Iowa Pastureland Changes 2007-2012

Introduction

In past years, increased demand for feed and ethanol has driven the price of corn up and increased economic incentives for Iowa farmers to convert marginal land that is typically in pasture or forage to crop production. According to the U.S. Department of Agriculture 2012 Census of Agriculture, approximately 21% of Iowa's pastureland was converted to cropland from 2007 to 2012, the second consecutive reduction in pastureland since 2002 (see Figure 1). Over the five year span, acres in permanent pastureland were not affected and acres of woodland pastures were only reduced by 13% on average across the state. However, other pasture, defined by the USDA as pasture or grazing land that could be utilized for crop production without additional improvements, was significantly reduced by approximately 73% across the state totaling a loss of 605,000 acres of pasture to crop ground. Based on USDA crop reporting districts, pastureland loss from 2007 to 2012 varied greatly across regions with the lowest reduction at 16.0% in the Southwest region to the greatest loss of 25.7% in the West Central region (see Figure 2).

High grain prices and market volatility from 2008 to recent years have continued or accelerated this trend. Feed costs, reduction in available forages, and recent droughts have negatively affected the cattle industry resulting in the lowest inventory numbers across the country since the 1950s.

Figure 1. Average Pasture Lost in the State of Iowa from 2007 to 2012

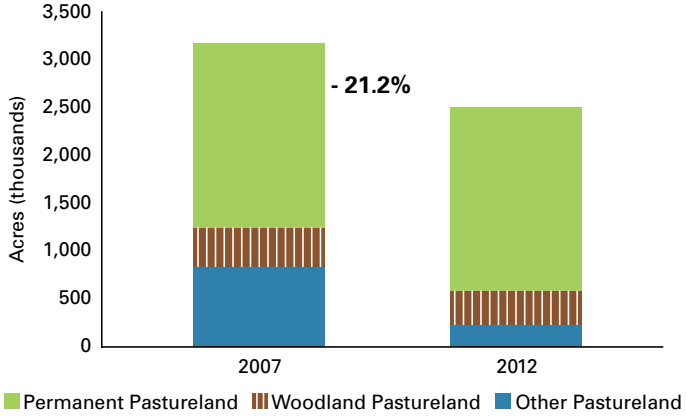
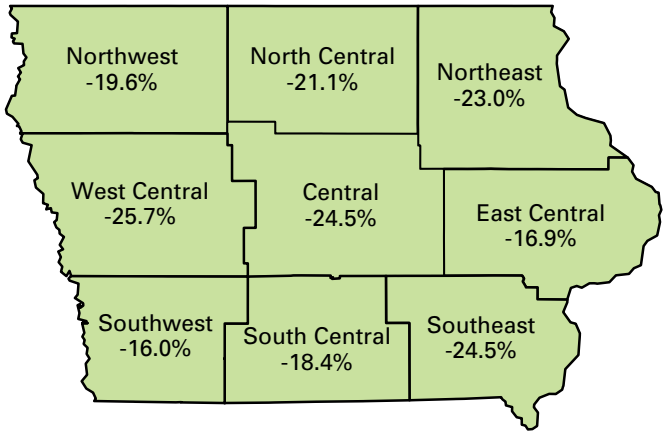


Figure 2. Percent Pastureland Reduction by USDA Crop Reporting District



IOWA STATE UNIVERSITY
Extension and Outreach

Profitable forage production on marginal land improves economic activity in rural Iowa, reduces soil erosion, and improves water quality.

In an effort to keep Iowa's beef producers profitable, the Iowa Beef Center (IBC) conducted several grazing and pasture management programs with the objectives of increasing producer knowledge of grazing and management techniques, adopting practices to improve forage use and efficiency, and increase forage utilization to reduce total feed costs. Improving productivity of pastures through better management allows increased beef production per acre of land, and encourages marginal land to remain in forage production.

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Iowa's Cattle Industry

Iowa's cattle industry makes up nearly 15% 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 by crop production. Due to land type, suitable usage, and owner preference, more than 10% of Iowa's lands has been used to graze cattle or other livestock historically.

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, surveys were distributed to more than 1,100 participants who attended one or more of IBC's grazing and pasture management programs in the last 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 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.

The 77 producers who responded to the survey had an average attendance rate of three grazing and pasture management meetings. The compiled survey respondents had attended a total of 156 programs during the last five years.

