketing methods and major reasons for using or not using each method. Pricing methods examined include cash sales, forward contracts and futures markets. Marketing methods include liveweight and carcass (grade and yield) pricing.
- (5) To obtain producer assessment of major factors limiting expansion of pork production on their own farm and in their locality.

#### Development of Producer Survey

The major data source for this report is a 1980 marketing survey completed by 587 South Dakota hog and pig producers. This survey was conducted by the authors in cooperation with the South Dakota Pork Producers Council. The Council included the survey questionnaire in the March 1980 mailing of Dime Data, the Council's newsletter (Appendix 1). A follow up mailing was conducted in April 1980.

The mailing list included the names of approximately 3,440 pork producers state wide.<sup>3</sup> This represents over one-fourth of the state's pork producers. Questionnaires were returned by 706 individuals, of which 587 were usable.

The overall usable return rate was 17 percent. Of the 119 questionnaires not used, 44 were returned by non-producers on the mailing list. The other 75 questionnaires returned by producers were unusable because they were not sufficiently completed to warrant coding.

Data obtained from survey respondents were developed into continuous or category variables. Statistical procedures used to examine the data included descriptive statistics (frequency distributions, cross tabulations and univariate statistics--mean, mode, median and standard deviations), chi-square tests, analyses of variance and multiple regression models. The Statistical Analysis System (SAS) procedures were used exclusively for survey data analyses.<sup>4</sup>

#### RESPONDENT CHARACTERISTICS

Several personal, business and enterprise characteristics of respondents are reported in Tables 1 - 5.<sup>5, 6</sup> Respondent characteristics were compared, when possible, to characteristics of all South Dakota hog and pig producers as reported in the 1978 Census of Agriculture (Tables showing comparison of survey and Census of Agriculture data are found in Appendix 2).

Respondents were younger, had larger hog operations and had higher gross farm sales than the average producer in South Dakota. A higher percentage of respondents were located in eastern South Dakota than all hog and pig producers. The respondents (587) are most representative of South Dakota producers selling 100 to 2,500 hogs and pigs each year. Respondents were also representative in terms of farrowing operations; five-sixths of all pork producers and respondents farrowed pigs on their own farm.

#### Personal Characteristics

Respondents varied in age from 18 to 79 years with a mean and median age level of about 43 years (Table 1). Overall, respondents were an average of four to five years younger than all pork producers.

Most respondents had obtained at least a high school education and were involved for many years in pork production. Five of six respondents had completed high school and one of six had completed a four year college program. Several respondents had graduate degrees. Three of four respondents had been in hog production for 10 or more years and one of four respondents had been raising hogs for 30 or more years.

#### Farm and Enterprise Sales Volume

Respondents generally operated larger farm operations and swine enterprises than all South Dakota hog and pig producers. Twenty eight percent of respondents reported gross farm sales exceeding \$100,000 compared to 11 percent of all hog and pig producers.<sup>7</sup> Forty percent of respondents and 37 percent of all pork producers had gross farm sales of \$40,000 - \$100,000. Less than one-third of respondents (32 percent) operated small farms with gross farm sales of less than \$40,000 compared to 52 percent of all hog and pig producers (Table 1 and Appendix Table 2.1).

A hog sales volume variable was generated to estimate the dollar value of hogs and pigs sold from the respondent's farms. The estimated value per head was based on the average weight sold and price received for feeder pigs, slaughter hogs, and breeding stock in 1979. Average values per head were \$40.28 for feeder pigs, \$104.17 for slaughter hogs, and \$200.00 for breeding stock. These values were then multiplied by the number of animals sold from the farm in the three respective market classes. Values were then summed for each farm.

Estimated sales volume of hogs and pigs from respondent's farms ranged from \$2,500 to \$786,000. The estimated mean sales volume was \$49.3 thousand per farm.<sup>8</sup> Nearly two-fifths of hog sales volume were generated by one-seventh of the respondents with hog sales volume exceeding \$100,000. Forty



five percent of respondents sold less than \$40,000 of hogs and pigs in 1979 and generated 15.9 percent of respondent hog sales volume (Table 2).

### Distribution of Hog and Pig Sales

One of every eight hogs and pigs sold by South Dakota producers were marketed by respondents. Respondents marketed an average of 623 head per farm (Table 3).

Most hogs and pigs (77.7 percent) were marketed by respondents selling 500 or more hogs and pigs each year. Similar percentages are found for slaughter hogs marketings and feeder pig marketings. Seventy eight percent of feeder pigs were marketed by respondents selling 500 or more feeder pigs per year compared to 73.2 percent of slaughter hogs marketed by respondents selling 500 or more slaughter hogs per year.

Very few slaughter hogs and feeder pigs (0.3 percent) were sold by respondents marketing less than 100 head per year. Only one of twelve respondents marketed less than one hundred hogs and pigs per year compared to five of twelve producers reporting to the Census of Agriculture.

Respondents also marketed 5,836 head of breeding stock. One-eighth of all respondents marketed breeding stock with an average (mean) of 82 head sold per farm and a median number of 40 head sold.

### Regional Location

Surveys were completed by respondents living in 44 of South Dakota's 66 counties. The number of respondents from each county is shown in Appendix 2.3.

Respondent farm location was also classified by region (Figure 1). Regional boundaries follow Crop Reporting District boundaries east of the

Missouri River. Due to low frequency of survey respondents from west of the Missouri River all western Crop Reporting Districts (Northwest, West Central, Southwest and South Central) were combined and reported as the West District.

The regional distribution of respondents closely approximated the location of all producers on the mailing list. More than seven of ten respondents (71.2 percent) were located in the east central and southeast regions of South Dakota. Respondents were more likely to be located in these regions than the average South Dakota swine producer (Table 4 and Appendix Table 2.4).

Respondents marketed 14 - 17 percent of hogs and pigs sold from eastern South Dakota farms and 6 - 7 percent of all hogs and pigs from central and western South Dakota farms. A regional breakdown by slaughter hogs, feeder pigs and breeding stock sales show similar patterns for each class of swine (Appendix Table 2.5).

#### Feed Grain Sources

Traditionally most hog producers have raised feed grains on their farm and fed some or all of it to their hogs. Producers have been somewhat protected against unfavorable price shifts because they have had the flexibility to market feed grains directly or through feeding it to their hogs. A 1977 survey of U.S. hog producers found greater specialization and less flexibility in hog-feed grain production than in earlier years.<sup>9</sup> Flexibility was greatest in the North Central region where 80 percent of feed grains fed to hogs was raised on the same farm. Large hog enterprises tended to purchase a higher proportion of their feed requirements. The issue of feed grain source was examined in this study and results were generally consistent with the 1977 national survey.

Nineteen of 20 respondents raised feed grains on their farm. Approximately three fourths of raised grain was fed to livestock. Thirty five percent of

respondents fed all of their raised feed grains to livestock.

Respondents were asked to identify the sources of feed grain fed to hogs on their farm and to indicate the proportion of feed grain obtained from each source. Sixty three percent of respondents raised all of the feed grains fed to their hogs. Twenty eight percent used a combination of raised and purchased feed grains in their hog rations while nine percent relied only on purchased feed grains. Overall, four of five bushels of feed grains fed to hogs was raised on the respondents farm; one of five bushels was purchased.<sup>10</sup> The local elevator was the major source of purchased feed grains followed by direct purchases from other farmers. A few (4) respondents obtained all of their feed requirements from complete feed mixes sold by feed companies.

#### Relative Importance of Swine Enterprise

Eighty-eight percent (519) of the respondents identified the proportion of their gross farm sales which came from each of three broad enterprise groups: swine, other livestock and livestock products, and crops and hay.<sup>11</sup> Swine sales contribution to respondent farm sales ranged from two percent to 100 percent with an average (mean) of 46.2 percent and a median of 45 percent. Swine sales were a minor enterprise (2 - 24 percent of farm sales receipts) for 14.4 percent of these respondents. Nearly one-sixth (15.6 percent) of the respondents were highly specialized in swine production receiving 75 percent or more of total farm sales receipts from this source (Table 5).

The sale of other livestock and livestock products was an important source of farm sales receipts for many producers. Twenty six percent of reporting producers received a majority of farm sales receipts from marketing other livestock and livestock products. By contrast, eighteen percent did not sell any other livestock or livestock products. The average (mean) proportion

of farm sales receipts from sales of other livestock and livestock products was 32.9 percent and the median was 30 percent.

Crop and hay sales contributed an average (mean) of 20.9 percent of respondent gross farm sales. The median was 15 percent. Fourteen percent of respondents were primarily field crop and hay producers receiving a majority of gross farm sales from this source. By contrast, 29 percent did not sell any crops or hay.

Table 1. Selected Respondent Characteristics<sup>a</sup>

Category	Respondents	Category	Respondents
Age (years)	(percent)	Years of production	(percent)
Less than 25	5.1	1 - 9	24.4
25 - 34	25.1	10 - 19	26.9
35 - 44	23.6	20 - 29	22.6
45 - 54	25.6	30 - 39	20.3
55 - 64	17.6	40 or more	5.8
65 and older	3.0	Total	100.0
Total	100.0		
Number reporting	573	Number reporting	566
Median 43.0 years		Median 18.0 years	
Mean 42.9 years		Mean 9.0 years	
Range 18-79 years		Range 1-60 years	
Category	Respondents	Category	Respondents
Education (years)	(percent)	Gross farm sales	(percent)
11 or less	17.5	Less than \$20,000	17.9
12	43.8	\$20,000 - \$39,999	14.0
13 - 15	21.2	\$40,000 - \$99,999	39.5
16 or more	17.5	\$100,000 or more	28.6
Total	100.0	Total	100.0
Number reporting	571	Number reporting	564
Median 12.0 years			
Mean 12.5 years			
Range 8-24 years			

Source: 1980 producer survey.

<sup>a</sup> Total number of respondents (usable) to the survey was 587.

Table 2. Distribution of Pork Producers by Hog Sales Volume

Hog Sales Volume <sup>a</sup>	Respondents, 1980 Survey		
	Percent of Respondents	Percent of Hog Sales Volume	Average Hog Sales Volume Per Farm
			\$1,000
Less than \$20,000	17.1	4.4	15.1
\$20,000 - \$39,999	27.5	11.5	25.0
\$40,000 - \$99,999	40.8	44.9	65.6
\$100,000 or more	14.6	39.2	159.5
	100.0	100.0	
Total	587	\$34,786,800	\$59,262

Source: 1980 producer survey.

Table 3. Proportion of Swine Sold by Size Category

Number of Hogs and Pigs Marketed	Percent of			
	All Hogs and Pigs	Feeder Pigs	Slaughter Hogs	Breeding Stock
1 - 99	0.3	2.7	1.0	29.3
100 - 199	2.4	3.9	3.6	14.7
200 - 499	19.6	15.4	22.2	24.8
500 - 999	34.1	26.8	35.5	31.2
1,000 or more	43.6	51.2	37.7	--
Total	100.0	100.0	100.0	100.0
Total Number (1,000)	371.7	70.4	295.5	5.8

Source: 1980 producer survey

<sup>a</sup> Number marketed applies separately to each category of swine: all hogs and pigs, feeder pigs, slaughter hogs and breeding stock.

Figure 1. Regions of South Dakota

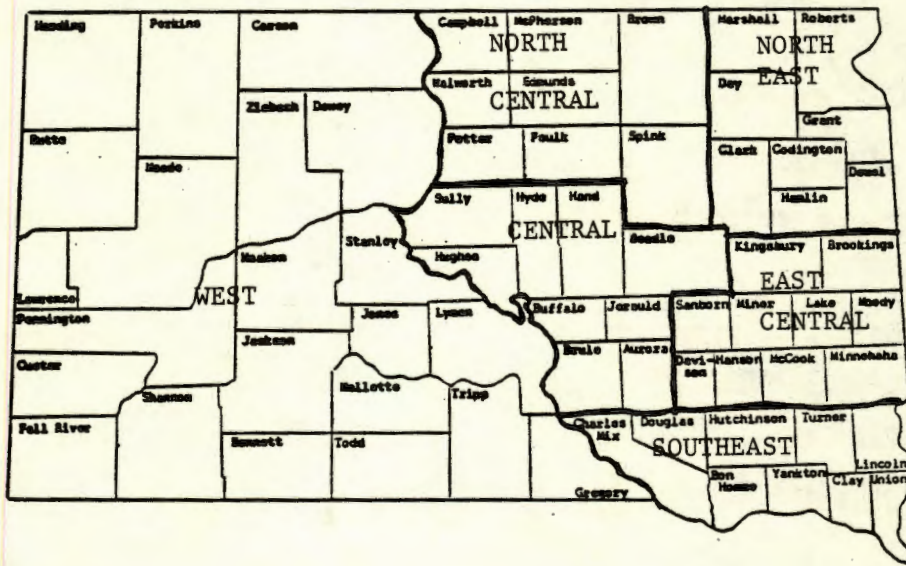


Table 4. Distribution of Respondents and Swine Sales by Region

Region <sup>a</sup>	Respondents		Hogs and pigs sold	
	Number	Percent	1,000	Percent
West	32	5.5	21.5	5.8
North Central	31	5.3	21.6	5.8
Northeast	66	11.2	37.4	10.0
Central	39	6.6	23.3	6.3
East Central	193	32.9	123.3	33.2
Southeast	226	38.5	144.6	38.9
Totals	587	100.0	371.7	100.0

Source: 1980 producer survey

<sup>a</sup>See Figure 1 for regional boundaries.

