



# Iowa's Pastureland and Grazing 2013-2018

## Introduction

According to the United States Department of Agriculture's (USDA) 2017 Census of Agriculture, approximately 5% of Iowa's pastureland was converted to cropland from 2012 to 2017. This reduction was substantially smaller than the 21% reduction in pastureland from 2007 to 2012. Over the five-year period from 2012 to 2017, there was a 7% decrease in permanent pastureland and 9% decrease in woodland pasture. However, there was a 17% increase in other pasture, defined by USDA as pasture or grazing land that could be utilized for crop production without additional improvements.

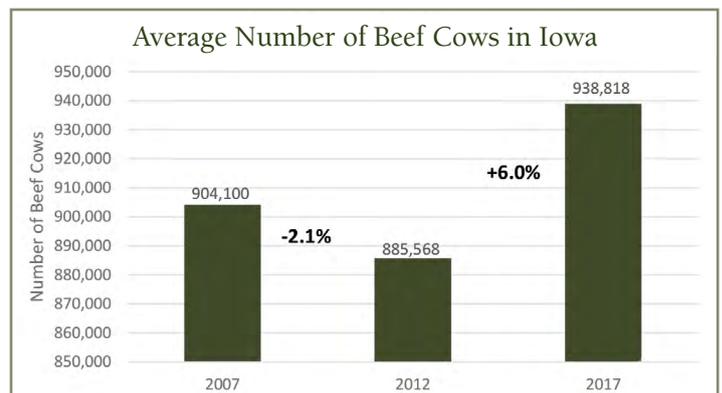
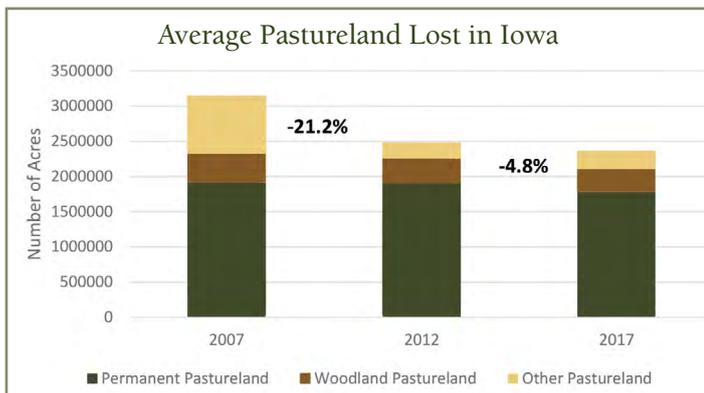
From 2007 to 2012, beef cow numbers across the country dropped to lows not seen since the 1950s. In Iowa, there was a 2% decrease in beef cow inventory during this time period. This decrease in beef cow numbers coincided with a substantial loss of pastureland, high feed costs, and droughts. From 2012 to 2017, beef cow numbers across

the country rebounded. In Iowa, inventory numbers surpassed those in 2007, with a 6% increase from beef cow numbers in 2012. During this time, cattle prices reached historical highs, driving beef cow inventory up, while pastureland remained fairly steady<sup>1</sup>.

## Iowa's Cattle Industry

Iowa's cattle industry has 3.95 million cattle and calves<sup>1</sup>, making up 15% of the state's agricultural economy and 32% of the state's animal and animal product economy<sup>2</sup>. Many of the feed resources for this extensive industry are produced in Iowa, making this a viable location to raise cattle profitably. While Iowa is known best for its production of corn and soybeans, not all land goes into crop production. Due to suitable usage based on land type and owner preference, approximately 6% of Iowa's lands are used to graze cattle or other livestock<sup>1</sup>.

In an effort to keep Iowa's beef producers profitable, the Iowa Beef Center (IBC) at Iowa State University conducted several grazing and pasture management



programs from 2013 to 2018. Objectives of the grazing programs included:

- Improving grazing and management techniques through increased forage productivity while increasing cattle performance.
- Utilizing forage management to protect and enhance water quality and benefit soil health.
- Increasing producer profitability.

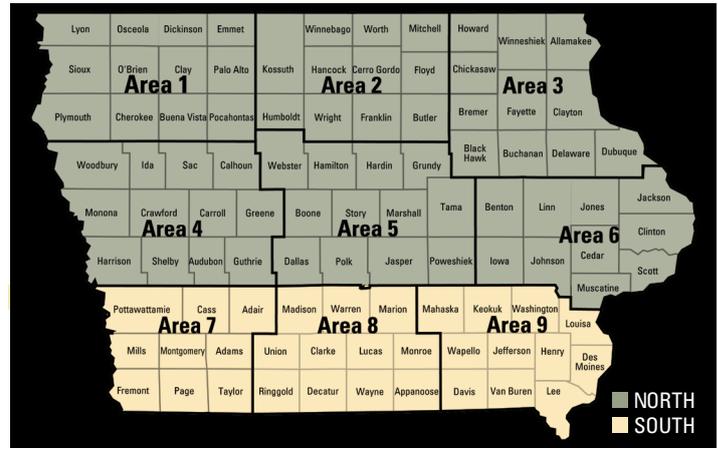
Some grazing lands are used directly by the owner while other pastures are rented or leased to other producers.

