4-1-1984

South Dakota Swine Production and Marketing: Recent Trends and Producer Survey Results

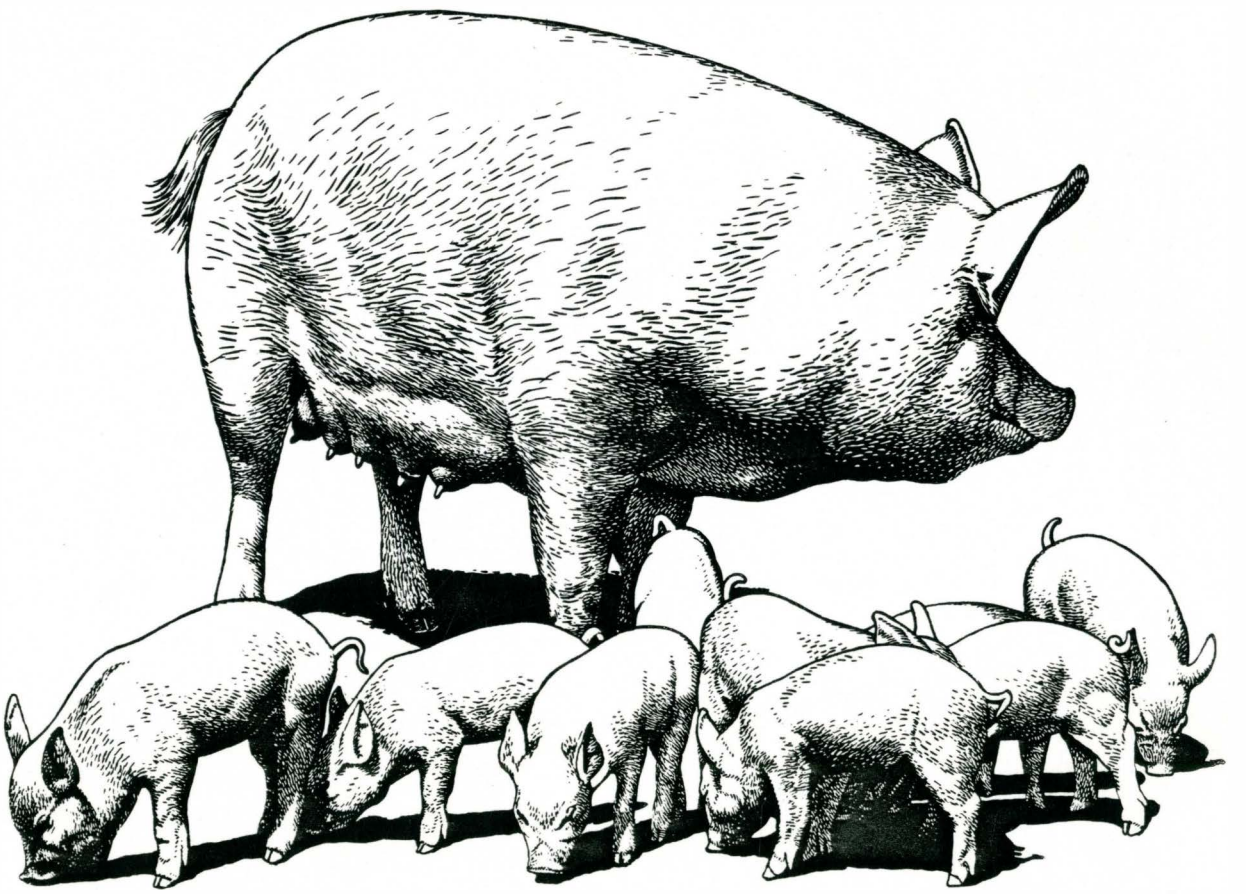
L. Janssen

B 691

South Dakota Swine Production and Marketing: Recent Trends and Producer Survey results

by

Dr. Larry Janssen
Department of Economics
South Dakota State University



Agricultural Experiment Station • South Dakota State University • Brookings, South Dakota 57007

TABLE OF CONTENTS

LIST OF TABLES & FIGURES

To the Reader:

This bulletin reports swine production and marketing trends in South Dakota from the late 1950's to 1980 and also reports major findings from a 1980 pork marketing survey completed by nearly 600 South Dakota swine producers. Subjects covered include statewide and regional production trends, organization of swine production and marketing, producer use of marketing methods and marketing channels, marketing movements and transportation, and producer use of cash markets, forward contracts and futures markets.

This report is for producers, lenders, educators, agribusiness people, 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.

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

INTRODUCTION

Swine production and marketing are major economic activities in South Dakota. The state's swine producers are important contributors to the nation's pork industry.

South Dakota is one of the nation's top 10 hog production states. In recent years, approximately 3 million hogs and pigs have been marketed annually from South Dakota farms. This repreents 3-4% of total agricultural product sales from South Dakota farms. In 1980, the commercial value of the 3.14 million hogs and pigs marketed by South Dakota farmers was $278,000,000.[1]

The economic structure of the U.S. and South Dakota swine industry is rapidly changing. Key trends are fewer farms, rapidly increasing numbers of hogs and pigs sold per farm, and increased enterprise specialization. Along with these trends have come changes in producer use of marketing channels, marketing methods and pricing methods. This report examines these changes in South Dakota.

1. U.S. Dept of Agriculture. Economic Indicators of the Farm Sector: State Income and Balance Sheet Statistics, 1980. Statistical Bulletin 687, Washington, DC, November 1981.

Data sources and procedures

Background information on statewide swine production trends, regional shifts in swine production, and market channel trends since the late 1950's was obtained from data in the U.S. Census of Agriculture and U.S. Department of Agriculture reports.

The major data source for information on producer business characteristics, marketing channels, marketing methods and pricing methods is a 1980 marketing survey completed by 587 South Dakota swine producers. This survey was conducted by the author (and Kevin Weischedel)[2] 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. A follow up mailing was conducted in April 1980.

The statewide mailing list included approximately 3,440 names, over one-fourth of the state's pork producers. Questionnaires were returned by 706 individuals; 587 returns were usable. The overall usable return rate was 17 percent.[3]

A variety of statistical procedures, from frequency counts and cross-tabulations to analysis of variance and multiple regression models, was used to analyze survey data. The Statistical Analysis System (SAS)[4] programs were used exclusively.

STATE - WIDE SWINE PRODUCTION TRENDS[5]

South Dakota farmers currently produce 3-4% of the nation's pork supply. Swine production in South Dakota has increased slightly faster than overall U.S. swine production. Swine production has become more specialized and concentrated. For example, the number of South Dakota swine producers declined 60% from 1959 to 1978. Total farm numbers declined 28.8% during this same period. In 1959, nearly three of five (58.3%) South Dakota farmers raised hogs and pigs; in 1978, less than one-third (32.7%) were involved in swine production (Table 1).[6]

2. Kevin Weischedel, a native of Onida, SD, is a former graduate research assistant of the SDSU Economics Department. He completed his M.S. thesis on the topic, "Economic Analysis of the Changing Structure of the South Dakota Pork Industry," SDSU, December 1981.