Table 5. Major Sources of Farm Sales Receipts<sup>a</sup>

Majority source of farm sales receipts	Respondents	
	Number	Percent
Hogs and pigs	233	44.9
Other livestock and livestock products <sup>b</sup>	134	25.8
Crops and hay	71	13.7
General (no majority)	<u>81</u>	<u>15.6</u>
Total	519	100.0

Hog and pig sales as percent of total farm receipts	Respondents	
	Number	Percent
2 - 24	75	14.4
25 - 49	211	40.7
50 - 74	152	29.3
75 - 100	<u>81</u>	<u>15.6</u>
Total	519	100.0

Source: 1980 producer survey

<sup>a</sup>Thirty-one respondents provided the percent of farm sales from sales of hogs and pigs, but not from other enterprises. These respondents were excluded from the table above. The "general" category includes those respondents who indicated no majority of sales (51 percent) from any single enterprise. There were 37 non-respondents (6.3 percent of total respondents).

<sup>b</sup>Sale of beef cattle and calves, sheep and lambs, dairy culls and dairy producers were the main enterprises in the "other livestock and livestock products" group.



## SWINE ENTERPRISE MIX

All respondents reported the swine enterprise mix of their firms (Table

6). Enterprise mix was divided into five major types:<sup>12</sup>

I. Farrow-to-finish

Producer farrows pigs and markets all of them at slaughter weights

II. Farrow-to-finish, partial

Producer feeds out and markets both raised and purchased feeder pigs

III. Finishing only

Producer purchases feeder pigs and markets them as slaughter hogs. This producer is not involved in farrowing pigs.

IV. Feeder pigs only

Producer farrows pigs and markets feeder pigs (plus cull sows) but does not market slaughter hogs (barrows and gilts)

V. Diversified

Producer farrows pigs and markets some as feeder pigs and others as slaughter hogs. He may also purchase feeder pigs and market them as slaughter hogs.

Breeding stock sales were not considered in establishing these enterprise types.

Five of six respondents (83.5 percent) farrowed pigs on their own farm. This proportion is nearly equal to the percentage (84.1 percent) of all South Dakota hog producers that farrow some or all of the hogs and pigs that they market.

### Farrow to Finish, Complete and Partial

Farrow-to-finish operations remain the dominant hog enterprise even as hog farms have become more specialized. Farrow-to-finish operations have

usually been profitable if sound husbandry practices are followed and adequate raised grain is available. There is also less exposure to disease problems by not purchasing feeder pigs to mingle with raised pigs. Fifty four percent of all respondents operated complete farrow-to-finish enterprises and marketed 55.5 percent of slaughter hogs sold.

Some producers (5.6 percent) farrowed pigs and purchased additional feeder pigs to finish at slaughter weights. These producers sold 8.4 percent of slaughter hogs marketed by respondents with an average of 756 slaughter hogs marketed per farm. The average size of farrow-to-finish, partial operations was larger than other hog enterprises based on total sales volume and number of slaughter hogs marketed. This enterprise is well suited for producers with excess grain and finishing facilities relative to farrowing facilities and/or labor available for farrowing.

#### Finish Only

One of six respondents (16.5 percent) did not farrow any pigs, but purchased feeder pigs and marketed slaughter hogs. These finish only producers sold an average of 683 slaughter hogs per farm and marketed 22.7 percent of all slaughter hogs. The average finish only enterprise was second in size to partial farrow-to-finish enterprises.

Finishing only enterprises are well suited for producers:

- (1) who are able to skillfully purchase feeder pigs and can absorb increased price risk relative to farrow-to-finish producers,
- (2) who have adequate feed grain supplies,
- (3) who do not have adequate capital for good farrowing facilities,
- (4) who do not have adequate labor available or possibly management skills to operate an efficient farrowing operation.

This enterprise is becoming more common in South Dakota as feeder pig markets have developed in recent years.

#### Feeder Pigs Only

Twenty four percent of respondents (141 of 587) sold feeder pigs in 1979; the same percentage of all South Dakota hog producers sold feeder pigs in 1978. The proportion of South Dakota swine producers selling feeder pigs has increased rapidly over time. In 1969 only 16 percent of swine producers sold feeder pigs. Feeder pigs are sold by producers completely specialized in feeder pig production and by diversified producers who sell feeder pigs and slaughter hogs.

Specialized feeder pig producers are a major component of South Dakota's feeder pig marketing system. Less than one-fourth of respondents (32 of 141) selling feeder pigs were completely specialized in feeder pig production, yet they marketed 45.8 percent of feeder pigs sold. The average number of feeder pigs sold per specialized operation was 1,006 compared to an average of 349 feeder pigs sold by diversified producers.

Specialized feeder pig producers had lower average hog sales volume per farm than producers finishing some or all of their hogs. Feeder pig sales provided 90-100 percent of hog sales volume with remaining sales volume from cull sows and breeding stock.

This enterprise is well suited for producers with excess labor and good farrowing facilities but who are short on feed grain supplies.

#### Diversified

Almost one-fifth (18.8 percent) of respondents were diversified swine producers. They marketed 13.4 percent of slaughter hogs and 54.2 percent of feeder pigs sold by respondents. The average number of slaughter hogs and

feeder pigs marketed per farm was nearly equal (364 slaughter hogs and 349 feeder pigs) with 70-75 percent of swine sales volume from slaughter hogs. Considerable variation in proportion of slaughter hog sales compared to feeder pig sales was evident among diversified producers. On average, these producers generated less hog sales volume than more specialized hog finishing and farrow-to-finish enterprises.

Diversified swine producers have more production flexibility and greater potential to exploit price differentials in feeder pig, slaughter hog and feed grain markets than any other swine enterprise. This enterprise mix is well suited for producers with excess facilities and adequate feed grain supplies.

Twelve percent of the respondents sold raised breeding stock--mostly farrow-to-finish or diversified hog producers. Another five percent provided swine industry related services to other producers. These services included veterinary, order or packer buyer, credit, feed sales, building or equipment sales, and educational programs.

#### Relationship between Producer Characteristics and Swine Enterprise Mix

Statistical tests were performed relating selected producer characteristics (age, education, years of production, percent of farm sales from swine, hog sales volume and regional location) to swine enterprise mix. The purpose was to obtain a producer profile by enterprise and to determine if significant differences (at the five percent probability level) existed between enterprises.

Age, years of production and hog sales volume were significant variables. Producers who sold feeder pigs (both diversified and specialized producers) were, on the average, younger with less production experience than farrow-to-finish or finish only producers (Table 7). These same producers generally had smaller farm operations which were more specialized in swine production--lower

hog sales volume and higher percent of gross farm sales from their swine operation--than the typical farrow-to-finish or finish only producers. Respondents purchasing some or all of their feeder pigs for finishing were generally the larger volume producers.

Regional location was also related to swine enterprise (Table 8). A significantly higher percentage of producers selling feeder pigs (diversified and specialized) were located in western and central South Dakota. Farrow-to-finish producers (complete and partial) were concentrated in east central and southeast South Dakota. Over three fourths of farrow-to-finish respondents were located in east central and southeast South Dakota compared to about three-fifths of feeder pig producers.

Table 6. Swine Enterprise Mix<sup>a</sup>

Primary Swine Enterprise	Respondent Producers		Hog Sales Volume		Slaughter Hogs		Feeder Pigs		Sold Raised Breeding Stock	Provided Other Services
	Num-ber	Per-cent	Per-Cent Sales	Average Dollar Volume Per Producer	Per-cent Sold	Average Number Per Producer	Per-cent Sold	Average Number Per Producer		
				(\$1,000)					(Number of Respondents)	
Farrow-to-Finish	314	53.6	51.2	56.5	55.5	520	--	--	43	11
Farrow-to-Finish, Partial	33	5.6	7.6	80.0	8.4	756	--	--	3	5
Finish Only Only	98	16.5	20.1	71.2	22.7	683	--	--	0	5
Feeder Pigs Only	32	5.5	4.1	44.7	--	--	45.8	1006	3	3
Diversified	<u>109</u>	<u>18.8</u>	<u>17.0</u>	54.0	<u>13.4</u>	364	<u>54.2</u>	349	<u>20</u>	<u>7</u>
Totals	586	100.0	100.0	59.2	100.0	533	100.0	498	69	31

Source: 1980 producer survey.

<sup>a</sup>Swine enterprise mix was reported by all (587) respondents. One respondent reported breeding stock sales only and is excluded in the above table.

Table 7. Summary of Statistical Tests Performed between Selected Respondent Characteristics and Their Primary Swine Enterprise

	Dependent Variables					
	Age	Education	Years of Production	Percent of Sales from Swine	Hog Sales Volume	
<u>Model</u>						
Degrees of freedom:						
Model	4	4	4	4	4	
Error	567	565	561	544	581	
F	16.7	1.46	12.55	2.84	2.83	
Probability F	0.0001	0.2131	0.0001	0.0239	9.0240	
R-Square	0.1058	0.0102	0.0821	0.0204	0.0191	
<u>Primary Swine Enterprise<sup>a</sup></u>						
	<u>Statistic</u>					
	<sup>b</sup>					
Farrow-to-finish	N	305	306	304	291	314 <sup>d</sup>
	Mean	45.08	12.31	21.28	45.23	56,469
	SD <sup>c</sup>	11.64	2.73	11.62	22.16	53,341
Farrow-to-finish, partial	N	33	33	32	33	33
	Mean	43.09	12.70	18.88	46.58	80,020
	SD	10.08	2.24	8.90	18.45	63,656
Finish only	N	95	95	95	95	98
	Mean	45.66	12.54	20.03	41.07	71,154
	SD	12.24	2.31	11.26	23.65	54,552
Feeder pig sales only	N	31	30	28	31	32
	Mean	36.58	13.23	12.50	47.32	44,700
	SD	9.58	1.92	6.77	27.06	34,209
Diversified	N	108	106	107	100	109
	Mean	35.73	12.80	13.41	52.06	54,052
	SD	11.63	2.48	11.00	26.50	81,597

Source: 1980 producer survey.

<sup>a</sup>Swine enterprise definitions are discussed in the text

<sup>b</sup>Number of respondents

<sup>c</sup>Standard deviation

<sup>d</sup>Estimated dollar value of hog and pig sales from the respondents' farm

Table 8. Regional Distribution of Respondents by Swine Enterprise

Primary Swine Enterprise	Number of Respondents	South Dakota Region <sup>a</sup>				Total
		Western & Central	Northeast	East Central	Southeast	
-----percent of respondents by enterprise-----						
Farrow-to-finish	314	15.0	10.2	32.5	42.3	100.0
Farrow-to-finish, partial	33	12.1	3.0	39.4	45.5	100.0
Finish only	98	14.3	12.2	43.9	29.6	100.0
Feeder pig sales only	32	34.4	12.5	28.1	25.0	100.0
Diversified	109	23.9	15.6	22.9	37.6	100.0
All	586	17.3	11.3	32.8	38.6	100.0

Source: 1980 producer survey.

<sup>a</sup> Western and central region correspond to West, North Central and Central regions in Figure 1. Other regions are shown on the map in Figure 1.



## SWINE MARKETING CHANNELS

South Dakota swine producers have several market channels available for slaughter hog sales, feeder pig sales and feeder pig purchases.

### Description of Market Channels

Terminal marketings (public stockyards) are highly organized sales outlets for slaughter hogs and feeder pigs. Slaughter hogs are usually consigned to commission firms and sold by private treaty. Feeder pigs are usually sold by auction. Terminal markets are owned and maintained by a stockyard company and leased to commission firms. The major terminal markets for South Dakota producers are located in Sioux Falls, South Dakota and Sioux City, Iowa.

Auction markets are outlets for slaughter hogs, feeder pigs and breeding stock received by producers and dealers. In 1980, there were over 40 auction market outlets selling swine in South Dakota.<sup>13</sup> Most auctions sell hogs and pigs on specific days of the week with bidding and selling open to the public.

Packers obtain slaughter hogs from direct sales by producers and from packer buyers or buying stations in their procurement area. Packers usually offer both liveweight or carcass weight (grade and yield) sale methods. In 1980, the major South Dakota hog packing plants were located in Sioux Falls and Huron.

