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# Primary Destinations of South Dakota Corn, Oats, Barley and Sorghum

W. F. Payne

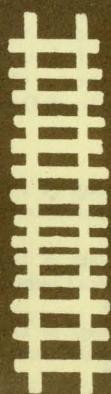
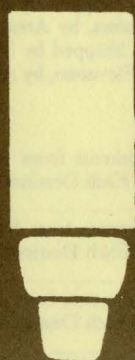
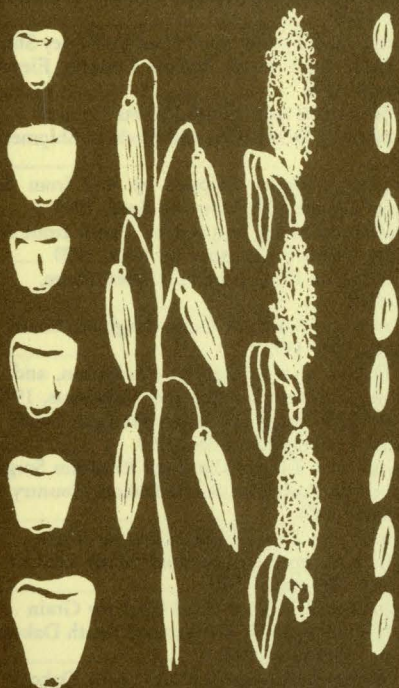
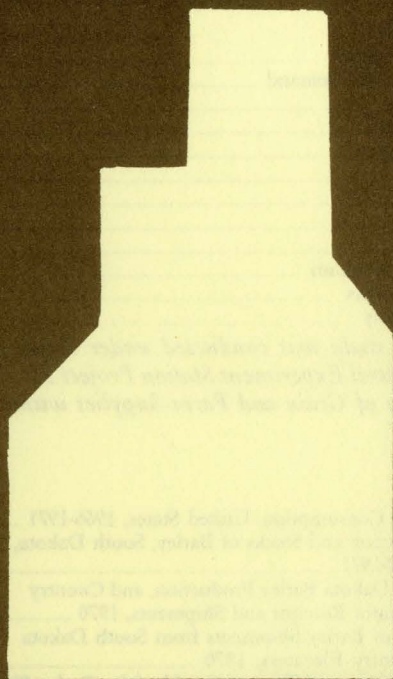
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# Primary Destinations of South Dakota Corn, Oats, Barley and Sorghum

Agricultural Experiment Station  
South Dakota State University  
Brookings



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# Primary Destinations of South Dakota Corn, Oats, Barley and Sorghum: 1970

By  
William F. Payne<sup>1</sup>

## INTRODUCTION

Recent increases in South Dakota feed grain (corn, oats, barley, grain sorghum) requirements have not been proportional to increases in production. Thus, movements of feed grain out of South Dakota have been increasing. Surplus feed grain amounted to 1.9 million tons in 1970, or over 37 percent of total production. This compares with surpluses of 48 percent in 1969, 42 percent in 1968, and 35 percent in 1967 (Table 1). Feed grain surplus has been somewhat variable in recent years, primarily because of growing conditions. The 1970 surplus was abnormally low due to hot dry weather in August.

Reliable estimates of feed grain production and utilization are available, but information concerning the movement of feed grain after it leaves the farm is not readily available. Such information is needed by persons engaged in the production, conditioning, storage and shipment of feed grain. This information also can be used to plan future transportation needs for the state and aid in planning locations of grain elevators and other agri-business firms. The purpose of

this study is to document the flow of feed grains into and from South Dakota elevators. Primary emphasis is upon determining how the grain moves and where it goes.

Table 1. Feed Grains Production, Consumption and Surplus, South Dakota, 1967-1970.

	1967*	1968*	1969*	1970†
Feed Grains				
produced (000 tons) .....	4,851	5,479	6,186	5,100
Feed grains fed (000 tons)‡ .....	3,133	3,155	3,197	3,200
Surplus (000 tons) .....	1,718	2,324	2,989	1,900
Surplus/production (%) .....	35.4	42.4	48.3	37.3

\*George C. Allen, Earl F. Hodges and Margaret Devers, *National and State Livestock-Feed Relationships*, Supplement for 1970 to USDA, ERS Statistical Bulletin No. 446 (Washington: Government Printing Office, 1970), p. 111.

†Raymond O. Gaarder, *South Dakota's Beef Industry*, Bulletin 585 (Brookings: Agricultural Experiment Station, 1971), p. 24.

‡Does not include feed grains for seed, human food, industry and export.

A companion bulletin has been prepared which documents the movement of wheat, soybeans and flaxseed.<sup>2</sup>

## METHODOLOGY

Questionnaires were mailed to managers of 401 country grain elevators. Results are based upon information from 185 usable returns. Estimates are obtained from expansion factors calculated for each area of the state and for each of four elevator sizes determined by storage capacity. Elevators were classified according to the following storage capacities: Less than 200,000 bushels; 200,000-399,999 bushels; 400,000-599,999 bushels; 600,000 bushels and larger. Usable returns were obtained from 46 percent of the elevators, accounting for 44 percent of the state's elevator storage capacity (Table 2).

For the purpose of this study South Dakota was divided into six areas. Figure 1 indicates the boundaries used to permit more accurate analysis of different grain flow patterns. Note that the area west of the Missouri River was treated as a single unit due to the less intensive production of grain. Usable elevator response ranged from 36.9 percent in area I to 53 percent in area VI with a state average of 43.6 percent.

## CORN

### Supply and Demand

Crop production in 1970 was less than 1969 levels for most field crops. The South Dakota feed grain production index of 114 was 18 percent below the record high of 139 set in 1969 (1957-59=100).<sup>3</sup> Sharply reduced per-acre yield was primarily responsible for the decline. Corn harvested for grain during 1970 totaled 2,496,000 acres with an average yield of 41 bushels per acre. This compares to the 1969 corn (grain) acreage of 2,447,000 and average yield of 57 bushels per acre. See Figure 2 for a breakdown of corn production, receipts and shipments by area.

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<sup>2</sup>William F. Payne, "Primary Destinations of South Dakota Wheat, Soybeans and Flaxseed," Agricultural Experiment Station Bulletin No. 601, South Dakota State University, Brookings.

<sup>3</sup>Feed grain production index includes all corn, oats, barley and sorghum.



**Table 2. Questionnaires Returned and Percent of Total Elevator Capacity—Number and Percent of Firms Responding 1970.**

Area	No. of Firms	% of total firms	Capacity (bushels)	% of total capacity
I All elevators .....	72	100.0	15,536,076	100.0
Returned .....	28	38.9	5,729,462	36.9
Not returned .....	44	61.1	9,806,614	63.1
II All elevators .....	81	100.0	20,530,580	100.0
Returned .....	42	51.9	9,508,795	46.3
Not returned .....	39	48.1	11,021,785	53.7
III All elevators .....	71	100.0	12,891,292	100.0
Returned .....	31	43.7	4,918,242	38.2
Not returned .....	40	56.3	7,973,050	61.8
IV All elevators .....	34	100.0	6,161,323	100.0
Returned .....	18	52.9	3,196,787	51.9
Not returned .....	16	47.1	2,964,536	48.1
V All elevators .....	78	100.0	11,940,951	100.0
Returned .....	31	39.7	5,104,225	42.7
Not returned .....	47	60.3	6,836,726	57.3
VI All elevators .....	65	100.0	8,173,836	100.0
Returned .....	35	53.8	4,328,286	53.0
Not returned .....	30	46.2	3,845,550	47.0
State All elevators .....	401	100.0	75,234,058	100.0
Returned .....	185	46.1	32,785,797	43.6
Not returned .....	216	53.9	42,448,261	56.4

Source: Capacity information obtained from South Dakota Public Utilities Commission "South Dakota Grain Elevators Licensed by the Public Utilities Commission 1970-1971." (Pierre, South Dakota Public Utilities Commission, 1971).

The greatest source of damage to South Dakota corn was hot, dry weather which severely depleted top soil moisture supplies in July and August. Although some southern leaf blight was apparent in the state, no extensive damage was reported from the disease. However, southern leaf blight did reduce corn supplies in most corn producing states during 1970. With total utilization remaining relatively stable (Table 3), the decrease in production due to dry weather and

southern leaf blight resulted in a significant increase in nation-wide corn prices. The farm price for corn during 1970 in South Dakota was about 17 cents per bushel above the 1967-69 average (Table 4).

South Dakota grain elevators received an estimated 53,165,000 bushels of corn during 1970, with outshipments accounting for 48,671,000 bushels. The elevator survey covers calendar year 1970, but corn receipts and shipments may include production from the 1970 crop or from previous years.<sup>4</sup> Inventory adjustments by farmers and the Commodity Credit Corporation also contribute to receipts and shipment volume. Higher corn prices during 1970 resulted in an inventory adjustment with some corn being sold during 1970 which ordinarily would have been stored and sold in 1971. Table 5 indicates that South Dakota on-farm corn inventories decreased 25 percent during 1970, from 111,583,000 bushels to 83,916,000 bushels. Off-farm stocks declined almost eight percent from 16,003,000 bushels to 14,823,000 bushels.

