Iowa Cattle Grazing Survey: Part 1 Results

Iowa's cattle industry makes up a large portion of the state's agricultural economy. Plentiful feed resources make this a viable location for livestock production. Although Iowa is best known for its corn and soybean production, not all land resources are utilized for crop production. Due to land type, suitable usage, and owner preference a large portion of Iowa's lands are used to graze cattle or other livestock. Some grazing lands are used directly by the owner while other pastures are rented or leased to other producers. To gain information pertaining to Iowa's pasture and grazing lease market environment, a survey was conducted among agricultural producers and land owners throughout the state. Respondents were asked questions about the makeup of their lease or rental agreement, characteristics of their operation, production methods, current rental rates, and details about their custom grazing agreements where applicable.

There were 448 respondents to the survey, of which 237 (53 percent) were involved in a pasture or grazing rent agreement as either a land owner or tenant. There were 163 responses from grazing tenants, 52 from landowners who rented out pasture land, and 13 respondents were both tenants and land owners in different grazing arrangements.

Figure 1 is a map of the 12 crop survey districts used by Iowa State Extension. For more geographic differentiation across the state survey rent responses were classified according to the district in which the respondent is located. Some respondents that did not list the location of their operation and were not used in any district analysis, but they were included in the overall results.

Figure 1: ISU Extension crop survey districts

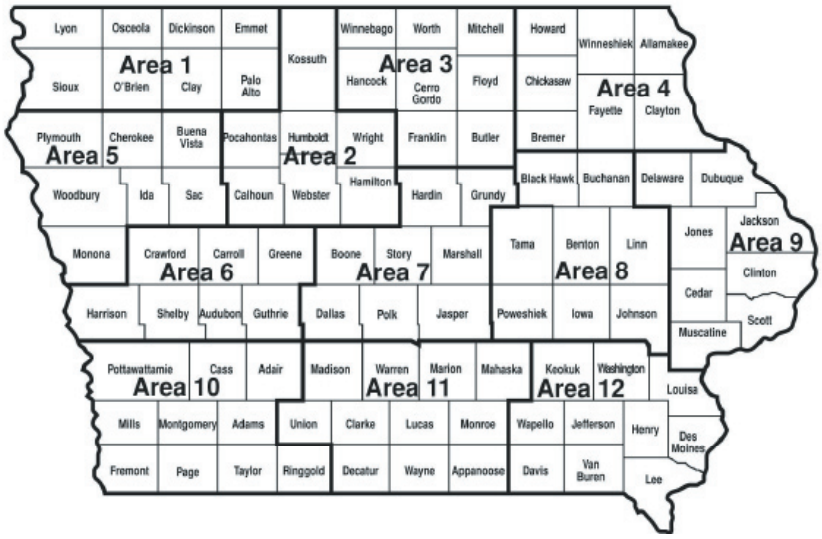

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Table 1 contains some of the some of the general statistics gained from the survey. On average tenants were younger than landowners. The average age of tenants was reported to be 48.7 years of age and the average age of land owners was 65.5 years. Only 9.7 percent of respondents indicated that the landowner was younger than the tenant.

The average number of pasture acres rented was 115 acres, and ranged from 7 acres to 1000 acres. Pastures were an average of 8.1 miles from the cow owner's base of operation. Table 1 also contains statistics describing the size and enterprise diversity of the cow owners.

Table 1. Summary statistics of land owner, tenant, cow owner's operation

	Number of observations	Average	Minimum	Maximum	Standard deviation
Tenant's age	188	48.7	10	87	12.1
Land owner's age	189	65.5	30	93	12.9
Acres in pasture lease	228	115.3	7	1000	125.8
Distance to pasture	211	8.1	0	200	19.0
Cow owner livestock enterprises (head)					
Cow herd	166	122.0	6	710	112.0
Stockers	19	76.5	3	300	67.8
Calf-backgrounder	48	153.4	12	600	137.6
Cattle finishing	48	321.7	2	2500	537.7
Cow owner crop enterprises (acres)					
Corn	116	371.4	10	4500	502.2
Silage	39	41.9	6	280	48.9
Soybeans	96	345.0	10	2500	379.6
Alfalfa	130	80.5	4	600	85.5
Other hay	97	64.9	5	400	65.4
Pasture	175	280.3	15	2200	296.5

The number of pasture acres leased differs between the individual leases.