Other auction markets, terminal markets and packing plants were also available in the surrounding states of Minnesota, Iowa and Nebraska.

Order buyers are usually agents for producers, packers or other livestock buyers. Order buyer services are performed for a fee and he usually does not take title to the livestock.

Cooperatives are becoming an important market outlet for feeder pig procurement. In 1980, there were 12 feeder pig cooperatives in South Dakota. Most feeder pig cooperatives are producer owned. They usually produce feeder pigs for sales to cooperative members. Some feeder pig cooperatives market feeder pigs to other farmers or through auction markets.

Direct sales to farmers is a common method of marketing feeder pigs to local farmers who finish the pigs to slaughter weight.

Other swine marketing channels include country dealers who buy or sell feeder pigs and/or slaughter hogs on their own account and local markets (collection points) which usually sell slaughter hogs to packer or order buyers.

#### Trends in Market Channel Use<sup>14</sup>

During the past 25 years, market channels used by South Dakota swine producers have changed considerably (Table 9, 10). Packers and buyers have increased their share of slaughter hog purchases while producer use of terminal markets has declined. Auction markets have maintained their share of slaughter hog marketings. In 1972, packers and buyers directly purchased an estimated 46 percent of slaughter hogs in South Dakota. Thirty percent of slaughter hogs were sold through terminal markets and 24 percent were sold through auction markets. More recent (1977) surveys indicated 70 percent of slaughter hogs were sold to packers and buyers.

Slaughter hog market channel use differs by region. In 1972 (the last time period that regional data are available), auctions were the principal market channel in western South Dakota. Terminal market use was strongest in southeast and east central South Dakota, reflecting the close distances to public stockyards in Sioux Falls and Sioux City. Packers and buyers were the principal market channels in the central, north central, northeast and east central regions.

The development of feeder pig markets is fairly recent and continues to grow over time. In 1969, feeder pigs were 13 percent of the number of hogs and pigs sold by South Dakota farmers. By 1978, feeder pigs were 22 percent of hogs and pigs marketed.<sup>15</sup> Feeder pigs markets have grown throughout the state with the largest amount of increase in central and western South Dakota. In 1977 one-half of purchased feeder pigs were obtained direct from other farmers while the rest were obtained from auctions and terminal markets.

The 1980 producer survey provides considerable information on respondents use of swine marketing channels including analysis by region and other producer characteristics.

#### Slaughter Hog Market Channels

The terminal market was used by more respondents (44 percent) than other market channels for marketing some or all of their slaughter hogs. Packers and auction markets were each used by three-eighths (37-38 percent) of respondents while one-fourth of the respondents sold to buyers (Table 10).

Packers were the leading market channel based on slaughter hog sales volume. Almost three eighths (36.5 percent) of slaughter hogs were shipped directly to packers. Terminal markets were the second leading market channel with 29 percent of slaughter hog sales. Auctions were market outlets for 14.7 percent of respondents' slaughter hogs while packer buyer and order buyers purchased 18 percent.

How respondents selected market channels was also investigated. Two approaches were used. The first approach classified producers into two categories--single and multiple channel users. The second approach classified producers by the market channel used to sell a majority of their slaughter hogs. Auction, terminal, packer, and buyer were the market channel alternatives. A few respondents did not sell a majority of their hogs through any single

channel. These respondents were arbitrarily classified as "no majority channel". The two classification variables are labeled MULTI and CHANNEL.

A single market channel was used by 63.8 percent (361) of the respondents (Table 11). The most frequently used single market channel was the terminal market. Twenty-four percent of the respondents sold all of their hogs through the terminal market. Fifteen percent of the respondents sold only through the auction market, while 12.4 percent sold directly to the packer, 10.1 percent sold through order or packer buyers, and 2.1 percent of the respondents sold slaughter hogs through local collection points.

Multiple market channels were used by 36.2 percent of respondents selling slaughter hogs. The most frequently used combinations of market channels were:

<u>Channels</u>	<u>Percent of all respondents</u>
1. Terminal and packer	9.7
2. Auction and buyer (order or packer)	7.0
3. Auction and packer	6.9
4. Terminal and buyer (order or packer)	2.7
5. Terminal and auction	2.6

Seven of every eight multiple channel respondents sold a majority of their slaughter hogs through a specific channel. Direct shipments to packers, packer buyers and order buyers were the most frequent sales outlets. One of eight multiple channel users (4.5 percent of total respondents) did not market a majority of their slaughter hogs through any one channel.

#### Relationship of Producer Characteristics to Market Channel Selection

Two factor analysis of variance tests were performed on respondent characteristics to determine if market channel selection was influenced by personal or business attributes. Overall, years of production, years of

education and hog sales volume were significantly (at the five percent probability level) related to market channel selection (Table 12).

CHANNEL was significant when tested against hog sales volume and percent of farm sales attributable to swine. The producers with a greater volume of hog sales who obtained a majority of their farm sales receipts from their swine operations were more likely to sell directly to the packing plant. The smaller volume producers sold through other channels.

MULTI was significant when tested against operator age and education level. The younger, better educated respondents tended to use more than one channel when marketing slaughter hogs. The mean age of respondents who used multiple channels was 41 years as compared to 44 years for producers using a single market channel. The mean education level was 13.1 years for respondents using more than one channel and 12 years for respondents using one channel.

The interaction term CHANNEL\*MULTI and the factor CHANNEL were significant when tested against years of production. The more experienced producers used the terminal market with greater regularity. The mean years of production of respondents using the terminal market as their sole channel was 22.7 years compared to 15.8 years for respondents who used the terminal market as one of their channels. Younger producers generally used more than one market channel.

#### Regional Location<sup>16</sup>

Regional location was also related to respondents selection of market channels (Table 13). Close access to packing plants is limited to producers in east central and southeast South Dakota and in the Huron area. The only terminal markets are in Sioux Falls and Sioux City. Consequently, most hogs raised by respondents located in east central and southeast South Dakota were

sold through terminal markets or sold directly to packers. Buyers and/or auction markets were the principal market channels for respondents in western, northeast and north central South Dakota. Over 80 percent of hogs sold to buyers or through auctions were initially sold within the respondents home region. The hogs were then shipped to Huron, Sioux Falls, Sioux City and other locations for slaughter processing.

#### Feeder Pig Procurement Channels

Five of six (83.4 percent) respondents farrowed some or all of the feeder pigs they sold or finished (Table 14). Farrowing their own pigs was the sole feeder pig source for 76.6 percent of the respondents. The average number of feeder pigs obtained from the respondent's own farm was 573 head. Three fourths (75.8 percent) of the feeder pigs were obtained from farrowing on the same farm.

Auctions were used as a source of feeder pigs by 11.3 percent of the respondents. Auctions were the only source of feeder pigs for 4.9 percent of the producers. The average number of feeder pigs obtained through the auction market was 388 head.

Fifty respondents (8.6 percent) bought feeder pigs directly from other farms, but only 15 respondents obtained all of their feeder pigs this way. The average number obtained directly from other farms was 494 head.

Feeder pig cooperatives were used by 5.3 percent of the respondents and slightly over half of these producers obtained all of their feeder pigs from this source. An average of 647 head of feeder pigs were obtained from cooperatives. This source was generally used by larger volume hog producers.

Only 4.1 percent of the respondents used the terminal market to purchase feeder pigs and only one-half of these producers obtained all of their pigs

through this source. The average number of pigs obtained through the terminal market was the highest number procured from any source - 776 head.

Eleven percent of the respondents used multiple sources to obtain feeder pigs for their swine operations. The most frequently used combinations of feeder pig sources were 1) own farrowings and direct purchases from other farmers and 2) auction markets and direct purchases.

There were few regional differences in feeder pig procurement patterns. The major exception was that the terminal market was used only by nearby (east central and southeast region) respondents as a source of purchased feeder pigs.

#### Feeder Pig Sales Channels

Twenty four percent of the respondents (141) reported feeder pig sales. The auction market was the only market channel used by a majority of producers selling feeder pigs, but a majority of feeder pigs were sold by direct sales to other farms. The average number of feeder pigs sold directly to other farms was 595 head per respondent. This compares to an average of 336 head for terminal markets, 275 head for feeder pig cooperatives and 249 head for auction markets (Table 15).

Three fourths of respondent feeder pig producers sold all of their feeder pigs through a single outlet. Twenty two percent used two market channels while three percent used three market channels.

The most frequently used single market channel was the auction market. Nearly half of the single market channel sales (50) went through auctions. The other single market channels used were direct sales to other farms by 27 respondents and sales to terminal markets by 25 respondents.

All respondents reporting multiple channel sales used direct sale to other farms for marketing some of their pigs. The most frequently cited combinations (22 cases) were auction markets and direct farm sales.

Regional differences in market channels used for feeder pig sales was evident (Table 16). Direct sales to other farms was the primary market channel for eastern and north central region respondents. Auction markets were the primary market channel for western and central region respondents.

These regional market channel patterns correspond with swine enterprise differences by region. Producers purchasing feeder pigs for finishing are generally located in eastern South Dakota. Most feeder pigs marketed by respondents were sold to local farmers or at market outlets (auctions or terminals) located within 50 miles of the respondents home place.



Table 9. South Dakota Slaughter Hog and Feeder Pig Market Channels, 1957-1977<sup>a</sup>

Year	Slaughter Hog Market Channels			Total
	Terminal Markets	Auction Markets	Direct to Packers, Buyers	
	-----percent of slaughter hogs marketed-----			
1957	52	18	30	100
1964	44	22	34	100
1972	30	24	46	100
1977		30	70	100

Year	Feeder Pig Market Channels			Total
	Terminal Markets	Auction Markets	Purchased from Farmers, Dealers	
	-----percent of feeder pigs marketed-----			
1964	17	33	50	100
1972	15	30	55	100
1977	--	50	50	100

Source: Data for 1957, 1964, and 1972 are obtained from the U.S. Department of Agriculture South Dakota - Livestock Marketing - 1972 Statistical Reporting Services, Washington, DC: John Ranek, Statistician in Charge, June 1974, pp 29 - 30.

Data for 1977 were obtained from the U.S. Department of Agriculture 1977 Marketing Channel Survey: Channels Used for Marketing Farm Commodities in Selected States. SpCr - 7, Crop Reporting Board, ESCS, Washington, DC, March 1979.

<sup>a</sup> Data reported for 1957, 1964, and 1972 are based on more comprehensive surveys than the 1977 survey. The latter survey was designed to generate national and selected state estimates. The earlier surveys were in cooperation with the South Dakota Department of Agriculture and were designed to obtain market channel estimates by Crop Reporting District and for the entire state of South Dakota.

Table 10. Slaughter Hog Market Channels

Market Channel	Number of Respondents <sup>a</sup>	Percent of Respondents <sup>a</sup>	Number of Hogs	Percent of Hogs
			--Thousand--	
Auction	213	37.6	42.5	14.7
Buyer <sup>b</sup>	140	24.7	52.2	18.0
Packer	215	38.0	105.9	36.5
Terminal	250	44.2	84.1	29.0
Other	15	2.6	<u>5.3</u>	<u>1.8</u>
Total			290.0	100.0

Source: 1980 producer survey.

<sup>a</sup> Ninety-nine percent of the respondents who reported slaughter hog sales (566 of 572) cited the channel through which the hogs were sold. Percent of respondents does not equal 100 percent due to multiple channel use.

<sup>b</sup> Buyers include order buyers and packer buyers.

Table 11. Number and Percent of Respondents Classified by Market Channel Categories<sup>a</sup>

CHANNEL	Single Channel		MULTI Multiple Channel		Total Respondents	
	No.	Pct. <sup>b</sup>	No.	Pct.	No.	Pct.
Auction	88	15.5	26	4.6	114	20.1
Buyer	57	10.1	46	8.1	103	18.2
Packer	70	12.4	76	13.4	146	25.8
Terminal	134	23.7	32	5.6	166	29.3
Other	<u>12</u>	<u>2.1</u>	<u>25</u>	<u>4.5</u>	<u>37</u>	<u>6.6</u>
Total	361	63.8	205	36.2	566	100.0

Source: 1980 producer survey.

<sup>a</sup> CHANNEL represents the market channel used by respondents to sell all (single channel) or a majority (multiple channel) of their slaughter hogs. The combination "other-multiple channel" represents respondents who did not market a majority of their slaughter hogs through any specific channel.

Table 12. Summary of Two-Way Analysis of Variance Tests for Slaughter Hog Market Channels.