**Table 3. Corn Consumption, United States, 1966-1971.**

Marketing year Beginning October 1	Utilization				Total Use
	Domestic Use				
	Feed*	Food, Industry and Seed	Total Domestic	Exports†	
Million Bushels					
1966 .....	3,279	369	3,648	487	4,135
1967 .....	3,412	377	3,789	633	4,422
1968 .....	3,521	386	3,907	536	4,443
1969 .....	3,692	394	4,086	612	4,698
1970† .....	3,526	396	3,922	517	4,439
1971§ .....	3,902	402	4,304	650	4,954

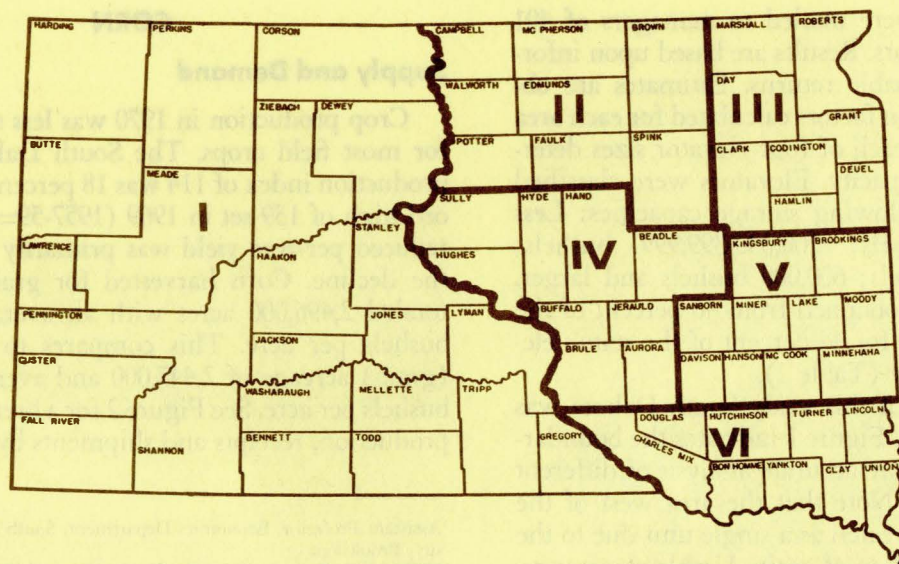
Source: United States Department of Agriculture, *Feed Situation* FdS-244 (Washington: Economic Research Service, May 1972).

\*Residual; includes small quantities for other uses and waste.

†Includes grain equivalent of products.

‡Preliminary.

§Preliminary; based on May 1972 indications.



**Figure 1. Areas Used in Reporting Origins and Destinations of South Dakota Grain Shipments.**

<sup>4</sup>The crop year for corn begins October 1 of year stated.



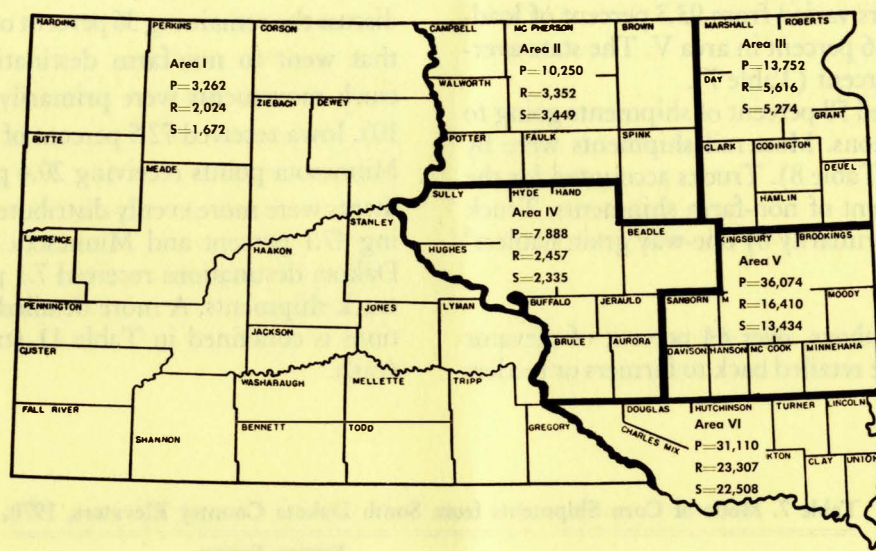


Figure 2. Corn Production (P) and Country Elevator Receipts (R) and Shipments (S), by Area, 1970 (000 bu.).

Table 4. Prices Received by South Dakota Farmers for Selected Crops, 1967-1970\*

Year	Grain			
	Corn (bu.)	Oats (bu.)	Barley (bu.)	Sorghum (cwt.)
	(Dollars)			
1967	1.04	.60	.94	1.64
1968	1.04	.56	.85	1.57
1969	1.03	.55	.79	1.63
1970	1.21	.57	.83	1.80

Source: South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1967-70* (Sioux Falls, South Dakota and United States Department of Agriculture, 1970).

\*Season average prices are computed by weighing mid-month prices by estimated monthly marketings.

## Receipts

South Dakota grain elevators received an estimated 53,165,000 bushels of corn during 1970, with about 2.5 percent coming from out-of-state origin (Table 6). However, corn from out-of-state was of considerable importance to elevators in some areas, accounting for 35 percent of receipts in area I and 13.6 percent in area V. The ratio of receipts divided by production indicates that elevator receipts were about one-half of the state's production. The receipt/production ratio ranged from 31.1 percent in area IV to 74.9 percent in area VI.

## Shipments

Shipment of corn from South Dakota elevators was an estimated 48,671,000 bushels during 1970. Corn owned by the Commodity Credit Corporation (CCC) amounted to less than one percent of shipments (Table 6). The shipments/production ratio averaged 48 percent within a range of 33.6 percent in area II and 72.3 percent in area VI.

Table 5. Production and Stocks of Corn for Grain, South Dakota, 1967-1971.

Year	Production* (000 bu.)	Stocks†		
		Farm (000 bu.)	Off-Farm (000 bu.)	Total (000 bu.)
1967	93,024	98,723	16,066	114,789
1968	110,354	87,443	15,688	103,131
1969	139,479	107,043	14,278	121,321
1970	102,336	111,583	16,003	127,586
1971	123,234	83,916	14,823	98,739

Source: (1) South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1967-70* (Sioux Falls, South Dakota and United States Department of Agriculture, 1967-1970).

(2) Ibid., *South Dakota Crop and Livestock Reporter*, January 26, 1972.

\*Crop year begins October 1 of year stated.

†Corn in storage January 1 of year stated.

Table 6. South Dakota Corn Production, and Country Elevator Receipts and Shipments, 1970.

Area	Production (000 bu.)	Receipts* (000 bu.)	Receipts /Production (%)	Shipments† (000 bu.)	Shipments /Production (%)
I	3,262	2,024	62.0	1,672	51.3
II	10,250	3,352	32.7	3,449	33.6
III	13,752	5,616	40.8	5,274	38.4
IV	7,888	2,457	31.1	2,335	29.6
V	36,074	16,410	45.5	13,434	37.2
VI	31,110	23,307	74.9	22,508	72.3
State‡	102,336	53,165	52.0	48,671	48.0

Source: Production data are from South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1970* (Sioux Falls, South Dakota and United States Department of Agriculture, 1970).

\*Out-of-state origins accounted for the following proportions of receipts: Area I, 35.0 percent; Area II, 0.9 percent; Area III, 2.2 percent; Area IV, 0.7 percent; Area V, 13.6 percent; Area VI, 1.0 percent; State average, 2.5 percent.

†Corn owned by the Commodity Credit Corporation accounted for the following proportions of shipments: Area II, 0.4 percent; Area V, 1.5 percent; Area VI, 0.2 percent; State average, 0.6 percent. Shipments include corn retained back to farmers or feeders or used in feed sold by elevators.

‡Detail may not add to total because of rounding.



Corn retailed to farmers or feeders or used in feed sold by the elevators varied from 93.3 percent of load-outs in area I to 49.6 percent in area V. The state average was over 64 percent (Table 7).

Railroads carried 58 percent of shipments going to non-farm destinations. Most rail shipments were by ordinary boxcar<sup>5</sup> (Table 8). Trucks accounted for the remaining 42 percent of non-farm shipments. Truck movements were primarily by one-way grain haulers<sup>6</sup> (Table 9).

