The Iowa Grain Flow Survey:

Where and How Iowa Grain Producers and Country Elevators Ship Corn and Soybeans

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Introduction

Iowa is a major producer of corn and soybeans. In 1994, Iowa was the largest producer of corn in the United States, producing 1.93 billion bushels or 19.1 percent of the total U.S. production. Iowa also was the largest producer of soybeans in the United States, producing 443 million bushels or 17.3 percent of the total U.S. production.

There is little public information on the quantities of corn and soybeans shipped from Iowa to various markets or on the modes of transport to ship them. Moreover, there is no information on the quantities of corn and soybeans shipped by producers to various markets or the types of vehicles used to haul them.

To provide information on these flows, Iowa State University, the Iowa Department of Transportation, the Iowa Department of Agriculture and Land Stewardship, and the Iowa Agricultural Statistics Service cooperatively conducted two grain flow surveys.

The first was a farm-to-market survey from a sample of Iowa grain producers. The second was a survey of all Iowa country elevators. This manuscript reports the results of both surveys. A copy of each questionnaire is presented in Appendix J along with a map outlining all crop reporting districts in Iowa.

Farm-to-market survey

The producer grain flow survey data were collected by questionnaire from a random sample of 3,501 drawn from a sub-set of 9,755 farm operators maintained by the Iowa Agricultural Statistics Service. The sub-set consisted of farm operators who responded to the 1994 acreage and yield survey conducted in late 1994. Thus, the sub-set was a representative random sample of corn and soybean producers. The sample was selected from those who produced corn or soybeans or both crops in 1994. Producers who reported only seed production and did not grow corn for grain or soybeans for beans were assigned a probability of zero for selection because their marketing methods are different than those of general grain producers.

The 3,501 questionnaires were mailed by Iowa Agriculture Statistics Service on August 17, 1995. The single mailing yielded 1,510 useable responses, a return of almost 43 percent. The questionnaires were returned to the Iowa Agricultural Statistics Service where the data were coded and placed on a computer disk. The data were then analyzed and summarized by the authors of this report. The number of farm operators sampled and useable questionnaires returned by crop reporting district are presented in table 1.

Table 1. Number of farm operators, number sampled and number useable questionnaires returned by crop reporting district in Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Population	Number of farm operators sampled	Number of usable questionnaires returned	Percent response
Northwest	12,500	449	219	48.8
North Central	10,380	432	198	45.8
Northeast	14,500	464	194	41.8
West Central	12,040	413	168	40.7
Central	12,440	519	234	45.1
East Central	12,240	436	178	40.8
Southwest	7,580	236	97	41.1
South Central	9,460	244	104	42.6
Southeast	9,860	308	118	38.3
Total	101,000	3,501	1,510	42.8

Table 2 shows the corn and soybean production and sales by crop reporting district (CRD). More than 80 percent of the corn production and 99 percent of the soybean production was sold off farms. The Central CRD had the largest while the Northeast had the lowest percent of corn production sold off farms. Not all of the corn sales go to processor or export markets. A substantial amount of corn is manufactured into feed and/or hauled back to farms for livestock consumption.

Corn flows

Table 3 presents the quantities of corn delivered by grain producers by type of vehicle. State totals in table 3 have a margin of error of ± 2.5 percent at the 95 percent confidence level. Crop reporting districts with approximately 200 responses have a margin of error of ± 5 percent, while those with approximately 100 responses have a margin of error of ± 10 percent. The same confidence intervals can be applied to tables 6, 10 and 12.

Table 2. Estimated corn and soybean production and sales, in thousands of bushels, by crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Corn (000 of bushels)			Soybeans (000 of bushels)		
	Production	Estimated sales	Estimated percent sold	Production	Estimated sales	Estimated percent sold
Northwest	288,600	223,513	78.0	78,300	78,189	99.9
North Central	269,400	234,178	86.9	60,900	60,177	98.8
Northeast	223,000	149,910	67.2	29,400	29,315	99.7
West Central	280,600	244,276	87.1	71,700	71,571	99.8
Central	289,800	264,025	91.1	73,800	73,449	99.5
East Central	217,900	163,053	74.8	36,700	36,352	99.1
Southwest	146,300	116,070	79.3	39,300	38,688	98.4
South Central	76,000	59,221	77.9	19,000	18,815	99.0
Southeast	140,800	100,591	71.4	33,800	33,706	99.7
Total	1,932,400	1,554,837	80.5	442,900	440,262	99.4

Table 3. Estimated quantities of corn delivered from farms in millions of bushels by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Wagons	Trucks			Total
		Single axle	Tandem axle	Semi	
Northwest	108.1	31.0	41.6	42.8	223.5
North Central	102.9	17.7	56.1	57.5	234.2
Northeast	32.9	8.6	25.1	83.3	149.9
West Central	82.3	35.6	34.2	92.1	244.2
Central	89.7	28.6	67.8	77.9	264.0
East Central	24.8	16.7	28.6	93.0	163.1
Southwest	19.6	7.5	22.1	66.9	116.1
South Central	9.7	8.9	15.7	24.9	59.2
Southeast	28.1	17.1	15.9	39.5	100.6
Total	498.1	171.7	307.1	577.9	1,554.8

More corn was hauled from farms in semis (577.9 million bushels) than in any other type of vehicle. Farmers in the West Central and East Central districts delivered more than 92 million bushels of corn by semis. Wagons delivered the second largest quantities of corn (498 million bushels). More than three-fourth of the wagon-delivered corn originated in the Northwest, North Central, Central and West Central CRDs. The large amount of wagon-delivered corn is probably the result of the numerous train-loading elevators in these four CRDs. Tandem-axle trucks delivered just over half as much corn as semis and almost twice as much as single axle trucks.

Table 4 presents the percent of corn delivered by vehicle type. Semis hauled 37.2 percent of the corn delivered off-farms. Wagons delivered one-third of the corn. More than 50 percent of the corn hauled from farms in the Northeast, East Central and Southwest CRDs was delivered by semis. The Northeast and East Central CRDs are located close to corn processors and barge terminals located on the Mississippi River. The Southwest is located close to the Kansas City, St. Joseph and Omaha-Council Bluffs markets. Other districts with higher than average percents of corn delivered by semi include South Central, Southeast and West Central.

Table 4. Estimated percentage of corn delivered from farms, by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Wagons	Trucks		
		Single axle	Tandem axle	Semi
Northwest	48.3	13.9	18.6	19.2
North Central	43.9	7.6	24.0	24.5
Northeast	21.9	5.8	16.8	55.5
West Central	33.7	14.6	14.0	37.7
Central	34.0	10.8	25.7	29.5
East Central	15.2	10.2	17.6	57.0
Southwest	16.9	6.4	19.1	57.6
South Central	16.4	15.0	26.4	42.2
Southeast	27.9	17.0	15.8	39.3
Total	**32.0**	**11.0**	**19.8**	**37.2**

Table 5 shows the bushels of corn delivered to alternative destinations by CRD. More than one billion bushels of all corn sales were delivered from farms to country elevators. Of the 1.085 billion bushels delivered to country elevators, 950 million bushels originated in the Northwest quadrant of Iowa. These four CRDs have an extensive network of train-loading elevators with rapid receiving capacities and attractive rail rates. Moreover, these CRDs are located long distances from

Table 5. Estimated quantities of corn delivered from farms, in millions of bushels by destination and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Country elevator	Corn processor	Mississippi River	Missouri River	Other and unknown	Total
Northwest	210.9	(N) [1]	0.0	0.0	12.3	223.5
North Central	213.1	4.4	9.7	0.0	7.0	234.2
Northeast	52.5	33.5	54.0	0.0	9.9	149.9
West Central	202.3	13.9	0.0	23.4	4.6	244.2
Central	228.0	19.3	2.0	0.0	14.7	264.0
East Central	48.4	47.2	60.2	0.0	7.3	163.1
Southwest	59.5	0.7	0.3	47.6	8.0	116.1
South Central	32.0	22.5	(N)	0.0	4.7	59.2
Southeast	38.6	19.4	38.0	0.0	4.6	100.6
Total	**1,085.3**	**160.9**	**164.2**	**71.3**	**73.1**	**1,554.8**

[1]The symbol (N) represents no activity reported in the survey for a particular category but the authors believe that actual operations occurred.

corn processors and Mississippi River barge terminals. More than 325 million bushels were delivered directly from farms to corn processors and to Mississippi River barge terminals. Almost 60 percent of these 325 million bushels originated in the Northeast and East Central CRDs.