To gain information on Iowa's pasture productivity and grazing rental arrangements, evaluations were distributed to more than 1,000 participants who attended at least one of the IBC's grazing and pasture management programs in the past five years. The first part of the survey was designed to evaluate the effectiveness of the program sessions while the remainder was dedicated to determining pasture values. Respondents were asked questions about the characteristics of their operation, production methods, carrying capacity, current rental rates, and about their custom grazing agreements.

The 86 producers who responded to the pasture rent survey had an average attendance rate of four grazing and pasture management meetings. The compiled survey respondents attended a total of 163 programs during the last five years.

## Survey Regions

The state was divided into two regions using the USDA Crop Reporting Districts to compare regional differences. Districts in the north and south were combined as they have similar geographic characteristics and grazing operations (Figure 1). USDA crop reporting districts 1, 2, 3, 4, 5, and 6 were consolidated into the north region for this analysis, and districts 7, 8, and 9 were consolidated into the south region. Some respondents did not list the



**Figure 1. USDA Crop Reporting Districts Combined to Create North and South Regions for Survey Results.**

location of their operation, thus were not used in any district analysis but were included in the overall state results. Respondents utilize pasture within 45 Iowa counties, with the greatest concentration of pasture and cattle in the southern half of the state. Counties with the most respondents were Jackson, Lucas, Marion, Decatur, Buchanan, and Jones.

## Summary of Pastureland

The size of respondents' pastureland operations ranged from 3 to 1,500 acres, with an average of 249 total acres. Those who owned all their pastureland made up 36% of total respondents and had an average of 198 acres. Respondents who rented all their pastureland made up 14% of the total respondents and had an average of 94 acres. The majority of respondents (48%) had a combination of owned and rented pastureland, with an average of 372 acres (Table 1). Only 2% of respondents did not specify whether land was owned, rented, or a combination. On average, those with a combination of owned and rented pastureland tended to have a larger operation.

The south region had the largest operations with an average of 375 forage acres. The north region averaged 194 acres (Table 2).

**Table 1. Total number of pasture acres surveyed.**

	Average	Minimum	Maximum	Median	Standard Deviation	Number of Observations
Total (acres)	249	3	1500	160	268	76
Owned (36%)	198	3	1000	130	224	27
Rented (14%)	94	14	300	80	86	11
Combination (48%)	372	8	1500	250	332	37

**Table 2. Pasture acres by region.**

	Average	Minimum	Maximum	Standard Deviation	Number of Observations
North region	194	3	1100	229	44
South region	375	14	1500	334	31
<b>State</b>	<b>249</b>	<b>3</b>	<b>1500</b>	<b>268</b>	<b>76</b>

**Table 3. Type of grazing operation.**

	Average	Minimum	Maximum	Standard Deviation	Number of Observations
Cow-calf Pairs	121	6	1300	169	65
Stockers	90	2	350	108	11
Developing Breeding Heifers	38	2	200	54	27

### Type of Grazing Operation

Eighty-seven percent of respondents reported utilizing their pastureland for a cow-calf operation with an average of 121 pairs, ranging from 6 to 1,300 pairs statewide. Thirty-five percent of respondents reported using their pastureland for developing heifers with an average of 38 head, ranging from 2 to 200 head statewide. Fourteen percent of respondents reported using their pastureland for stocker cattle with an average of 90 head, ranging from 2 to 350 head statewide (Table 3). All operations with developing breeding heifers and/or stockers also had cow-calf pairs, with 38% of respondents having a combination of the different categories of cattle.

### Cattle Numbers by Region

The south region has a larger average cow-calf herd with 107 pairs, while the north region follows closely with an average cow-calf herd size of 100 pairs. Developing heifer operations are fairly even across the state with the largest

average number in the south region, with 49 head, and the north region at 31 head. While responses with stocker enterprises were limited, operations with stocker cattle have the most variance in number by region, with the south region having the largest stocker herd at an average of 138 head, and the north region having an average of 49 head of stocker cattle (see Table 4).