#### Destinations

As mentioned above, over 64 percent of elevator corn load-outs were retailed back to farmers or feeders

or used in feed sold by the elevator. This section will discuss the remaining 36 percent of elevator shipments that went to non-farm destinations. Both rail and truck movements were primarily out-of-state (Table 10). Iowa received 72.5 percent of rail shipments with Minnesota points receiving 20.4 percent. Truck shipments were more evenly distributed, with Iowa receiving 47.1 percent and Minnesota 38.8 percent. South Dakota destinations received 7.1 percent of non-farm truck shipments. A more detailed analysis of destinations is contained in Table 11 (truck) and Table 12 (rail).

**Table 7. Mode of Corn Shipments from South Dakota Country Elevators, 1970.**

Area	Rail		Truck*		Farmers, Feeders or Used in Feed		Total	
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)
I .....	10	0.7	101	6.0	1,560	93.3	1,672	100
II .....	208	6.1	405	11.7	2,836	82.2	3,449	100
III .....	1,532	29.1	524	9.9	3,218	61.0	5,274	100
IV .....	150	6.4	61	2.7	2,123	90.9	2,335	100
V .....	3,762	28.0	3,012	22.4	6,660	49.6	13,434	100
VI .....	4,357	19.4	3,202	14.2	14,948	66.4	22,508	100
State† .....	10,019	20.6	7,307	15.0	31,346	64.4	48,671	100

\*Does not include corn retailed back to farmers or feeders or used in feed sold by country elevators.

†Detail may not add to total because of rounding.

**Table 8. Disposition and Type of Car Used for Corn Shipped by Rail from South Dakota Country Elevators, 1970.\***

Area	Disposition				Type of Car				E
	A		B		C		D		
	In-State		Out-of-State		Ordinary Boxcars		Covered Hopper Cars		
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	
I .....	0	0	10	100	10	100.0	0	0	10
II .....	0	0	208	100	9	4.4	199	95.6	208
III .....	0	0	1,532	100	1,440	94.0	92	6.0	1,532
IV .....	0	0	150	100	150	100.0	0	0	150
V .....	0	0	3,762	100	3,673	97.6	89	2.4	3,762
VI .....	0	0	4,357	100	3,836	88.0	521	12.0	4,357
State† ...	0	0	10,019	100	9,118	91.0	901	9.0	10,019

\*A+B=C+D=E

†Detail may not add to total because of rounding.

<sup>5</sup>Ordinary boxcars are loaded and unloaded through side doors, and hold approximately 1,786-2,000 bushels of corn. Medium sized covered hopper cars used in South Dakota are top loading, bottom unloading rail cars that hold approximately 3,571 bushels of corn. However, covered hopper cars are seldom loaded to capacity in South Dakota because most tracks cannot support the 267,000 lbs. weight (200,000 lbs. load and 67,000 lbs. rail car).

<sup>6</sup>A one-way grain hauler is one for whom grain is the primary load for the truck. A backhaul load indicates that the primary load is something other than grain. When the trucker returns to his starting area he back-hauls a load of grain.



Table 9. Disposition and Type of Haul Used for Corn Shipped by Truck from South Dakota Country Elevators, 1970.\*

Area	Disposition				Type of Haul				E Total† (000 bu.)
	A		B		C		D		
	In-State		Out-of-State		Back Haul		One-Way		
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	
I _____	32	31.7	69	68.3	25	24.3	77	75.7	101
II _____	0	0	405	100.0	0	0	405	100.0	405
III _____	0	0	524	100.0	0	0	524	100.0	524
IV _____	0	0	61	100.0	30	49.0	31	51.0	61
V _____	225	7.5	2,787	92.5	1,094	36.1	1,917	63.9	3,012
VI _____	0	0	3,203	100.0	1,476	46.1	1,727	53.9	3,203
State‡ ____	257	3.8	7,049	96.2	2,625	35.8	4,681	64.2	7,306

\*Does not include corn retailed back to farmers or feeders or used in feed sold by country elevators.

†A+B=C+D=E

‡Detail may not add to total because of rounding.

Table 10. Corn Shipments from South Dakota Country Elevators, by Destination and Mode of Shipment, 1970.\*

Destination	Mode			
	Rail		Truck†	
	(000 bu.)	(%)	(000 bu.)	(%)
Belle Fourche .....			66	0.9
Gregory .....			227	3.1
Lennox .....			73	1.0
Sioux Falls .....			154	2.1
South Dakota (sub-total) .....	0	0	519	7.1
Iowa .....	7,268	72.5	3,440	47.1
Minnesota .....	2,044	20.4	2,840	38.9
Montana .....			22	0.3
Nebraska .....	152	1.5	376	5.1
Oklahoma .....			44	0.6
Oregon .....	240	2.4		
Washington .....	316	3.2	66	0.9
Out-of-State (sub-total) .....	10,020	100.0	6,788	92.9
Total Shipments‡ .....	10,020	100.0	7,307	100.0

\*Destination of 50 percent of the truck traffic was reported as "unknown" and was allocated in proportion to distribution of known truck shipments.

†Does not include corn retailed back to farmers or feeders or used in feed sold by country elevators.

‡Detail may not add to total because of rounding.

Table 11. Destination of Corn Shipped by Truck from South Dakota Country Elevators, by Area, 1970.

Destination	Area					
	I	II	III	IV	V	VI
	(000 bu.)					
Belle Fourche .....	32					
Gregory .....					112	
Lennox .....					38	
Sioux Falls .....					75	
In-State (sub-total) .....	32				225	
Sioux City, Iowa .....					662	1,041
Minneapolis, Minn. ....	49	266	371	30	666	
Savage, Minn. ....					24	
Bozeman, Mont. ....					10	
Nebraska .....					179	
Oklahoma .....	20					
Spokane, Wash. ....			31			
Out-of-State (sub-total) ..	69	266	402	30	1,541	1,041
Unknown .....		139	122	31	1,245	2,162
Total Shipments* .....	101	405	524	61	3,012	3,203

\*Detail may not add to total because of rounding.

Table 12. Destination of Corn Shipped by Rail from South Dakota Country Elevators, by Area, 1970.

Destination	Area					
	I	II	III	IV	V	VI
	(000 bu.)					
In-State (sub-total) .....						
Sioux City, Iowa .....			77	19	2,967	4,204
Minneapolis, Minn. ....	10	4	1,175	131	724	
Omaha, Nebraska .....						153
Portland, Oregon .....		204			36	
Seattle, Washington .....					35	
Spokane, Washington .....			280			
Out-of-State (sub-total) ..	10	208	1,532	150	3,762	4,357
Total Shipments* .....	10	208	1,532	150	3,762	4,357

\*Detail may not add to total because of rounding.

## OATS

### Supply and Demand

An increase in oats acreage during 1970 was accompanied by a decrease in yield per acre. During 1970, South Dakota farmers harvested 2,569,000 acres of oats with an average yield of 41 bushels per acre. This compares with 2,357,000 harvested acres in 1969 with an average yield of 46.5 bushels per acre. Yield damage was caused primarily by hot, dry weather during July and August. See Figure 3 for a breakdown of oat production, receipts and shipments by area.

Oat receipts at country elevators during 1970 were an estimated 34,278,000 bushels, with out-shipments of 30,368,000 bushels. An increase in corn prices during 1970 (Table 4) contributed to a six percent nationwide increase in utilization of oats (Table 13). However, the South Dakota farm price for oats averaged only two cents per bushel above the 1969 level. As a result South Dakota oat stocks declined only one percent during 1970 (Table 14). Thus, oat receipts and shipments during 1970 did not reflect significantly inventory adjustments by farmers or elevator operators.

### Receipts

South Dakota elevators received an estimated 34,278,000 bushels of oats during 1970. This amounted to about 33 percent of the state's production. Only 1.5 percent of receipts came from out-of-state (Table 15).



Table 13. Oats Consumption, United States, 1966-1971.

Marketing Year Beginning July 1	Utilization				Total Use
	Domestic Use			Exports†	
	Feed*	Food, Industry and Seed	Total Domestic		
Million Bushels					
1966 -----	735	96	831	20	851
1967 -----	675	104	779	10	789
1968 -----	726	105	831	8	839
1969 -----	725	107	832	5	837
1970† -----	768	103	871	18	889
1971§ -----	725	100	825	25	850

Source: United States Department of Agriculture, *Feed Situation* FdS-244 (Washington: Economic Research Service, May 1972).

\*Residual; includes small quantities for other uses and waste.

†Includes grain equivalent of products.

‡Preliminary.

§Preliminary; based on May 1972 indications.

Table 14. Production and Stocks of Oats, South Dakota, 1967-1971.

Year	Production* (000 bu.)	Stocks†		Total (000 bu.)
		Farm (000 bu.)	Off-Farm (000 bu.)	
1967	107,462	77,014	13,118	90,132
1968	106,065	92,064	13,493	105,557
1969	109,601	95,458	16,613	108,561
1970	105,329	108,503	16,220	124,725
1971	125,766	106,382	17,165	123,547

Source: (1) South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1967-1970* (Sioux Falls, South Dakota and United States Department of Agriculture, 1967-1970).

(2) Ibid., *South Dakota Crop and Livestock Reporter*, January 26, 1972.