Table 2 contains the average number of acres in the pasture lease, grazing duration, and average starting and ending dates.

Table 2. Pasture Lease Size and Grazing Period						
District	Number of Observations	Average Pasture Lease (acres)	Average Length of Grazing (days)	Median Length of Grazing (days)	Average Start Date	Average End Date
1	5	183.5	211.5	180.5	25-Apr	23-Oct
2	14	83.0	185.6	183.0	07-May	08-Nov
3	10	40.3	193.5	183.0	29-Apr	08-Nov
4	7	168.8	187.7	183.0	27-Apr	01-Nov
5	8	101.9	182.6	182.5	25-Apr	24-Oct
6	19	112.2	218.4	213.0	14-Apr	01-Nov
7	26	50.5	196.4	183.0	25-Apr	07-Nov
8	19	85.7	217.9	213.0	16-Apr	20-Nov
9	23	122.0	205.5	199.0	14-Apr	06-Nov
10	45	110.9	253.0	243.0	14-Mar	22-Nov
11	48	158.2	234.5	223.5	04-Apr	24-Nov
12	10	199.8	280.6	274.0	18-Mar	24-Dec
State (Iowa)	237	115.3	222.6	191.0	08-Apr	17-Nov

Respondents from the North Central, Central areas of the state reported having the smallest average number of acres in their pasture leases. The survey average sized pasture lease was just over 115 acres and lasted for an average of over 222 days. On average grazing periods began in the first weeks of April and ended mid-November. Only 8.7 percent indicated that their agreement permitted year around use. Southern regions of the state also appear to have a longer grazing period than those further North.

Respondents were asked to identify some of the characteristics of their lease. Table 3 contains results detailing the characteristics of the lease agreements. These details include prevalence of one year, multi-year or evergreen lease agreements; pasture only or whole farm use; and duration. Over all, 69 percent of respondents were in a pasture only lease agreement, 31 percent where in a whole farm lease arrangement that included more than just pasture use.

Table 3. Pasture leasing agreements				
	Number of Observations	Pasture Only	Whole Farm	Average Duration
One year only	115	40.4%	10.7%	
Multi-year lease	26	7.1%	4.4%	4.1 years
Evergreen, annual renewal	84	22.7%	14.7%	10.1 years
Combined	225	70.2%	29.8%	

On average, if a whole farm was leased, 46 percent of the farm was used for pasture. In addition, 59 percent of whole farm leases priced rent at a rate differing from the rest of the farm land. Just over half of the lease agreements were one year only arrangements. Evergreen or year to year renewal leases were used by 37 percent of the respondents. Current evergreen agreements had been renewed for an average of 10.1 continuous years. Only 11 percent of respondents used multiple year lease arrangements, which had an average length of 4.1 years.

Grazing rent & lease rates

A principle portion of the survey was dedicated to requesting current pasture lease rates. Classified by soil productivity and primary plant type population, respondents reported either per acre or per animal-unit-month (AUM) monthly rental rate. Table 4 contains a summary of rental price information from the survey. The average state rent, which included all responses, was $37.89 per acre and $18.69 per AUM. Average rental rates for the 12 crop survey districts are also included

Table 5 is a summary of rental rates based on plant forage type and land productivity across the state. The average per acre rental price increased with the productivity of the land. The difference in average price between low and moderately productive land was $7.39, and high quality land rent for $7.99 more than moderately productive land. Statistically high quality pasture land rented for $28 more per acre than low quality pasture, but there was not a statistical price difference between the amount paid for low and moderate quality pasture across all forage types. The average rent per AUM also increased by land productivity, but there was not a statistically significant difference in price. The difference in average AUM price between low and moderately productive land was $3.11 and $4.30 between moderate and high production land. Also noted in Table 5 is the number of responses used to calculate each average. The number of survey responses did not permit land productivity to broken down by crop survey district.

