CHAPTER 6

Agriculture

Introduction

This chapter addresses the agricultural environment and economy of Jasper County. Agriculture plays a significant role in creating the scenic and rural character of the county. Jasper County heavily relies on its agribusiness sector of the economy.

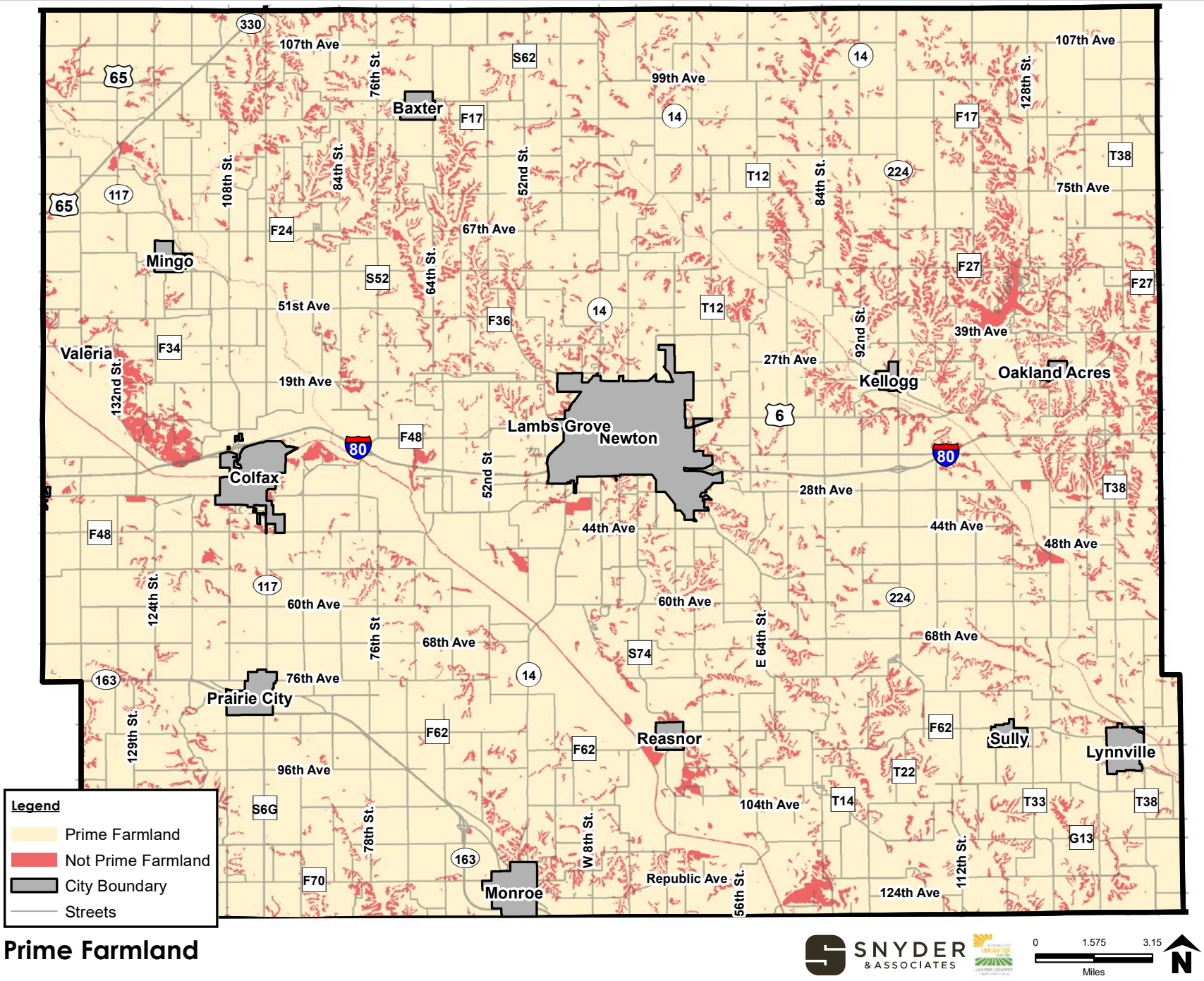
This chapter explores methods for preserving agriculture as a vibrant part of the county's character and economy. This chapter was developed by Solutions in the Land, consultants in farm planning and sustainable agriculture.