	Dependent Variables				
	Age	Education	Years of Production	Percent of Farm Sales from Swine	Hog Sales Volume <sup>a</sup>
<u>Model</u>					
Degrees of freedom:					
Model	9	9	9	9	9
Error	543	543	539	520	556
F	1.61	2.02	2.46	1.37	4.44
Probability F	0.1072	0.0349	0.0094	0.1980	0.0001
R-Square	0.0261	0.0324	0.0395	0.0232	0.0671
<u>Individual Sources</u>					
Channel: <sup>c</sup>					
Degrees of freedom	4	4	4	4	4
F	0.73	0.72	2.58	2.39	7.50
Probability F	0.5686	0.5762	0.0363	0.0499	0.0001
Multi: <sup>b</sup>					
Degrees of freedom	1	1	1	1	1
F	4.43	10.16	1.50	1.29	1.03
Probability F	0.0357	0.0015	0.2215	0.2569	0.3103
Channel*Multi: <sup>d</sup>					
Degrees of freedom	4	4	4	4	4
F	4.43	1.29	2.59	0.37	2.23
Probability F	0.0357	0.2740	0.0361	0.8304	0.0641

Table 12. (Continued)

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<sup>a</sup> Estimated dollar value of hog and pig sales from the respondent's farm.

<sup>b</sup> The variable, Multi, was developed to indicate if all slaughter hogs were sold through one market channel or whether multiple market channels were used for sale of slaughter hogs.

<sup>c</sup> The variable, Channel, was developed to indicate the market channel used by a respondent to market a majority of their hogs. Four possible channels are auction, buyer, packer, and terminal market. A fifth category "other" has two different meanings. The combination "other-single channel" refers to local collection points. The combination "other-multiple channel" refers to respondents marketing hogs through several market channels with no channel used for a majority of hogs marketed.

<sup>d</sup> Channel\*Multi was the interaction term between these two variables.

Table 13. Proportion of Respondent Slaughter Hogs Sold through each Market Channel from each Region

Respondents Regional Location	Market Channel <sup>a</sup>					Thousands of Slaughter Hogs Sold by Respondents
	Auction	Terminal	Packer	Buyer-Other <sup>b</sup>	Total	
-----percent of slaughter hogs marketed-----						
West	41.3	18.9	4.1	35.7	100.0	14.3
Central	21.0	3.5	60.3	15.2	100.0	12.3
North Central	11.8	8.2	16.8	63.3	100.0	16.4
Northeast	24.2	5.4	29.9	40.5	100.0	26.8
East Central	2.9	41.1	39.6	16.4	100.0	100.8
Southeast	18.9	30.8	39.6	10.7	100.0	119.4
Total Respondents	14.7	29.0	36.5	19.8	100.0	290.0

Source: 1980 producer survey

<sup>a</sup> Ninety nine percent (566 of 572) respondents marketing slaughter hogs (including cull sows) reported regional location and market channel. Slaughter hog marketing of these respondents are included in this table.

<sup>b</sup> Order buyer, packer buyer and local collection points.

Table 14. Feeder Pig Procurement Sources

Procurement Source <sup>a</sup>	Respondents <sup>b</sup>		Only Source <sup>c</sup>		Feeder Pigs		Average Number Per Producer  (mean)
	Number	Percent	Number of Respondents	Percent	Thousand	Percent	
1. Own herd	488	83.4	449	76.6	278.7	75.8	573
2. Auction	66	11.3	29	4.9	25.6	7.0	388
3. Direct from other farm	50	8.6	15	2.6	24.7	6.7	494
4. Feeder pig coopera- tive	31	5.3	16	2.8	20.1	5.4	647
5. Terminal	24	4.1	12	2.0	18.6	5.1	776
			<u>521</u>	<u>88.9</u>	<u>367.7</u>	<u>100.0</u>	

Source: 1980 producer survey.

<sup>a</sup> All except one of 587 respondents reported the source of feeder pigs they sold or finished.

<sup>b</sup> Number of respondents exceeded 586 due to multiple procurement channels by some producers.

<sup>c</sup> Number and percent of respondents using only one procurement source.

Table 15. Feeder Pig Sales Channels

Channels	Respondents Selling Feeder Pigs <sup>a</sup>		Only Channel <sup>b</sup>		Feeder Pig Sales		
	Number	Percent	Number of Producers	Percent	Thousand	Percent	Average Number Per Producer
Auction	76	55.9	50	36.8	19.0	28.0	249
Direct to Other Farms	61	44.9	27	19.8	36.3	53.8	595
Terminal	35	25.7	25	18.4	11.8	17.4	336
Feeder Pig Coop	2	1.5	0	0.0	0.5	0.8	275
Total			102	75.0	67.6	100.0	497

Source: 1980 South Dakota producer survey.

<sup>a</sup> One hundred thirty six of the 141 respondents reporting feeder pig sales cited the market channels used for feeder pig sales. Percentage calculations are based on 136 complete reports. Percent of respondents exceeds 100 percent due to multiple channel use.

<sup>b</sup> Number and percent of respondents using only one market channel for selling feeder pigs.



Table 16. Proportion of Respondents' Feeder Pigs Sold through each Market Channel by Regional Location

Respondents' Regional Location	Market Channel				Thousands of Feeder Pigs Sold
	Auction	Terminal	Direct to Other Farms	Total	
West	88.5	4.6	6.9	100.0	4.4
Central	47.4	27.0	25.6	100.0	10.4
North Central	21.7	19.0	59.3	100.0	5.7
Northeast	36.4	8.8	54.9	100.0	10.0
East Central	10.2	23.9	65.9	100.0	18.2
Southeast	18.1	13.7	68.1	100.0	18.9
Total Respondents	28.0	17.4	54.6	100.0	67.6

Source: 1980 producer survey

<sup>a</sup>Information in this table is based on reports from 136 of 141 respondents selling feeder pigs who reported their location and feeder pig market channel usages.

## MARKETING METHODS -- SLAUGHTER HOGS

Major changes have occurred in hog market channels used by producers. The growing trend to packer shipments has also increased the proportion of hogs marketed by grade and yield. Another industry trend has been growing emphasis on marketing hogs at specific weights. The purpose is to increase consumer acceptance of lean pork products and financially reward producers who are producing the "best" product.

### Slaughter Hog Selling Methods

The two major methods of selling slaughter hogs are on a:

- (1) liveweight basis, and
- (2) carcass weight (grade and yield) basis

Most slaughter hogs marketed through terminals, auctions and dealer channels are sold liveweight. Hogs are often sorted by lot or individually into various size and quality groupings. Top prices are usually paid for uniform lots of U.S. No. 1 and 2 grade, 220 to 240 pound barrows and gilts with discounts for higher or lower weight and grade classes.

Packers also purchase hogs using carcass weight methods.

All respondents marketing slaughter hogs reported the proportion sold liveweight and by grade and yield. The liveweight selling method was used by 95.8 percent of respondents while grade and yield was used by 25.7 percent of market some or all of their slaughter hogs (Table 17). Seventy four percent of the respondents used the liveweight method as the only means of selling their slaughter hogs. Four percent of the respondents relied entirely on grade and yield pricing systems while one-fifth of the respondents used both methods.

Twenty three percent of respondents' slaughter hogs were sold grade and yield. Larger volume producers tended to use this method. Respondent location also influenced choice of selling method. Western region respondents almost entirely used the liveweight selling method due to lack of market outlets in close vicinity that would price grade and yield. Grade and yield marketing must be done at packing plants which are located in eastern South Dakota.

#### Weight of Slaughter Hogs Sold

Slaughter hog weights and yields are related. The highest prices for slaughter hogs are usually paid for U.S. No. 1 and 2 hogs weighing between 220 - 240 pounds with discounts for higher or lower weights. Sixty percent of the hogs sold by respondents were marketed within this weight range. Another 30 percent of slaughter hogs sold by respondents were marketed from 201 to 220 pounds (Table 18).

Most of the remaining hogs were sold from 241 to 270 pounds. Within this weight class were some leaner type hogs which can be carried past 240 pounds and still yield well, but some overfinishing could have occurred.

Less than two percent of slaughter hogs sold exceeded 270 pounds. Many of these hogs were cull sows. Respondents were not consistent in their reporting of cull sows; it is likely that some producers did not report their cull sow sales.

Three of every four respondents marketed slaughter hogs in two or more weight classes. Seven of eight respondents marketed some or all of their slaughter hogs from 221 to 240 pounds. Five of eight producers marketed some or all of their hogs from 201 to 220 pounds. Relatively few producers (6-7 percent) marketed a majority of their slaughter hogs above 240 pounds.<sup>17</sup>

Timing of Slaughter Hog Sales

Market fundamentals (product supply and demand factors) determine overall pricing of slaughter hogs. However very short term price movements can be influenced by many factors and daily or weekly price movements can greatly affect producer net returns.

Respondents were asked to indicate how they timed their slaughter hog sales. Five possible answers were provided to respondents and results are shown in Table 19. Nearly 62 percent of those responding emphasized marketing slaughter hogs when they reached the "right" weight as more important than observing daily price behavior or set marketing times. Thirty percent of respondents sold slaughter hogs by studying daily price behavior and trying to hit the highs. Only six percent of respondents marketed hogs at set times (certain days of the week) while even fewer respondents contracted ahead.

Table 17. Slaughter Hog Sale Methods<sup>a</sup>

Sale Method	Number of Respondents	Percent of Respondents	Thousands of Hogs	Percent of Hogs	Mean Number of Hogs Per User
Liveweight	548	95.8	227.2	76.9	415
Grade and yield	145	25.7	<u>68.3</u>	<u>23.1</u>	464
			295.5	100.0	

Source: 1980 producer survey.

<sup>a</sup> All 572 respondents selling slaughter hogs reported the method of sale. Many respondents (122) reported the use of both selling methods in their hog marketing program. Consequently the sum of the number of respondents by sale method exceeds the total number of respondents.

Table 18. Weight of Slaughter Hogs Sold<sup>a</sup>

Weight Class (pounds)	Number of Respondents	Percent of Respondents	Thousands of Hogs	Percent of Hogs
180-200	34	6.1	1.4	0.5
201-220	347	62.0	87.8	30.4
221-240	489	87.3	173.5	60.0
241-270	199	35.5	21.0	7.3
271-300	25	4.5	1.3	0.4
over 300	90	16.1	<u>4.1</u>	<u>1.4</u>
Total			289.1	100.0

Source: 1980 producer survey

<sup>a</sup> Five hundred seventy two respondents reported slaughter hog sales include 20 feeder pig producer reporting cull sow sales. Slaughter hog market weights were reported by 560 of 572 respondents. Percent of respondents does not equal 100 percent due to multiple weight class sales by many respondents.

Table 19. Timing of Slaughter Hog Sales

Response	Number of <sup>a</sup> Respondents	Percent of Respondents
1. At set times (for example, every Tuesday) without regard to daily price behavior	32	5.6
2. By studying daily price behavior and trying to hit the highs	169	29.8
3. By contracting ahead and shipping when they are the right weight	4	0.7
4. Selling when they are the right weight	350	61.7
5. Other (sell hogs every week regardless)	<u>12</u>	<u>2.1</u>
Total	567	100.0

Source: 1980 producer survey.

<sup>a</sup> Ninety nine percent of respondents selling slaughter hogs (567 of 572) answered the question about timing of slaughter hog sales.

## TRANSPORTATION METHODS

Hog and pig transportation movements between respondents' farms and point of sale or purchase were usually short distance hauls of less than 50 miles. Small trucks and trailers were the most common transport modes for feeder pig and slaughter hog shipments.

### Feeder Pig Inshipments

Small trucks (single axles) and trailers were the most common methods of transporting feeder pigs to the farm. Approximately 87 percent of feeder pigs and 85 percent of loads shipped were by one of these methods. Average load size was 60-70 feeder pigs. Average distance hauled per load was 29 miles by trailer and 37 miles by small truck (Table 20).

Pickups were used to haul small loads of feeder pigs for short distances--an average of 14 miles. Only four percent of feeder pigs and eight percent of all loads were hauled by pickup. Average load size was 30-35 feeder pigs.

Large (tandem axle) trucks and semi trucks were used to haul feeder pigs long distances--an average one-way distance of 178 miles per load. Average load size was 80-100 feeder pigs.

Average one-way distance hauled was only 42.2 miles per load which, as noted, varied considerably by transportation mode. Approximately 30 percent of feeder pigs were shipped less than 20 miles from point of purchase. Forty percent of feeder pigs were shipped 21-50 miles while 30 percent were shipped more than 50 miles. The relatively low mileage per load is related to the practice of most feeder pig buyers to purchase pigs from nearby farms or local auction markets. Feeder pig miles is the product of number of feeder pigs shipped by one-way distance traveled per load. It measures the amount of

transportation mode use. Two-fifths of feeder pig miles were from seven percent of loads shipped by large trucks and semi trucks. Three-eighths of feeder pig miles originated from small truck shipments while 22 percent of feeder pig miles were from pickup and trailers.