Table 6 shows the percentage of corn delivered from farms to each destination. Almost 70 percent of the corn sales was delivered to country elevators. More than 90 percent of the North Central and Northwest corn sales was delivered to country elevators compared to only 30 percent from the East Central CRD. Statewide, more than 10 percent of the corn sales were delivered to corn processors and another 10 percent to the Mississippi River. The Southwest and Northwest CRDs delivered the

Table 6. Estimated percentage of corn delivered from farms by destination and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Destination				
	Country elevator	Corn processor	Mississippi River	Missouri River	Other and unknown
Northwest	94.3	(N)[1]	0.0	0.1	5.6
North Central	91.0	1.9	4.2	0.0	2.9
Northeast	35.0	22.4	40.0	0.0	6.6
West Central	82.8	5.7	0.0	9.6	1.9
Central	86.4	7.3	0.7	0.0	5.6
East Central	29.7	29.0	36.9	0.0	4.4
Southwest	51.3	0.6	0.2	41.0	6.9
South Central	54.0	37.9	(N)	0.0	8.0
Southeast	38.3	19.3	37.7	0.0	4.7
Total	**69.8**	**10.3**	**10.6**	**4.6**	**4.7**

[1]The symbol (N) represents no activity reported in the survey for a particular category but the authors believe that actual operations occurred.

Table 7. Estimated average miles corn was hauled from farms, by destination and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Destination					
	Country elevator	Corn processor	Mississippi River	Missouri River	Seed and other	District average
Northwest	8	(N)[1]	0	33	6	8
North Central	7	72	101	0	4	12
Northeast	6	53	51	0	8	34
West Central	8	55	0	58	(N)	16
Central	8	80	115	0	10	14
East Central	6	28	31	0	7	22
Southwest	10	8	85	70	10	36
South Central	9	62	(N)	140	9	32
Southeast	6	44	32	0	3	23
State average	**8**	**50**	**45**	**50**	**9**	**18**

[1]The symbol (N) represents no activity reported in the survey for a particular category but the authors believe that actual operations occurred.

smallest amounts to corn processors. Only the eastern three CRDs delivered significant amounts of corn to the Mississippi River. About 5 percent of total corn sales were delivered to other and unknown destinations.

Table 7 shows the average miles that corn was hauled from farms to destinations. This is an average weighted by the corresponding quantity of corn hauled to each destination. This way, a grain producers who doesn't ship any corn to a specific market has a weight of zero in the calculation of the average distance. The average distance corn was hauled to country elevators was 8 miles. The range among crop reporting districts was 6 miles in the Southeast to 10 in the Southwest. The average distance to other destinations was about 45 to 50 miles to corn processors and river terminals and about 10 miles for seed and to other farms.

Table 8 shows the average distance corn was hauled by type of vehicle. Wagons averaged 5 one-way miles, mostly to country elevators. The average single-axle truck distance was 9 miles while tandem-axle and semis average distances were 11 miles and 37 miles respectively.

Table 8. Estimated average miles corn was hauled from farms, by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Wagons	Trucks			District average
		Single axle	Tandem axle	Semi	
Northwest	5	8	7	18	8
North Central	5	6	8	33	12
Northeast	5	7	16	54	34
West Central	6	7	15	30	16
Central	5	6	8	32	14
East Central	4	12	16	31	22
Southwest	6	13	14	56	36
South Central	5	10	19	60	32
Southeast	7	11	16	42	23
State average	5	8	11	37	18

Table 9. Estimated quantities of soybeans delivered from farms in millions of bushels by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Wagons	Trucks			Total
		Single axle	Tandem axle	Semi	
Northwest	41.7	9.0	12.7	14.8	78.2
North Central	26.9	5.2	13.7	14.3	60.1
Northeast	10.2	1.7	5.1	12.3	29.3
West Central	27.2	10.4	10.0	24.1	71.7
Central	26.8	8.1	21.6	17.0	73.5
East Central	6.7	5.2	6.5	18.0	36.4
Southwest	10.6	4.2	5.8	18.1	38.7
South Central	4.5	3.8	4.1	6.3	18.7
Southeast	11.0	4.5	5.8	12.5	33.8
Total	165.6	52.1	85.3	137.4	440.4

Soybean flows

Table 9 presents the estimated quantities of farm soybeans delivered from farms by vehicle type. Wagons hauled the largest quantities followed by semis. Semis hauled almost exactly the same quantity of soybeans as tandem and single axle trucks combined.

Table 10 shows the percentages of soybean delivered off farms by each type of vehicle. Wagons delivered more than one-third of all the soybeans sales. Semis delivered slightly under one-third, while single and tandem axle trucks combined delivered slightly less than one third of the soybeans. The maximum margin of error for the proportion of soybeans hauled by vehicle type is 2.5 percent for the state average.

The principal reason that wagons haul a larger percent of the soybean crop than semis is that soybean yields are typically only 25 to 33 percent as large as corn yields. For example, 10 acres of soybeans will typically fill one to one and one-half 300-bushel wagons whereas 10 acres of corn will often fill two semis. Therefore, there is less pressure to have a large hauling capacity when harvesting soybeans than when harvesting corn. Although five of nine CRDs reported that semis hauled more soybeans than wagons, wagons still hauled more soybeans than semis. Each of these five CRDs do not have an extensive network of fast receiving capacity train loading elevators. And, as shown in tables 13 and 14, producers in these five CRDs haul their soybeans long distances to market.

Table 10. Estimated percentage of soybeans delivered from farms by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Wagons	Trucks		
		Single axle	Tandem axle	Semi
Northwest	53.3	11.5	16.3	18.9
North Central	44.7	8.7	22.8	23.8
Northeast	34.8	5.8	17.5	41.9
West Central	38.0	14.5	13.9	33.6
Central	36.5	11.0	29.4	23.1
East Central	18.4	14.2	17.9	49.5
Southwest	27.3	10.8	15.1	46.8
South Central	24.1	20.4	21.9	33.6
Southeast	32.6	13.3	17.1	37.0
Total	**37.6**	**11.8**	**19.4**	**31.2**

Table 11 shows the bushels of soybeans delivered off farms by destination. Country elevators received 328 million bushels. The remaining 121 million bushels was divided almost equally among

Table 11. Estimated quantities of soybeans delivered from farms in millions of bushels by destination and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Destination					
	Country elevator	Soybean crusher	Mississippi River	Missouri River	Other	Total
Northwest	73.2	2.9	0.0	0.1	1.9	78.2
North Central	47.1	5.6	2.4	0.0	5.1	60.2
Northeast	18.6	2.7	5.2	0.0	2.8	29.3
West Central	59.3	7.1	0.0	3.2	2.0	71.6
Central	61.5	5.2	0.2	0.0	6.6	73.5
East Central	15.4	5.7	13.7	0.0	1.5	36.4
Southwest	22.9	0.0	0.4	14.6	0.8	38.7
South Central	11.9	4.1	2.8	0.0	(N) [1]	18.8
Southeast	18.2	0.3	13.2	0.0	2.2	33.7
Total	**328.1**	**33.6**	**37.9**	**17.9**	**22.8**	**440.4**

[1]The symbol (N) represents no activity reported in the survey for a particular category but the authors believe that actual operations occurred.

soybean crushers, Mississippi River receivers and other destinations.

Table 12 shows the percent soybeans delivered from farms to alternative destinations. Country elevators received about 75 percent of farm deliveries, 7.6 percent for soybean crushers, 8.6 percent for the Mississippi River and 9.3 percent to other destinations. For corn, country elevators received 68.9 percent and corn processors 10.3 percent.

Table 13 shows the average number of miles hauled to alternative destinations. The average distance hauled to country elevators was 8 miles. This is identical to the distance corn was hauled. Farmers hauled soybeans an average of 32 miles to processors, 52 miles to Mississippi River terminals, 73 miles to Missouri River terminals and 40 miles to seed and other destinations. The average distances that soybeans were hauled from farms to river terminals were greater than the average

Table 12. Estimated percentage of soybeans delivered from farms by destination and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Destination: Country elevator	Soybean crusher	Mississippi River	Missouri River	Other
Northwest	93.6	3.8	0.0	0.2	2.4
North Central	78.3	9.4	3.9	0.0	8.4
Northeast	63.6	9.2	17.6	0.0	9.6
West Central	82.9	9.9	0.0	4.4	2.8
Central	83.7	7.1	0.2	0.0	9.0
East Central	42.3	15.8	37.8	0.0	4.1
Southwest	59.1	0.0	0.1	37.6	0.2
South Central	63.3	21.7	15.0	0.0	(N) [1]
Southeast	54.0	0.4	39.1	0.0	6.5
Total	74.5	7.6	8.6	4.1	5.2

[1]The symbol (N) represents no activity reported in the survey for a particular category but the authors believe that actual operations occurred.