3. Questionnaires returned by 119 producers were not used because they were not sufficiently completed to warrant coding.

4. William Blair, editor. SAS Users Guide - 1979 Edition, SAS Institute Inc. Cary, North Carolina, 1979.

5. More detailed analyses and tables on statewide and regional swine production trends are available in a publication by Larry Janssen, Changing Swine Production and Market Movement Patterns in South Dakota, Late 1950's to 1980, Economics Department Research Report 83-6, South Dakota State University, Brookings, SD, December, 1983.

The average swine enterprise in South Dakota in 1978--223 hogs and pigs sold per farm--is nearly three times larger than the 1959 average. In 1978, the 300 largest South Dakota producers each sold 1,000 or more hogs and pigs per year. Only five swine producers reached this volume in 1959. In 1978 these large producers (2.3% of the state total) marketed an average of 2,200 hogs and pigs per farm, selling 22.8% of the swine marketed from South Dakota farms (Table 2). Rapid growth in swine enterprise size has coincided with developments in hog confinement technology, improved breeding herd management practices, and improved nutrition and disease control.

The number of swine farms selling less than 200 hogs and pigs each year declined 72% from 1959 to 1978. By contrast, the number of producers marketing 200 or more hogs and pigs each year has more than doubled during this same period.

Younger producers (less than 35 years old) increased their share of hog and pig marketings from 16% in 1969 to 25% in 1978. Higher numbers of young people began farming in the 1970's compared to the 1960's and young farmers had larger hog production units than older producers who were retiring.

Table 1. South Dakota Swine Production Statistics, 1959-1978.

South Dakota	1959	1969	1978	Percent change 1959 to 1978
Thousands of farms	55.7	45.7	39.7	-28.8
Thousand of farms selling hogs and pigs	32.5	19.4	13.0	-60.0
Swine farms as a percent of all farms	58.3	42.3	32.7	
Thousands of hogs and pigs sold	2,513	2,700	2,891	+15.0
Average number of hogs and pigs sold per farm	77	140	223	+189.6

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture, South Dakota, Vol. 1, 1978, 1969 and 1959 reports.

6. At the time this report was prepared, the U.S. Census of Agriculture for 1978 was the most recent information available. U.S. Census of Agriculture reports for South Dakota (volume 1) for 1978, 1974, 1969, 1964 and 1959 were used to analyze statewide and regional production trends.

Table 2. Distribution of Farms and Hog Sales by Number of Hogs and Pigs Sold Per Farm, 1959-1978.

Number of hogs and pigs sold per farm	1959	1969[a]	1978	1959	1969[a]	1978
	Percent of farms selling hogs and pigs			Percent of hogs and pigs sold		
1 - 99	73.2	50.2	42.4	na[b]	17.1	8.7
100 - 199	20.8	27.7	24.0	na	27.0	15.0
200 - 499	5.6	18.8	24.5	na	37.4	33.1
500 - 999	0.4	2.7	6.8	na	11.8	20.4
1000 or more		0.6	2.3	na	6.7	22.8
	100.0	100.0	100.0		100.0	100.0
Total number of farms selling hogs and pigs	32,512	18,832	12,996	--	--	--
Thousands of hogs and pigs sold	--	--	--	2,513	2,689	2,891

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture, South Dakota, Vol. 1, 1978, 1969 and 1959 reports.

[a] For 1969, number of hogs and pigs sold per farm was reported only for farms with gross farm sales of $2,500 or more. Consequently the total number of farms and hogs and pigs reported here are slightly less than the numbers reported in Table 1.

[b] Data not published or not available.

Feeder pig production trends

Feeder pig production and sales increased 80% from 1969 to 1978, while slaughter hog production declined slightly. Feeder pigs comprised 22.7% of the total number of hogs and pigs sold in 1978, up from 13.5% in 1969 (Table 3).

Almost one of every four swine producers sells feeder pigs. Many of these producers are completely specialized in feeder pig production, while others sell feeder pigs and slaughter hogs. The number of feeder pig producers has remained about the same while the average size of enterprise has increased along with the growth in feeder pig numbers.

REGIONAL SHIFTS IN SOUTH DAKOTA SWINE PRODUCTION

Expansion of the swine industry in South Dakota has been accompanied by regional shifts in swine production and marketing. These regional shifts reflect the management decisions of thousands of producers, which in turn affect locations of market outlets (auctions, buying stations, terminal markets and packing plants). Swine producers, like other business people, respond to economic incentives which include profitability of swine enterprises over time relative to other enterprises or to non-agricultural employment and investment opportunities. Regional shifts in production and marketing patterns are usually reflections of several interacting factors which affect relative profitability.

Swine production density

Swine production is concentrated in east central and southeastern South Dakota. It is expanding most rapidly on the western fringes of this concentrated swine area.

Geographic concentration is directly related to the marketing needs of the agribusinesses serving swine producers, especially packers and others desiring to reduce procurement and selling costs. Swine production densities -- the numbers of hogs and pigs sold per rural square mile -- in major hog production areas of Iowa and Illinois commonly range from 200 to 400. In 1978, 16 counties in eastern and southeastern South Dakota had production densities exceeding 100. Production density was highest in Hutchinson and Union counties - Over 200 (Figure 1).