Ninety percent of reporting producers used only one transportation mode for feeder pig shipments while ten percent used two or more transport modes. The usual combination was trailers and trucks.

#### Hog and Pig Outshipments

Trailers and small trucks were the most common methods of transporting slaughter hogs and feeder pigs from farm to market. Approximately one-third of all loads were shipped by each of these transport modes. The average number of miles (one-way) per load was 30 miles for trailers and 38 miles for trucks (Table 21).

Hog and pig numbers shipped were converted to an estimate of hog volume based on an average of 230 pound slaughter hogs and 50 pound feeder pigs. Ton-miles per load was estimated from hog volume multiplied by distance hauled. Approximately 45 percent of hog volume and 46 percent of ton miles were shipped by small truck, while 31 percent of hog volume and one-fourth of ton-miles were shipped by trailer.

Pickups were used to haul small loads. One-fourth of loads shipped and 9.6 percent of ton miles originated from hauling by pickup. The average distance shipped was 29 miles.

Large trucks and semi trucks were used for six percent of loads and 12 percent of hog volume shipped. Average one-way distance shipped was longest for semi trucks--65 miles.

Overall, the average one-way distance per load was 33.7 miles with some variation by transportation mode. Approximately 28 percent of feeder pig and



slaughter hog outshipments were less than 20 miles to market. Another 48 percent of hogs and pigs were shipped 20-49 miles while 24 percent were shipped 50 or more miles. The relatively low distances per load were related to concentration of hog production and markets in eastern South Dakota.

Seventy six percent of respondents (335 of 440) used only one transportation mode to ship all of their hogs and pigs to market. The most frequent multiple mode combinations were small trucks and pickups or trailers and pickups.

Table 20. Feeder Pig Inshipments by Transportation Method<sup>a</sup>

Transportation Method	Transportation Variable				Average
	Loads Shipped	Miles One-Way	Feeder Pigs	Feeder Pig Miles One-Way	Number of Miles per Load
	%	%	%	%	one-way miles
Pickup	8.2	2.7	4.4	1.3	14.2
Trailer	37.8	26.1	37.3	20.9	29.2
Small Truck (single-axle)	47.0	41.5	49.6	37.3	37.3
Large Truck and Semi-Truck	<u>7.0</u>	<u>29.7</u>	<u>8.7</u>	<u>40.5</u>	178.2
TOTAL	100.0	100.0	100.0	100.0	
Sample totals	985	41,575	66,144	3,345,000	42.2

Source: 1980 producer survey

<sup>a</sup>Ninety-nine respondents supplied informaton on feeder pig inshipment transportation patterns. A total of 141 respondents purchased some feeder pigs.

Table 21. Hog and Pig Outshipments by Transportation Method<sup>a</sup>

Transportation Method	Transportation Variable				Average Number of Miles per Load one-way miles
	Loads Shipped %	Miles Shipped One-Way %	Hog Volume (cwt.) %	Ton Miles One-Way %	
Pickup	25.2	21.7	11.9	9.6	29.0
Trailer	33.5	29.8	31.1	25.4	30.0
Small Truck (single axle)	35.4	39.5	45.2	46.1	37.6
Large Truck (tandem axle)	3.2	3.8	4.2	4.5	39.4
Semi-truck	<u>2.7</u>	<u>5.2</u>	<u>7.6</u>	<u>14.4</u>	65.4
Total Percent	100.0	100.0	100.0	100.0	
Sample totals	8,911	300,234	26,072	961,240	33.7

Source: 1980 producer survey

<sup>a</sup> A total of 440 of 586 respondents provided information on transportation methods used for outshipments of slaughter hogs and feeder pigs.

## ALTERNATIVE PRICING METHODS

Swine producers have three major pricing methods available: cash marketing, forward contracting and hedging.

Producers selecting the cash market assume all of the price risk during the production period and accept the cash price at time of delivery. Producers can market any number of hogs using this method.

Forward contracting is an agreement between producer and buyer which specifies quantity and quality of hogs, place and future time of delivery and price. It may be used by slaughter hog and feeder pig producers. Forward contracting provides the producer an opportunity to lock in a specific price several weeks or months in advance of delivery. Most of the price risk is shifted to buyers, many of whom hedge their contracts on the futures market.

Hedging involves the sale of a futures contract by a producer during the production phase. This method offers the producer an opportunity to forward price their hogs and shift some of the price risk to the buyer of the futures contract. Hog producers hedge by selling one or more futures contract for the months they expect to market hogs. The cash and futures positions are not comparable until hogs reach the weight and quality characteristics specified in the futures contract. A standard live hog futures contract promises delivery of 30,000 pounds of 200-230 pound hogs, grade 3 or higher on a specific date. A mini-contract for 15,000 pounds is also available. Normally, the producer sells his hogs on the cash market and buys back the futures contract. During the contract period, the producer must meet all margin calls and assumes basis risk--the difference between the futures and cash price at his market. Minimum contract size restricts participation by the smallest producers, but

most medium and large-scale producers market sufficient volumes of hogs at one time to permit participation.

Respondents were asked about their participation in each pricing method, major advantages of methods used and reasons for not using specific methods. (See questions #17-22 in Appendix 1) Questions asked about pricing methods were similar to questions used in a 1975 Ohio hog marketing study.<sup>18</sup> Comparisons are made between results of these studies. Responses are analyzed by the general set of respondent characteristics for significant differences.

Producer responses to pricing methods indicates considerable satisfaction with the cash marketing method but also lack of knowledge about effectively using forward contracts and futures markets.

#### Cash Marketing

Cash marketing was the overwhelming choice of pricing methods used by of respondents (Table 22). All except three respondents reported using the cash market for selling slaughter hogs and feeder pigs. The cash market was used as the only pricing method for 97.7 percent of slaughter hog sales and 99.3 percent of feeder pig sales.

Respondents were asked to identify and rank three advantages of using the cash market. Ninety-five percent (556 of 587 respondents) listed one or more benefits they received from using the cash market. Three-fourths (438) of the respondents believed the uncomplicated nature of the cash market was one of its greatest benefits. Among respondents citing uncomplicated marketing methods, 42.2 percent felt this benefit was the most important advantage of the cash market (Table 23).

The location of the cash market was cited as a benefit by 71 percent (418) of all respondents. Thirty eight percent of respondents listing location

as a benefit considered it the most important benefit of the cash market. There is statewide access to the futures market. However, access to forward contracts is limited. Many respondents indicated a willingness to forward contract if they could find a party to enter into a contract with.

Assured price was the third ranked benefit cited by 42 percent (247) of all respondents. Other benefits of the cash market included satisfactory profit, minimization of losses, ease of acquiring credit and "other". The "other" category included such responses as "not willing to try other methods", "cash marketing is highly competitive".

Survey responses on cash marketing are generally consistent with results reported in the Ohio study.<sup>19</sup> Uncomplicated marketing method was the most frequently cited reason in both studies. "Satisfactory profit" was the fourth ranking factor in the survey and was second ranked in the Ohio study. Assured price was the third ranking response in both studies. It is possible that respondents misunderstood the question or assumed the question implied known price at sale time.

#### Forward Contracts and Futures Markets

Seven producers in the study were involved in cash forward contracting and seven producers used future market contracts. The advantages cited by users in order of frequency were assured price, planning swine enterprise is more certain, helps achieve acceptable profits and minimizes losses.

Nationally, very few hog producers use cash forward contracts or futures contracts. A 1978 survey of medium and large volume hog producers marketing more than 2,500 hogs and pigs each year found only six percent used the futures market and nine percent used cash forward contracts.<sup>20</sup> However most surveys have not explored reasons why they were not used more often.

Since most respondents did not use forward contracts or the futures markets it is useful to find out why these pricing tools were not used by more producers.

#### No Participation in Forward Contracting

Eighty-five percent (499) of the respondents provided one or more reasons for not using forward contracts to market their hogs and pigs (Table 24).

The small size of South Dakota hog farms was the most frequently cited reason for not forward contracting. Over half (296) of all respondents cited the reason, "Do not produce a large enough volume of hogs to warrant a contract." One half (50.7) of these respondents called this the most important reason their firm was not engaged in forward contracting.

Lack of knowledge about the complexities of forward contracting was cited by 47 percent (274) of all respondents. Almost two-fifths (39.4 percent) of these respondents indicated lack of knowledge was the most important reason for not forward contracting.

Forty-four percent (259) of all respondents indicated a preference for using the cash market. Of respondents indicating a preference for the cash market, 44.8 percent called this the most important reason for not forward contracting.

Over one-fourth of the respondents wanted to know more about forward contracting but were unable to find someone knowledgeable on the subject. Other reasons given for not forward contracting were "have been advised against its use", "prefer hedging", and "other". Respondents who cited "other" asked where they could get involved in a contract, which indicated that forward contracts were difficult to obtain in many areas.

#### No Participation in the Futures Market

Seventy seven percent (452) of all respondents provided one or more reasons for not using the futures markets (Table 25). Forty six percent (274)

of all respondents reported that they did not fully understand the complexities of hedging and were not using futures contracts until they understood them. Among these respondents, 43.1 percent listed this as the most important reason for not hedging.

An equal number (274) of respondents believed that they did not produce enough hogs to hedge a futures contract. Over one-half (53.3 percent) of these respondents indicated this was the major reason for nonparticipation.

Over 40 percent (244) of all respondents preferred the cash market and 50 percent of these respondents felt this was the most important reason for not hedging.

Other reasons for not using futures contracts were; "would like to know more about futures contracts but unable to find someone knowledgeable on the subject," "have been advised against its use", "prefer forward contracting", and "other". Responses in "other" category reflected considerable apprehension about using futures contracts.

In the Ohio study, the top three responses for not using forward contracts or futures markets were in order:

1. Prefer to use cash market.
2. Don't produce enough hogs to warrant a contract.
3. Don't fully understand complexities of forward contracting (hedging).

The major difference between the 1980 South Dakota survey and the Ohio study is the ranking of cash market preference.<sup>21</sup>

Relationships between Producer Characteristics and Respondent's Reasons for not Using Forward Contracts or Futures Markets

Inadequate knowledge, inadequate (too small) size and preference for using cash markets were the most frequently listed reasons for not using forward contracts or futures markets. Ninety-three percent of producers that



ranked their responses listed one of these reasons as their most important reason for not using these pricing methods.

Respondents perception (most important reason for not using a method) of pricing methods may be related to specific producer characteristics--operator age, years of education, years of production, percent of total sales from the swine operation and hog sales volume. Possible relationships between each of these producer characteristics and respondents' major reason for not using forward contracts or futures markets were explored using analysis of variance and means tests. Significance was tested at the one percent probability level. A summary of the statistical tests are available in Weischedel<sup>22</sup>-- major findings are discussed below.

Operator age, years of production and hog sales volume are producer characteristics associated with major reasons for not using forward contracts or futures markets. Years of education and proportion of total sales from the hog business were not statistically significant characteristics.

Operator age and years of production followed similar patterns. The older, more experienced producers preferred the cash market while younger less experienced respondents wanted to know more about forward contracting and futures markets. Mean age levels and years of production were 45 years and 21 years for those preferring the cash market, compared to 40 years and 16 years respectively for other respondents. Respondents citing the reason "too small to warrant a contract" sold approximately \$37,000 of hogs and pigs while respondents that preferred the cash market sold over \$73,000 of hogs and pigs.

Table 22. Pricing Methods Used by Respondents<sup>a</sup>

Pricing Method/ Combination	Slaughter Hog Sales	Feeder Pig Sales
	-----percent of respondents-----	
Cash Market Only	97.7	99.3
Cash Market and Forward Contracting	0.7	0.0
Cash Market and Futures Contract	1.3	---
Forward Contract Only	<u>0.3</u>	<u>0.7</u>
TOTAL	100.0	100.0

Source: 1980 producer survey

<sup>a</sup>All except six respondents (581 of 587) reported their use of pricing methods.

Table 23. Benefits of Cash Marketing to Respondents<sup>a</sup>

Response	Response Frequency	Most Important	Second in Importance	Third in Importance	Unranked
-----percent of response frequency-----					
1. Satisfactory profit can be achieved	157	21.7	28.0	37.6	12.7
2. Minimization of losses	129	6.2	20.2	58.1	15.5
3. Assured price	247	37.2	23.9	25.1	13.8
4. Ease of acquiring credit	29	13.8	17.2	62.1	6.9
5. Uncomplicated marketing method	438	42.2	32.6	14.4	10.7
6. Location of market	418	38.0	34.2	15.8	12.2
7. Other	25	32.0	24.0	36.0	8.0

Source: 1980 producer survey

<sup>a</sup> Ninety-five percent (556 of 587) of the respondents listed one or more factors supporting their use of the cash market. Sixty-four respondents listed one factor, 94 respondents listed two factors, and 397 respondents listed three factors. Sixty-six respondents listed two or more factors but did not rank them. Their responses are recorded in the unranked column.