Table 13. Estimated average miles soybeans were hauled from farms by destination and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Destination: Country elevator	Soybean crusher	Mississippi River	Missouri River	Other	District average
Northwest	7	44	0	33	69	10
North Central	6	30	105	0	31	14
Northeast	8	53	59	0	(N) [1]	23
West Central	8	20	0	49	18	11
Central	7	30	165	0	28	9
East Central	10	29	27	0	80	21
Southwest	10	0	175	80	(N)	39
South Central	8	39	132	0	(N)	33
Southeast	17	60	42	0	(N)	28
State average	8	32	52	73	40	16

[1]The symbol (N) represents no activity reported in the survey for a particular category but the authors believe that actual operations occurred.

distances that corn was hauled to river terminals. These longer distances for soybeans are from farms in the North Central, Northeast, Central, Southwest, South Central and Southeast CRDs. As expected, the largest variation in miles delivered was to Missouri River terminals and the smallest was to country elevators.

Table 14 shows the average distance soybeans were hauled by producers by vehicle type. Wagons hauled soybeans 5 miles, exactly the same as corn. Semis hauled soybeans 37 miles, more than three times as far as single and tandem axle trucks. However, all three truck types hauled soybeans on slightly longer distances than for corn.

Grain hauling vehicles

Table 15 shows the estimated number of vehicles used to haul grain off farms. Almost 84 percent of the 287,800 grain hauling vehicles used in 1994-95 were wagons. There were 46,681 trucks used to haul grain in 1994-95. More than half of the trucks were single-axle, followed by tandem axle (30.5 percent) and semis (13.3 percent). By the year 2000, Iowa corn and soybean producers expect to reduce the number of grain hauling vehicles by 15 percent to a total of 243,300. All of the reduction in number of vehicles will be in wagons (down 18 percent) and single axle trucks (down 31 percent). The number of tandem axle trucks is expected to

Table 14. Estimated average miles soybeans were hauled from farms by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Wagons	Trucks			District average
		Single axle	Tandem axle	Semi	
Northwest	5	7	8	26	10
North Central	5	6	16	36	14
Northeast	6	6	12	52	23
West Central	5	7	13	19	11
Central	5	6	10	18	9
East Central	5	10	18	32	21
Southwest	7	11	16	73	39
South Central	5	9	16	79	33
Southeast	6	51	14	49	28
State average	5	10	12	37	16

Table 15. Estimated number of vehicles owned in 1995 and expected to be owned in the year 2000, by crop reporting district, Iowa.

	1995					2000				
		Trucks					Trucks			
Crop Reporting District	Wagons	Single Axle	Tandem Axle	Semi	Total	Wagons	Single Axle	Tandem Axle	Semi	Total
Northwest	39,863	2,913	1,475	863	45,114	33,550	1,938	1,738	1,838	39,064
North Central	33,808	2,252	2,211	830	39,101	27,268	1,723	2,242	1,567	32,800
Northeast	36,830	2,770	1,320	218	41,138	28,232	1,784	1,117	899	32,032
West Central	27,560	4,310	1,557	1,300	34,727	25,754	2,300	2,155	2,516	32,725
Central	26,186	3,657	3,035	970	33,848	21,509	2,923	3,583	2,326	30,341
East Central	26,071	2,913	1,738	967	31,689	19,878	2,570	1,873	1,444	25,765
Southwest	14,599	2,107	1,243	622	18,571	10,756	1,167	1,402	1,175	14,500
South Central	13,726	2,450	908	274	17,358	11,579	1,722	146	549	13,996
Southeast	22,461	2,840	749	168	26,218	19,109	1,923	661	335	22,028
Total	241,104	26,212	14,236	6,212	287,764	197,635	18,050	14,917	12,649	243,251

increase by 5 percent and semis are expected to double by the year 2000.

Table 16 shows the percentage of grain producers owning grain hauling vehicles. In 1995, three out of four grain producers owned wagons, one out of five owned single axle trucks, one out of nine owned tandem axle trucks and one out of 20 owned one or more semis. The largest percent of grain producers owning semis (8.3) was in the West Central CRD and the smallest percent (1.7) was in the Southeast CRD.

The number of producers who reported that they plan to own wagons in the year 2000 fell from 75 percent to 55 percent; the number of producers owning single axle trucks fell from 21 percent to less than 15 percent. The number of grain producers who reported that they expect to own tandem axle trucks in the year 2000 increased from 11 percent to almost 13 percent and the number who reported that they expect to own semis increased from 5 to 10 percent. Two of the major reasons grain producers are buying semis are to increase their capacity to haul corn from combines at harvest time and to directly access higher bids at processor and river markets. The CRDs with the largest percent of producers expected to own semis by the year 2000 are the Central and West Central CRDs. More than 38 percent of grain producers in these two CRDs expect to own semis.

Table 17 shows the proportion of farmers owning vehicles according to acres of grain production. Data in table 17 include only the producers who responded to owning at least one vehicle in 1995. Four categories of acres of production were cre-

Table 16. Percentage of producers owning vehicles in 1995 and expecting to own vehicles in the year 2000, by crop reporting district, Iowa.

	1995				2000			
		Trucks				Trucks		
Crop Reporting District	Wagons	Single axle	Tandem axle	Semi	Wagons	Single axle	Tandem axle	Semi
Northwest	84.0	20.1	10.0	6.4	63.0	13.7	11.4	11.9
North Central	83.3	18.7	15.2	6.1	61.1	14.1	16.7	10.6
Northeast	77.3	15.5	6.2	1.5	52.6	10.8	6.2	5.7
West Central	78.0	29.8	10.7	8.3	58.9	16.7	15.5	16.1
Central	70.9	22.2	17.1	4.7	50.9	17.5	19.7	11.5
East Central	70.2	16.9	10.7	7.9	51.7	13.5	12.4	10.1
Southwest	74.2	23.7	11.3	7.2	51.5	14.4	13.4	12.4
South Central	64.4	22.1	9.6	2.9	49.0	16.3	6.3	5.8
Southeast	76.3	25.4	5.9	1.7	61.2	17.8	4.2	3.4
State total	75.4	21.1	11.2	5.3	55.8	14.8	13.2	10.1

Table 17. Estimated percentage of corn and soybean producers grouped by the largest vehicle owned and by acres of grain production, Iowa, 1995 and 2000.

	Largest vehicle owned in 1995				Largest vehicle owned in 2000			
		Trucks				Trucks		
Acres of corn and soybeans	Wagons	Single axle	Tandem axle	Semi	Wagons	Single axle	Tandem axle	Semi
0–250	76.1	18.4	3.8	1.7	69.4	17.3	7.7	5.6
251–500	59.0	22.1	14.0	4.9	47.0	18.1	21.2	13.7
501–1,000	44.5	21.7	20.6	13.2	34.4	11.3	24.2	30.1
1,001+	28.9	18.8	26.7	25.6	29.0	6.4	21.5	43.1

ated. A check with the 1992 agricultural census showed that the proportion of farms in each acres category in table 17 is roughly the same as in the 1992 U.S. Census of Agriculture. For the years 1995 and 2000, the percent of producers who owned and expected to own wagons declined sharply as the acres of corn and soybeans increased. The percent of grain producers owning tandem-axle trucks and the percent owning semis increased sharply as the number of acres of corn and soybeans increased.

Table 18 shows the percent of corn and soybeans delivered by grain producers by vehicle type and acres of production. In total, the percent of corn and soybeans delivered by farmers in wagons and single axle trucks decreased as the number of acres produced increased. Conversely, the percent of corn and soybeans delivered by tandem axle and semis increased as the number of acres of corn and soybeans increased. Table 18 tells us what seems intuitively obvious; that the farms that deliver large amounts of corn and soybeans own the larger trucks.

Table 19 compares the percent of 1994-95 corn and soybeans sold by grain producers with the largest vehicle owned in 1995 and expected to own in the year 2000. The percent of grain producers whose largest vehicle is a wagon or a single axle truck is expected to decline by about one-third and the percent of corn and soybeans these producers sell is expected to decrease from 67 percent to 51 percent. The number of grain producers whose largest vehicle is a tandem axle truck is expected to increase by four percentage points and their share of corn and soybean sales is expected to increase by one percentage point. The percent of producers whose largest vehicle is a semi is expected to more than double and their share of corn and soybean production is expected to increase from 14.1 to 27.6 percent. The data in tables 17 and 19 clearly indicate that producers who expect to own larger trucks will produce an increasing share of the corn and soybeans sales.

Table 18. Estimated percentage of corn and soybean delivered by mode of transportation and acres of grain production, Iowa, September 1, 1994 – August 31, 1995.

	Corn				Soybeans			
		Trucks				Trucks		
Acres of corn and soybeans	Wagons	Single axle	Tandem axle	Semi	Wagons	Single axle	Tandem axle	Semi
0–250	42.9	13.6	13.5	30.0	55.1	13.8	14.5	16.6
251–500	38.0	13.4	19.2	29.4	46.8	13.6	17.7	21.9
501–1,000	32.5	11.8	19.5	36.3	33.6	14.1	21.8	30.5
1,001+	19.8	5.8	27.6	46.8	31.7	6.3	24.4	37.6

Table 19. Comparison of percent of corn and soybean producers owning different vehicle types and percent of corn and soybeans sold by grain producers, 1995 and 2000.