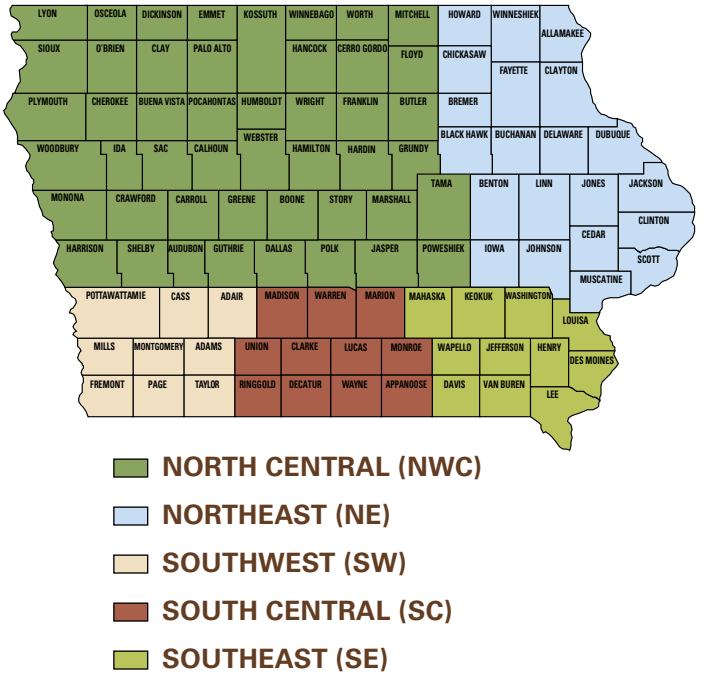
Survey Regions

In order to compare regional differences across the state, regions were divided using the U.S. Department of Agriculture Crop Reporting Districts. Districts with few responses were combined with neighboring districts of similar geological features to allow for more uniform comparisons (see Figure 3). Regions include Northwest Central (NWC) consisting of Northwest, North Central, West Central, and Central districts; Northeast (NE) consisting of Northeast and East

Central districts; Southwest (SW); South Central (SC); and Southeast (SE). Respondents utilize pasture within 46 Iowa counties with the greatest concentration

of pasture and cattle located in the southern half of the state. Counties with the most respondents were Madison (SC), Lucas (SC), Cass (SW), Monroe (SC), Iowa (NE), Ringgold (SC), and Van Buren (SE).

Figure 3. Iowa Survey Regions



Summary of Pastureland

The number of pasture acres utilized by respondents ranged from 7 to 7,200 acres with an average of about 376 acres per operation. Half of respondents (50%) utilized a combination of owned and rented pasture ground to support their operation. Twenty-five percent of producers own all of the pasture used to support their operation while 14% rent all of their pasture (see Table 1). Eleven percent of respondents did not specify if pasture was owned, rented, or a combination. On average, producers who utilized a combination of rented and owned pasture tended to have a larger operation. Average pasture size was the greatest in SC with 456 acres, followed by NWC, SW, NE, and SE with 207, 204, 170 and 157 acres respectively (see Table 2).

Table 1. Total Number of Pasture Acres

	Average	Minimum	Maximum	Median	Standard Deviation	Number of Observations
Total (acres)	376	7	7200	200	892	72
Owned (50%)	148	20	560	100	150	18
Rented (25%)	158	7	500	140	138	10
Combination (14%)	292	30	900	245	209	36

Table 2. Summary Statistics of Pasture Acres

Region	Average	Minimum	Maximum	Standard Deviation	Number of Observations
NWC	207	7	600	192	12
NE	170	30	500	131	11
SW	204	20	550	153	13
SC	456	20	2816	559	23
SE	157	40	330	96	9
State	**376**	**7**	**7200**	**892**	**72**

Type of Grazing Operation

Ninety-three percent of respondents utilize all or part of their grass for a cow-calf operation consisting of a state average of 104 cow-calf pairs. Across the state, 45% of respondents utilize some or all pasture for developing heifers for approximately 36 head on average while 12% graze an average of 147 stockers (defined as calves or yearlings) on their pasture (see Table 3).

Cattle Numbers by Region

Cattle numbers varied greatly across the regions. SC had the largest average cow-calf herd with 138 pairs per farm and the largest number of developing heifers with an average of 66 head per farm. SE had the smallest average cow-calf herd with 47 pairs per farm as well as the smallest number of developing heifers with an average of 16 head per farm. Stockers were predominantly located in SC, NWC, and SW (see Table 4).