Agricultural Land and Trends

Ninety-four percent of the land in Jasper County is used for agriculture. These 400,000 acres of farmland consist of row crops and active grasslands used for grazing, pasture, and forage. The major agricultural products as outlined by the United States Department of Agriculture (USDA) 2017 Census of Agriculture are grains, oilseed, dry beans and peas (corn and soybeans, major crops for the county, are included in this category), and livestock (primarily cattle and pigs).

The USDA identifies prime farmland as land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. It includes soil quality, moisture, and sufficient growing season to be able to sustain a quality crop. Prime farmland has a dependable water supply from precipitation or irrigation, favorable temperature during the growing season, and acceptable nutrient content. Prime farmlands are not excessively erodible or saturated with water for a long period of time and they either do not flood frequently or are protected from flooding. Jasper County has approximately 388,140 acres, or 90.9 percent of soil identified as prime farmland based on typical soil type.

The 2017 Census of Agriculture provides the following snapshot of agriculture in Jasper County. The number of farms in Jasper County has steadily decreased since 2007. Acreage of land in farms decreased between 2007 and 2012, then increased slightly between 2012 and 2017. The average size of farms decreased over the first period, but increased between 2012 and 2017 to larger than the 2007 acreage. Similar trends are observed across the State of Iowa, which saw a decrease in the number of farms, but increase in average size while land in farms held steady from 2012 to 2017. These numbers indicate a trend of farmland consolidation, which is also occurring statewide.



Prime Farmland

SNYDER & ASSOCIATES

Natural Resources

Rich soils and an abundance of fresh water are Jasper County's most valuable natural resources. Agriculture as a primary land use in Jasper County, has a significant role in protecting or degrading these resources. Residents and businesses of Jasper County, as well as other Iowa communities connected by the landscape, are impacted by the stewardship of these resources.

Landscape

Jasper County is located within U.S. Environmental Protection Agency (EPA) Ecoregion Level 4 Landscape, Rolling Loess Prairies (with the exception of a small portion of the northwest corner of the county, which is located in the Des Moines Lobe/Prairie Potholes), a subsection of the Western Corn Belt Plains. The EPA publication, *Ecoregions of Iowa and Missouri*, describes the landscape as such:

> *Loess deposits on well drained plains and open low hills characterize the Rolling Loess Prairies ecoregion. Loess deposits tend to be thinner than those found in the Steeply Rolling Loess Prairies to the west, generally less than 25 feet in depth except along the Missouri River where deposits are thicker. Potential natural vegetation is a mosaic of mostly tallgrass prairie and areas of oak-hickory forest. Although cropland agriculture is widespread, this region has more areas of woodland and pasture than the areas to the west.*

The ecoregion of the county is one lens through which to understand the area's natural features and resources, and how Jasper County's landscape may be similar or unique in relation to neighboring counties.

Watershed + Water Quality

The South Skunk River is the largest watershed in Jasper County, followed by the North Skunk River in the northeastern corner of the county, Lake Red Rock in the southwestern corner, and the Middle Iowa Watershed, which drains a very small percentage of the northeast corner.

The Skunk River is a priority watershed in the Iowa Nutrient Reduction Strategy (INRS). The INRS 2017-18 *Annual Progress Report*, prepared by the Iowa Departments of Agriculture and Land Stewardship and Natural Resources, with Iowa State University College of Agriculture and Life Sciences, outlined agriculture's contributions to nutrient loading in Iowa watersheds,

emphasizing nitrates/nitrites as a top concern. The NRCS conservationist for Jasper County estimated that a 30% to 40% reduction in nutrient runoff is still needed in the watershed.

Agriculture is located in proximity to many surface waters and captures the majority of rainfall in the county. As a result, agricultural practices have a profound effect on the watershed. They can either disrupt natural drainage and contribute sediment, nutrients, and bacteria to surface waters, or preserve the functions of the watershed by detaining and retaining water, filtering runoff, protecting riparian areas and ecosystems and providing the values of open space to the region. These practices affect the watershed within and downstream from Jasper County.

Soils

The May 2008, South Skunk River Watershed - Rapid Watershed Assessment prepared by the Natural Resources Conservation Service (NRCS) gives a snapshot of the soil properties in the watershed, including Jasper County. Upland soils are mostly highly erodible land (HIL) by water, typically well-drained and non-hydric. Land in river and creek basins/floodplains is often hydric, not as well drained, but minimally sloped and not rated as HIL. NRCS Iowa soil maps distinguish between soils in the northern two-thirds of the county (loess ridges and sideslopes) and the southern third (loess ridges and glacial till of southeast Iowa).