	1995		2000	
Largest vehicle owned	Percent of producers	Corn and soybeans sales	Percent of producers	1995 Corn and soybeans sales
Wagons	62.6	47.1	53.3	38.3
Trucks				
Single-axle	20.0	19.6	15.5	12.4
Tandem-axle	11.1	19.2	15.7	20.4
Semi	6.3	14.1	15.5	27.6

In 1994-95, the 5.3 percent of the farms that owned semis produced 14.1 percent of the corn and soybeans. Yet, tables 4 and 10 indicate that 37.2 percent of the corn and 31.2 percent of the soybeans were hauled in semis. This suggests that a significant amount of corn and soybeans was hauled in semis owned by country elevators, private truckers and by neighbor producer-owned semis.

The percent of grain producers who did not respond to the number of vehicles owned in 2000 more than doubled and their share of corn and soybean sales is expected to increase four times. Assuming their corn and soybeans will be hauled off their farms in semis, the percent of corn and soybeans moving off farms and semis would be 43.6 percent of total sales by the year 2000. Considering the potential impact of farm consolidation, up to half of all corn and soybean sales could move off farms in semis by the year 2000.

Country elevators survey

The country elevators survey data were collected by questionnaire from the universe of country elevators operating in Iowa. Table 20 shows the number of firms receiving questionnaires and the number of useable questionnaires returned. Statewide, 31.6 percent of the firms responded. The questionnaires were returned to the Iowa Agricultural Statistics Service where the data were coded and placed on a computer disk. The data were then analyzed and summarized by the authors of this report. Statewide, 31.6 percent of the country elevators returned a usable questionnaire.

The conversion factor used to project the total amounts of corn and soybeans shipped to destination markets by country elevators was the total storage capacity by CRD. Data on the country

Table 20. Number of country elevators receiving questionnaires and number of useable questionnaires returned by crop reporting district in Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Number of country elevators receiving questionnaires	Number of usable questionnaires returned	Percent response
Northwest	103	33	32.0
North Central	82	30	36.6
Northeast	106	28	26.4
West Central	80	31	38.8
Central	104	31	39.8
East Central	100	34	34.0
Southwest	54	14	25.9
South Central	33	9	27.2
Southeast	84	26	31.0
Total	**746**	**236**	**31.6**

Table 21. Estimated quantities of corn shipped from country elevators by destination markets and crop reporting district, in millions of bushels, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Processor	Mississippi River	Livestock feeder	Direct to export port	Missouri River	Other	Total
Northwest	48.5	24.0	81.1	18.5	0.5	20.8	193.4
North Central	61.6	37.2	19.5	0.8	0.0	1.5	120.6
Northeast	23.6	31.6	5.3	0.0	0.0	0.0	60.5
West Central	120.9	9.4	43.9	0.0	10.8	10.6	195.6
Central	153.7	23.8	23.2	5.0	0.0	31.9	237.6
East Central	52.1	30.4	6.3	0.0	0.0	0.6	89.4
Southwest	14.0	4.0	13.9	0.0	12.6	0.4	44.9
South Central	21.5	1.6	7.8	0.0	0.0	1.1	32.0
Southeast	31.5	13.9	11.2	0.0	0.0	0.0	56.6
Total	**527.4**	**175.9**	**212.2**	**24.3**	**23.9**	**66.9**	**1,030.6**
Percentage	**51.2**	**17.1**	**20.6**	**2.4**	**2.3**	**6.5**	**100.0**

elevators storage capacity were obtained from Iowa Agricultural Statistics Service. These data are not reported to avoid individual firm disclosure.

Corn flows

Table 21 presents the estimated quantities of corn shipped from country elevators for the 1994-95 crop year by destination markets and crop reporting districts in Iowa. The total amount of corn shipped by country elevators was 1,031 millions bushels. That estimate is less than the estimated 1,085 millions bushels farmers hauled to country elevators. The estimated country elevator shipments should be less than the amount farmers hauled to country elevators because country elevator inventories increased during the 1994-95 crop year.

More than half of the corn was shipped to processors. Elevator shipments to feeder markets totaled 212 millions of bushels. The dominant sources of corn shipments to feeders were the Northwest, West Central and central CRDs. The third largest amount of corn was shipped to Mississippi River terminals. The dominant sources were the East Central, Northeast and North Central CRDs.

The Central, Northwest and West Central CRDs elevators shipped the largest amount of corn and the three southern CRDs shipped the smallest quantities of corn. According to the survey, country elevators did not deliver any bushels of corn directly to Mexico. The margins of error for the percentage of corn delivered to each destinations vary from ±1.9 percent for the corn shipped to Missouri River terminals to ±6.5 percent for the corn shipped to Iowa processors.

Table 22 presents the estimated quantities of corn delivered to markets from country elevators by mode of transportation for each crop reporting district. At the state level, 52.9 % of the corn was delivered by trucks. The margin of error for that estimate is ± 6.5 percent. However, the four CRDs in the Northwest quadrant of Iowa each delivered a larger quantity of corn in rails than trucks. Trucks dominated the movements of corn in the eastern and southern CRDs.

Table 23 presents the quantities of corn shipped to destination markets by mode of transportation.

Table 22. Estimated quantities of corn shipped from country elevators by mode of transportation and crop reporting district, in millions of bushels, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Trucks	Rail	Total
Northwest	83.5	109.8	193.3
North Central	31.1	89.6	120.7
Northeast	53.5	7.0	60.5
West Central	77.6	118.0	195.6
Central	102.9	134.7	237.6
East Central	83.9	5.5	89.4
Southwest	32.3	12.6	44.9
South Central	29.7	2.3	32.0
Southeast	50.4	6.2	56.6
Total	544.9	485.7	1,030.6
Percentage	52.9	47.1	100.0

Table 23. Estimated quantities of corn shipped from country elevators to destination markets by mode of transportation in millions of bushels, Iowa, September 1, 1994 – August 31, 1995.

Markets	Trucks	Rail	Total
Iowa processor	230.9	258.9	489.8
Out of state processor	22.0	15.6	37.6
Mississippi River	81.7	94.2	175.9
Local livestock feeder	145.4	0.0	145.4
Out of state feeder	10.0	56.8	66.8
Direct to export port	0.0	24.3	24.3
Missouri River	23.9	0.0	23.9
Other	31.0	35.9	66.9
Total	544.9	485.7	1,030.6

Trucks dominated the shipments of corn to local feeders and to Missouri River terminals. Railroads dominated the movements to out-of-state feeders and export ports. Shipments to processors, Mississippi River terminals and to other destinations were split approximately equally between railroads and trucks.

Table 24 shows the estimated average distance corn was hauled by mode of transportation for each crop reporting district in Iowa for the 1994-95 crop year. The average distances corn was

delivered in trucks and rail were 44 and 301 miles respectively. The longest average distance which corn was hauled by rail was 526 miles from the Northwest district. The longest average distance for which corn was hauled in trucks was 89 miles from the South Central CRD.

Soybean flows

Table 25 presents the estimated quantities of soybeans shipped from country elevators to destination markets by crop reporting district in Iowa for the 1994-95 crop year. At the state level, processors receive more than 80 percent of all the soybeans shipped from Iowa country elevators. Mississippi River barge terminals received 12.6 percent of the 1994-95 shipments from elevators. All other destinations received 6.1 percent of total shipments. The four CRDs of the Northwest quadrant of Iowa shipped 75.4 percent of all soybeans from elevators. The southern tier of CRDs shipped 13.8 percent and the Northeast and East Central CRDs shipped the remaining 10.8 percent of the soybeans.

Table 26 presents the quantities of soybeans delivered by mode of transportation. Almost three-fourths of all the soybeans were delivered by trucks. The reason for the dominance of trucks in soybean movements is the large number of soybean processing plants located throughout Iowa. Trucks costs are lower than railroad costs for these short distance movements. Only the West Central CRD delivered more soybeans by rail than trucks; the reason is that there is little soybean crushing capacity in this CRD and railroads rates are lower than truck rates for longer distance movements.