Table 3. Type of Grazing Operation

	Average	Minimum	Maximum	Standard Deviation	Number of Observations
Cow-Calf Pairs	104	12	500	82	63
Stockers	147	40	400	111	8
Developing Breeding Heifers	36	5	210	44	31

Table 4. Cattle Numbers by Region

Region	Cow-Calf Pairs	Number of Observations	Developing Heifers	Number of Observations	Stockers	Number of Observations
NWC	87	10	30	3	103	3
NE	88	12	19	7	–	–
SW	47	8	16	4	–	–
SC	138	21	66	10	205	3
SE	123	9	21	5	100	1
State	**104**	**63**	**36**	**31**	**147**	**8**

Grazing Season

Across the state, the average grazing season is 174 days per year ranging from 122 to 306 days per year. Mid- to late-April is a common average start date for grazing season regardless of region; however, the average end date varies by region from late August to mid-November (see Table 5). The grazing season is longer in the southern regions and eastern part of the state which may be explained by the location of cattle across the state. It may also suggest that producers in the southern part of Iowa are utilizing stockpiling of forages to extend their grazing season. Another explanation may be that Northern Iowa usually experiences the first frost at an earlier date compared to other regions of the state. Several producers started their grazing season around March 1. A few respondents reported grazing through mid- to late-December with one producer grazing as late as January 15 in the SC region.

Forage Quality and Stocking Rates

Participants were asked to rate the productivity of their pasture (high, medium, or low), carrying capacity (number of acres per animal unit per season), and rental rates (dollars per acre) based on the type of grasses in the pasture. On average, nearly 20% of pasture resources were rated as high productivity, 66% rated as medium productivity, and 14% rated as low productivity across all types of pasture throughout the state. The state average carrying capacity across all types of forage for cow-calf pairs was 2.06 acres/pair ranging from 1.40 acres/pair to 2.55 acres/pair. For stockers, the carrying capacity ranged from 1.00 to 1.50 acres/head. The carrying capacity for dry cows-heifers ranged from 2.00 acres/head to 3.00 acres/head (see Table 6).

Table 5. Grazing Season Length (in days)

Region	Average	Minimum	Maximum	Average Start Date	Average End Date
NWC	128	122	306	April 25	Aug. 31
NE	176	153	214	April 24	Oct. 17
SW	169	123	214	April 27	Oct. 13
SC	184	153	292	April 22	Oct. 23
SE	205	153	275	April 22	Nov. 13
State	**174**	**122**	**306**	**April 23**	**Oct. 14**

Table 6. Pasture Productivity by Forage Type

	Productivity % of Respondents			Carrying Capacity Number of Acres/Animal/Season		
	High	Medium	Low	Cow-Calf Pairs	Stockers	Dry Cows-Heifers
Bluegrass	8.3	79.2	12.5	2.25	1.00	–
Improved Tall Grass	8.3	92.2	–	2.00	1.50	2.00
Improved Grass and Legume	20.0	75.0	5.0	2.10	1.10	2.00
Timber Pasture	–	47.4	52.6	2.55	1.25	3.00
Rotational Hay Ground	62.5	37.5	–	1.40	–	–
Average	**24.8**	**66.3**	**23.4**	**2.06**	**–**	**–**

Grazing Rental Rates

Average rental rate across the state for all types of pasture was about $54/acre. As expected, rental rates varied based on type of pasture as well as within the regions. The average rental rate for bluegrass was $51/acre, $52/acre for improved tall grass, $67/acre for improved grass and legume, $33/acre for timber pasture, and $87/acre for rotational hay ground (see Table 7). Pasture ground was most expensive (averaging $58/acre) in NWC where the soil fertility is higher than the state average so there is more competition for crop production rather than forages to support cattle. On the other hand, the cheapest rental rates were found in SC ($51/acre) and SW regions ($52/acre). Land in these regions is more erodible and better suited for forage and livestock production compared to crop production, supported by the fact that these regions had some of the lowest loss of pastureland from 2007 to 2012. Carrying capacity was much lower (more acres/animal unit) in the southern portion of the state than the northern part (see Table 8).