\*Crop year begins July 1 of year stated.

†Oats in storage January 1 of year stated.

Table 15. South Dakota Oat Production, and Country Elevator Receipts and Shipments, 1970.

Area	Production (000 bu.)	Receipts* (000 bu.)	Receipts/ Production	Ship- ments†	Shipments/ Production
			(%)	(000 bu.)	(%)
I	10,826	2,314	21.4	1,999	18.5
II	19,049	5,586	29.3	5,329	28.0
III	23,390	7,909	33.8	7,146	30.6
IV	10,316	2,125	20.6	2,032	19.7
V	26,444	9,956	37.6	7,797	29.5
VI	15,304	6,388	41.7	6,064	39.6
State‡	105,329	34,278	33.0	30,368	29.0

Source: Production data are from South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1970* (Sioux Falls, South Dakota and United States Department of Agriculture, 1970).

\*Out-of-state origins accounted for the following proportions of receipts: Area I, 2.1 percent; Area II, 7.0 percent; Area III, 0.6 percent; Area V, 0.2 percent; State average, 1.5 percent.

†Oats owned by the Commodity Credit Corporation accounted for the following proportions of shipments: Area II, 14.1 percent; Area III, 7.4 percent; Area IV, 0.9 percent; Area V, 5.8 percent; State average, 6.7 percent. Shipments include oats retailed back to farmers or feeders or used in feed sold by elevators.

‡Detail may not add to total because of rounding.

### Shipments

Shipments of oats were an estimated 30,368,000 bushels. Commodity Credit Corporation ownership of shipments ranged from 0.9 percent in area IV to 14.1 percent in area II, with a state average of 6.7 percent. The shipment/production ratio averaged 29 percent with a range of 18.5 percent in area I and 39.6 percent in area VI (Table 15).

Over 37 percent of oat load-outs were retailed to farmers or feeders or used in feed sold by elevators. However, in area I, oats going to farmers or into feed accounted for 90.4 percent of shipments (Table 16).

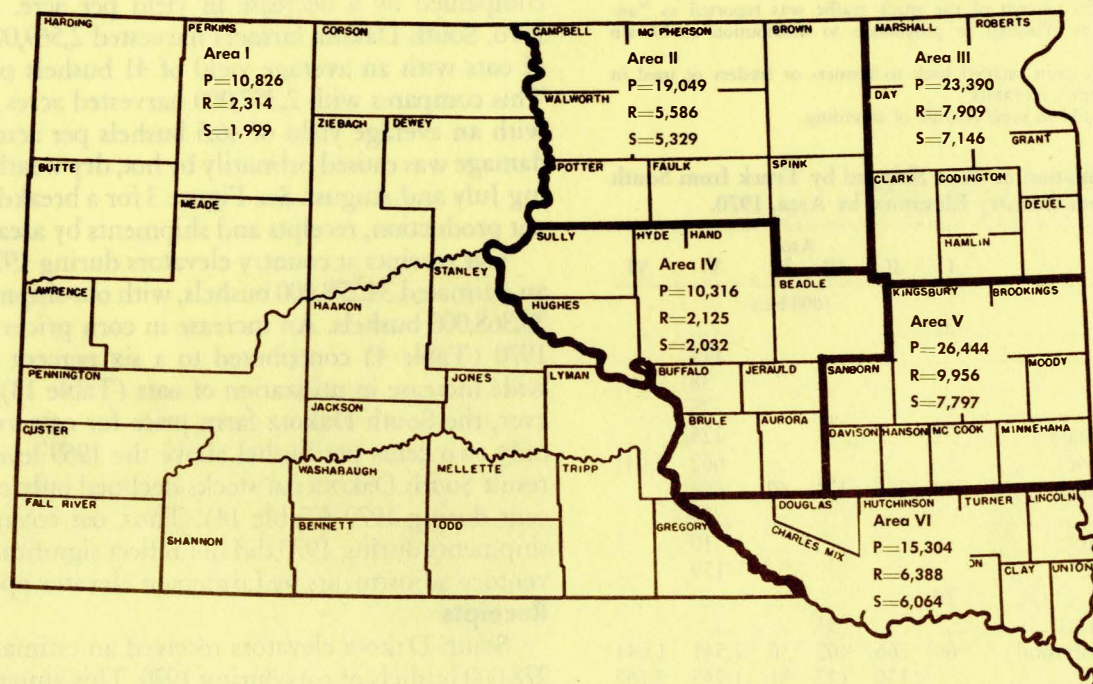


Figure 3. Oat Production (P) and Country Elevator Receipts (R) and Shipments (S), by Area, 1970 (000 bu.).



Railroads carried 40 percent of total oat shipments, or 64 percent of shipments to non-farm destinations. Trucks carried the remaining 36 percent of shipments to non-farm destinations.

Ninety-five percent of rail shipments were in ordinary boxcars, with covered hopper cars carrying the remaining five percent (Table 17). Truck shipments were split almost equally between one-way hauls and backhauls (Table 18). However, backhaul loads were more important in area VI with one-way haulers being more important in area I.

## Destinations

Out-of-state destinations received all rail shipments and 91.4 percent of non-farm truck shipments (Table 19). Iowa points received 55.7 percent of rail shipments with Minnesota receiving 44.2 percent. Truck shipments reflected somewhat opposite trends, with Minnesota receiving 49.3 percent and Iowa 22.0 percent. A more detailed analysis of destination is contained in Table 20 (rail) and Table 21 (truck).

**Table 16. Mode of Oat Shipments from South Dakota Country Elevators, 1970.**

Area	Rail		Truck*		Farmers, Feeders or Used in Feed		Total	
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)
I .....	7	0.4	184	9.2	1,808	90.4	1,999	100
II .....	1,621	30.4	1,716	32.2	1,992	37.4	5,329	100
III .....	4,087	57.2	937	13.1	2,122	29.7	7,146	100
IV .....	356	17.5	341	16.8	1,335	65.7	2,032	100
V .....	3,528	45.3	2,309	29.6	1,960	25.1	7,797	100
VI .....	2,536	41.8	1,405	23.2	2,123	35.0	6,064	100
State† ..	12,135	40.0	6,892	22.7	11,340	37.3	30,368	100

\*Does not include oats retailed back to farmers or feeders or used in feed sold by country elevators.

†Detail may not add to total because of rounding.

**Table 17. Disposition and Type of Car Used for Oats Shipped by Rail from South Dakota Country Elevators, 1970.\***

Area	Disposition				Type of Car				Total (000 bu.)
	A		B		C		D		
	In-State		Out-of-State		Ordinary Boxcars		Covered Hopper Cars		
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	
I .....	0	0	7	100	7	100.0	0	0	7
II .....	0	0	1,621	100	1,449	89.4	172	10.6	1,621
III .....	0	0	4,087	100	3,965	97.0	122	3.0	4,087
IV .....	0	0	356	100	334	93.7	22	6.3	356
V .....	0	0	3,529	100	3,365	95.7	163	4.3	3,529
VI .....	0	0	2,536	100	2,393	94.4	143	5.6	2,536
State† ..	0	0	12,136	100	11,513	95.0	622	5.0	12,136

\*A+B=C+D=E.

†Detail may not add to total because of rounding.

**Table 18. Disposition and Type of Haul Used for Oats Shipped by Truck from South Dakota Country Elevators, 1970.\***

Area	Disposition				Type of Haul				Total† (000 bu.)
	A		B		C		D		
	In-State		Out-of-State		Back Haul		One Way		
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	
I _____	0	0	184	100.0	40	21.5	145	78.5	184
II _____	0	0	1,716	100.0	910	53.1	806	46.9	1,716
III _____	0	0	937	100.0	333	35.6	604	64.4	937
IV _____	214	62.8	127	37.2	130	38.2	211	61.8	341
V _____	164	7.1	2,145	92.9	1,144	49.6	1,164	50.4	2,309
VI _____	0	0	1,405	100.0	921	65.6	484	34.4	1,405
State‡ _____	378	6.1	6,514	93.9	3,479	50.2	3,413	49.8	6,892

\*Does not include oats retailed back to farmers or feeders or used in feed sold by country elevators.

†A+B=C+D=E

‡Detail may not add to total because of rounding.



**Table 19. Oat Shipments from South Dakota Country Elevators, by Destination and Mode of Shipment, 1970.\***

Destination	Mode			
	Rail		Truck†	
	(000 bu.)	(%)	(000 bu.)	(%)
Huron .....			332	4.8
Sioux Falls .....			263	3.8
South Dakota (sub-total) .....	0	0	595	8.6
Arkansas .....			360	5.2
Colorado .....			14	0.2
Iowa .....	6,769	55.7	1,517	22.0
Kansas .....			229	3.3
Minnesota .....	5,360	44.2	3,400	49.3
Missouri .....			145	2.1
Nebraska .....	7	0.1		
Oklahoma .....			251	3.6
Texas .....			381	5.5
Out-of-State (sub-total) .....	12,136	100.0	6,297	91.4
Total Shipments‡ .....	12,136	100.0	6,892	100.0

\*Destination of 36 percent of the truck traffic was reported as "unknown" and was allocated in proportion to distribution of known truck shipments.