Per the NRCS conservationist for Jasper County, soil health and loss is a primary concern, as well as a national and state initiative. Healthy soils are a benefit to farms and nature; they lower production risks and improve environmental outcomes. According to *Unlock the Secrets in the Soil: Basics and Benefits*, by the NRCS, healthy soils increase production (improving drainage, structure, and nutrient availability), improve profits (requiring less tillage and optimizing inputs), and protect other natural resources (holding more water and increasing biodiversity).

Sloping fields and ample rainfall make these soils vulnerable to erosion. Soil erosion is harmful to a farm's health by increasing vulnerability to drought, impairing soil structure and function, and resulting in expensive input losses. Soil erosion also negatively affects surface waters, carrying nutrients and sediment that impair water bodies.

Adaptability + Resilience

Agriculture in Jasper County is influenced by regional, national, and global forces. These include commodity markets, economic pressures, shifting consumer tastes, regional environmental concerns, climate disruption, and state and national agricultural

policy. While these forces are complex, vulnerability to these forces can be summarized as a lack of resilience in the food and farming systems present in the county.

Shifting national and international market trends, tightening commodities markets, and increasing cost of inputs pose challenges to the modern farmer. These factors boil down to a nearly universal challenge: profitability. Two common methods for bringing more dollars back to the farm are scaling up or broadening scope. Scaling up can increase profitability via an economy of scale; however, scaling up is limited by availability of land and credit, and does not always reduce risk. Broadening scope can include diversification, adding value to products, organic production, and participation in conservation programs. These techniques could incur additional costs and require education and support to begin operations; however, they may provide resiliency against economic and environmental challenges.

The Iowa Department of Natural Resources (Iowa DNR) has identified impacts of climate change in Iowa:

- Increased Precipitation
  - Increased frequency of precipitation extremes that lead to flooding.
  - Increase of 8 percent more precipitation from 1873 to 2008.
  - A larger increase in precipitation in eastern Iowa than in western Iowa.
- Higher Temperatures
  - Long-term winter temperatures have increased six times more than summer temperatures.
  - Nighttime temperatures have increased more than daytime temperatures since 1970.
  - Iowa's humidity has risen substantially, especially in summer, which now has 13 percent more atmospheric moisture than 35 years ago as indicated by a 3 - 5 degree F rise in dew-point temperature. This fuels convective thunderstorms that provide more summer precipitation.

Risks to agriculture from climate change could include market disruption, changing insurance rates, unpredictable weather patterns, increased magnitude and frequency extreme weather events, greater amounts of precipitation and humidity, and increased or changing pest and disease pressure. Some of these risks lead into other issues; increased or intense precipitation may lead to flooding, increased soil erosion, or issues with manure management.

Per the 2014 National Climate Assessment, prepared by a team of more than 300 experts guided by a 60-member Federal Advisory Committee, which was extensively reviewed by federal agencies and a panel of the National Academy of Sciences, a key issue for the future of agriculture is as follows:

> In the next few decades, longer growing seasons and rising carbon dioxide levels will increase yields of some crops, though those benefits will be progressively offset by extreme weather events. Though adaptation options can reduce some of the detrimental effects, in the long term, the combined stresses associated with climate change are expected to decrease agricultural productivity.

Jasper County should position itself to be resilient and adaptable as climate and economic forces change.

Farmer Advisory Committee

Though there are many agriculture- and conservation-oriented groups active in the region, agriculture currently does not have formal representation within the county government or a locally-organized group for collaboration. A farming advisory committee could be used to represent the farming community and advise the county government on the interests of the agricultural community. This committee may also include promoting agricultural business development, connecting county residents to appropriate agricultural resources, and facilitation of communication between different groups within the farming community. These meetings would be a space for farmers to discuss their ideas or concerns, share resources, and develop locally-driven solutions to some of the challenges described in this chapter. The agricultural forum participants should reconvene to discuss the opportunities and structure of a FAC.