Table 24. Respondent's Reasons for Not Using Forward Contracts<sup>a</sup>

Response	Response Frequency	Most Important	Second in Importance	Third in Importance	Unranked
-----percent of response frequency-----					
1. Rather use cash market to take advantage of higher prices	259	44.8	22.0	20.8	12.4
2. Have been advised against its use	78	11.5	37.2	39.8	11.5
3. Would like to know more about it but unable to find someone knowledgeable on subject	157	20.4	33.1	35.0	11.5
4. Don't fully understand complexities of contracting	274	39.4	33.6	17.2	9.8
5. Do not produce enough hogs to warrant a contract	296	50.7	27.3	10.5	11.5
6. Prefer hedging	33	39.4	30.3	24.2	6.1
7. Other	42	40.5	30.9	16.7	11.9

<sup>a</sup>Eighty five percent (499 of 587) of the respondents listed one or more reasons for not using forward contracts. One hundred and twelve respondents listed one reason, 134 listed two reasons, and 253 listed three reasons. Fifty-three respondents listed two or more reasons but did not rank them. Their responses are recorded in the unranked column.

Table 25. Respondent's Reasons for Not Using Futures Contracts<sup>a</sup>

Response	Response Frequency	Most Important	Second in Importance	Third in Importance	Unranked
-----percent of response frequency-----					
1. Rather use cash market to take advantage of higher prices	244	50.0	25.0	16.4	8.6
2. Do not produce enough hogs to warrant a contract	274	53.3	28.8	10.2	7.7
3. Don't fully understand complexities of hedging	274	43.1	30.3	20.8	5.8
4. Would like to know more about it but unable to find someone knowledgeable on subject	102	8.8	48.0	41.2	2.0
5. Have been advised against its use	73	9.6	32.9	46.6	10.9
6. Prefer forward contracting	16	12.5	25.0	62.5	0.0
7. Other	38	55.3	31.6	10.5	2.6

Source: 1980 producer survey

<sup>a</sup> Seventy-seven percent (452 of 587) of the respondents listed one or more reasons for not using futures contracts. One hundred thirteen respondents listed one reason, 109 listed two reasons, and 230 listed three reasons. Twenty-seven respondents listed two or more reasons but did not rank them. Their responses are recorded in the unranked column.

## PRODUCER ASSESSMENT OF FACTORS LIMITING SOUTH DAKOTA PORK INDUSTRY EXPANSION

A specific objective of this study was to obtain producer assessment of factors limiting pork industry expansion in South Dakota. Historically, there have been outshipments of feeder pigs and feed grains from South Dakota which could have been used to expand hog finishing and processing within the state. Respondents were asked to indicate and rank factors limiting expansion of pork production at the county and individual firm level over the next several years. Both short-term and longer term problems were included such as low prices, lack of profits, lack or cost of credit, labor availability, lack of alternative market outlets and availability of feeder pigs and feed grains. Finally, producers were asked about their own hog production plans.

### Limiting Factors - County Level

Fifty nine percent (345) of respondents listed one or more factors curtailing further expansion of the swine industry in their home county (Table 26). Lack of credit for adding farrowing or finishing operations was most frequently cited as a limiting factor. The tightening of credit and upward escalating interest rates in 1980 are reflected in this response.

Low slaughter hog prices and lack of profits were the next two most frequent responses. This answer reflected slaughter hog prices at the time of the survey (\$34/cwt) and the fact that most producers were in a loss position at the time.

The lack of alternative markets for finishing hogs was given as a factor restricting expansion by 108 respondents. It was ranked as the most important limiting factor by only 15 producers. Most producers perceived greater problems facing them than the lack of markets and gave it a secondary rating.

Relatively few producers listed lack of feeder pig markets, feeder pig supplies or lack of feed grains as a restrictive factor in their local area.

Limiting Factors and Future Production Plans - Respondents Firm

Almost all respondents (98 percent) identified one or more factors limiting expansion of pork production on their own farm and 90 percent ranked the limiting factors (Table 27).

The cost of replacing or building new facilities was the most frequently listed factor restricting firm expansion. Approximately 73 percent (429) of all respondents cited this limiting factor and 48.5 percent of these respondents indicated cost was the most limiting factor. This finding supports the "lack of credit" response cited at the county level.

Family labor availability at peak times was listed by 48 percent (279) of respondents as a limiting factor and was selected by 28.3 percent of these producers as the most limiting factor. Low hog prices was listed as a limiting factor by 29 percent (171) of all respondents.

Feed grain production and the availability or cost of feed grains were cited as limiting factors by 46 percent (271) of all respondents. Relatively few respondents indicated feed grain production or availability were the most limiting factors for their own operation.

Feed grain production was not considered a major deterrent to swine number expansion at the county level which indicates ample amounts of feed grains were locally available, if not on the individual's farm.

Lack of quality hired labor or management and inadequate numbers of market outlets or buyer were perceived problems for many producers. Almost one-fifth (114) of all respondents indicated lack of quality hired labor or management was a problem but few indicated this was the most limiting factor.

Another ten percent of respondents reported the lack of market outlets or buyers was a problem for their firm.

Finally, one fifth (120) of all respondents were nearing retirement or planning to get out of the hog business and were not interested in further expansion. However, only 43 of these producers reported definite plans to decrease hog production or exit from the industry in the next 3-5 years.

Twenty eight percent (163) of all respondents planned to expand their hog operation in the next several years. Two thirds of these producers planned to increase production volume without making enterprise changes. One third (55 respondents) planned enterprise changes as part of their growth strategy. Thirty respondents planned to add a finishing enterprise to their feeder pig enterprise while 25 respondents planned to add a feeder pig enterprise to a farrow-to-finish operation.

Overall, 28 percent of producers planned to expand their hog operation, 7 percent planned to decrease production, 38 percent planned no changes in production and 27 percent were uncertain about their future production plans.

#### Relationship of Producer Characteristics and Respondent Perceptions of Limiting Factors

Respondents' production plans and their perception of most limiting factors affecting expansion of swine production in their county or their own farm were analyzed by their personal and business characteristics. The purpose was to determine if limiting factors perceived by respondents were associated with different age levels, education, years of production, hog sales volume and other business characteristics. Analysis of variance procedures were used and statistical significance was tested at the one percent probability level. A summary of statistical tests is available in Weischedel.<sup>23</sup>



Respondents perceptions of restrictive factors were significantly related to operator age and years of production experience. The younger, less experienced producer found the lack of credit and the cost of replacing or building new facilities were the most important problems facing the pork industry. Higher proportions of these younger producers planned to expand their operations and because of this found the credit issue much more critical than the older producer, who may have more equity capital available. The older producers felt that the low price level and the lack of profitability were much greater problems than the lack of credit. Many of these older producers were not planning on expanding their operations so credit was less of a problem. It is important to note that respondent farm size, hog sales volume, feed grain production, and all other business characteristics were not significantly related to respondents perception of limiting factors or to their own production plans.

Table 26. Factors Restricting Expansion of Swine Industry in Respondent's County<sup>a</sup>

Response	Response Frequency	Most Important	Second in Importance	Third in Importance	Unranked
-----percent of response frequency-----					
1. Lack of local feed grain supplies	12	41.7	16.7	33.3	8.0
2. Lack of local feeder pig supplies or feeder pig markets	27	18.5	25.9	37.1	18.5
3. In general, hog finishing is not as profitable here as other enterprises	184	50.5	13.6	7.1	28.8
4. Lack of alternative markets for finishing hogs	108	13.9	36.1	27.8	22.2
5. Lack of credit for adding farrowing or finishing operations	198	44.4	21.2	9.6	24.8
6. Low hog prices	116	54.3	15.5	6.9	23.3
7. Other (Transportation)	5	80.0	0.0	0.0	20.0

Source: 1980 producer survey

<sup>a</sup> Factors limiting pork industry expansion are cited by 345 respondents, with 140 respondents selecting only one factor and 205 respondents selecting multiple (2 or 3) limiting factors. Seventy-two respondents selected multiple limiting factors but did not rank them. Their responses are recorded in the unranked column.

Table 27. Factors Restricting Expansion of Respondent's Own Firm<sup>a</sup>

Response	Response Frequency	Most Important	Second in Importance	Third in Importance	Unranked
-----percent of response frequency-----					
1. Feed grain production	128	18.7	39.1	35.2	7.0
2. Availability or cost of feed grain	143	16.1	37.7	40.6	5.6
3. Family labor availability at peak time	279	28.3	37.3	24.7	9.7
4. Lack of quality hired labor or management	114	18.4	32.5	38.6	10.5
5. Cost of replacing facilities or building new facilities	429	48.5	25.6	15.4	10.5
6. Not enough market outlets	65	15.4	43.1	35.4	6.1
7. Nearing retirement or plan to get out of business	120	35.8	19.2	32.5	12.5
8. Other (Low Prices)	171	64.9	11.1	13.5	10.5

Source: 1980 producer survey

<sup>a</sup> Ninety-eight percent (575 of 587) of the respondents listed one or more factors limiting expansion of pork production on their own farm. Ninety-six respondents listed one factor, 84 respondents listed two factors, and 395 respondents listed three factors. Fifty-four respondents listed two or more factors, but did not rank them. Their responses are recorded in the unranked column.

## ENDNOTES

1. U.S. Department of Agriculture. Economic Indicators of the Farm Sector, State Income and Balance Sheet Statistics, 1980, Statistical Bulletin 678. Washington, DC, November 1981, Table 9.
2. Rhodes, V. James and Glenn Grimes. Large and Medium Volume Hog Producers: A National Survey, Agriculture Experiment Station SR223, University of Missouri, Columbia, Missouri, February, 1979.
3. The mailing list was comprised of 6,700 names. After conferring with Doyce Friedow, Secretary of the South Dakota Pork Producers Council, the number of actual pork producers was placed at 3,440. The remaining individuals included people in services, retirees, former pork producers, and other friends of the pork industry.
4. William Blair, editor. SAS Users Guides - 1979 Edition, SAS Institute Inc. Cary, North Carolina, 1979.
5. Most respondents reported their values on each characteristic examined, but a few respondents did not report on one or more characteristics. Consequently, the "number reporting" for individual characteristics in each of Tables 1 - 4 is usually 5-30 respondents less than the total number of survey respondents - 587.
6. A partial correlation matrix was used to examine statistically significant relationships between producer characteristics. Significance was tested at the five percent probability level. Some respondent characteristics were highly correlated with each other. Obvious relationships existed between operator age and years of production, and between gross farm sales, hog sales volume and number of hogs and pigs sold. Years of education was negatively correlated with operator age and positively correlated with gross farm sales. Younger producers generally had more years of formal education than older respondents. Higher gross farm sales were associated with higher levels of education. All other respondent characteristics examined in this section were not significantly correlated with each other.
7. Respondent sales volume is reported for the year prior to the survey, 1979, while Census of Agriculture Statistics for all South Dakota pork producers are reported for 1978. Wheat, feed grain, soybean and cattle prices were higher in 1979 while average hog and pig prices were lower. Considering the proportion of respondent sales volume from hogs, other livestock and crops, it is likely that overall respondents sales volume was not greatly influenced by product price changes from 1978 to 1979.
8. The estimated mean value of hog and pig sales reported by the 1978 Census of Agriculture for South Dakota was \$19,972. The estimated mean value of respondent hog and pig sales volume was \$49,262. Average dollars per head received by all hog producers in 1978 and respondent producers in 1979 was comparable. According to the 1978 Census of Agriculture report for South Dakota average value of hogs and pigs sold was \$89.88 per head. This represents a weighted average price per head for 653.1 thousand head of feeder pigs and 2237.9 thousand head of slaughter hogs and breeding stock sold. For respondents the 1979 weighted average estimated value per head sold was \$93.56.

9. Roy N. Van Arsdall. Structural Characteristics of the U.S. Hog Industry, Agricultural Economic Report No. 415. ESCS. U.S. Department of Agriculture, Washington, DC, December 1978, pp. 33-38.
10. The description "four of five bushels of feedgrains" refers only to feed grain component of swine rations and does not include purchased protein supplement, minerals and vitamins.
11. An additional 31 respondents (5.5 percent) provided information on the percent of gross farm sales attributable to swine, but not the percent of farm sales receipts from other sources. Over half of these partial respondents obtained a majority of their farm sales from swine sales.
12. This enterprise breakdown parallels a classification system used in a University of Minnesota study by Duty D. Green, Kenneth E. Egertson and Vernon R. Eidman, "Changing Marketing and Production Patterns of Minnesota Swine Producers", University of Minnesota Agricultural Experiment Station Bulletin 542, St. Paul, Minnesota 1981.
13. South Dakota Department of Agriculture. Livestock Auction Agency Report, 1981.
14. National trends in swine market channel use are discussed in several references including:

Newberg, Richard. Livestock Marketing North Central Region II. Channels through Which Livestock Move from Farm to Final Destination. North Central Regional Research Publication 141 and Ohio Agricultural Experiment Station Research Bulletin 932, Wooster, Ohio. April 1963.