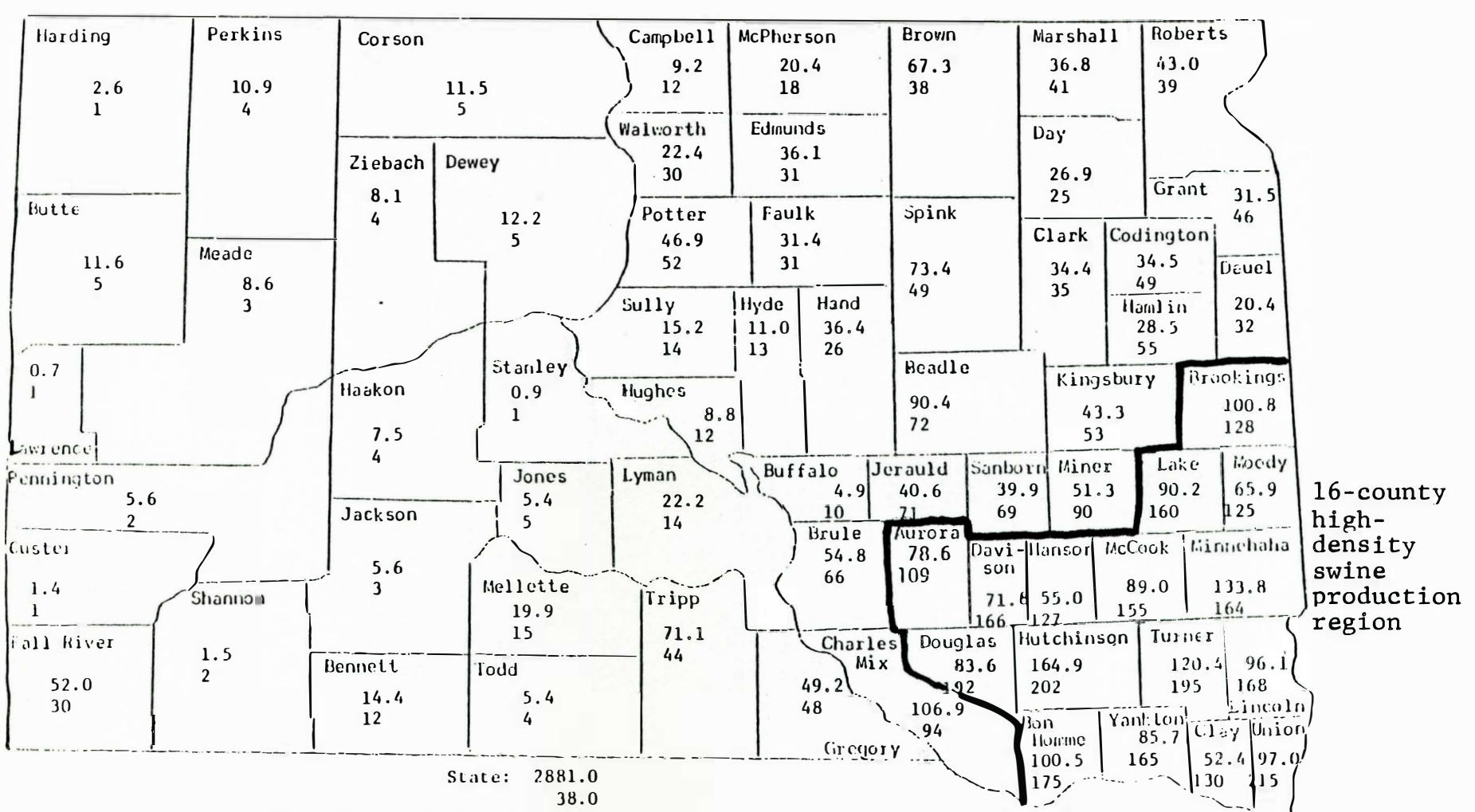
Table 3. South Dakota Feeder Pig Statistics, 1969-1978

South Dakota	1969	1978	Percent change 1969 to 1978
Number of farms selling feeder pigs	3,145	3,124	- 0.7
Thousands of feeder pigs sold	363.0	653.1	+79.9
Average number of feeder pigs sold per farm selling feeder pigs	115	209	+81.8
Percent of swine farms selling feeder pigs	16.2	24.5	--
Feeder pigs sold as percent of hogs and pigs sold	13.5	22.7	--

Source: U.S. Department of Commerce, Bureau of Census, U.S. Census of Agriculture, South Dakota, vol. 1, 1978 and 1969 reports.

[a] Feeder pig production statistics are not available for 1959 and 1964. Consequently comparisons are only made for 1969 and 1978.

Figure 1. Hog and Pig Numbers and Density by County, 1978



Top: Thousands of hogs and pigs sold in 1978
Bottom: Density - number of hogs and pigs sold per rural square mile

Source: Compiled from county-level data. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, South Dakota, Vol. 1, 1978 report

Production densities rapidly decline as one moves north and west from this 16 county area. Twenty three counties, mostly in central and northeastern South Dakota, have swine production densities of 30-95 and most western counties have production densities of less than 30.

Regional trends in South Dakota swine production are shown in Table 4 following the regional boundaries outlined in Figure 2.[7]

The greatest swine production density occurs in the five counties of extreme southeastern South Dakota. This region (southeast - E) and the east central region have experienced little growth in swine marketings from 1959-1978, increasing only 1.2% in the extreme southeast and 3.1% in the east central region (Table 4). Over 40% of the farmers in these regions are involved in swine production.

The principal high-density high-growth region is the southeast-W region which includes Charles Mix, Douglas, Hutchinson and Bon Homme counties. During the 1959 to 1978 period, swine marketing in this region increased by 35.2% (an increase of 114,000 hogs and pigs marketed) and swine production density increased from 114 to 154. This is the only region where a majority of farmers (54.5%) had a swine enterprise in 1978.

The central and north central region has shown continuous increases in swine production; the number of hogs and pigs marketed has actually declined in the northeast region. The south central region showed rapid increase in swine production from 1959 to 1969, but small charges since then. Production densities are much lower in the western region (about five hogs and pigs sold per rural square mile) but numbers marketed have doubled from 1959 to 1978.

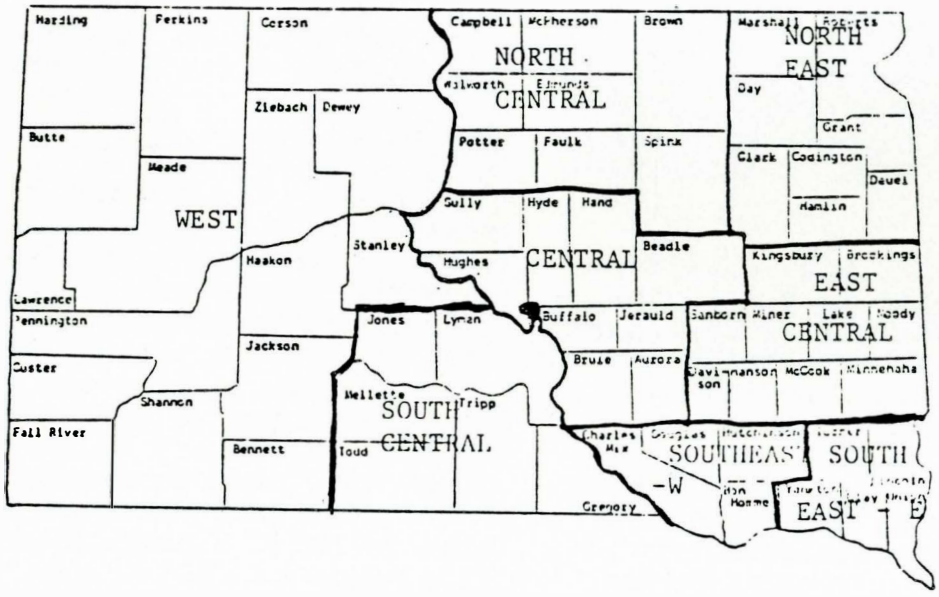
The central and south central regions are slightly above the state average (32.7%) in the proportion of farmers raising swine. Approximately one-fourth of north central and northeast farmers raise hogs while only 13.6% of the farmers and ranchers in the western region have swine enterprises.