†Does not include oats retailed back to farmers or feeders or used in feed sold by country elevators.

‡Detail may not add to total because of rounding.

**Table 20. Destination of Oats Shipped by Rail from South Dakota Country Elevators, by Area, 1970.**

Destination	Area					
	I	II	III	IV	V	VI
	(000 bu.)					
In-State (sub-total) .....						
Sioux City, Iowa .....		546	751	171	2,765	2,536
Minneapolis, Minn. ....		1,075	3,336	186	763	
Fremont, Nebraska .....	7					
Out-of-State (sub-total) .....	7	1,621	4,087	356	3,528	2,536
Total Shipments* .....	7	1,621	4,087	356	3,528	2,536

\*Detail may not add to total because of rounding.

**Table 21. Destination of Oats Shipped by Truck from South Dakota Country Elevators, by Area, 1970.**

Destination	Area					
	I	II	III	IV	V	VI
	(000 bu.)					
Huron .....				211		
Sioux Falls .....				3	164	
In-State (sub-total) .....				214	164	
Arkansas .....	30	160	37			
Greeley, Colorado .....					7	
Sioux City, Iowa .....				10	253	701
Kansas .....					19	126
Minneapolis, Minn. ....	49	1,256	816		12	
Savage, Minn. ....			11		13	
Missouri .....					19	75
Oklahoma .....	75		35		49	
Texas .....	30	161	38			
Out-of-State (sub-total) .....	184	1,577	937	10	372	902
Unknown .....		139		117	1,773	503
Total Shipments* .....	184	1,716	937	341	2,309	1,405

\*Detail may not add to total because of rounding.

## BARLEY

### Supply and Demand

South Dakota farmers harvested 368,000 acres of barley during 1970, with an average yield of 33 bushels per acre. This compares to 344,000 acres during 1969, averaging 35 bushels per acre. See Figure 4 for a breakdown of barley production, receipts, and shipments by area.

During 1970 South Dakota grain elevators received an estimated 6,354,000 bushels of barley, with out-shipments estimated at 6,844,000 bushels. Nationwide barley utilization increased 20 percent over 1969 levels, primarily in response to reduced corn production and higher corn prices (Table 22). Increased utilization was reflected in higher barley prices, with South Dakota farm prices increasing to \$.83 per bushel from \$.79 during 1969 (Table 4). Although farm storage during 1970 increased three percent, off-farm storage decreased 28 percent. Thus, total South Dakota inventories of barley declined by 847,000 bushels, or five percent (Table 23). An overall reduction in inventory positions contributed to elevator receipts and shipments.

**Table 22. Barley Consumption, United States, 1966-1971.**

Marketing Year Beginning July 1	Utilization				Total Use
	Domestic Use				
	Feed*	Food, Industry and Seed	Total Domestic	Exports†	
Million Bushels					
1966	211	127	338	45	383
1967	205	129	334	31	365
1968	227	132	359	13	372
1969	241	141	382	17	399
1970‡	286	136	422	78	500
1971§	278	140	412	50	468

Source: United States Department of Agriculture, *Feed Situation* FdS-244 (Washington: Economic Research Service, May 1972).

\*Residual; includes small quantities for other uses and waste.

†Includes grain equivalent of products.

‡Preliminary.

§Preliminary; based on May 1972 indications.

**Table 23. Production and Stocks of Barley, South Dakota, 1967-1971.**

Year	Production* (000 bu.)	Stocks†		
		Farm (000 bu.)	Off-Farm (000 bu.)	Total (000 bu.)
1967 .....	13,079	5,113	2,274	7,387
1968 .....	19,149	6,801	2,571	9,372
1969 .....	12,040	14,936	3,512	18,448
1970 .....	12,144	11,558	4,232	15,790
1971 .....	18,655	11,901	3,042	14,943

Source: (1) South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1967-1970* (Sioux Falls, South Dakota and United States Department of Agriculture, 1967-1970).

(2) Ibid., *South Dakota Crop and Livestock Reporter*, January 26, 1972.

\*Crop year begins July 1 of year stated.

†Barley storage January 1 of year stated.



## Receipts

Barley receipts during 1970 were an estimated 6,354,000 bushels, which was about 53 percent of the state's production (Table 24). However, the receipt/production ratio ranged from 17 percent in area IV to 95.5 percent in area III. Barley from out-of-state provided 8.3 percent of receipts.

**Table 24. South Dakota Barley Production, and Country Elevator Receipts and Shipments, 1970.**

Area	Production (000 bu.)	Receipts (000 bu.)	Receipts/ Production (%)	Ship- ments† (000 bu.)	Shipments/ Production (%)
I	2,873	720	25.1	699	24.3
II	3,655	2,040	55.8	2,174	59.5
III	2,926	2,795	95.5	2,752	94.1
IV	976	166	17.0	140	14.3
V	1,322	529	40.0	953	72.1
VI	392	93	23.7	127	32.4
State‡	12,144	6,354	53.0	6,844	56.0

Source: Production data are from South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1970* (Sioux Falls, South Dakota and United States Department of Agriculture, 1970).

\*Out-of-state origins accounted for the following proportions of receipts: Area I, 4.7 percent; Area II, 6.7 percent; Area III, 12.8 percent; State average, 8.3 percent.

†Barley owned by the Commodity Credit Corporation accounted for the following proportions of shipments: Area I, 0.7 percent; Area II, 14.0 percent; Area III, 14.0 percent; Area IV, 20.5 percent; Area V, 47.3 percent; State average, 17.2 percent. Shipments include barley retailed back to farmers or feeders or used in feed sold by elevators.

‡Detail may not add to total because of rounding.

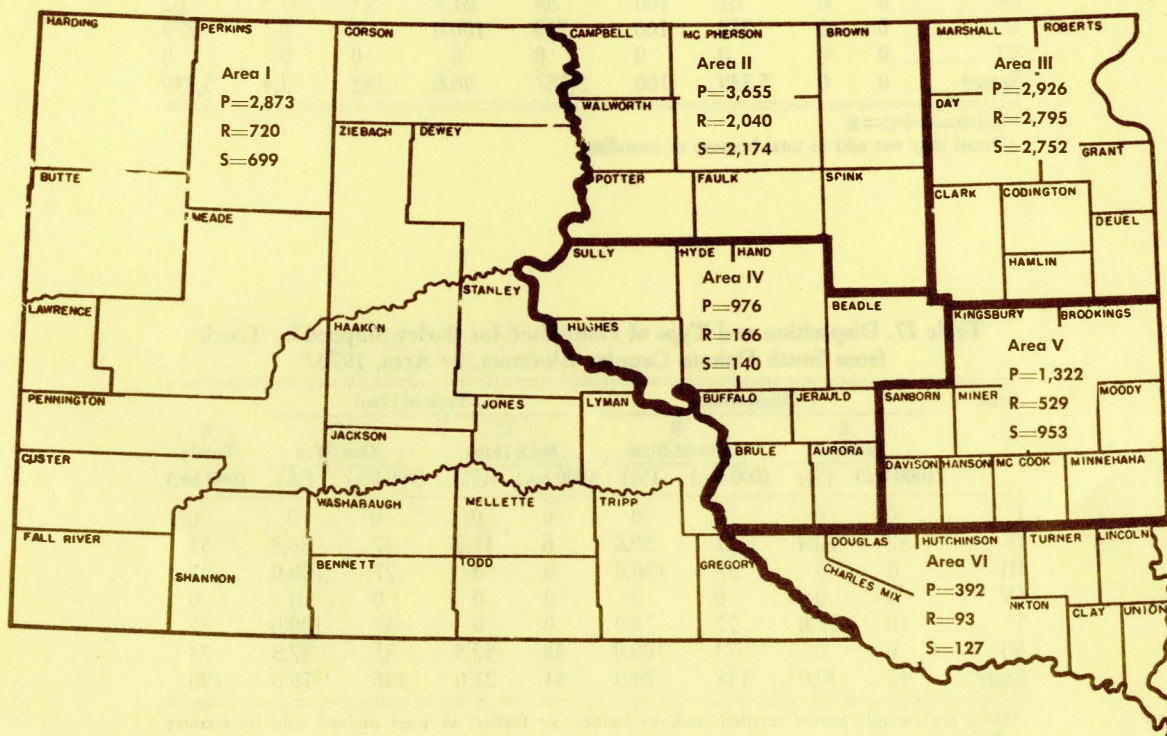
## Shipments

Shipments of barley from South Dakota elevators were an estimated 6,844,000 bushels during 1970. Over 17 percent of barley shipments belonged to the Commodity Credit Corporation (CCC). In area V, CCC ownership accounted for 47.3 percent of shipments. The shipment/production ratio ranged between 14.3 percent in area IV and 94.1 percent in area III, with a state average of 56 percent (Table 24).