Raikes, Ronald; Ladd, George W.; and Skadberg, J. Marvin. Conditions and Trends in Hog-Pork Production and Marketing: Marketing Systems and Farm Prices. Ames, Iowa: Department of Economics Report No. 7, June 1976.

U.S. Department of Agriculture. 1977 Marketing Channel Survey: Channels Used for Marketing Farm Commodities in Selected States. SpCr-7, Crop Reporting Board, ESCS, Washington, DC, March 1979.

U.S. Department of Agriculture. Pork Marketing Report: A Team Study. Washington, DC, August, 1972.

Information on South Dakota swine market channel trends is available in:

U.S. Department of Agriculture. South Dakota-Livestock Marketing-1972. Statistical Reporting Service, Washington, DC: John Ranek, Statistician in Charge, June 1974.

15. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture - South Dakota, Vol. 1, Washington D.C., 1978 and 1969 reports.
16. Regional information for South Dakota slaughter hogs and feeder pigs from the 1980 producer survey is generally consistent with regional trends reported in U.S. Department of Agriculture, South Dakota Livestock Marketing - 1972, Statistical Reporting Service, Washington, DC: John Ranek, Statistician in Charge, 1974.

The number of 1980 producer survey respondents in the western, central and north central regions varies from 29-35 per region. This "thin" number of respondents means less reliability can be placed on specific market channel estimates for these regions than for eastern South Dakota regions.

17. This statement includes all producers of barrows and gilts marketed at slaughter weights, but does not include 20 feeder pig producers selling only cull sows which happened to weigh over 300 pounds.
18. Schlenker, Thomas S. and E. Dean Baldwin. Swine Production and Marketing Trends and Patterns (33 Counties in Ohio), Ohio Agricultural Research and Development Center, Research Circular 243, Wooster, Ohio, November 1978.
19. Schlenker and Baldwin, 1978, pp. 16-19.
20. Rhodes, Stemme and Grimes, 1979.
21. Schlenker and Baldwin, 1978, pp. 16-19.
22. Weischedel, Kevin. "Economic Analysis of the Changing Structure of the South Dakota Pork Industry", unpublished M.S. thesis, Department of Economics, South Dakota State University, Brookings, SD, December, 1981.
23. Weischedel, Kevin, Appendix Tables, pp. 126-128.

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2. Green, Duty D.; Egertson, Kenneth D. and Eidman, Vernon R. Changing Marketing and Production Patterns of Minnesota Swine Producers. St. Paul, Minnesota: University of Minnesota Agriculture and Experiment Station Bulletin 542, 1981.
3. Newberg, Richard. Livestock Marketing North Central Region II. Channels Through Which Livestock Move From Farm to Final Destination. North Central Regional Research Publication 141 and Ohio Agricultural Experiment Station Research Bulletin 932, Wooster, Ohio, April 1963.
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5. Raikes, Ronald; Ladd, George W.; and Skadberg, J. Marvin; and Tilly, Dan. Marketing Practices of a Sample of Iowa Hog Producers. Ames, Iowa.
6. Rhodes, V. James; Stemme, Calvin; and Grimes, Glenn. Large and Medium Volume Hog Producers: A National Survey. Columbia, Missouri: Department of Agricultural Economics, University of Missouri, SR-223, February 1979.
7. Schlenker, Thomas S. and Baldwin E. Dean. Swine Production and Marketing Trends and Patterns (33 Counties in Ohio). Wooster, Ohio: Ohio Agricultural Research and Development Center, Research Circular 243, November 1978.
8. South Dakota Department of Agriculture. Livestock Auction Agency Report, 1981.
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11. U.S. Department of Agriculture. 1977 Marketing Channel Survey: Channels Used for Marketing Farm Commodities in Selected States. SpCr-7, Crop Reporting Board, ESCS, Washington, DC, March 1979.
12. U.S. Department of Agriculture. Packers and Stodkyards Resume, AMS. Washington, DC, Vol. XV, No. 4.
13. U.S. Department of Agriculture. Pork Marketing Report: A Team Study. Washington, DC, August, 1972.
14. U.S. Department of Agriculture. South Dakota-Livestock Marketing-1972 Statistical Reporting Service, Washington, DC: John Ranek, Statistician in Charge, June 1974.

15. U.S. Department of Agriculture. South Dakota's Rank in Agriculture, ESCA, Washington, DC: John Ranek, Statistician in Charge, June 1980.
16. U.S. Department of Commerce. Bureau of Census. Census of Agriculture - South Dakota, Vol. 1, Washington, DC, 1978 and 1969 reports.
17. Van Arsdall, Roy N. Structural Characteristics of the U.S. Hog Production Industry. Agricultural Economic Report No. 415. ESCS. U.S. Department of Agriculture, Washington, DC, December 1978.
18. Weischedel, Kevin. "Economic Analysis of the Changing Structure of the South Dakota Pork Industry," Unpublished M.S. Thesis, Department of Economics South Dakota State University, Brookings, South Dakota, December 1981.



APPENDIX I  
**South Dakota Pork Producers Marketing Survey - 1980**

The Economics Department at South Dakota State University is conducting a research project on hog and pork marketing in cooperation with the South Dakota Pork Producers Council. The primary objective of the project is to determine the market channels and their location for feeder pigs and slaughter hogs in South Dakota. We also want your opinions on what factors are influencing the growth of the swine industry in the state.

Your cooperation in completing this questionnaire will be appreciated. Please answer all questions that pertain to you as completely and accurately as possible. If you have any additional comments on specific questions we would be grateful for your response.

All information received will be treated as confidential, and your answers will not be used in any way which could identify you to any organization or individual.

**Please List**

- \_\_\_\_\_ Your County
- \_\_\_\_\_ Your town
- \_\_\_\_\_ Zip Code

**GENERAL INFORMATION**

1. My present involvement in the hog industry is:  
(check all that apply)

- \_\_\_\_\_ Farrow to finish operation
- \_\_\_\_\_ Finish only
- \_\_\_\_\_ Produce feeder pigs for sale
- \_\_\_\_\_ Produce breeding stock for sale
  - \_\_\_\_\_ a. Commercial
  - \_\_\_\_\_ b. Purebred
- \_\_\_\_\_ Provide services to other hog producers
  - \_\_\_\_\_ a. Veterinary
  - \_\_\_\_\_ b. Order or packer buyer
  - \_\_\_\_\_ c. Credit
  - \_\_\_\_\_ d. Feed sales, programs
  - \_\_\_\_\_ e. Buildings, equipment sales
  - \_\_\_\_\_ f. Education programs related to swine management
  - \_\_\_\_\_ g. Other services (Please specify) \_\_\_\_\_

2. Do you feel there are any factors limiting the expansion of the hog finishing industry in your county in the next 3-5 years?  
\_\_\_\_\_ yes \_\_\_\_\_ no

If yes, what are the three most limiting factors? (Rank in order, 1-most important and so on)

- \_\_\_\_\_ Lack of local feed grain supplies
- \_\_\_\_\_ Lack of local feeder pig supplies or feeder pig markets

- \_\_\_\_\_ In general, hog finishing is not as profitable here as other enterprises
- \_\_\_\_\_ Lack of alternative markets for finishing hogs
- \_\_\_\_\_ Lack of credit (financing) for added farrowing or hog finishing operations
- \_\_\_\_\_ Other (Please specify) \_\_\_\_\_

3. In 1979, how many hogs were marketed from your farm operation? (By class)

- Number
- \_\_\_\_\_ Feeder pigs
  - \_\_\_\_\_ Slaughter hogs (including cull sows)
  - \_\_\_\_\_ Breeding stock

If you did not market any feeder pigs, slaughter hogs, or Breeding stock in 1979 please go to question 24, Section IV. If you marketed any hogs or pigs in 1979 please complete the following questions that apply to your hog operation.

**II MARKETING INFORMATION**

4. What information sources do you use for your hog marketing decisions?

- \_\_\_\_\_ Most important
- \_\_\_\_\_ 2nd in importance
- \_\_\_\_\_ 3rd in importance

5. In 1979, how many slaughter hogs were sold through the following channels?

- | Number of hogs               | Location (city) |
|------------------------------|-----------------|
| _____ Auction                | _____           |
| _____ Terminal Market        | _____           |
| _____ Terminal market        | _____           |
| _____ Direct to packer       | _____           |
| _____ Direct to packer       | _____           |
| _____ Order buyer            | _____           |
| _____ Packer buyer           | _____           |
| _____ Other (Please specify) | _____           |

6. When do you market slaughter hogs: (check one)

- \_\_\_\_\_ At set times (for example, every Tuesday) without regard to daily price behavior
- \_\_\_\_\_ By studying daily price behavior and trying to hit the highs
- \_\_\_\_\_ By contracting ahead and shipping when they are at the right weight
- \_\_\_\_\_ Selling when they are at the right weight
- \_\_\_\_\_ Other (Please specify) \_\_\_\_\_

7. Approximately what percent of your slaughter hogs were marketed in 1979 at the following weights?

_____ % 180-200	_____ % 271-300
_____ % 201-220	_____ % over 300
_____ % 221-240	100 % Total
_____ % 241-270	

8. Of your 1979 slaughter hog marketings, what percent were priced:

_____ % Liveweight
_____ % Grade and yield
100% Total

9. In 1979, how many feeder pigs were obtained through the following channels?

Number of pigs	Location (city)
_____	From own sow herd _____
_____	Feeder pig cooperatives _____
_____	Direct from other farms _____
_____	Feeder pig auction _____
_____	Feeder pig auction _____
_____	Terminal market _____
_____	Tel-o-auction _____
_____	Other (Please specify) _____

b. How many feeder pigs purchased in 1979 were bought on contract? (At least one month prior to delivery)

\_\_\_\_\_

9a. In 1979, how many of your feeder pigs were sold through the following channels:

Number of pigs	Location (city)
_____	Feeder pig cooperatives _____
_____	Direct to other farms _____
_____	Feeder pig auctions _____
_____	Feeder pig auctions _____
_____	Terminal market _____
_____	Tel-o-auction _____
_____	Other (Please specify) _____

b. How many feeder pigs sold in 1979 were sold on contract? (When contract was made at least one month prior to delivery)

\_\_\_\_\_

11. How many loads of feeder pigs or slaughter hogs were sold from your operation in 1979?

Type of carrier	Number of loads	Average one-way miles per haul
Pick-up truck	_____	_____
Small truck (single axle)	_____	_____
Large truck (tandem axle)	_____	_____
Semi-trailer truck	_____	_____
Trailer	_____	_____
Other (Please specify)	_____	_____

12. If you purchased feeder pigs in 1979, how many loads were delivered to your place?

Type of carrier	Number of loads	Average one-way miles per haul
Pick-up truck	_____	_____
Small truck (single axle)	_____	_____
Large truck (tandem axle)	_____	_____
Semi-trailer truck	_____	_____
Trailer	_____	_____
Other (Please specify)	_____	_____

13. Of feed grain fed to hogs in 1979, what percent was obtained from each of the following sources?

_____ % Raised on own farm
_____ % Local elevator
_____ % Direct from another producer
_____ % Other (Please specify)

100 % Total

14. Approximately what percent of the feed grain you grow on your operation is normally fed to your livestock? \_\_\_\_\_ %

15. What are the three major factors that would limit expansion of your hog operation in the next 3-5 years? (Rank in order, 1-most important and so on)

_____	Feed grain production
_____	Availability or cost of feed grain
_____	Family labor availability at peak time
_____	Lack of quality hired labor or management
_____	Cost of replacing facilities or building new facilities
_____	Not enough market outlets or buyers
_____	Nearing retirement or plan to get out of business
_____	Other (Please specify) _____

16a. Your hog production plans over the next 3-5 years are: (Check one)

1	{	_____	Remain the same
2	{	_____	Substantial increase in production
		_____	Small increase in production
3	{	_____	Substantial decrease in production
		_____	Small decrease in production
4	{	_____	Get out of production
		_____	Don't really know, Things are too uncertain at this time.

b. If your operation is going to change production plans, what are those changes? (Check one)

_____	Plan to go into feeder pig sales only
_____	Plan to go into finish operation only
_____	Plan to add finish operation to present feeder pig set-up
_____	Plan to add feeder pig operation to present finish set-up
_____	Other (Please specify) _____

II. MARKETING METHODS

17. In 1979, which of the following methods did you use to market feeder pigs and slaughter hogs? (Check all that apply)

	Slaughter hogs	Feeder pigs
Cash market	_____	_____
Forward contract (at least one month prior to sale)	_____	_____
Futures market	_____	_____