Growth of feeder pig production

Feeder pig production has increased in most counties of the state. The largest increases have occurred in western, central, east central and southeast regions. Counties in the western and south central regions have the greatest specialization in feeder pig production (63.2% and 35.0% respectively of total hogs and pigs sold). The lowest proportion of feeder pigs to total swine marketings (12.9%) is in the extreme southeastern counties of the state.

7. Regions generally follow Crop Reporting District boundaries with some regrouping. The Western region combines three Crop Reporting Districts (Northwest, West Central, and Southwest) because hog production numbers and density are very low in this region. On the other hand, the Southeast Crop Reporting District with the highest production numbers and density was split into two regions. The southeast-W region includes Bon Homme, Charles Mix, Douglas, and Hutchinson counties. The southeast-E region includes Clay, Lincoln, Turner, Union and Yankton counties.

Figure 2. Hog Production Regions of South Dakota.



In most counties, changes in feeder pig sales were the major factor influencing total changes in hog and pig numbers. Since 1969, increased feeder pig production and sales have been major factors in the growth of the South Dakota swine industry.

PRODUCER AND SWINE ENTERPRISE CHARACTERISTICS - 1980 SURVEY

Information on swine enterprise characteristics and changing marketing patterns was obtained from a 1980 marketing survey completed by 587 South Dakota swine producers. This survey was supported by the South Dakota Pork Producers Council and the SDSU Agricultural Experiment Station.

Respondents were located in 44 counties throughout South Dakota, but were concentrated in east central and southeastern South Dakota. More than seven of ten (71.2%) respondents were located in these two regions.[8]

Respondents numbered 5% of all South Dakota swine producers and marketed 12-13% of all hogs and pigs sold from South Dakota farms. Respondents marketed 14-17% of hogs and pigs from eastern South Dakota farms and 6-7% of all hogs and pigs from central and western South Dakota farms. They were most representative of producers selling 100 to 2,500 hogs and pigs each year.

Table 4. South Dakota Swine Production Statistics by Region, 1978.

Region[a]	Thousands of hogs and pigs sold	Thousands of feeder pigs sold	Feeder pigs as percent of hogs and pigs	Swine production density	Swine farms as a percent of all farms	Percent change in swine production 1959 - 1978
Western	155.4	98.3	63.2	5	13.6	+102.6
North Central	307.1	50.6	16.5	34	26.4	+ 15.7
Central	340.7	99.8	29.3	43	37.5	+ 26.4
South Central	173.2	60.6	35.0	22	33.3	+ 45.2
Northeast	256.1	67.3	26.2	39	24.1	- 7.8
East Central	741.0	134.0	18.1	122	40.4	+ 3.1
Southeast - W	455.8	84.1	18.5	154	54.5	+ 35.2
Southeast - E	451.7	58.4	12.9	176	43.0	+ 1.2
State	2,881.0	653.1	22.7	38.	32.7	+ 14.7

Source: Compiled from county level data available in U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture, South Dakota, 1978 report.

[a] See Figure 2 for regional boundaries.

[b] Swine production density is calculated as the average number of hogs and pigs sold per rural square mile. Production density is a geographic measure of concentration.

8. The regional distribution of respondents closely approximated the regional distribution of producers on the mailing list. Respondents were more likely to be located in the east central and southeast regions than the average South Dakota swine producer. The mailing list (and respondents to the survey) tended to include medium and larger-scale swine producers and did not have a representative proportion of very small swine operations selling less than 100 hogs and pigs each year.

Respondents varied in age from 18 to 79 years, with a median age of 43 years. Five of six respondents had completed high school and one of six had completed a 4-year college program. The typical (median) respondent had 18 years of continuous swine production experience. Three of four respondents had been in hog production for 10 or more years and one of four had been raising hogs for 30 or more years.

Swine enterprise size

Respondents generally operated larger swine operations than the average South Dakota swine producer. Nearly one half (47.5%) of the respondents marketed 500 or more head. One of every six respondents marketed 1,000 or more head; together they sold 43.6% of hogs and pigs from respondent farms. Very few hogs and pigs (0.3%) were sold by respondents marketing less than 100 head (Table 5).

One of every eight respondents also marketed breeding stock with an average (mean) of 82 head sold per farm.

Estimated sales volume of hogs and pigs from respondents' farms ranged from $2,500 to $786,000. The estimated mean sales volume was $59,300 per farm. Nearly two fifths (39.2%) of hog sales volume were generated by 14.6% of the respondents with hog sales volume exceeding $100,000. Forty five percent sold less than $40,000 of hogs and pigs and generated 15.9 percent of respondent hog sales volume (Table 5).

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.[9]

Table 5. Swine Enterprise Size and Sales Volume.

Number of hogs and pigs marketed	Percent of Respondents	Percent of Hogs and pigs	Hog Sales volume[a]	Percent of Respondents	Percent of Hog sales volume
1 - 99	3.2	0.3	Less than $20,000	17.1	4.4
100 - 199	11.3	2.4	$20,000 - $39,999	27.5	11.5
200 - 499	38.0	19.6	$40,000 - $99,999	40.8	44.9
500 - 999	30.8	34.1	$100,000 or more	14.6	39.2
1,000 or more	16.7	43.6			
Total percent	100.0	100.0	Total	100.0	100.0
Total	587	371,700[b]		587	$34,786,800

Source: 1980 producer survey.

[a] Hog sales volume is an estimate of the dollar volume of hogs and pigs sold from respondents farms based on annual average prices received for feeder pigs, slaughter hogs and breeding stock. Average values per head were $40.28 for feeder pigs, $104.17 for slaughter hogs and $200.00 for breeding stock.

[b] Total number of hogs and pigs includes approximately 295,500 slaughter hogs, 70,400 feeder pigs and 5,800 breeding stock.

Highly specialized swine operations were fairly common in the sample; 15.6% of the producers received 75% or more of total farm sales from this source (Table 6). Swine sales were a majority source of farm sales receipts for 44.9% of the respondents answering these questions. The average (mean) swine sales contribution to respondent farm sales was 46.2% and the median was 45%.

The sale of other livestock and livestock products contributed an average (mean) of 32.9% of total farm sales receipts. The median was 30%. Over one-fourth (25.8%) of the respondents received a majority of farm sales receipts from marketing other livestock and livestock products (Table 6). By contrast, 18% had no other livestock enterprise, except for swine.

Table 6. Major Sources of Farm Sales Receipts

Majority source of farm sales receipts	Percent of respondents[a]	Swine sales as percent of total farm receipts	Percent of respondents[a]
Hogs and pigs	44.9	2- 24	14.4
Other livestock and livestock products[b]	25.8	25- 49	40.7
Crops and hay	13.7	50- 74	29.3
General (no majority)[c]	15.6	75-100	15.6
Total	100.0	Total	100.0

Source: 1980 producer survey.

a Percent of respondents are based on the 519 of 587 respondents who answered all questions concerning the distribution of farm sales receipts by enterprise.

b Sale of beef cattle and calves, sheep and lambs, dairy cattle and calves and dairy products were the main enterprises in the "other livestock and livestock products" enterprise.

c The "general" category includes those respondents who indicated no majority of sales (51 percent or more) from any single enterprise - hogs and pigs, crops and hay, other livestock and livestock products.