### Grazing Season

Respondents were asked to report their normal starting and ending pasture grazing dates. Statewide, the average start date for grazing season is in late April and the average end date is late October. The average grazing season is 186 days, with a range of 61 to 275 days (Table 5). However, three producers reported year-round grazing: two from the south region and one from the north region (data not reported in table). In general, the south region averaged longer grazing seasons, with an earlier start date and a later end date than the north region, which may be

**Table 4. Cattle numbers by region.**

	Cow-calf Pairs	Number of Observations	Developing Heifers	Number of Observations	Stockers	Number of Observations
North region	100	40	31	14	49	6
South region	107	24	49	11	138	5
<b>State</b>	<b>121</b>	<b>65</b>	<b>38</b>	<b>27</b>	<b>90</b>	<b>11</b>

**Table 5. Grazing season length (in days).**

	Average	Minimum	Maximum	Average Start Date	Average End Date
North region	173	61	258	May 2	October 23
South region	203	153	275	April 20	November 10
<b>State</b>	<b>186</b>	<b>61</b>	<b>275</b>	<b>April 27</b>	<b>October 31</b>

**Table 6. Pasture productivity by forage type.**

	Productivity % of Respondents			Carrying Capacity Number of Acres per Animal per Season		
	High	Medium	Low	Cow-calf Pairs	Stockers	Dry Cows/ Heifers
Warm Season Grasses	--	83.3	16.7	1.75	--	--
Unimproved Pasture	9.1	72.7	18.2	3.23	1.25	2.42
Improved Tall Grass	12.5	87.5	--	1.82	1.25	--
Improved Grass and Legume	47.1	41.2	11.8	1.52	1.03	0.80
Timber Pasture	--	38.5	61.5	3.15	1.25	--
Rotational Hay Ground	28.6	71.4	--	1.00	0.80	0.80
<b>Average</b>	<b>24.3</b>	<b>65.8</b>	<b>27.0</b>	<b>2.08</b>	<b>1.12</b>	<b>1.34</b>

explained by northern Iowa usually experiencing a first frost at an earlier date than southern Iowa. On average, the state increased its grazing season length from 174 days in 2012 to 186 days in 2018<sup>6</sup>. Although not measured in this survey, this may be due to increased use of grazing stockpiled forages, corn stalk residue, and cover crops.

### Forage Quality and Stocking Densities

Respondents were asked to estimate the productivity of their pastures as high, medium, or low, and the pastures' carrying capacity (number of acres per animal unit per season). On average, 24% of respondents rated their pastures as high productivity, 66% rated their pastures as medium productivity, and 27% rated their pastures as low productivity. Pastures were rated as medium productivity in all pasture types except for improved grass and legume, where it was rated as high productivity, and timber pasture, where it was low productivity.

Statewide, the carrying capacity for all types of pasture for cow-calf pairs was 2.08 acres per pair, with a range of 1.00 to 3.23 acres per pair. The statewide carrying capacity for stocker cattle across all types of pasture averaged 1.12 acres per head, with a range of 0.80 to 1.25 acres per head. Carrying capacity statewide for dry cows-heifers across all types of pastures averaged 1.34 acres per head, with a range of 0.80 to 2.42 acres per head (Table 6).

### Grazing Rental Rates

The average rental rate for all types of pasture was \$58 per acre across the state (Table 7). When asked to record rates based on forage type, respondents typically reported a higher average rental rate for higher quality pastures, such as improved tall grass, improved grass and legume, and rotational hay ground. As expected with less productive types of pastures, including warm season grasses, unimproved pasture, and timber pasture, a lower average rental rate was reported. The average rental rate for warm season grasses was \$42 per acre, unimproved pasture was \$49 per acre, timber pasture was \$30 per acre, improved tall grass pastures was \$76 per acre, improved grass and legume pasture was \$77 per acre, and rotational hay ground was \$91 per acre (Table 8).

**Table 7. Pasture analysis based on region.**

	Rental Value \$/Acre	Carrying Capacity # of Acres per Animal Unit		
		Cow-calf Pairs	Stockers	Dry Cows/ Heifers
North region	64.43	3.02	--	1.11
South region	53.39	2.02	1.10	0.80
<b>State</b>	<b>58.34</b>	<b>2.37</b>	<b>1.10</b>	<b>0.90</b>

According to Iowa State University Extension and Outreach publication [Cash Rental Rates for Iowa 2018 Survey](https://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10_2018.pdf) (FM 1851) ([https://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10\\_2018.pdf](https://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10_2018.pdf)), improved

**Table 8. Pasture rental rate by forage type.**

	\$ Rent/Acre			Number of Observations
	Average	Minimum	Maximum	
Warm season grasses	42	35	50	5
Unimproved pasture	49	25	100	21
Improved tall grass	76	45	150	14
Improved grass and legume	77	30	150	13
Timber pasture	30	10	65	12
Rotational hay ground	91	30	200	7

pasture across the state had an average rental rate of \$75 per acre while unimproved pasture had an average rental rate of \$50 per acre<sup>3</sup>. Average rental rates also varied greatly based on region. Pasture ground in the north region was the most expensive at \$64 per acre, which may be explained by less pasture availability compared to other regions. The south region had an average rental value of \$53 per acre (Table 7).