Public Feedback + Best Practices

County officials explained that both rural and incorporated area residents take a great deal of pride in the agricultural nature of the county. One threat to agriculture is that many large-scale agricultural land owners are reaching retirement age and county officials are concerned that those tracts of land may be purchased by large corporations, which may diminish the local agricultural economy, push smaller farmers out of business, and be less responsible stewards of the land. To help combat that threat and preserve agricultural land overall, county officials posed this list of issues to consider during this planning process:

- Support innovative agricultural-based business and agricultural diversity
- Support business niches that are appropriate for rural areas, e.g. farm stands, orchards, wineries, and breweries
- Support beginning farmers and smaller farms of 10 to 40 acres, particularly those that are oriented to the local foods industries

- Strengthen agricultural relationships with the County government, while maintaining farmer autonomy in their land use decisions.
- Protect the county's natural resources.

The public engagement survey ranked Agricultural Preservation seventh out of 8 options. Supporting small scale and first generation farms received the most votes (210) of support, with the use of zoning tools falling close behind. Agricultural enhancement (e.g. farm stands, tours, cabins, etc.) and innovating agricultural models (collaborate, integrated, organic, etc.) fell in the middle, with conservation easements receiving the least supportive votes (160) and the most disagreement votes (54). With only 70 of the 600 respondents indicating they live in unincorporated Jasper County, it is likely that most respondents do not have a close connection to agriculture or a sense of issues that the agricultural community might be facing. This survey data supports the focus group's concern that non-farmers are not aware of the farming community's practices and struggles, and may even have a negative opinion of the farming community.

The series of three focus groups allowed Solutions in the Land to work with farmers to identify the agricultural-related issues specific to Jasper County and develop goals and objectives. The details of these focus groups are in Chapter 1, Introduction, which summarizes the public engagement process. The meeting presentations and notes are found in the Appendix. Solutions in the Land conducted interviews to refine these ideas. These issues included:

- Non-agricultural residents' perception of agriculture
    - Forum participants and community interviews expressed a desire to improve the image of agriculture within the county. Communication between the farming and non-farming communities would need to increase, explaining how farmers produce food and the role that agricultural lands play in the landscape.
- Farmer to Farmer Communication
    - Forum participants described a loss of local meeting places and no centralized space for farmers across the county to interact.
- Farmland preservation
    - Forum participants expressed concern about conversion of high quality farmland for residential, commercial, and industrial development. The future land use plan addressed these concerns by emphasizing contiguous development and infill.

- Land ownership trends
  - Community members expressed concerns about land ownership trends in the county as farm size increases and the number of farms decreases. Several ideas for protecting the future of agriculture were discussed with members of the community, including supporting beginning and/or young farmers, supporting small scale and integrated operations, market development, and expanding access to educational/informational resources.
- Natural Resources
  - The top concerns highlighted by the NRCS county conservationist were soil health and water quality. Feedback from the agricultural community varied in acknowledging these two challenges. In particular, forum participants were concerned about their lack of representation in conversations about environmental issues, especially water quality. It is important to understand the complex decision making employed by producers in order to understand how conservation and agriculture can partner to improve the health of farms without negatively impacting a farmer's bottom line. The principal objective resulting from the natural resources discussion is to include agricultural stakeholders as part of the conversation, both accountable for their contributions and partners in stewardship of the soils and waters of Jasper County.

Farmer-led initiatives or those with strong farmer involvement resolve the lack of representation in conversation about environmental concerns, allow farmers to innovate and work together to address these concerns, and support the preference expressed by forum participants for voluntary compliance. In order for voluntary programs to be successful and the privilege of voluntary compliance to continue, there needs to be community engagement and support for these programs.

Watershed planning could establish the relationship between impairments in the county's surface waters and agriculture, and highlight the potential areas for partnership with farmers to steward watersheds. Countywide efforts to share information regarding practices that reduce soil erosion and protect water quality can be effective. Strengthening partnerships between farmers and initiatives that may share conservation goals, like recreation, hunting, and county conservation could prove beneficial to both parties.

The best management practices for Jasper County Farmers may include in-field practices that maintain soil cover and reduce disruption, edge of field practices that buffer sensitive ecosystems from runoff, and thorough nutrient management strategies. Resources like Clean Water Iowa and the Iowa Nutrient Reduction Strategy Decision Support Tool can assist producers in finding the practices that will be most economical in addressing their unique resource challenges.