Barley retailed to farmers or used in feed sold by elevators accounted for 19.2 percent of barley load-outs (Table 25). Railroads carried 77.7 percent of shipments with truck shipments to non-farm destinations accounting for the remaining 3.1 percent. However, truck shipments to non-farm destinations accounted for 57.5 percent of total shipments in area VI. Rail movements were primarily in ordinary boxcars (Table 26), while truck shipments to non-farm destinations were primarily by one-way grain haulers (Table 27).

## Destinations

Out-of-state destinations received all rail shipments and 72.1 percent of non-farm truck shipments (Table 28). Minnesota received nearly all rail shipments and 30.3 percent of truck shipments. Iowa was also an important truck destination, receiving 30.4 percent of truck shipments. Tables 29 (rail) and 30 (truck) contain a more detailed analysis of shipment destinations.



**Figure 4. Barley Production (P) and Country Elevator Receipts (R) and Shipments (S), by Area, 1970 (000 bu.).**



Table 25. Mode of Barley Shipments from South Dakota Country Elevators, 1970.

Area	Rail		Truck*		Farmers, Feeders or Used in Feed		Total	
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)
I .....	5	0.7	0	0	694	99.3	699	100
II .....	1,846	84.9	53	2.4	276	12.7	2,174	100
III .....	2,647	96.2	27	1.0	78	2.8	2,752	100
IV .....	62	44.6	0	0	77	55.4	139	100
V .....	779	96.2	37	3.8	137	14.4	953	100
VI .....	0	0	73	57.5	54	42.4	127	100
State† ..	5,340	77.7	190	3.1	1,316	19.2	6,844	100

\*Does not include barley retailed back to farmers or feeders or used in feed sold by country elevators.

†Detail may not add to total because of rounding.

## GRAIN SORGHUM

### Supply and Demand

South Dakota farmers harvested 282,000 acres of sorghum for grain during 1970, with an average yield of 34 bushels per acre. During 1969, farmers harvested 207,000 acres, averaging 44 bushels per acre. See Figure 5 for a breakdown of grain sorghum production, receipts, and shipments by area.

South Dakota country elevators received an estimated 4,314,000 bushels of sorghum during 1970, with out-shipments estimated at 4,774,000 bushels. Reduced corn production during 1970 contributed to increased sorghum utilization (Table 31). The seven percent increase in sorghum utilization was accom-

Table 26. Disposition and Type of Car Used for Barley Shipped by Rail from South Dakota Country Elevators, by Area, 1970.\*

Area	Disposition				Type of Car				E Total (000 bu.)
	A		B		C		D		
	In-State		Out-of-State		Ordinary Boxcars		Covered Hopper Cars		
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	
I _____	0	0	5	100	5	100.0	0	0	5
II _____	0	0	1,846	100	1,809	98.0	37	2.0	1,846
III _____	0	0	2,647	100	2,525	95.4	123	4.6	2,647
IV _____	0	0	62	100	39	62.8	23	37.2	62
V _____	0	0	779	100	779	100.0	0	0	779
VI _____	0	0	0	0	0	0	0	0	0
State† _____	0	0	5,339	100	5,157	96.6	182	3.4	5,339

\*A+B=C+D=E

†Detail may not add to total because of rounding.

Table 27. Disposition and Type of Haul Used for Barley Shipped by Truck from South Dakota Country Elevators, by Area, 1970.\*

Area	Disposition				Type of Haul				E Total† (000 bu.)
	A		B		C		D		
	In-State		Out-of-State		Back Haul		One-Way		
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	
I .....	0	0	0	0	0	0	0	0	0
II .....	32	60.4	21	39.6	6	11.2	47	88.8	53
III .....	0	0	27	100.0	0	0	27	100.0	27
IV .....	0	0	0	0	0	0	0	0	0
V .....	10	27.0	27	73.0	0	0	37	100.0	37
VI .....	0	0	73	100.0	38	52.5	35	47.5	73
State† ...	42	30.0	148	70.0	44	21.0	146	79.0	190

\*Does not include barley retailed back to farmers or feeders or used in feed sold by country elevators.

†A+B=C+D=E

‡Detail may not add to total because of rounding.



panied by a five percent increase in production (Table 32). Although sorghum prices increased from \$1.63 per hundred in 1969 to \$1.80 in 1970 (Table 4), South Dakota storage volume remained essentially constant (Table 32). Thus, elevator receipts and shipments do not reflect significant changes in farm or elevator inventories.

## Receipts

South Dakota grain elevators received an estimated 4,314,000 bushels of grain sorghum during 1970. All reported receipts originated within the state. The receipts/production ratio ranged from 24 percent in area IV to 55.9 percent in area I, with a state average of 45 percent (Table 33).

**Table 28. Barley Shipments from South Dakota Country Elevators, by Destination and Mode of Shipment, 1970\***

Destination	Mode			
	Rail		Truck†	
	(000 bu.)	(%)	(000 bu.)	(%)
Sioux Falls,				
South Dakota (sub-total)			53	27.9
Iowa	247	4.6	68	35.8
Minnesota	5,093	95.4	69	36.3
Out-of-State (sub-total)	5,340	100.0	137	72.1
Total Shipments‡	5,340	100.0	190	100.0

\*Destination of 22 percent of the truck traffic was reported as "unknown" and was allocated in proportion to distribution of known truck shipments.

†Does not include barley retailed back to farmers or feeders or used in feed sold by country elevators.

‡Detail may not add to total because of rounding.

**Table 29. Destination of Barley Shipped by Rail from South Dakota Country Elevators, by Area, 1970.**

Destination	Area					
	I	II	III	IV	V	VI
	(000 bu.)					
In-State (sub-total)						
Sioux City, Iowa				34	213	
Minneapolis, Minn.	5	1,672	2,317	29	566	
New Ulm, Minnesota		174				
Shakopee, Minnesota			330			
Out-of-State (sub-total)	5	1,846	2,647	63	779	
Total Shipments*	5	1,846	2,647	63	779	

\*Detail may not add to total because of rounding.

**Table 30. Destination of Barley Shipped by Truck from South Dakota Country Elevators, by Area, 1970.**

Destination	Area					
	I	II	III	IV	V	VI
	(000 bu.)					
Sioux Falls		32			10	
In-State (sub-total)		32			10	
Sioux City, Iowa					10	40
Minneapolis, Minn.		10	27		13	
Out-of-State (sub-total)		10	27		23	40
Unknown		11			4	33
Total Shipments*		53	27		37	73

\*Detail may not add to total because of rounding.

## Shipments

Shipments total an estimated 4,774,000 bushels. No Commodity Credit Corporation ownership of sorghum was reported. The shipments/production ratio averaged 50 percent (Table 33).

**Table 31. Grain Sorghum Consumption, United States, 1966-1971.**

Marketing Year Beginning October 1	Utilization				Total Use
	Domestic Use			Exports†	
	Feed*	Feed, Industry and Seed	Total Domestic		
Million Bushels					
1966 .....	601	13	614	248	862
1967 .....	532	13	545	166	711
1968 .....	622	13	635	106	741
1969 .....	654	9	663	126	789
1970‡ .....	698	9	707	144	851
1971§ .....	687	9	696	90	786

Source: United States Department of Agriculture, *Feed Situation* FdS-244 (Washington: Economic Research Service, May, 1972).

\*Residual; includes small quantities for other uses and waste.

†Includes grain equivalent of products.

‡Preliminary.

§Preliminary; based on May, 1972 indications.

**Table 32. Production and Stocks of Grain Sorghum, South Dakota, 1967-1971.**

Year	Production* (000 bu.)	Stocks†		
		Farm (000 bu.)	Off-Farm (000 bu.)	Total (000 bu.)
1967	7,608	8,818	1,681	10,499
1968	8,296	5,782	1,913	7,695
1969	9,108	6,305	1,648	7,953
1970	9,588	7,013	1,741	8,754
1971	12,985	7,191	1,609	8,800

Source: (1) South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1967-1970* (Sioux Falls, South Dakota and United States Department of Agriculture, 1967-1970).

(2) Ibid., *South Dakota Crop and Livestock Reporter*, January 26, 1972.

\*Crop year begins October 1 of year stated.

†Grain sorghum in storage January 1 of year stated.

**Table 33. South Dakota Grain Sorghum Production, and Country Elevator Receipts and Shipments, 1970.**

Area	Production (000 bu.)	Receipts* (000 bu.)	Receipts/ Production (%)	Ship- ments‡ (000 bu.)	Shipments/ Production (%)
I	2,758	1,542	55.9	1,311	47.5
II	476	133	27.9	123	25.8
III	35	0	0	0	0
IV	860	206	24.0	166	19.3
V	867	387	44.6	270	31.1
VI	4,592	2,045	44.5	2,904	63.2
State‡	9,588	4,314	45.0	4,774	50.0

Source: Production data are from South Dakota Crop and Livestock Reporting Service, *South Dakota Agriculture 1970* (Sioux Falls, South Dakota and United States Department of Agriculture, 1970).