### Payment Timing

Respondents were asked when their rental payment was due, with options of monthly, quarterly, biannually, and annually. Approximately 55% of respondents pay annually, 33% pay biannually, and 12% pay monthly (Table 9). One producer reported paying rent on a triannual basis.

**Table 9. Rental payment.**

	Response Percentage	Number of Observations
Monthly	12.2%	6
Quarterly	--	--
Biannually	32.7%	16
Annually	55.1%	27

### Summary of Responses

Across the state, pasture rental rates varied by region, forage type, and productivity. Pastures with improved forage quality and higher productivity tended to have greater rental rates and higher carrying capacities (expressed as number of acres per animal unit). This survey indicated that the average pasture rental rate was \$58 per acre. The *Cash Rental Rates for Iowa 2018 Survey*<sup>3</sup> indicated the state average rental rate for all pastures was approximately \$63 per acre. Information collected for the *Cash Rental Rates for Iowa 2018 Survey* was based on typical cash rental rates within each respondent's area and not necessarily rental rates of individual farms. This document summary survey asked for individual rental rates.

Producers were also asked to identify two key concerns to include in pasture rental arrangements. The most commonly identified concerns were fencing responsibility and maintenance, payment arrangements, fertilizer and spraying responsibilities, longevity of lease and grazing period, and water sources. Other concerns listed were improvements to pasture and facilities, interseeding, and carrying capacity. These concerns should be addressed in any type of pasture and grazing rental arrangement, whether it is pasture rent only, resource sharing, contract grazing, or based on animal performance. More information on these types of rental agreements and on establishing a fair pasture rental price for both parties can be found in IBC publication *Pasture and Grazing Arrangements for Beef Cattle*<sup>4</sup> (IBC 0119) (<https://store.extension.iastate.edu/product/151110>).

### Changes Within Iowa's Cattle Industry from 2013 to 2018

When compared with ISU Extension and Outreach publication *Iowa Pastureland Changes 2007-2012*<sup>5</sup>, (IBC 0053) (<https://store.extension.iastate.edu/Product/14189>) this survey showed that the average cow herd of respondents increased from 104 head to 121 head. Based on responses, the state's average amount of pastureland used to support the average cattle operation decreased from 376 acres in 2012 to 249 acres in 2018, while the state average rental rate increased from \$54 to \$58 per acre over the same five-year period. The average length of the grazing season increased from 174 to 186 days. This decrease in number of acres but increase in cow herd and length of the grazing season suggests that Iowa's cattle producers have improved their grazing and management techniques through increased pasture and other forage productivity. Although not measured in this survey, this efficiency could potentially be due to the use of cover crops, stockpiled forages, and corn stalk residue.

## References

<sup>1</sup>U.S. Department of Agriculture National Agricultural Statistics Service. 2019. 2017 Census of Agriculture, United States Summary and State Data. [www.nass.usda.gov/Publications/AgCensus/2017/Full\\_Report/Volume\\_1\\_Chapter\\_1\\_State\\_Level/Iowa](http://www.nass.usda.gov/Publications/AgCensus/2017/Full_Report/Volume_1_Chapter_1_State_Level/Iowa)

<sup>2</sup>Schulz, Lee, David Swenson, Dan Loy, and Erika Lundy. 2018. “Economic Importance of Iowa’s Beef Industry” (IBC 127B). Iowa State University Extension and Outreach, Iowa Beef Center. <https://store.extension.iastate.edu/product/15403.pdf>

<sup>3</sup>Plastina, Alejandro, Ann Johanns, and Craig Welter. 2018. “Cash Rental Rates 2018 Survey.” Iowa State University Extension and Outreach, Department of Economics. [www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10\\_2018.pdf](http://www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10_2018.pdf)

<sup>4</sup>Sellers, Joe, and Patrick Gunn. 2017. “Pasture and Grazing Arrangements for Beef Cattle” (IBC 119). Iowa State University Extension and Outreach, Iowa Beef Center. <https://store.extension.iastate.edu/product/15110.pdf>

<sup>5</sup>Lundy, Erika, Denise Schwab, Joe Sellers, and Dan Loy. 2014. “Iowa Pastureland Changes 2007-2012” (IBC 53). Iowa State University Extension and Outreach, Iowa Beef Center. <https://store.extension.iastate.edu/product/14189.pdf>

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The data from this publication was based upon survey respondents’ opinions or records.

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