18. What are the three most important benefits that you receive through the cash market? (rank in order 1-most important, and so on)

- \_\_\_\_\_ Satisfactory profit can be achieved
- \_\_\_\_\_ Minimization of losses
- \_\_\_\_\_ Assured price
- \_\_\_\_\_ Ease of acquiring credit
- \_\_\_\_\_ Uncomplicated marketing method
- \_\_\_\_\_ Location of market
- \_\_\_\_\_ Other (Please specify) \_\_\_\_\_

19. If you have been involved with forward contracting, what are the three major advantages that you feel you obtain by forward contracting? (Rank in order, 1-most important and so on)

- \_\_\_\_\_ Acceptable profit can be achieved
- \_\_\_\_\_ Ease of obtaining credit
- \_\_\_\_\_ Assured price
- \_\_\_\_\_ Planning of swine enterprise is more certain
- \_\_\_\_\_ Has aided swine enterprise growth and expansion
- \_\_\_\_\_ Minimization of losses
- \_\_\_\_\_ Other (Please specify) \_\_\_\_\_

20. If you do not forward contract, what are the three most important reasons you don't? (Rank in order, 1-most important and so on)

- \_\_\_\_\_ Rather use the cash market to take advantage of higher prices
- \_\_\_\_\_ Have been advised against its use
- \_\_\_\_\_ Would like to know more about forward contracting but unable to find someone knowledgeable on the subject
- \_\_\_\_\_ Don't fully understand complexities of forward contracting
- \_\_\_\_\_ Do not produce large enough number of hogs to warrant a contract
- \_\_\_\_\_ Prefer hedging
- \_\_\_\_\_ Other (Please specify) \_\_\_\_\_

21. If you have been involved in hedging what are the three major advantages that you feel you obtain by hedging? (Rank in order, 1-most important, and so on)

- \_\_\_\_\_ Acceptable profit can be achieved
- \_\_\_\_\_ Ease of acquiring credit
- \_\_\_\_\_ Assured price
- \_\_\_\_\_ Planning of future swine enterprise is more certain
- \_\_\_\_\_ Has aided in swine enterprise growth
- \_\_\_\_\_ Minimization of losses
- \_\_\_\_\_ Other (Please specify) \_\_\_\_\_

22. If you do not utilize hedging contracts, what are your three major reasons? (Rank in order, 1-most important, and so on)

- \_\_\_\_\_ Rather use cash market to take advantage of high prices
- \_\_\_\_\_ Do not produce a large enough number of hogs to warrant a contract
- \_\_\_\_\_ Do not fully understand the complexities of hedging
- \_\_\_\_\_ Would like to know more about hedging, but am unable to find someone knowledgeable in the hedging area
- \_\_\_\_\_ Have been advised against its use
- \_\_\_\_\_ Prefer forward contract agreements
- \_\_\_\_\_ Other (Please specify) \_\_\_\_\_

23. How many years have you been engaged in hog production?

\_\_\_\_\_ years

IV. PERSONAL DATA

24. Gross farm sales from this operation in 1979 were: (Check one)

- \_\_\_\_\_ Less than \$10,000
- \_\_\_\_\_ \$10,000-\$19,999
- \_\_\_\_\_ \$20,000-\$39,999
- \_\_\_\_\_ \$40,000-\$99,999
- \_\_\_\_\_ \$100,000 or more

25. Approximately what proportion of 1979 gross farm sales were from the following sources.

- \_\_\_\_\_ % sales of hogs and pigs
- \_\_\_\_\_ % sales of other livestock and livestock products
- \_\_\_\_\_ % sale of crops and hay
- 100% Total

26a. How old are you? \_\_\_\_\_ years

b. Years of schooling completed? \_\_\_\_\_ years

Thank you very much for your cooperation in completing this questionnaire.

Kevin Weischedel  
Dr. Larry Janssen

Appendix Table 2.1. Selected Characteristics of Respondents and South Dakota Swine Producers

Age	Respondents <sup>a</sup>	All South Dakota hog and pig producers
(years)	(percent)	(percent)
Less than 25	5.1	6.2
25 - 34	25.1	18.2
35 - 44	23.6	18.5
45 - 54	25.6	26.6
55 - 64	17.6	23.6
65 and older	3.0	6.9
Total	100.0	100.0
Number reporting	573	12,982

Gross farm sales	Respondents	All South Dakota hog and pig producers
	(percent)	(percent)
Less than \$20,000	17.9	24.0
\$20,000 - \$39,999	14.0	27.2
\$40,000 - \$99,999	39.5	37.1
\$100,000 or more	28.6	11.7
Total	100.0	100.0
Number reporting	564 <sup>a</sup>	12,987

Source: 1980 producer survey and 1978 U.S. Census of Agriculture, South Dakota.

Appendix Table 2.2. Proportion of Hogs and Pigs Sold by Size Category

Number of Hogs Pigs Marketed <sup>a</sup>	Percent of							
	Hogs and Pigs		Feeder Pigs		Slaughter Hogs		Breeding Stock	
	Survey	Census	Survey	Census	Survey	Census	Survey	Census
1-99	0.3	8.7	2.7	5.6	1.0	N/A <sup>b</sup>	29.3	N/A
100-199	2.4	15.0	3.9	11.8	3.6	N/A	14.7	N/A
200-499	19.6	33.1	15.4	30.6	22.2	N/A	24.8	N/A
500-999	34.1	20.4	26.8	22.6	35.5	N/A	31.2	N/A
1,000 or more	43.6	22.8	51.2	29.4	37.7	N/A	--	N/A
Total	100.0	100.0	100.0	100.0	100.0		100.0	
Total Number (1,000)	371.7	2891.0	70.4	653.1	295.5	2237.9 <sup>c</sup>	5.8	N/A
Mean	623	223	496	209	517	N/A	82	N/A
Median	450	N/A	300	N/A	379	N/A	40	N/A

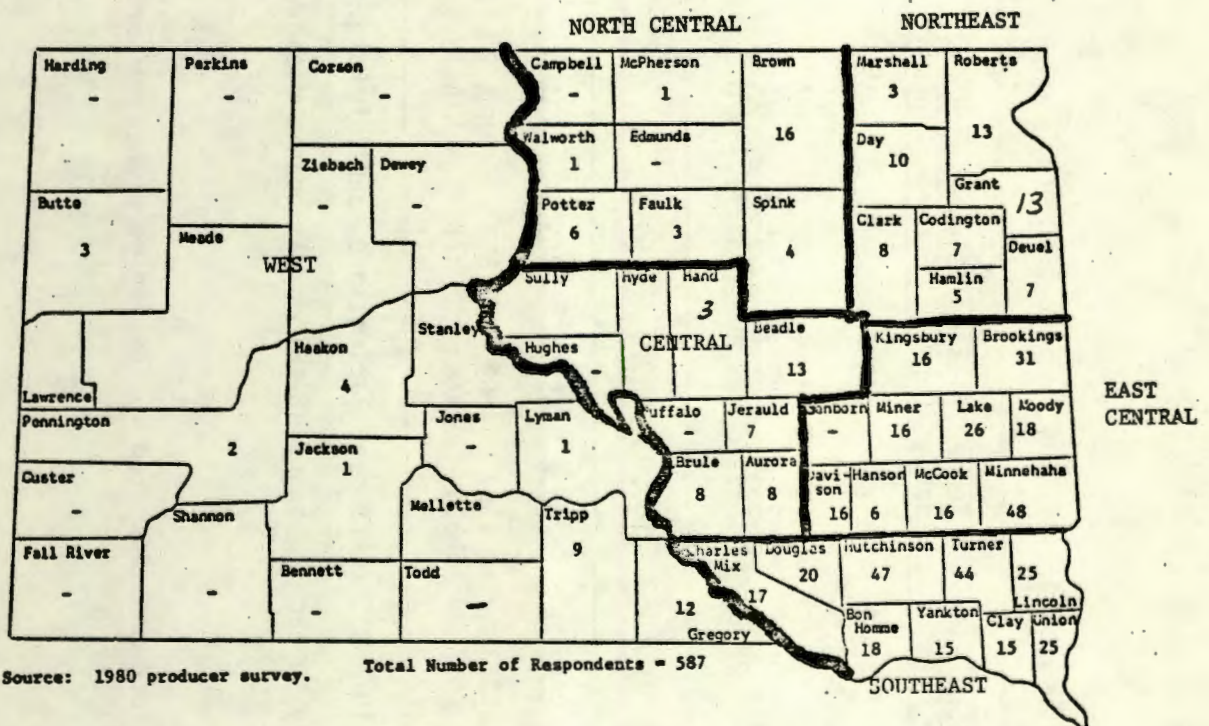
Source: 1980 producer survey and 1978 U.S. Census of Agriculture, South Dakota.

<sup>a</sup> Number marketed applies separately to each category of swine; all hogs and pigs, feeder pigs, slaughter hogs and breeding stock.

<sup>b</sup> Information is not available.

<sup>c</sup> Slaughter hogs and breeding stock are not separated in the Census of Agriculture reports. A small amount of this total may represent breeding stock sales.

Appendix Map 2.3 Number of Respondents by County and Crop Reporting Districts boundaries used in study<sup>a</sup>



<sup>a</sup> Regional boundaries correspond to South Dakota Crop and Livestock Reporting Districts east of the Missouri River. Due to low frequency of survey respondents from West of the Missouri River all Crop Reporting Districts were combined and labeled West district.

Appendix Table 2.4. Distribution of Pork Producers and Hog Sales by Crop Reporting Districts<sup>a</sup>

Crop Reporting District	Number of Producers		Percent of Producers		Ratio (percent) Survey to Census
	Survey	State <sup>a</sup>	Survey	State	
West	32	1672	5.45	13.11	1.9
North Central	31	1262	5.28	9.90	2.5
Northeast	66	1446	11.24	11.34	4.6
Central	39	1429	6.64	11.21	2.7
East Central	193	3115	32.88	24.43	6.2
Southeast	226	3828	38.51	30.02	5.9
Totals	587	12752	100.00	100.00	4.6

Crop Reporting District	Hogs and Pigs Sold		Percent of Hogs and Pigs Sold		Ratio (percent) Survey to Census
	Survey	State	Survey	State	
--thousands--					
West	21.5	328.7	5.8	11.4	6.5
North Central	21.6	307.1	5.8	10.7	7.1
Northeast	37.4	256.1	10.0	8.9	14.6
Central	23.3	340.7	6.3	11.8	6.8
East Central	123.3	741.0	33.2	25.7	16.6
Southeast	144.6	907.5	38.9	31.5	15.9
Totals	371.7	2881.1	100.0	100.0	12.9

Source: 1980 producer survey and 1978 U.S. Census of Agriculture, South Dakota.

<sup>a</sup>Due to low frequency of survey respondents from west of the Missouri River, all western Crop Reporting Districts (northwest, west central, southwest and south central) were combined and labeled as the West district.

Appendix Table 2.5. Number of Hogs and Pigs Sold Per Region of South Dakota

			Region <sup>a</sup>						
			West	North Central	Northeast	Central	East Central	Southeast	Total
Hogs and pigs sold	Survey:	Percent	5.73	5.84	10.07	6.34	33.09	38.93	100.00
		Number	20,953	21,356	36,852	23,183	121,091	142,458	365,833
	State: <sup>b</sup>	Percent	11.36	10.66	8.86	12.01	25.72	31.39	100.00
		Number	328,663	308,116	256,132	347,183	743,462	907,492	2,891,048
Slaughter hogs sold	Survey:	Percent	5.25	5.07	9.22	4.16	35.42	40.87	100.00
		Number	15,528	14,972	27,242	12,303	104,692	120,799	295,536
	State:	Percent	9.67	11.25	8.25	10.81	26.62	33.41	100.00
		Number	221,383	257,502	188,804	247,397	609,472	764,902	2,289,460
Feeder pigs sold	Survey:	Percent	6.28	8.08	13.66	15.93	24.30	31.75	100.00
		Number	4,415	5,684	9,610	11,210	17,099	22,339	70,357
	State:	Percent	17.83	8.41	11.19	16.59	22.27	23.70	100.00
		Number	107,280	50,614	67,328	99,786	133,990	142,590	601,588
Breeding stock sales <sup>c</sup>	Survey:	Percent	8.53	5.05	9.42	2.06	38.57	36.36	100.00
		Number	498	295	550	120	2,251	2,122	5,836

<sup>a</sup> Regions are based on Crop Reporting District boundaries east of the Missouri River. All western South Dakota Crop Reporting Districts are combined into the West Region.

<sup>b</sup> U.S. Department of Commerce. Bureau of the Census. Census of Agriculture - South Dakota, Vol. 1, 1978 report.

<sup>c</sup> State data for breeding stock was not available.