Table 27 presents the quantities of soybeans shipped from country elevators to destination markets by mode of transportation. Most of the

Table 24. Estimated average distance corn was hauled from country elevators in miles, by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Trucks	Rail
Northwest	21	526
North Central	38	184
Northeast	54	75
West Central	45	259
Central	69	244
East Central	37	106
Southwest	88	123
South Central	55	275
Southeast	37	50
State average	44	301

Table 25. Estimated quantities of soybeans shipped from country elevators by destination markets and crop reporting district, in millions of bushels, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Processor	Mississippi River	Direct to export port	Missouri River	Other	Total
Northwest	58.7	6.7	5.5	0.0	1.9	72.8
North Central	42.7	2.5	0.3	0.0	0.0	45.5
Northeast	9.0	9.9	0.0	0.0	0.0	18.9
West Central	87.9	0.9	0.0	1.8	1.2	91.8
Central	72.7	2.6	0.1	0.0	9.4	84.8
East Central	13.4	9.7	0.0	0.0	0.3	23.4
Southwest	13.1	1.5	0.0	2.8	0.0	17.4
South Central	14.3	1.7	0.0	0.0	0.7	16.7
Southeast	5.9	13.8	0.0	0.0	0.0	19.7
Total	317.7	49.3	5.9	4.6	13.5	391.0
Percentage	81.3	12.6	1.5	1.2	3.5	100.0

soybeans going to markets in Iowa were hauled in trucks. The markets in which railroads dominated trucks were for shipments directly to export ports, to out-of-state processors and to other markets.

Table 26. Estimated quantities of soybeans shipped from country elevators by mode of transportation and crop reporting district, in millions of bushels, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Trucks	Rail	Total
Northwest	40.6	32.2	72.8
North Central	39.2	6.3	45.5
Northeast	16.4	2.5	18.9
West Central	44.3	47.5	91.8
Central	73.4	11.4	84.8
East Central	22.8	0.6	23.4
Southwest	16.0	1.4	17.4
South Central	15.2	1.5	16.7
Southeast	16.7	3.0	19.7
Total	284.6	106.4	391.0
Percentage	72.8	27.2	100.0

Table 27. Estimated quantities of soybeans shipped from country elevators to destination markets by mode of transportation, in millions of bushels, Iowa, September 1, 1994 – August 31, 1995.

Market	Trucks	Rail	Total
Iowa processor	241.9	75.8	317.7
Mississippi River	34.7	14.6	49.3
Direct to export port	0.0	5.9	5.9
Missouri River	4.6	0.0	4.6
Other	3.4	10.1	13.5
Total	284.6	106.4	391.0

Table 28 presents the estimated average distance soybeans were shipped from country elevators by mode of transportation for each crop reporting district in Iowa, 1994-95. The average distance soybeans were hauled at the state level was 49 miles by trucks and 392 miles by rail. Soybeans were hauled longer distances than corn because of the high percent of soybeans shipped to processors. The longest distance soybeans were hauled in trucks was in the Southwest CRD mainly because most of the soybeans were shipped to out-of-state processors. The smallest distance soybeans were hauled in trucks was 37 miles in the North Central CRD.

Table 28. Estimated average distance soybeans were hauled from country elevators in miles by mode of transportation and crop reporting district, Iowa, September 1, 1994 – August 31, 1995.

Crop reporting district	Trucks	Rail
Northwest	40	390
North Central	37	488
Northeast	62	50
West Central	46	200
Central	51	229
East Central	40	100
Southwest	89	75
South Central	60	233
Southeast	69	72
Weighted average	49	392

Conclusions

I - Farm-to-market survey

A - Summary of the results

1. Statewide, 70 percent of the corn and 75 percent of the soybeans were delivered from farms to country elevators. The remainder was shipped directly to processors, barge terminals and feeder markets.
2. Thirty-seven percent of the corn and 31 percent of the soybeans were hauled off farms in semis.
3. The average distance corn and soybeans were delivered off farms in semis was about 37 miles compared to 5 miles in wagons and about 9 miles in single-axle trucks. Soybeans were shipped greater distances than corn to river terminals while corn was shipped greater distances to processors than soybeans.
4. The percent of corn and soybeans delivered from farms in semis increased as the number of acres of corn and soybeans produced increased.

B - Conclusions

This is the first published report on how and where Iowa grain producers ship their corn and soybeans. Nevertheless, observations of grain producers shipments over time suggest that the following changes have taken place:

1. Country elevators are still the dominant market for producer delivered grain. Nevertheless, increasing quantities of corn are delivered directly from farms to corn and soybean processors.
2. The recent and expected shifts from wagons and single-axle trucks to semis is dramatic. By the year 2000, up to half of the corn and soybeans is likely to move from farms in semis. This shift to semis means that grain producers have increased transportation mobility and market power.
3. Increased grain producer transportation mobility has implications for the following issues :
   a. highway infrastructure
   b. railroad branch line investments and abandonments
   c. demand for rail cars
   d. railroad pricing strategies
   e. grain merchandising procedures
   f. country elevator investments
   g. country elevator consolidation and survival.

Increased grain producer transportation mobility is likely to be a major factor determining the amount, location of grain transportation and handling investment and disinvestment over the next decade.

II - Country elevators survey

A - Summary of the results

1. Country elevators shipped more than half of their corn and more than 80 percent of their soybeans to processors.
2. About 17 percent of the corn and 13 percent of the soybeans were shipped to Mississippi River terminals.
3. About 20 percent of the corn shipped from country elevators went to feeder markets.
4. Less than 5 percent of the corn and soybeans were shipped direct to export ports.
5. Trucks dominated the shipments of corn from country elevators in the five eastern and southern CRDs. Railroads dominated the shipments of corn from the four CRDs in the Northwest quadrant.
6. Trucks dominated the shipment of soybeans in eight of the nine CRDs. The only exception was the West Central CRD.

Appendices

Appendices A through I contain two-way tables for each Crop Reporting Distict.

Appendix A: Northwest Iowa

Table A.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the Northwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	105,826	28,305	38,022	38,719
Corn processor	0	0	(N)	(N)
Mississippi River	0	0	0	0
Missouri River	0	0	(N)	372
Another farm / feeding operation	2,221	2,735	3,581	1,373
Other	0	0	0	2,359

Table A.2. Estimated quantities of soybeans delivered from farms in thousands of bushels by destination and mode of transportation for the Northwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	41,695	8,694	12,584	10,210
Soybean crusher	0	0	(N)	2,942
Mississippi River	0	0	0	0
Missouri River	0	0	(N)	(N)
Other	0	278	123	1,163

Table A.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the Northwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

			Trucks							
	Wagon		Single axle		Tandem axle		Semi		Weighted average	
Destination	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	5	5	8	7	7	8	18	13	8	7
Processors	0	0	0	0	(N)	(N)	(N)	44	(N)	44
River terminal	0	0	0	0	0	(N)	33	33	33	33
Another farm	4	(-)	10	(-)	4	(-)	12	(-)	6	(-)
Seed	(N)	0	(N)	6	(N)	6	(N)	91	(N)	69
Weighted average	5	5	8	7	7	8	18	26	8	10

Table A.4. Estimated quantities of corn and soybeans shipped from country elevators to destination markets by mode of transportation in thousands of bushels, for the Northwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans		
Market	Trucks	Rail	Trucks	Rail	Total
Livestock feeder	60,584	20,504	(-)	(-)	81,088
Processor	2,853	45,578	38,764	19,993	107,188
Mississippi River	1,076	22,926	25	6,631	30,658
Missouri River	464	0	0	0	464
Export elevator	0	20,793	0	5,544	26,337
Other	18,548	0	1,858	0	20,406
Total	83,525	109,801	40,647	32,168	266,141

Table A.5. Estimated average distance corn and soybeans were hauled in miles from country elevators to destination markets by mode of transportation for the Northwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans	
Market	Trucks	Rail	Trucks	Rail
Livestock feeder	14	1,164	(-)	(-)
Processor	52	262	40	472
Mississippi River	142	247	250	282
Missouri River	65	0	0	0
Export elevator	0	1,484	0	1,380
Other	33	0	53	0
Weighted average	21	526	49	390

Appendix B: North Central Iowa

Table B.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the North Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	101,413	17,680	53,860	40,101
Corn processor	257	(N)	(N)	4,174
Mississippi River	0	0	(N)	9,730
Missouri River	0	0	0	0
Another farm / feeding operation	1,184	37	1,512	906
Other	0	0	330	2,994

Table B.2. Estimated quantities of soybeans delivered from farms in thousands of bushels by destination and mode of transportation for the North Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	26,133	5,249	8,650	7,086
Soybean crusher	(N)	(N)	2,841	2,783
Mississippi River	0	0	0	2,367
Missouri River	0	0	0	0
Other	765	0	2,205	2,098

Table B.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the North Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

			Trucks							
	Wagon		Single axle		Tandem axle		Semi		Weighted average	
Destination	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	5	5	6	6	8	9	11	9	7	6
Processors	15	(N)	(N)	(N)	(N)	22	76	38	72	30
River terminal	0	0	0	0	(N)	0	101	105	101	105
Another farm	2	(-)	6	(-)	6	(-)	4	(-)	4	(-)
Seed	0	3	0	0	2	41	5	32	3	31
Weighted average	5	5	6	6	8	16	33	36	12	14