9. An additional 31 respondents (5.5%) 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.

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

Feed grain sources

Traditionally most swine 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 either directly or through their hogs.

Nineteen of 20 respondents raised feed grains, three fourths of which was fed to their livestock. 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, while 9% purchased all of their feed grains. Overall, four of five bushels of feed grains fed to hogs were raised on the respondents' farm; one of five bushels was purchased. The local elevator and direct purchases from other farmers were the main sources of purchased feed grains.

SWINE ENTERPRISE MIX

All respondents reported the swine enterprise mix of their firms (Table 7). Enterprise mix was divided into four major types:[10]

Table 7. Swine Enterprise Mix[a]

Primary Swine Enterprise	Respondent Producers	Hog Sales Volume		Slaughter Hogs		Feeder Pigs	
	Percent	Percent Sales	Average Dollar Volume Per Producer	Percent Sold	Average Number Per Producer	Percent Sold	Average Number Per Producer
			($1,000)				
Farrow-to Finish	53.6	51.2	56.5	55.5	520	---	---
Farrow-to-Finish and purchased feeder pigs	5.6	7.6	80.0	8.4	756		
Finish only	16.5	20.1	71.2	22.7	683		
Feeder Pigs Only	5.5	4.1	44.7	---	---	45.8	1,006
Diversified	18.8	17.0	54.0	13.4	364	54.2	349
Totals	100.0	100.0	59.2	100.0	533	100.0	498

Source: 1980 producer survey.

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

10. 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.

-Farrow-to-finish. Producer farrows pigs and markets all of them at slaughter weights. He may also purchase additional feeder pigs for marketing as slaughter hogs.

-Finishing only. Producer purchases feeder pigs and markets them as slughter hogs. This producer does not farrow any pigs.

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

-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.

Breeder stock sales were not considered in establishing these enterprises.

Farrow-to-finish

Farrow-to-finish operations remain the dominant swine 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. Five of six respondents farrowed pigs on their own farms - the same proportion as all South Dakota swine producers.

Fifty nine percent of respondents farrowed and finished their own raised hogs, with a few (5.6%) purchasing additional feeder pigs for finishing. Farrow-to-finish producers marketed 63.9% of the slaughter hogs sold by respondents. Farrow-to-finish producers, that did not purchase feeder pigs, marketed an average of 520 slaughter hogs annually. Producers who purchased additional feeder pigs sold an average of 756 slaughter hogs annually (Table 7). The average size of farrow-to-finish operations that also purchased feeder pigs was larger than other swine 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%) 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% of all slaughter hogs.

Finishing only enterprises are well suited for producers:

(1) who are able to skillfully purchase feeder pigs,

(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 possible 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 sold feeder pigs, which is also the same percentage of all South Dakota swine producers. 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 have emerged as an important component of South Dakota's feeder pig marketing system. Less than one fourth of respondents selling feeder pigs (5.5% of all respondents) are completely specialized in feeder pig production, yet they marketed 45.8% 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. 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%) of respondents were diversified swine producers. They marketed 13.4% of slaughter hogs and 54.2% 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% 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 the 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 producer. This enterprise mix is well suited for producers with excess facilities and adequate feed grain supplies.

Producers who sold feeder pigs generally were younger and had less production experience than other swine producers. They were also more specialized in swine production, and a higher percentage of them was located in western, central, and north central regions of South Dakota.

SWINE MARKETING CHANNELS AND TRANSPORTATION

Market channel trends

During the past 25 years there has been considerable change in market channels used by South Dakota swine producers. Producers have increased direct shipments of slaughter hogs to packers and decreased their use of terminal markets.

In 1957, 52% of slaughter hogs were marketed through public stockyards (terminal markets), 30% to packers and buyers, and 18% through auction markets. Fifteen years later (1972), packers and buyers directly purchased an estimated 46% of slaughter hogs, 30% were sold through terminal markets and 24% were sold through auction markets.[11]

Previous studies also indicated slaughter hog market channel use differed by region. In 1972 auctions were the principal market channel in western South Dakota. Terminal market use was strong-

est in southeast and east central South Dakota, reflecting closeness 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.

Additional information on swine marketing channel use is provided in the 1980 survey.

Slaughter hog market channels

The most frequently used market channel for slaughter hogs is the terminal market, which was used by 44.2% of the respondents (Table 8). Packers and auction markets were each used by 37-38% of the respondents while 27% sold hogs to buyers.

The greatest number of hogs were shipped directly to packers (36.5 percent). Terminal markets were the second leading market channel with 29% of slaughter hog sales. Auctions were market outlets for 14.7% of respondents' slaughter hogs while packer buyers and order buyers purchased 19.8% (Table 8).

Regional location was also related to respondents selection of market channels. 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,

Table 8. Marketing Channels for Slaughter Hogs.

Market Channel	Slaughter Hog Sales	
	Percent of slaughter-hogs marketed	Percent of slaughter hog producers using market channel[a]
Packer-direct shipment	36.5	38.0
Terminal	29.0	44.2
Auction	14.7	37.6
Buyer-other[b]	19.8	27.0
	100.0	

Source: 1980 producer survey.

a Ninety-nine percent of respondents (566 of 572) reporting slaughter hog sales, including cull sows cited the market channels through which the hogs were sold. Percent of producers using market channels totals more than 100% due to multiple use of channels by many producers.

b Order buyers, packer buyers and local collection points.

11. Detailed 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, D.C.: John Ranek, Statistician in Charge, June 1974.

northeast, and north central South Dakota. Over 80% of hogs sold to buyers or through auctions were then shipped to Sioux Falls, Sioux City and other locations for slaughter processing.

Producer selection of market channels was further investigated by classifying respondents as single or multiple channel users (MULTI), and by the market channel used to market a majority of their slaughter hogs (CHANNEL). Auctions, terminal markets, packer-direct shipments, and buyers were the market channel alternatives. A few respondents did not sell a majority of their slaughter hogs through any single channel and were classified as "no majority channel".

A single market channel was used by 63.8% of the respondents (Table 9). The most frequently used single market channel was the terminal market; nearly 24% of the respondents sold all of their slaughter hogs through the terminal market. Fifteen percent of the respondents sold only through the auction market, while 12.4% sold directly to a packer and 12.2% sold through order buyers, packer buyers or local collection points.

Multiple slaughter hog market channels were used by 36.2% of the respondents. The most frequently used combinations of market channels were terminal and packer, auction and packer or auction and buyer.

Table 9. Respondents' Selection of Slaughter Hog Marketing Channels.