Table 4. Average pasture rents per acre and AUM

Area	Annual rent per Acre	Number of Responses	Monthly rent per AUM	Number of Responses
State (Iowa)	37.89	169	18.69	25
1	52.00	4	—	—
2	24.50	4	33.33	1
3	30.08	13	—	—
4	25.00	5	13.33	3
5	42.26	7	32.85	2
6	43.23	17	26.00	2
7	39.74	19	8.38	2
8	38.69	12	12.50	1
9	45.15	16	16.35	6
10	41.15	34	15.67	2
11	32.51	32	23.70	5
12	27.17	6	19.45	2

Table 5. Acre and AUM rents based on forage type and land productivity								
	Rent per acre				Rent per AUM			
		Land productivity				Land productivity		
Plant forage type	All	High	Moderate	Low	All	High	Moderate	Low
Tall cool-season grasses	42.05	59.25	38.96	33.00	18.14	27.33	16.79	12.50
Number of Responses	107	16	69	8	19	3	14	1
Fescue pasture	40.53	99.33	38.04	25.94	24.63	—	30.00	13.89
Number of Responses	42	3	25	8	3	—	2	1
Warm-season grass	42.94	52.83	44.67	30.00	21.11	—	15.00	—
Number of Responses	17	6	6	2	3	—	2	—
Improved legume/ grass	45.26	55.00	44.61	35.00	10.00	—	10.00	—
Number of Responses	29	5	19	1	1	—	1	—
Alfalfa	52.96	63.69	44.69	—	15.35	15.35	—	—
Number of Responses	18	7	8	—	2	2	—	—
Bluegrass pasture	36.98	55.00	36.33	29.50	15.60	—	14.80	—
Number of Responses	46	5	24	12	4	—	3	—
Timber pasture	26.55	—	26.95	29.96	23.83	—	26.25	19.00
Number of Responses	31	—	11	14	3	—	2	1
Other	32.64	—	36.96	20.00	—	—	—	—
Number of Responses	4	—	2	1	—	—	—	—
All forages	37.51	45.33	37.34	29.99	19.49	22.54	18.24	15.13
Number of Responses	174	30	106	39	25	5	16	3

The survey indicated that a majority of pasture is rented by the acre rather than by the AUM. Renting pasture by the acre rather than by its animal carrying capacity may be a simpler arrangement for the land owner by placing the risk of lower than normal pasture production on the tenant. Renting land by the acre is the common arrangement for renting cropland, so renting pasture by the same method would continue a familiar practice.

Pasture management

The survey examined how pastures were managed. Respondents were asked to indicate how water was supplied to the cattle, how many paddocks were used to manage grazing and what chemical or mechanical methods were used to improve pasture health and productivity.

Table 6 contains the percentage of respondents that use a pond, creek or flowing waterway, well water, water hauled by tank, or rural water as their source of supplying water to the cattle grazed on the rented pasture. A creek or other waterway was used by 57 percent of the respondents, and just over half, 53 percent, used a pond to water the cattle. The least used water sources were rural water and water transported by tank.