\*No out-of-state receipts were reported.

†No Commodity Credit Corporation ownership of shipments was reported. Shipments include sorghum retailed back to farmers or feeders or used in feed sold by elevators.

‡Detail may not add to total because of rounding.



About 37 percent of load-outs were retailed to farmers or used in feed sold by elevators. Railroads carried almost 44 percent of shipments with truck shipments to non-farm destinations accounting for 19 percent of total shipments (Table 34). However, rails carried 61.6 percent of total shipments in area VI, with trucks carrying 68.7 percent in area IV. Covered hopper cars carried most of the rail shipments in areas I and II, with ordinary boxcars carrying all of the shipments in areas V and VI. Because of greater volume moving from areas V and VI the state averaged 89.9 percent of rail shipments by ordinary boxcars. No rail shipments were reported from areas III or IV (Table 35).

Table 34. Mode of Grain Sorghum Shipments from South Dakota Country Elevators, 1970.

Area	Rail		Truck*		Farmers, Feeders or Used in Feed		Total	
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)
I .....	189	14.4	190	14.4	933	71.2	1,311	100
II .....	65	53.3	40	31.9	18	14.8	122	100
III .....	0	0	0	0	0	0	0	100
IV .....	52	31.3	114	68.7	0	0	166	100
V .....	41	15.2	146	54.1	83	30.7	270	100
VI .....	1,790	61.6	483	16.6	632	21.8	2,904	100
State† .....	2,084	43.7	910	19.0	1,780	37.3	4,774	100

\*Does not include sorghum retailed back to farmers or feeders or used in feed sold by country elevators.

†Detail may not add to total because of rounding.

Table 35. Disposition and Type of Car Used for Grain Sorghum Shipped by Rail from South Dakota Country Elevators, 1970.\*

Area	Disposition				Type of Car				E
	A		B		C		D		
	In-State		Out-of-State		Ordinary	Boxcars	Covered		
	(000 bu.)	(%)	(000 bu.)	(%)			Hopper Cars	(%)	
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	Total (000 bu.)
I _____	13	6.9	176	93.1	43	22.7	146	77.3	189
II _____	0	0	65	100.0	0	0	65	100.0	65
III _____	0	0	0	0	0	0	0	0	0
IV _____	0	0	0	0	0	0	0	0	0
V _____	0	0	41	100.0	41	100.0	0	0	41
VI _____	0	0	1,790	100.0	1,790	100.0	0	0	1,790
State† _____	13	0.6	2,071	99.4	1,873	89.9	211	10.1	2,084

\*A+B=C+D=E

†Detail may not add to total because of rounding.

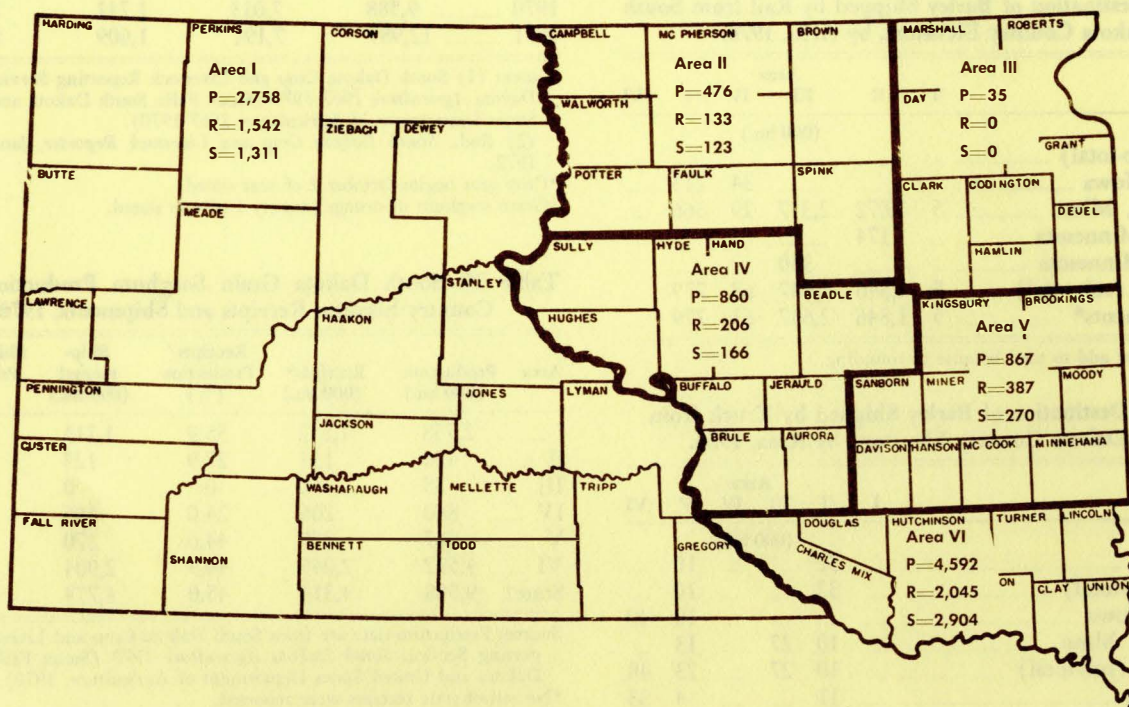


Figure 5. Grain Sorghum Production (P) and Country Elevator Receipts (R) and Shipments (S), by Area, 1970 (000 bu.).



One-way grain haulers accounted for all truck shipments to non-farm destinations in areas I and II, and 81.1 percent of truck shipments in area VI. Backhaul loads were dominant in areas IV and V. For the state average, one-way truckers carried 69 percent of non-farm truck shipments with backhaul loads accounting for the remaining 31 percent (Table 36).

### Destinations

Out-of-state destinations accounted for 99.4 percent of rail shipments and 96.7 percent of non-farm truck shipments (Table 37). Iowa was the primary destination for both modes receiving 89.5 percent of rail shipments and 84.2 percent of non-farm truck shipments. Minnesota accounted for 10 percent of non-farm truck shipments with Oregon accounting for 6.8 percent of rail shipments. A more detailed analysis of destinations is contained in Table 38 (rail) and Table 39 (truck).

**Table 36. Disposition and Type of Haul Used for Grain Sorghum Shipped by Truck from South Dakota Country Elevators, 1970\***

Area	Disposition				Type of Haul				Total† (000 bu.)
	A		B		C		D		
	In-State		Out-of-State		Back Haul		One-Way		
	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	(000 bu.)	(%)	
I	10	5.3	180	94.7	0	0	190	100.0	190
II	0	0	40	100.0	0	0	40	100.0	40
III	0	0	0	0	0	0	0	0	0
IV	0	0	52	100.0	45	86.8	7	13.2	52
V	0	0	146	100.0	146	100.0	0	0	146
VI	3	0.6	480	99.4	91	18.9	392	81.1	483
State†	13	1.4	897	98.6	282	31.0	628	69.0	910

\*Does not include sorghum retailed back to farmers or feeders or used in feed sold by country elevators.

†A+B=C+D=E

‡Detail may not add to total because of rounding.

**Table 37. Grain Sorghum Shipments from South Dakota Country Elevators by Destination and Mode of Shipment, 1970.\***

Destination	Mode			
	Rail		Truck†	
	(000 bu.)	(%)	(000 bu.)	(%)
Belle Fourche	-----	-----	23	2.5
Philip	-----	-----	7	0.8
Rapid City	13	0.6	-----	-----
South Dakota (sub-total)	13	0.6	30	3.3
Iowa	1,866	89.5	766	84.2
Minnesota	65	3.1	91	10.0
Oklahoma	-----	-----	23	2.5
Oregon	140	6.8	-----	-----
Out-of-State (sub-total)	2,071	99.4	880	96.7
Total Shipments‡	2,084	100.0	910	100.0

\*Destination of 56 percent of the truck traffic was reported as "unknown" and was allocated in proportion to distribution of known truck shipments.

†Does not include sorghum retailed back to farmers or feeders or used in feed sold by country elevators.

‡Detail may not add to total because of rounding.

**Table 38. Destination of Grain Sorghum Shipped by Rail from South Dakota Country Elevators, by Area, 1970.**

Destination	I	II	Area			
			III	IV	V	VI
			(000 bu.)			
Rapid City	13	-----	-----	-----	-----	-----
In-State (sub-total)	13	-----	-----	-----	-----	-----
Sioux City, Iowa	36	-----	-----	-----	41	1,790
Duluth, Minnesota	-----	65	-----	-----	-----	-----
Portland, Oregon	140	-----	-----	-----	-----	-----
Out-of-State (sub-total)	176	65	-----	-----	41	1,790
Total Shipments*	189	65	-----	-----	41	1,790

\*Detail may not add to total because of rounding.