	MULTI		
CHANNEL[a]	Single Channel	Multiple Channel	Total Respondents[b]
	----percent of all respondents----		
Auctions	15.5	4.6	20.1
Buyers[c]	12.2	8.1	18.2
Packers	12.4	13.4	25.8
Terminal markets	23.7	5.6	29.3
Other	----	4.5	6.6
Total	63.8	36.2	100.0

Source: 1980 producer survey.

[a] 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.

[b] Percentage calculations are based on 566 of 572 respondents reporting slaughter hog market channel use.

[c] Order buyers, packer buyers and local collection points.

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 user (4.5% of total respondents) did not market a majority of their slaughter hogs through any one channel.

Market channel selection was analyzed by respondent characteristics using analysis of variance statistical techniques.[12] Results indicated younger respondents (with higher levels of education) tended to use multiple channels. Older, more experienced producers used the terminal market with greater regularity. The mean years of production for respondents using the terminal market exclusively was 22.7 years, compared to 15.8 years for respondents who used the terminal market as one of their marketing channels. Large volume producers who obtained a majority of their farm sales from their swine operation were more likely to sell directly to the packing plant. Smaller volume producers and those less specialized in swine production sold through other channels.

Feeder pig sales channels

The development of feeder pig markets is fairly recent and continues to grow over time. Feeder pig markets have grown throughout the state, with the largest amount of increase in central and western South Dakota.

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 and 249 head for auction markets.

Three fourths of respondent feeder pig producers sold all of their feeder pigs through a single market outlet. Twenty two percent used two market channels, while 3% used three market channels.

Auction markets were the principal outlet for respondents using only one market channel for feeder pig sales. All respondents reporting multiple channel sales used direct sales to other farms for marketing some of their feeder pigs. The most frequently cited combinations (22 of 34 multiple channel respondents) were auction markets and direct sales to other farmers.

Regional differences in market channels used for feeder pig sales was evident. Direct sales to other farms was the primary market channel for respondents located in eastern South Dakota. Auction markets were the primary market channel for western and central South Dakota respondents.

12. Two-factor analysis of variance tests were performed on selected respondent characteristics (age, years of production, years of education, hog sales volume and percent of farm sales from the swine operation) to determine if market channel selection was influenced by personal or business attributes. Only statistically signficant results (at the 5% probability level) are discussed in this bulletin. More detailed discussion and tables summarizing the statistical tests are available in Larry Janssen and Kevin Weischedel's, Swine Marketing in South Dakota: Results of a Producer Survey. Economics Department Research Report 83-5. South Dakota State University, Brookings, S.D., October, 1983.

These regional market channel patterns correspond with swine enterprise differences by region. Producers purchasing feeder pigs for finishing generally are 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 respondent's home place.

Feeder pig procurement sources

Almost all of the feeder pigs sold and about 70% of slaughter hogs marketed were farrowed on respondents' own farms. For purchased feeder pigs, auction markets provided 29%. direct purchases from other farms, 28%; feeder pig cooperatives, 23%; and terminal markets, 20%.

Five of six respondents farrowed feeder pigs for sale or finishing. The average number of feeder pigs obtained from their own farm was 573 head. Farrowing their own pigs was the sole source of feeder pigs for 76.6% of the respondents (Table 10).

Auctions were used to purchase feeder pigs by 11.3% of the respondents and were the only source for 4.9% of the producers. By comparison, only 4.1% of the respondents used the terminal market to purchase feeder pigs, and one half of these producers obtained all of their pigs from this source.

Larger volume swine producers tended to purchase feeder pigs from feeder pig cooperatives or terminal markets, while lower volume producers purchased feeder pigs from auction markets.

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.

Transportation methods[13]

Transportation of hogs and pigs from farm to point of sale or purchase generally involves short distance movements. Approximately 70% of respondent feeder pig inshipments and 76% of hog and pig outshipments involved movements of less than 50 miles.

Small trucks (single axle), trailers and pickups were the most common transportation modes for feeder pig and slaughter hog shipments. Approximately 90% of feeder pigs shipped to respondent's farms and 88% of hogs and pigs shipped to market were transported by one of these methods.

Pickups were used to haul small loads of feeder pigs or slaughter hogs for short distances. Trailers and small trucks were used for somewhat larger loads shipped average distances of 30-50 miles. Semi-trucks and tandem axle trucks normally were used for longer distance - larger volume shipments.

Most longer distance interregional movements of slaughter hogs involved shipments to packers and terminal markets located in eastern South Dakota, Iowa, Minnesota, and Nebraska. Approximately 12% of respondents' slaughter hogs were shipped to out-of-state markets.

Table 10. Feeder Pig Procurement Sources.

Procurement source	Percent of respondents[a,b]	Only source - percent of respondents[a,c]	Average number of feeder pigs from this source - per producer
Farrowed pigs on own farm	83.4	76.6	573
Auction markets	11.3	4.9	388
Direct purchases from other farms	8.6	2.6	494
Feeder pig cooperatives	5.3	2.8	647
Terminal markets	4.1	2.0	776
		88.9	

Source: 1980 producer survey.

a All but one of 587 respondents reported the source of feeder pigs they sold or finished. Percent of respondents are based on 586 complete reports.

b Percent of respondents exceeds 100 percent due to multiple procurement channels by some producers.

c Percent of respondents using only one feeder pig procurement source.

13. An extensive discussion of the transportation methods used by respondents is available in the publication: Larry Janssen and Kevin Weischedel, Swine Marketing in South Dakota: Results of a Producer Survey. Economics Department Research Report 83-5, South Dakota State University, Brookings, S.D., January, 1983. Only summary results are reported in this bulletin.

14. U.S. Department of Agriculture. Packers and Stockyards Resume, AMS, Washington, D.C., various issues.
P & S statistics on swine shipments are based on the state where hogs are slaughtered, not the farm or market channel location where hogs are purchased.

SLAUGHTER HOG MARKETING METHODS

Selling methods

The growing trend to packer shipments also has increased the proportion of slaughter hogs sold on a grade and yield (carcass-weight) basis. In 1969, packers located in South Dakota purchased 3.2% of their hogs by grade and yield instead of liveweight. By 1980, 17.2% of hogs slaughtered by South Dakota packers were purchased on a grade-and-yield basis.[14]

Liveweight pricing was used as the only means of pricing slaughter hogs by 75% of the respondents. A few respondents (4%) used grade and yield pricing only, while 21% used both pricing methods.

Grade-and-yield pricing was used to market 23% of respondents' slaughter hogs. Larger volume producers were more likely to use grade-and-yield pricing methods. 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 or in other states.

Weights 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% of slaughter hogs sold by respondents were marketed from 201 to 220 pounds.

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.

Very few barrows and gilts (less than 3%) were marketed at less than 200 pounds or more than 270 pounds.

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%) marketed a majority of their barrows and gilts above 240 pounds.