Table B.4. Estimated quantities of corn and soybeans shipped from country elevators to destination markets by mode of transportation in thousands of bushels, for the North Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans		
Market	Trucks	Rail	Trucks	Rail	Total
Livestock feeder	9,330	10,202	(-)	(-)	19,532
Processor	15,750	45,866	37,886	4,776	104,278
Mississippi River	4,538	32,664	1,283	1,216	39,701
Missouri River	0	0	0	0	0
Export elevator	0	836	0	261	1,097
Other	1,462	0	0	0	1,462
Total	31,080	89,568	39,169	6,253	166,070

Table B.5. Estimated average distance corn and soybeans were hauled in miles from country elevators to destination markets by mode of transportation for the North Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans	
Market	Trucks	Rail	Trucks	Rail
Livestock feeder	14	762	(-)	(-)
Processor	46	188	35	570
Mississippi River	105	176	102	116
Missouri River	0	0	0	0
Export elevator	0	0	0	130
Other	15	0	0	0
Weighted average	38	184	37	488

Appendix C: Northeast Iowa

Table C.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the Northeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	29,785	7,216	10,346	5,193
Corn processor	0	0	1,736	31,808
Mississippi River	285	104	11,733	41,917
Missouri River	0	0	0	0
Another farm / feeding operation	2,797	1,309	961	(N)
Other	0	0	354	4,366

Table C.2. Estimated quantities of soybeans delivered from farms in millions of bushels by destination and mode of transportation for the Northeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	10,161	1,691	4,134	2,655
Soybean crusher	48	(N)	222	2,432
Mississippi River	(N)	(N)	588	4,563
Missouri River	0	0	0	0
Other	0	0	189	2,632

Table C.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the Northeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

			Trucks							
	Wagon		Single axle		Tandem axle		Semi		Weighted average	
Destination	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	4	6	7	6	8	10	9	13	6	8
Processors	0	5	10	(N)	57	39	53	55	53	53
River terminal	14	(N)	35	(N)	17	14	61	65	51	59
Another farm	5	(-)	5	(-)	14	(-)	(N)	(-)	8	(-)
Seed	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
Weighted average	5	6	7	6	16	12	55	52	34	23

Table C.4. Estimated quantities of corn and soybeans shipped in thousands of bushels from country elevators to destination markets by destination for the Northeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans		
Market	Trucks	Rail	Trucks	Rail	Total
Livestock feeder	5,374	0	(-)	(-)	5,374
Processor	16,680	6,963	6,630	2,474	32,747
Mississippi River	31,485	84	9,783	0	41,352
Missouri River	0	0	0	0	0
Export elevator	0	0	0	0	0
Other	0	0	0	0	0
Total	53,539	7,047	16,413	2,474	79,473

Table C.5. Estimated average distance corn and soybeans were hauled in miles from country elevators to destination markets by mode of transportation for the Northeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans	
Market	Trucks	Rail	Trucks	Rail
Livestock feeder	14	0	(-)	(-)
Processor	75	50	59	50
Mississippi River	0	0	0	0
Missouri River	0	0	0	0
Export elevator	0	0	0	0
Other	0	0	0	0
Weighted average	54	50	62	50

Appendix D: West Central Iowa

Table D.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the West Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Destination	Wagon	Trucks: Single axle	Trucks: Tandem axle	Trucks: Semi
Country elevator	81,563	35,063	29,682	56,039
Corn processor	797	0	3,986	9,161
Mississippi River	0	0	0	1,531
Missouri River	0	0	(N)	21,895
Another farm / feeding operation	53	531	531	797
Other	0	0	0	2,647

Table D.2. Estimated quantities of soybeans delivered from farms in thousands of bushels by destination and mode of transportation for the West Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Destination	Wagon	Trucks: Single axle	Trucks: Tandem axle	Trucks: Semi
Country elevator	27,174	9,267	6,844	16,048
Soybean crusher	0	1,098	3,118	2,879
Mississippi River	0	0	0	0
Missouri River	0	0	0	3,175
Other	0	0	0	1,967

Table D.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the West Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Destination	Wagon		Trucks: Single axle		Trucks: Tandem axle		Trucks: Semi		Weighted average	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	5	5	8	7	11	10	12	13	8	8
Processors	85	0	0	13	43	20	58	22	55	20
River terminal	0	0	0	0	(N)	0	58	49	58	49
Another farm	6	(-)	6	(-)	3	(-)	(N)	(-)	6	(-)
Seed	(N)	0	(N)	0	(N)	(N)	(N)	18	(N)	18
Weighted average	6	5	7	7	15	13	30	19	16	11

Table D.4. Estimated quantities of corn and soybeans shipped in thousands of bushels from country elevators to destination markets by destination for the West Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Market	Corn: Trucks	Corn: Rail	Soybeans: Trucks	Soybeans: Rail	Total
Livestock feeder	26,767	17,125	(-)	(-)	43,892
Processor	29,400	91,445	41,344	46,567	208,756
Mississippi River	0	9,400	0	930	10,330
Missouri River	10,826	0	1,778	0	12,604
Export elevator	0	0	0	0	0
Other	10,618	0	1,159	0	11,777
Total	77,611	117,970	44,281	47,497	287,359

Table D.5. Estimated average distance corn and soybeans were hauled in miles from country elevators to destination markets by mode of transportation for the West Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Market	Corn: Trucks	Corn: Rail	Soybeans: Trucks	Soybeans: Rail
Livestock feeder	21	200	(-)	(-)
Processor	72	219	47	140
Mississippi River	0	0	0	250
Missouri River	55	0	45	0
Export elevator	0	0	0	0
Other	43	0	42	0
Weighted average	21	526	49	390

Appendix E: Central Iowa

Table E.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	87,257	28,513	62,775	49,447
Corn processor	535	0	535	18,217
Mississippi River	0	0	0	0
Missouri River	0	0	0	0
Another farm / feeding operation	884	99	1,535	936
Other	1,070	0	2,963	7,297

Table E.2. Estimated quantities of soybeans delivered from farms by producers in thousands of bushels by destination and mode of transportation for the Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	26,644	8,064	16,844	9,906
Soybean crusher	(N)	(N)	1,134	4,114
Mississippi River	0	0	0	128
Missouri River	0	0	0	0
Other	143	36	3,602	2,835

Table E.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

			Trucks							
	Wagon		Single axle		Tandem axle		Semi		Weighted average	
Destination	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	5	5	6	6	8	8	12	9	8	7
Processors	45	(N)	0	(N)	7	21	84	33	80	30
River terminal	0	0	0	0	0	0	115	165	115	165
Another farm	3	(-)	0	(-)	8	(-)	4	(-)	5	(-)
Seed	0	0	0	0	15	26	13	36	14	28
Weighted average	5	5	6	6	8	10	32	18	14	9

Table E.4. Estimated quantities of corn shipped in thousands of bushels from country elevators to destination markets by destination for the Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans		
Market	Trucks	Rail	Trucks	Rail	Total
Livestock feeder	23,186	0	(-)	(-)	23,186
Processor	69,326	84,417	71,427	1,271	226,441
Mississippi River	10,356	13,431	1,969	604	26,360
Missouri River	0	0	0	0	0
Export elevator	0	5,020	0	0	5,020
Other	0	31,851	0	9,547	41,398
Total	102,868	134,719	73,396	11,422	322,405

Table E.5. Estimated average distance corn and soybeans were hauled in miles from country elevators to destination markets by mode of transportation for the Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans	
Market	Trucks	Rail	Trucks	Rail
Livestock feeder	42	0	(-)	(-)
Processor	82	195	48	227
Mississippi River	158	186	147	165
Missouri River	0	0	0	0
Export elevator	0	1,350	0	0
Other	0	235	0	113
Weighted average	69	244	51	229

Appendix F: East Central Iowa

Table F.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the East Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	22,304	9,991	7,093	9,025
Corn processor	0	3,425	5,582	38,198
Mississippi River	0	2,893	14,517	42,681
Missouri River	0	0	0	0
Another farm / feeding operation	2,493	404	449	944
Other	0	0	1,031	2,021

Table F.2. Estimated quantities of soybeans delivered from farms in thousands of bushels by destination and mode of transportation for the East Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	6,628	4,149	1,663	2,941
Soybean crusher	(N)	(N)	887	4,854
Mississippi River	68	1,010	3,607	9,042
Missouri River	0	0	0	0
Other	0	0	341	1,162

Table F.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the East Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

			Trucks							
	Wagon		Single axle		Tandem axle		Semi		Weighted average	
Destination	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	4	5	8	6	6	7	10	29	6	10
Processors	0	(N)	13	(N)	20	22	30	31	28	29
River terminal	0	7	27	30	20	21	35	30	31	27
Another farm	6	(-)	2	(-)	19	(-)	8	(-)	7	(-)
Seed	(N)	0	(N)	0	(N)	0	(N)	90	(N)	90
Weighted average	4	5	12	11	16	18	31	32	22	21