Table 7. Pasture Rental Rate by Forage Type

Forage Type	$/Acre Rent		
	Average	Minimum	Maximum
Bluegrass	51	20	90
Improved Tall Grass	52	40	90
Improved Grass and legume	67	25	225
Timber Pasture	33	16	60
Rotational Hay Ground	87	40	200

Table 8. Pasture Analysis Based on Region

Region	Rental Value $/Acre	Carrying Capacity # of Acres/Animal Unit		
		Cow-Calf Pairs	Stockers	Dry Cows-Heifers
NWC	58.33	1.00	0.65	–
NE	53.00	1.33	–	–
SW	52.29	2.67	–	–
SC	50.72	2.27	1.33	2.25
SE	57.44	2.00	–	–
State	**54.38**	**1.85**	**–**	**–**

Payment Timing

When asked when their rental payment was due, approximately 5% pay monthly, 10% pay biannually, and 86% pay annually (see Table 9). Of those who pay biannually, 50% of the lease is paid up front and the remaining balance is due at the end of the grazing season.

Table 9. Rental Payment

	Response Percentage	Number of Observations
Monthly	4.8%	3
Quarterly	–	–
Biannually	9.5%	6
Annually	85.7%	54

Summary of Responses on Rent Values and Grazing Arrangements

Pasture rent values varied by region across the state as well as by forage type and productivity. Pastures with higher productivity and improved forage quality tended to have greater rent values and improved carrying capacities (expressed as number of acres/animal unit). This survey indicated that pasture rent was $54/acre on average in 2012. Iowa State University Extension and Outreach's *Cash Rental Rates for Iowa 2012 Survey*[1] indicated that the state average pasture ground rental rate was about $60/acre. The 2013 and 2014 Cash Rental Rate Surveys indicated that although pasture rent values increased to $65/acre in 2013, rates held steady from 2013 to 2014.

Information collected for the cash rental surveys 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 also were asked to identify two key concerns in pasture rental arrangements. The most commonly identified concerns were quality of fences and handling facilities, who was responsible for fence upkeep, and the availability and quality of the water supply. Other frequently cited concerns included forage and brush management, such as who was responsible for weed control and fertilizing, length of the grazing season, carrying capacity, and minimum grazing height of the pasture. Price, longevity of the lease, and future availability of the pasture also were concerns of cattle producers across the state. Concerns about pasture competition with the Iowa Department of Natural Resources, as well as hunters, also were expressed. The *Cash Rental Rates for Iowa 2012 Survey*[1] reported that typical rental rate for hunting rights was nearly $13/acre and increased to $15/acre in 2014.

Change Within Iowa's Cattle Industry from 2007 to 2012

Compared to IBC's *Iowa Cattle Grazing Survey: Part 1 Results*[2] conducted in 2007, this survey showed the

size of the respondents' average cow herd decreased from 122 head to 104 head. Not surprisingly, the state average rental rate increased from $38/acre to $54/acre over the five year period. According to the 2007 survey, the average enterprise consisted of 280 acres in pasture compared to the average 376 acres used to support the average cattle operation in 2012 which contrasts with the overall decrease in Iowa pasture acres. The average length of the grazing season has decreased from 223 days to 174 days during this five year period which may reflect the drought during the 2012 grazing season. The survey reflects results from a smallproportion of Iowa's cattle producers—the Census of Agriculture data indicates the number of herds over100 cows increased by 10.7% in Iowa, while the total number of farms with cows decreased by 5.4%. Cattle movement, drought related management, and conversion of smaller pasture units to adjoining crop production are important factors in land use and cow-calf production.

Much of the data in this survey was based upon opinions or records of respondents. Where incomplete data was found, intuitive methods were used to decipher the raw survey data and complete the data as much as possible.

A success story and results from the 2012 Iowa Pasture Rental Survey that addressed the effectiveness of IBC's grazing and pasture management programs is titled *Producers and Iowa Benefit from Forage and Pasture Education*[3]

References

[1] *Cash Rental Rates for Iowa 2012 Survey*. Iowa State University Extension and Outreach, Department of Economics. www.extension.iastate.edu/agdm/wholefarm/pdf/c2-10_2012.pdf

[2] *Iowa Cattle Grazing Survey: Part 1 Results*. Iowa State University Extension and Outreach, Iowa Beef Center. www.iowabeefcenter.org/Cows_Plows/Iowa2007GrazingSurvey1.pdf

[3] *Producers and Iowa Benefit from Forage and Pasture Education*. Iowa State University Extension and Outreach, Iowa Beef Center. www.extension.iastate.edu/content/producers-and-iowa-benefit-forage-and-pasture-education

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