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. About 62% of the respondents indicated that marketing their hogs at the "right" weight was the determining factor for selecting marketing dates. Thirty percent of the producers indicated market weight was an important factor, but they also studied daily market prices to determine the best day of the week to market their hogs. Only 6% of respondents marketed hogs at set times (certain days of the week), while even fewer respondents contracted ahead.

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 buyers 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 his 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 price and cash price at his market. Minimum contract size restricts participation by the smallest producers, but most larger-volume 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.[15] Questions asked about pricing methods were similar to questions used in a 1975 Ohio hog marketing study.[16] Comparisons are made between results of these studies.

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.

15. All respondents were asked to list and rank three major benefits of cash markets and three major reasons for using or not using forward contracts and futures markets in their swine marketing program. Respondents were provided six to seven possible responses and also had the option of writing in their own responses. Most respondents listed and ranked two or three reasons although some listed only one reason.

16. 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.

Cash marketing

Cash marketing was the overwhelming choice of pricing methods used by respondents. All except three of 587 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% of slaughter hog sales and 99.3% 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 (Table 11). Almost four of every five (78.8%) respondents completing this question believed the uncomplicated nature of the cash market was one of its greatest benefit and 33.2% felt this benefit was the most important advantage of the cash market.

The location of the cash market was cited as a benefit by 75.2% of respondents and 28.6% listed location as the most important benefit. 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.

Table 11. Benefits of Cash Marketing to Respondents[a].

Benefit	Total Listing	Most Important
	-percent of respondents-	
Uncomplicated marketing method	78.8	33.2
Location of market	75.2	28.6
Assured price	44.4	16.5
Satisfactory profit can be achieved	28.2	6.1
Minimization of losses	23.2	1.4
Ease of acquiring credit	5.2	0.7
Other	4.5	1.4
		87.9

Source: 1980 producer survey.

[a] All 584 producers completing the marketing survey and using the cash market were asked to list and rank three benefits of the cash market to them. Ninety-five percent (556 of 584) of all surveyed producers using the cash market listed one or more benefits of using the cash market. Percent of respondents are based on the 556 completed responses. Sixty-six respondents (12.1 percent) listed two or more benefits but did not rank them. Their responses are included in the "total listings" but not in the "most important benefit".

Assured price at time of sale was the third ranked benefit cited by 44.4% of 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" and "cash marketing is highly competitive".

Survey responses on cash marketing are generally consistent with results reported in the Ohio study.[17] 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 prices 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 to 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 6% used the futures market and 9% used cash forward contracts.[18] However most surveys have not explored reasons why they were not used more often.

Seventy eight percent (452 of 580) of respondents not using forward contracts and 86% (499 of 580) of respondents not using futures markets provided one or more reasons for not using them (Tables 12 and 13).

The relatively small size of swine enterprises was the most frequently cited reason for not using foward contracts or futures markets. Nearly 60% of respondents answering the respective questions listed this reason and over 30% indicated this was the most important reason for not using futures contracts or forward contracts.

Lack of knowledge about the complexities of forward contracting was cited by 54.9% of respondents with 21.7% indicating this was the most important reason. Similarly, 60.6% of those answering the futures market question reported that they did not fully understand the complexities of hedging and were not using futures contracts until they understood them. Twenty-six percent listed this as the most important reason for not hedging.

17. Schlenker and Baldwin, 1978, pp. 16-19.

18. 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.

Table 12. Respondents' Reasons for not Using Forward Contracts.

Response	Total listings	Most Important Reason
	---percent of respondents---	
Do not producerenough hogs to warrant a contract	59.3	30.1
Don't fully understand complexities of contracting	54.9	21.7
Rather use cash market to take advantage of higher prices	51.9	23.3
Would like to know more about it but unable to find someone knowledgeable on subject	31.5	6.4
Have been advised against its use	15.6	1.8
Prefer hedging	6.6	2.6
Other	8.4	3.4
		89.3

Source: 1980 producer survey.

[a] All 580 producers not using futures contracts were asked to list and rank the three main reasons for not using them. Seventy-eight percent (452 of 580) of surveyed producers not using futures contracts listed one to three reasons for not using futures contracts. Percent of respondents are based on a total of 452 completed responses. Fifty-three respondents (10.7 percent) listed two or more reasons but did not rank them. Their responses are recorded in the "total listing" but not as the "most important reason."

Table 13. Respondents Reasons for not using Futures Contracts.

Response	Total listings	Most Important
	---Percent of respondents---	
Do not produce enough hogs to warrant a contract	60.6	32.3
Don't fully understand complexities of hedging	60.6	26.1
Rather use cash market to take advantage of higher prices	54.0	27.0
Would like to know more about it but unable to find someone knowledgeable on subject	22.3	2.0
Have been advised against its use	16.1	1.5
Prefer forward contracting	3.5	0.5
Other	8.4	4.6
		94.0

Source: 1980 producer survey.

[a] All 580 producers not using forward contracts were asked to list and rank the three main reasons for not using them. Eighty-six percent (499 of 580) of surveyed producers not using forward contracts listed one to three reasons for not using forward contracts. Percent of respondents are based on a total of 499 completed responses. Twenty-seven respondents (6.0 percent) listed two ore more reasons but did not rank them. Their responses are recorded in the "total listings" but not as the "most important reason."

Fifty-four percent of futures market respondents and 51.9% of forward contract respondents indicated a preference for using the cash market. Twenty-seven percent of futures markets respondents and 23.3% of forward contract respondents called this the most important reason for not hedging or forward contracting.

Over 31% of forward contract respondents and 22% of futures markets respondents wanted more information but had not found (or contacted) someone who could answer their questions and address their concerns.

Other reasons given for not forward contracting or using futures markets were "have been advised against its use", "prefer forward contracting instead of hedging", or "prefer hedging instead of forward contracting."

Respondents who indicated "other" reasons reflected considerable apprehension about using futures contracts or asked where they could get involved in forward contracts which indicated that forward contracts were difficult to obtain in many areas.

In the Ohio study, the top three responses for not using forward contracts of 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.[19]

AGE, EXPERIENCE AND SIZE OF SWINE ENTERPRISE AFFECTED RESPONSES

Respondent age, years of pork production experience, and swine enterprise size (as represented by hog sales volume) affected responses to many questions in the marketing survey.[20]

Older, more experienced producers preferred the cash market. Younger, less experienced producers wanted to know more about forward contracting and futures markets. Respondents citing the

19. Schlenker and Baldwin, 1978, pp 16-19.

20. Statistical tests were performed relating several respondent characteristics (age, education, years of production, percent of farm sales from swine, hog sales volume and regional location) to their responses to several survey questions (such as reasons for not using futures contracts or forward contracts, market channel selection patterns, enterprise mix and several other items). The purpose was to obtain a producer profile and test for significant differences between five percent probability level) between responses by respondent characteristics. Detailed tables and explanations of various statistical tests are available in: 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. Almost all of the statistically significant results were related to respondents age, years of swine production experience and hog sales volumes. These results are discussed in this report.

reason "too small to warrant a contract" sold approximately $27,000 of hogs and pigs annually. Respondents that preferred the cash market sold over $73,000 of hogs and pigs.