Table F.4. Estimated quantities of corn and soybeans shipped in thousands of bushels from country elevators to destination markets by destination for the East Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans		
Market	Trucks	Rail	Trucks	Rail	Total
Livestock feeder	6,299	0	(-)	(-)	6,299
Processor	52,078	0	13,372	0	65,450
Mississippi River	25,535	4,845	9,101	579	40,060
Missouri River	0	0	0	0	0
Export elevator	0	0	0	0	0
Other	0	606	311	0	917
Total	83,912	5,451	22,784	579	112,726

Table F.5. Estimated average distance corn and soybeans were hauled in miles from country elevators to destination markets by mode of transportation for the East Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans	
Market	Trucks	Rail	Trucks	Rail
Livestock feeder	14	0	(-)	(-)
Processor	37	0	36	0
Mississippi River	42	100	46	100
Missouri River	0	0	0	0
Export elevator	0	0	0	0
Other	0	150	7	0
Weighted average	37	106	40	100

Appendix G: Southwest Iowa

Table G.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the Southwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	17,888	7,386	15,356	18,891
Corn processor	606	(N)	(N)	(N)
Mississippi River	0	0	0	2,651
Missouri River	0	0	3,692	43,849
Another farm / feeding operation	1,105	90	3,080	1,477
Other	0	0	0	0

Table G.2. Estimated quantities of soybeans delivered from farms in thousands of bushels by destination and mode of transportation for the Southwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	10,570	4,187	4,589	3,526
Soybean crusher	(N)	(N)	(N)	(N)
Mississippi River	0	0	0	471
Missouri River	0	0	1,227	13,326
Other	0	0	0	792

Table G.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the Southwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

			Trucks							
	Wagon		Single axle		Tandem axle		Semi		Weighted average	
Destination	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	6	7	13	11	10	11	12	16	10	10
Processors	3	(N)	(N)	(N)	(N)	(N)	(N)	(N)	3	(N)
River terminal	0	0	0	0	33	34	73	87	70	83
Another farm	6	(-)	8	(-)	10	(-)	25	(-)	10	(-)
Seed	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
Weighted average	6	7	13	11	14	16	56	73	36	39

Table G.4. Estimated quantities of corn and soybeans shipped in thousands of bushels from country elevators to destination markets by destination for the Southwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans		
Market	Trucks	Rail	Trucks	Rail	Total
Livestock feeder	4,789	9,013	(-)	(-)	13,802
Processor	14,052	0	13,015	19	27,086
Mississippi River	403	3,630	150	1,354	5,537
Missouri River	12,643	0	2,820	0	15,463
Export elevator	0	0	0	0	0
Other	372	0	0	0	372
Total	32,259	12,643	15,985	1,373	62,260

Table G.5. Estimated average distance corn was hauled in miles from country elevators to destination markets by mode of transportation for the Southwest crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans	
Market	Trucks	Rail	Trucks	Rail
Livestock feeder	65	336	(-)	(-)
Processor	100	0	103	300
Mississippi River	95	110	100	180
Missouri River	86	0	45	0
Export elevator	0	0	0	0
Other	200	0	0	0
Weighted average	21	526	49	390

Appendix H: South Central Iowa

Table H.1. Estimated quantities of corn delivered from farms in millions of bushels by destination and mode of transportation for the South Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	9,210	8,887	10,563	3,294
Corn processor	0	0	3,423	19,057
Mississippi River	0	0	0	0
Missouri River	0	0	0	0
Another farm / feeding operation	487	(N)	1,668	431
Other	0	0	0	2,201

Table H.2. Estimated quantities of soybeans delivered from farms in thousands of bushels by destination and mode of transportation for the South Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

		Trucks		
Destination	Wagon	Single axle	Tandem axle	Semi
Country elevator	4,529	3,832	2,233	1,311
Soybean crusher	0	0	1,893	2,190
Mississippi River	0	0	0	2,827
Missouri River	0	0	0	0)
Other	0	0	0	0

Table H.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the South Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

			Trucks							
	Wagon		Single axle		Tandem axle		Semi		Weighted average	
Destination	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	5	5	10	9	11	10	8	8	9	8
Processors	0	0	0	0	44	22	66	53	62	39
River terminal	0	0	0	0	0	0	140	132	140	132
Another farm	3	(-)	(N)	(-)	2	(-)	45	(-)	10	(-)
Seed	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
Weighted average	5	5	10	9	19	16	60	79	32	33

Table H.4. Estimated quantities of corn and soybeans shipped in thousands of bushels from country elevators to destination markets by destination for the South Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans		
Market	Trucks	Rail	Trucks	Rail	Total
Livestock feeder	7,754	0	(-)	(-)	7,754
Processor	21,470	0	14,133	116	35,719
Mississippi River	462	1,143	978	684	3,267
Missouri River	0	0	0	0	0
Export elevator	0	0	0	0	0
Other	0	1,143	65	670	1,878
Total	29,686	2,286	15,176	1,470	48,618

Table H.5. Estimated average distance corn was hauled in miles from country elevators to destination markets by mode of transportation for the South Central crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

	Corn		Soybeans	
Market	Trucks	Rail	Trucks	Rail
Livestock feeder	20	0	(-)	(-)
Processor	74	0	57	50
Mississippi River	150	200	110	199
Missouri River	0	0	0	0
Export elevator	0	0	0	0
Other	0	350	6	300
Weighted average	55	275	60	233

Appendix I: Southeast Iowa

Table I.1. Estimated quantities of corn delivered from farms in thousands of bushels by destination and mode of transportation for the Southeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Destination	Wagon	Trucks: Single axle	Trucks: Tandem axle	Trucks: Semi
Country elevator	14,920	11,364	5,599	6,684
Corn processor	536	0	2,919	15,979
Mississippi River	8,844	5,228	7,360	16,581
Missouri River	0	0	0	0
Another farm / feeding operation	3,854	495	(N)	211
Other	0	0	62	0

Table I.2. Estimated quantities of soybeans delivered form farms in thousands of bushels by destination and mode of transportation for the Southeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Destination	Wagon	Trucks: Single axle	Trucks: Tandem axle	Trucks: Semi
Country elevator	9,409	3,298	4,511	1,001
Soybean crusher	0	0	0	136
Mississippi River	1,597	1,168	1,260	9,166
Missouri River	0	0	0	0
Other	0	0	0	2,162

Table I.3. Estimated average miles corn and soybeans were hauled from farms by destination and mode of transportation for the Southeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Destination	Wagon		Trucks: Single axle		Trucks: Tandem axle		Trucks: Semi		Weighted average	
	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans	Corn	Soybeans
Country elevator	5	5	7	63	6	7	8	10	6	17
Processors	17	0	23	0	32	0	47	60	44	60
River terminal	12	14	21	20	18	24	50	54	32	42
Another farm	3	(-)	10	(-)	(N)	(-)	1	(-)	3	(-)
Seed	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)	(N)
Weighted average	7	6	11	51	16	14	42	49	23	28

Table I.4. Estimated quantities of corn and soybeans shipped in thousands of bushels from country elevators to destination markets by destination for the Southeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Market	Corn: Trucks	Corn: Rail	Soybeans: Trucks	Soybeans: Rail	Total
Livestock feeder	10,997	198	(-)	(-)	11,195
Processor	31,559	0	5,939	568	38,066
Mississippi River	7,857	6,034	12,008	2,421	28,320
Missouri River	0	0	0	0	0
Export elevator	0	0	0	0	0
Other	0	0	0	0	0
Total	50,413	6,232	17,947	2,989	77,581

Table I.5. Estimated average distance corn and soybeans were hauled in miles from country elevators to destination markets by mode of transportation for the Southeast crop reporting district, Iowa, Sept. 1, 1994 – Aug. 31, 1995.

Market	Corn: Trucks	Corn: Rail	Soybeans: Trucks	Soybeans: Rail
Livestock feeder	10	60	(-)	(-)
Processor	47	0	88	100
Mississippi River	40	40	62	25
Missouri River	0	0	0	0
Export elevator	0	0	0	0
Other	0	0	0	0
Weighted average	37	57	69	91

Appendix J: Grain Marketing Survey Questionnaire

IOWA
AGRICULTURAL
STATISTICS
SERVICE

Rm 833 Federal Bldg., 210 Walnut
Des Moines, Iowa 50309
1-800-772-0825

GRAIN MARKETING SURVEY

Dear Farmer:

It does little good to produce corn and soybeans if roads, resources, and markets are not available. The following information is needed to better understand how Iowa farmers move their grain to market. To aid in meeting these needs, please answer the questions below for the farm you operate and return this inquiry in the enclosed self-addressed, postage, paid envelope. Response to this survey is voluntary, not required by law, and will be kept confidential.