**Table 39. Destination of Grain Sorghum Shipped by Truck from South Dakota Country Elevators, by Area, 1970.**

Destination	I	II	Area			
			III	IV	V	VI
			(000 bu.)			
Belle Fourche	10	-----	-----	-----	-----	-----
Philip	-----	-----	-----	-----	-----	3
In-state (sub-total)	10	-----	-----	-----	-----	3
Sioux City, Iowa	-----	-----	-----	-----	-----	335
Minneapolis, Minn.	-----	40	-----	-----	-----	-----
Oklahoma	10	-----	-----	-----	-----	-----
Out-of-State (sub-total)	10	40	-----	-----	-----	335
Unknown	170	-----	-----	52	146	145
Total Shipments*	180	40	-----	52	146	483

\*Detail may not add to total because of rounding.

## SUMMARY

South Dakota grain elevators received an estimated 98,111,000 bushels of feed grains during calendar year 1970. Elevator receipts were 43 percent of production with out-shipments of 90,659,000 bushels, or 40 percent of production. Feed grains retailed to local feeders or used in feed sold by elevators accounted for 50.5 percent (45,782,000 bu.) of load-outs with non-farm destinations receiving the remaining 49.5 percent (44,877,000 bu.). Railroads carried 66 percent (29,578,000 bu.) of shipments to non-farm destinations with trucks carrying the remaining 34 percent (15,399,000 bu.). Iowa and Minnesota were the primary destination states.

### Corn

Elevators received an estimated 53,165,000 bushels of corn during 1970, with out-shipments of 48,672,000 bushels. Corn retailed to local feeders or used in feed sold by elevators accounted for 64 percent (31,346,000 bu.) of out-shipments. Railroads carried 58 percent (10,019,000 bu.) of shipments to non-farm destinations, primarily by ordinary boxcars. Trucks carried the remaining 42 percent (7,307,000 bu.). Backhaul loads accounted for 36 percent of truck shipments with one-way grain haulers transporting the remaining 64 percent. Iowa and Minnesota were the primary destinations for both modes of corn shipment (Figure 6).



## Oats

Oats delivered to country elevators totaled 34,278,000 bushels. Outshipments amounted to 30,368,000 bushels, with 11,340,000 bushels (37.3 percent) being retailed to farmers or feeders. Railroads carried 64 percent (12,135,000 bu.) of shipments to non-farm destinations with trucks carrying the remaining 36 percent (6,892,000 bu.). Railroad shipments were primarily by ordinary boxcar (95 percent) while truck shipments were split evenly between one-way and back-

haul loads. Minnesota and Iowa were the primary destination states for oats shipments (Figure 7).

## Barley

Barley receipts were 6,354,000 bushels with outshipments of 6,846,000 bushels. Over 19 percent (1,316,000 bu.) of load-outs went to farmers and feeders, with railroads transporting nearly all shipments to non-farm destinations. Minnesota and Iowa were the primary destination states (Figure 8).



Figure 6. Percentage of Total Corn Shipments from South Dakota Country Elevators to Each Destination State, 1970.\*†

\*Detail may not add to 100 percent due to rounding.

†Does not include corn retailed to farmers or feeders or used in feed sold by country elevators.



Country elevators received 4,314,000 bushels of grain sorghum and shipped out 4,774,000 bushels. Sorghum retailed to feeders or used in feed sold by the elevators accounted for over 37 percent (1,780,000 bu.) of load-outs. Railroads carried 70 percent (2,084,000

1974





Figure 8. Percentage of Total Barley Shipments from South Dakota Country Elevators to Each Destination State, 1970.\*†

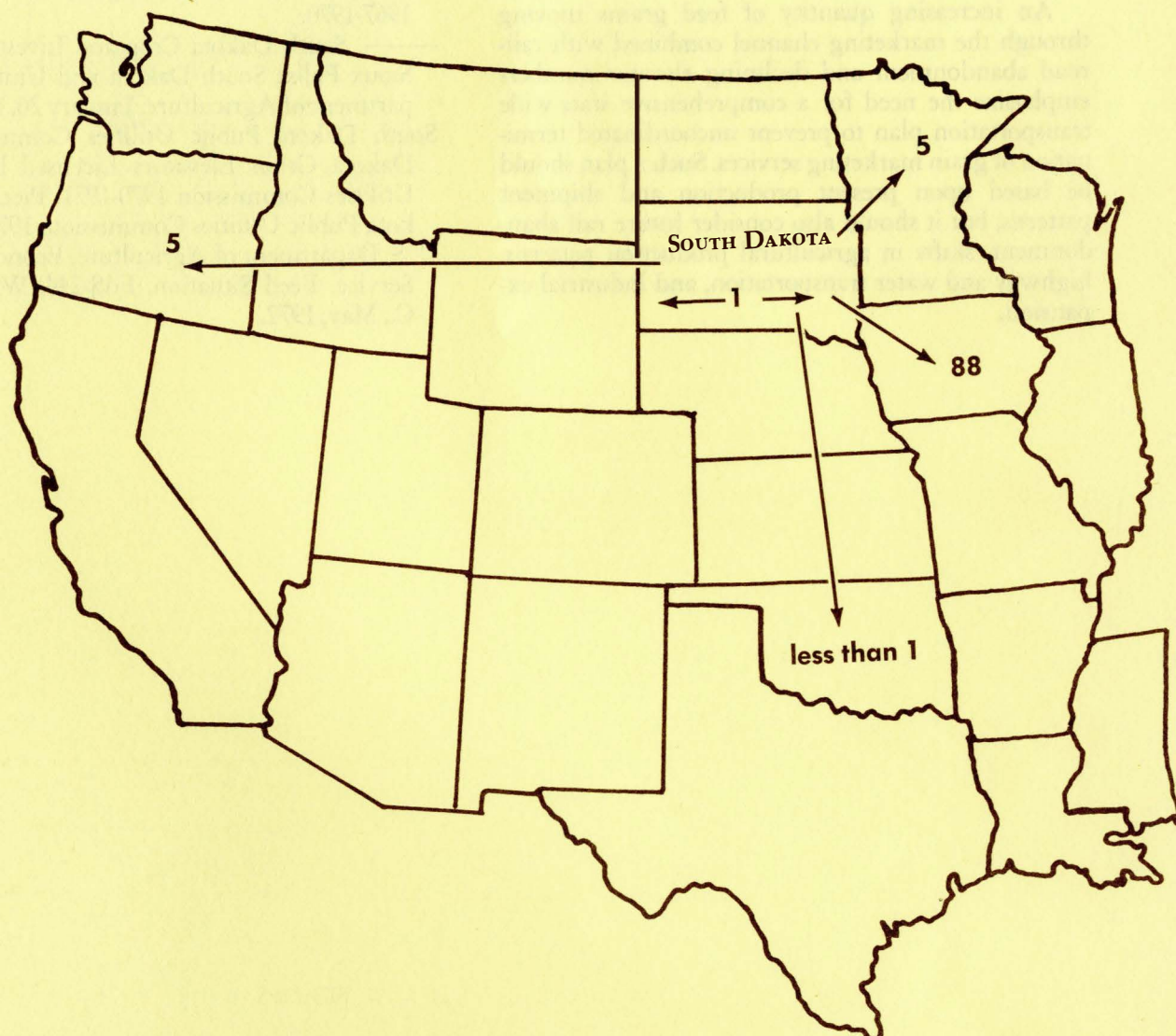
\*Detail may not add to 100 percent due to rounding.

†Does not include barley retailed to farmers or feeders or used in feed sold by country elevators.



## A hand-drawn map of the Pacific Northwest region, showing the coastlines of Washington, Oregon, and California. A horizontal line with an arrow pointing left is labeled '5'.

A map of South Dakota with its county boundaries indicated by thin lines. The northeastern corner of the state is highlighted with a thick black outline. Within this outlined area, a small black dot is labeled with the number '5'. An arrow points from the text 'SOUTH DAKOTA' to the outlined region.



†Does not include grain sorghum retailed to farmers or feeders or used in feed sold by country elevators.



## IMPLICATIONS

Because nearly all South Dakota elevator shipments of feed grains to non-farm destinations move out-of-state, it is important to have dependable, long distance transportation. However, from 1960-1970 railroads in South Dakota abandoned 362 miles of track. The grain industry operates on small margins and is dependent upon efficient transportation to acquire and ship the necessary volume to remain profitable. So railroad abandonment is critical to South Dakota's agriculturally based economy. In addition, during the 1960-1970 period, South Dakota grain elevator numbers decreased 25 percent, from 533 to 401. This indicates the need for greater volume at remaining elevators and a resulting greater transportation cost from farm to elevator.

An increasing quantity of feed grains moving through the marketing channel combined with railroad abandonment and declining elevator numbers emphasize the need for a comprehensive state-wide transportation plan to prevent uncoordinated termination of grain marketing services. Such a plan should be based upon present production and shipment patterns, but it should also consider future rail abandonment, shifts in agricultural production patterns, highway and water transportation, and industrial expansion.

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