The public input survey ranked Climate Change as least important of the eight topics. Supporters of addressing climate change were most interested in allowing for and promoting alternative energy options (96 votes) followed by using green design

and practices and land conservation of natural areas and systems (92 votes each). Mitigation Planning and Natural Disaster Recovery were the least supported (90 votes and 89 votes respectively), however there was very little opposition on any of the five options (total of 14 votes against among all 5 options).

- Adaptability + Resilience
  - Increasing the farming community's adaptability, diversification, and resilience is the best strategy for reducing risk related to changes in economic and climatic trends. Smart land use planning, through efforts such as protecting soils, wetlands, and floodplains, can help to develop a landscape that recovers quickly after flooding or heavy rainfalls. The farming community's ability to support that landscape will also help to create resiliency. Local discussions about risk reduction strategies and diversification techniques can help to address these trends as they specifically pertain to Jasper County.

Several resources are available to address the issues identified by the focus groups and interviews. These resources are listed at the end of this chapter. The following objectives focus on leveraging the numerous existing resources and minimizing the burden on county government while taking steps to assist the agricultural community.

Goals + Objectives

Goals

AG: Ensure the future of agriculture as a vibrant part of Jasper County's identity and economy.

Objectives

AG-1: Support agricultural prosperity through educational, infrastructure, and marketing resources

AG-2: Improve the public image and understanding of the role of agriculture in the county

AG-3: Protect Jasper County's natural resources through environmentally-sensitive farming methods

Jasper County Partnerships

Organizations

Agency Name	Funding Available	Grant Partner	Policy	Lobby Work	Research	Conservation	Online Resources	Field Days	Events/ Conferences	Technical Assistance	Market Assistance	Local Food	Farmland Preservation	Soil Health	Watershed Level Work	Water Quality
Conservation Districts of Iowa www.cdiowa.org				x		x	x		x				x			
Iowa Agriculture Water Alliance www.iowaagwateralliance.com		x			x	x	x		x	x				x	x	x
Iowa Environmental Council www.iaenvironment.org		x	x	x		x	x	x	x							x
Iowa Farmers Market Association www.iafarmersmarkets.org		x					x		x	x		x				
Iowa Learning Farms www.iowalearningfarms.com		x			x	x	x	x	x	x	x	x	x	x		x
Iowa State University: Extension www.extension.iastate.edu		x			x	x	x	x	x	x	x	x	x	x	x	x
Iowa Water Center: Iowa State University www.water.iastate.edu		x			x	x	x		x	x				x	x	x
Practical Farmers of Iowa www.practicalfarmers.org		x			x	x	x	x	x	x	x	x	x	x	x	x
Iowa Organic Association iowaorganic.org		x	x		x	x	x	x	x		x	x		x		
Iowa Farmers Union www.iowafarmersunion.org			x	x		x	x	x	x	x	x	x	x	x		x
Iowa Farm Bureau Federation www.iowafarmbureau.com			x	x	x		x	x	x	x	x					

Production Associated Organizations																
Agency Name	Funding Available	Grant Partner	Policy	Lobby Work	Research	Conservation	Online Resources	Field Days	Events/ Conferences	Technical Assistance	Market Assistance	Local Food	Farmland Preservation	Soil Health	Watershed Level Work	Water Quality
Iowa Corn Growers Association www.iowacorn.org			x	x	x	x	x	x	x	x	x			x		
Iowa Soybean Association www.iasoybeans.com			x	x	x	x	x	x	x	x	x			x		
Iowa State Dairy Association www.iowadairy.org			x	x			x	x	x	x	x					
Iowa Pork Producers Association www.iowapork.org			x	x		x	x			x	x					
Iowa Sheep Industry Association www.iowasheep.com							x	x	x	x	x					
Iowa Cattlemen's Association www.iacattle.org			x	x		x	x	x	x	x	x		x			
Government Agencies																
Iowa Department of Agriculture & Land Stewardship www.iowaagriculture.gov	x			x		x	x	x		x	x	x	x	x	x	x
Iowa Department of Natural Resources www.iowasdnr.gov	x			x			x			x					x	x
Jasper County Soil & Water Conservation District idals-farms.iowa.gov/index.php/programInfo	x					x		x		x	x		x	x		
United States Department of Agriculture (USDA): Natural Resources Conservation Service (NRCS) www.nrcs.usda.gov	x		x		x	x	x	x	x	x	x	x	x	x	x	x