Sincerely,

Jim

Jim Sands
State Statistician

CROP PRODUCTION, SALES, DESTINATION AND TRANSPORTATION

Corn produced on this farm in 1994	bu.
Corn from the 1994 crop sold or to be sold	bu.

Of the 1994 corn crop sold or to be sold above, what was or will be the destination from your farm and mode of transportation:

		BUSHELS HAULED			
		WAGON	SINGLE AXLE TRUCK	TANDEM AXLE TRUCK	SEMI
a.)	country elevator (include grain held in storage)				
b.)	corn processor				
c.)	Mississippi River terminal				
d.)	Missoun River terminal				
e.)	another farm/feeding operation				
f.)	picked up on farm, destination unknown . . .				

What was or will be the transportation vehicle used to transport the corn to each destination and average distance one way?

		MILES ONE WAY			
		WAGON	SINGLE AXLE TRUCK	TANDEM AXLE TRUCK	SEMI
a.)	country elevator				
b.)	corn processor				
c.)	river terminal				
d.)	another farm				

---OVER ---

5. Soybeans produced on this farm in 1994 . . . . . | bu.

6. Soybeans from the 1994 crop sold or to be sold . . | bu.

7. Of the 1994 soybeans sold or to be sold above, what was or will be the destination from your farm and mode of transportation:

	BUSHELS HAULED			
	WAGON	SINGLE AXLE TRUCK	TANDEM AXLE TRUCK	SEMI
a.) country elevator (include grain held in storage)				
b.) soybean crusher				
c.) Mississippi River terminal				
d.) Missouri River terminal				
e.) picked up on farm, destination unknown . . .				

8. What was or will be the transportation vehicle used to transport the soybeans to each destination and miles one way?

	MILES ONE WAY			
	WAGON	SINGLE AXLE TRUCK	TANDEM AXLE TRUCK	SEMI
a.) country elevator				
b.) soybean crusher				
c.) river terminal				

9. What type and how many grain handling vehicles do you currently own and expect to own by the year 2000?

	CURRENT NUMBER	YEAR 2000
a.) gravity flow wagons		
b.) single axle trucks		
c.) tandem axle trucks		
d.) semis		

Would you like to receive a free copy of the results of this survey? ( ) YES = 1 . . . . . |

This completes the survey. Thank you for your help.

Reported by _____ Date _____

Appendix K: Iowa Grain Handlers Marketing Survey Questionnaire

Iowa Grain Handlers Marketing Survey

Dear Elevator Manager,

The following information is needed to better understand the movement of Iowa grain to market. Please answer the questions below for your business and return this inquiry in the enclosed self-addressed, postage-paid envelope. Response to this survey is voluntary, not required by law, and will be kept confidential.

Sincerely,

Jim Sands
State Statistician

1 Please classify your operation in one of the following categories (check one).

a. Country elevator	
b. Corn or soybean processor	
c. Barge terminal	
d. Terminal elevator	
e. Grain dealer with no licensed warehouse storage capacity	
f. Other (specify)	

2. How many bushels of storage space did you have on September 1, 1995?

a. Flat	bu.
b. Upright	bu.

3. What was your volume of grain movement to and from your facility by month?

Month	Bushels Received		Bushels Shipped	
	Corn	Soybeans	Corn	Soybeans
September 1994				
October				
November				
December				
January 1995				
February				
March				
April				
May				
June				
July				
August				
Total 1994 Marketing Year				

4 Do you presently own or lease transportation equipment?

a. No _____ Go to Question 6.
b. Yes _____ Continue

5. Soybeans produced on this farm in 1994 . . . . . | bu.

6. Soybeans from the 1994 crop sold or to be sold . . | bu.

7. Of the 1994 soybeans sold or to be sold above, what was or will be the destination from your farm and mode of transportation:

	BUSHELS HAULED			
	WAGON	SINGLE AXLE TRUCK	TANDEM AXLE TRUCK	SEMI
a.) country elevator (include grain held in storage)				
b.) soybean crusher				
c.) Mississippi River terminal				
d.) Missouri River terminal				
e.) picked up on farm, destination unknown . . .				

8. What was or will be the transportation vehicle used to transport the soybeans to each destination and miles one way?

	MILES ONE WAY			
	WAGON	SINGLE AXLE TRUCK	TANDEM AXLE TRUCK	SEMI
a.) country elevator				
b.) soybean crusher				
c.) river terminal				

9. What type and how many grain handling vehicles do you currently own and expect to own by the year 2000?

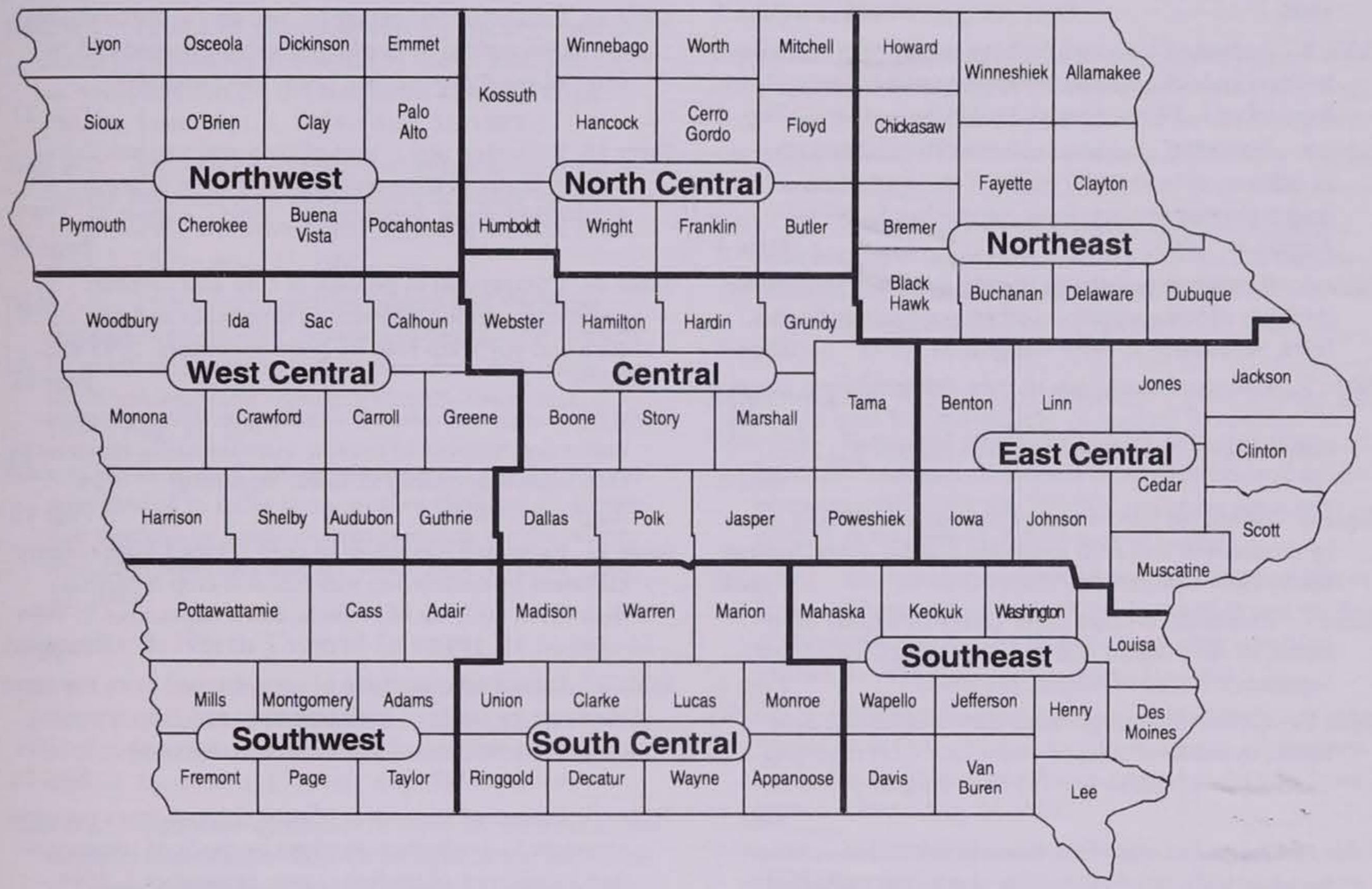
	CURRENT NUMBER	YEAR 2000
a.) gravity flow wagons		
b.) single axle trucks		
c.) tandem axle trucks		
d.) semis		

Would you like to receive a free copy of the results of this survey? ( ) YES = 1 . . . . . | |

This completes the survey. Thank you for your help.

Reported by _____ Date _____

Appendix L: Iowa Crop Reporting Districts



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