Table 6. Percentage of respondents by water source and pasture improvement	
Water Source	**% of Respondents**
Pond	53%
Creek or waterway	57%
Well	42%
Hauled by tank	3%
Rural water	4%
Total number of respondents: 229	
Pasture Improvement	**% of Respondents**
Rotational grazing, 4-7 paddocks	52%
Rotational grazing, 7+ paddocks	16%
Frost seeding a legume	41%
Inter-seeding a legume	24%
Fertilize	77%
Soil test ever 5 years or less	33%
Clip pasture to control height	65%
Spot weed control	85%
Improve water systems	38%
Limit access to waterways	25%
Total number of respondents : 185	

Most of the respondents that completed the whole of the survey use at least one of the pasture improvement methods listed in Table 6. Over three quarters of the respondents fertilize their pastures and 85 percent try to control weed encroachment where necessary. Over half of the respondents divided their grazing pastures into four to seven paddocks to better manage the grazing, and an additional 16 percent used more than seven paddocks. Frost seeding was the preferred method of seeding legumes in an established pasture. Only 25 percent of respondents needed or opted to limit access to water ways. Also a correlation analysis found little to no relationship between the use of waterways as water sources and the likelihood of access to the waterways being limited, but it was found that half of the respondents who improved water systems also limited cattle access to waterways.

A statistical analysis determined that none these pasture improvement methods had a significant (>0.95) statistical influence on the duration of the grazing period. However, actual forage production may have improved, but could not be confirmed by the data collected from the survey.

Winter feeding

A portion of the survey was dedicated to gathering information about winter feeding practices. In total there were 125 respondents that answered these questions, however not all responses could be used due to incomplete answers. If alfalfa hay was the primary or sole forage in the winter ration, 3,040 pounds of hay were fed to each cow during the winter period. Operations that used both hay and silage fed an average of 2,333 pounds of hay and 2,527 pounds of silage. The average number of days that cattle were fed stored feed, in general, was 112 days.

Table 7 is a breakdown of feeding durations and stored feed quantity utilization. Using cornstalks and stored feedstuffs was the most common winter feeding practice, used by almost half of the survey respondents. Over a quarter used some combination of all three feed sources. Less than two percent of the respondents did not use stored feed during the winter feeding period.

The average quantity of stored feed utilized during the winter did decrease when one or both of the other feed sources were utilized, and average duration of feeding stored feed also declined with the used of alternative sources. There were no respondents that indicated using stockpiled feed as their only winter feed source.

Table 7: Summary of feed sources and feeding durations and quantities

		Average days on feed source			Pounds fed	
Feed source	% of respondents	Cornstalks	Stockpiled grazing	Stored feed	Hay	Silage
Cornstalks only	5%	72				
Stored feed only,	10%			133.4	4272	4000
Cornstalks and stockpiled grazing	2%	82.0	35.0			
Cornstalk and stored feed	47%	79.1		116.2	2930	2792
Stockpiled grazing and stored feed	9%		43.5	109.7	3812	120
Cornstalks, stockpiled grazing, stored feed	28%	70.2	43.5	96.0	2465	2284
Overall		75.7	43.1	111.6	2981	2481

When asked if they fed corn as part of the winter feeding ration, there were 158 responses. Of those, 58 percent fed corn at an average of 359 pounds per head during the winter, while 42 percent of the responses indicated that corn grain was not used. The survey also asked if co-products were fed during the winter. Among 149 respondents 41 percent indicated that they did use some form of a distiller's or feed source co-product. Co-products from corn distillation were used by 86 percent of those who listed the feeds they utilized. Other feeds such as soy hulls, bean mud, chicken litter and protein pellets were also mentioned.

Conclusion

Pasture rent varies between regions of the state. Rental rates also varied between productivity and forage types. High quality land and desirable forage types, which tend to have higher productive value, were reported in the survey to receive a higher rent value. Common pasture management practices included rotational grazing systems, seeding legumes in an established pasture, the application of commercial fertilizers, and weed control. Much of the data in this survey was based upon the opinion or records of the respondents. Where incomplete data was found, intuitive methods were used to decipher the raw survey data and complete the data as much as possible.

The Iowa Cattle Grazing Survey also asked respondents to describe the primary characteristic of any custom grazing, cattle leasing or cattle sharing agreements they may be operating under. Results from that portion of the survey are in the companion publication entitled "Iowa Cattle Grazing Survey: Custom Grazing, Cow-calf Leasing."

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