Younger producers preferred to use more than one market channel for slaughter hog and feeder pig sales. Older producers generally used only one market channel. A significantly higher percentage of older, more experienced producers used the terminal market as their only marketing channel. Large volume producers specialized in swine production were more likely to sell directly to the packing plant.

Respondents selling feeder pigs were, on the average, 9 years younger than producers who only sold slaughter hogs. Farrow-to-finish and finish only producers generated significantly larger hog sales volume (dollars) than producers selling feeder pigs (both diversified and specialized feeder pig producers).

Younger producers generally were interested in expanding their swine operation and indicated lack of credit and high interest rates as the most severe limiting factors. Most older producers were not planning to expand their swine operation, so credit was less of a problem for them.

SUMMARY

The economic structure of the U.S. and South Dakota swine is rapidly changing. Key trends are fewer farms, rapidly increasing numbers of hogs and pigs sold per farm, and increased enterprise specialization and capital investment. Along with these trends, there have been changes in producer use of marketing channels, marketing methods, and pricing methods.

Statewide production trends

South Dakota is one of the nation's top 10 hog production states. The three million hogs and pigs marketed each year in the State represent 3-4% of the nation's hog supply. Swine production over the past 25 years in South Dakota has increased at a faster rate than U.S. swine production.

Swine production in South Dakota is concentrated in 16 east central and southeastern counties. It is expanding most rapidly on the western fringes of this concentrated production region.

The number of South Dakota swine producers declined 60% from 1959 to 1978. Thirty-three percent of South Dakota farms produced hogs and pigs in 1978 compared to 58% in 1959.

The average size of swine operation in 1978 -- 223 hogs and pigs sold per farm -- is three times the average in 1959. In 1978,most hogs and pigs (77%) were sold by producers marketing less than 1,000 hogs and pigs. The other 23% were sold by the 300 largest swine producers (2.3% of the state total) who marketed an average of 2,200 hogs and pigs per farm. Rapid growth in swine enterprise size has concided with developments in hog confinement technology, improved breeding herd management practices and improved nutrition and disease control.

Feeder pig production and sales increased 80% from 1969 to 1978. Feeder pigs comprised 22% of the total number of hogs and pigs sold in 1978, up from 13% in 1969. Almost one of every four swine producers sells feeder pigs, and are completely specialized in feeder pig production.

Feeder pig production has increased in most counties of the state. The largest increases have occurred in western and central South Dakota.

Producer characteristics - 1980 survey

Information on changing marketing patterns was obtained from a 1980 marketing survey of nearly 600 South Dakota swine producers.

Respondents numbered 5% of South Dakota's pork producers and marketed 12-13% of all hogs and pigs sold from South Dakota farms. The typical respondent was a family farmer, 43 years of age, with 18 years of continuous pork production experience. He marketed 450 - 650 head annually, and more than 45 percent of his total farm sales was from hogs and pigs.

Five of six respondents farrowed pigs on their own farm. Fifty-nine percent farrowed and finished their raised hogs, with a few (6%) purchasing additional feeder pigs for finishing. Another 6% were completely specialized in feeder pig production, while 16% purchased feeder pigs for finishing and did not farrow any pigs. The remaining 19% were diversified producers who ran farrow-to-finish operations and also raised feeder pigs for sale.

Market channels and transportation

There have been considerable changes in market channels used by South Dakota swine producers. Packers and buyers have increased their share of direct hog purchases while the use of terminal markets has declined.

The most frequently used market channel for slaughter hogs is the terminal market which was used by about 44% of the respondents. However, a greater volume of slaughter hogs was marketed directly to packing plants. Larger-volume producers were more likely to sell directly to packing plants.

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

About 70% of the slaughter hogs marketed were farrowed on the respondents' own farms. Auction markets, direct purchases from other farms, and feeder pig cooperatives were the major sources of purchased feeder pigs.

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

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

Marketing and pricing methods

Grade-and-yield pricing was used by one-fourth of the producers, although only 4% used it exclusively. Larger volume producers were more likely to use grade-and-yield pricing methods.

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

A limited number of respondents (2.4%) engaged in forward contracting or used future markets as part of their marketing plan. The most important benefits of these forward pricing techniques were assured "lock-in" price, acceptable profits, and less uncertainty in planning the swine enterprise.

The main reasons cited by most producers for not using forward contracts or futures contracts were; too small a volume of hogs to warrant a contract, not fully understanding the complexities of contracting or hedging, and preferring to use the cash market only. Older producers preferred the cash market, while younger producers wanted to know more about forward contracting and futures markets.

LIST OF REFERENCES

1. Blair, William H. Editor. SAS Users Guide: 1979 Edition, SAS Institute Inc., Cary, North Carolina, 1979.

2. Green, Duty D.; Egertson, Kenneth D. and Eidman, Vernon R. Changing Marketing and Production Patterns of Minnesota Swine Producers.

3. Janssen, Larry and Kevin Weischedel. Swine Marketing in South Dakota: Results of a Producer Survey, Economics Department Research Report 83-5. South Dakota State University, Brookings, South Dakota, October, 1983.

4. Janssen, Larry. Changing Swine Production and Marketing Patterns in South Dakota, Late 1950's to 1980. Economics Department Research Report 83-6, South Dakota State University, Brookings, South Dakota, December, 1983

5. 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.

6. 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.

7. U.S. Dept. of Agriculture. Economic Indicators of the Farm Sector:. State Income and Balance Sheet Statistics, 1980. Statistical Bulletin 678, Washington, DC, November 1981.

8. U.S. Department of Agriculture. Livestock and Meat Situation, ESCS, Washington, DC: LMS-234, 1978-1980.

9. U.S. Department of Agriculture. Packers and Stockyards Resume, AMS. Washington, DC. various issues.

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

11. U.S. Department of Commerce, Bureau of the Census, U.S. Census of Agriculture reports: 1959, South Dakota, Volume I; 1964, South Dakota, Volume I; 1969, South Dakota, Volume I; 1974, South Dakota, Volume I; 1978, South Dakota, Volume I.

12. Van Arsdall, Roy N. Structural Characteristics of the U.S. Hog Production Industry. Agricutural Economics Report No. 415. ESCS. U.S. Department of Agriculture, Washington, DC. December, 1978.

13. 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.

Published in accordance with an Act passed in 1881 by the 14th Legislative Assembly, Dakota Territory, establishing the Dakota Agricultural College and with the Act of re-organization passed in 1887 by the 17th Legislative Assembly, which established the Agricultural Experiment Station at South Dakota State University.
File: 4.2-3.8--4-84mb--.5M