



Photo Credit: Jason Tower

Roadmap for Expanding Regenerative Grazing in Indiana

Guiding Indiana partners to leverage livestock for healthier soils, profitable farms, and resilient communities through grass and forage-based agriculture.

A product of the Wallace Center at Winrock International in collaboration with Indiana partners

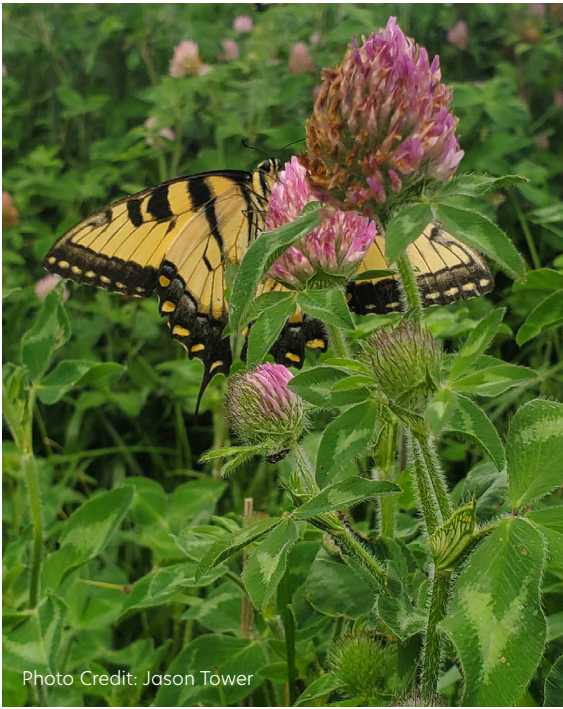


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Acknowledgments

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Introduction

This action-oriented roadmap captures a shared vision and strategy for how to increase and sustain more grass and forage-based agriculture through regenerative livestock grazing in Indiana. It follows a process and form established by the Wallace Center when working with Illinois partners to create the “Roadmap for Expanding Regenerative Grazing in Illinois: 2021-2025,” published in 2021.

Grass and forage-based agriculture and regenerative livestock grazing—particularly under perennial management—have proven to have significant environmental and economic benefits while also producing food and fiber that consumers demand.

Despite long-standing efforts, grass and pasture acres have been in decline in the state for decades, resulting in fewer grazing operations. As climate change continues to challenge the conditions for food production through changes in seasonal temperature norms, flooding, and drought, the need for conventional agriculture to surpass sustainable and achieve more regenerative outcomes is paramount. This must be accomplished in a time of economic uncertainty, as once predictable markets shift dramatically in response to climate change.

Increased awareness of soil health and regenerative practices has encouraged opportunities to build collaborative strategies to restore lost grass and pasture acres in Indiana. This roadmap seeks to articulate those strategies, based on the expertise and insights of the Indiana agriculture and grazing experts who contributed to its creation.

This roadmap is an invitation to organizations, businesses, and individuals throughout Indiana to join the conversation on how grass and forage agriculture can help drive positive change and opportunities for farmers, consumers, and communities.



Roadmap Target and Determination

Based on the USDA Census of Agriculture Data, Indiana lost a total of 42,486 acres of permanent pastureland—dropping from 551,221 acres to 508,735 acres (7.7% decrease)—between 2012 and 2017.¹ Permanent pastureland has likely continued to decline in the state over the last five years between 2017–2023, though updated census data is not yet available.

While development for non-agricultural purposes is driving some pasture loss, conversion to row crop production is likely a larger driver of such pastureland loss since those acres are increasing in the state. In 2012, Indiana recorded 12,590,633 acres of row crop production—approximately 85% of total agricultural acres. In 2017, a total of 12,909,673 acres—approximately 86% of total acres—were recorded. This is a 2.5% increase dedicated to row crops.

Research by the American Farmland Trust has found that farmland in Indiana is some of the most threatened in the Midwest and the nation. The research highlights that 265,000 acres of Indiana farmland were developed or compromised between 2001–2016, averaging 17,000 acres lost from production each year. This may account for some of the decline in permanent pasture, which is often incorrectly viewed as less productive and profitable. Assuming this average continues in a steady trend, Indiana could have lost an additional 119,000 acres of farmland between 2017–2023.²

Working to rebuild lost permanent pastureland in Indiana is a worthy and achievable goal. **A target of 550,000 permanent pasture acres by 2032** (the date of the next Census of Agriculture) will reverse Indiana's downward trend in permanent pastureland. Effectively returning to 2012's level of pastureland will be a significant step that could help to build momentum for more grazing in the decades to come.

If pastureland has continued to decrease between 2017–2023, this means efforts should be undertaken to restore at least 41,265 in the coming seven to eight years.



Photo Credit: Jason Tower

What is “Regenerative Grazing?”

Regenerative grazing is a principle-driven farming practice of building soil health naturally through pasturing animals on perennial and annual forages and grasses with low or no synthetic inputs. Regenerative grazing supports human and ecosystem health, farm profitability, and community and food system resilience.

Regenerative grazing is a component of regenerative agriculture, which aims to rejuvenate agricultural landscapes and communities, not degrade them. Regenerative agriculture is not a new, innovative idea. Rather, it draws on Indigenous management practices that were happening long before this term was coined.

Regenerative agriculture is founded on the five core principles of soil health. The fifth principle—integrating livestock—is an important strategy for achieving optimal soil health. Healthy soil supports productive, diverse forage, which in turn supports healthy livestock. The interaction between healthy livestock and diverse forage creates a self-reinforcing cycle of positive interactive effects that leads to a highly functional agroecosystem.

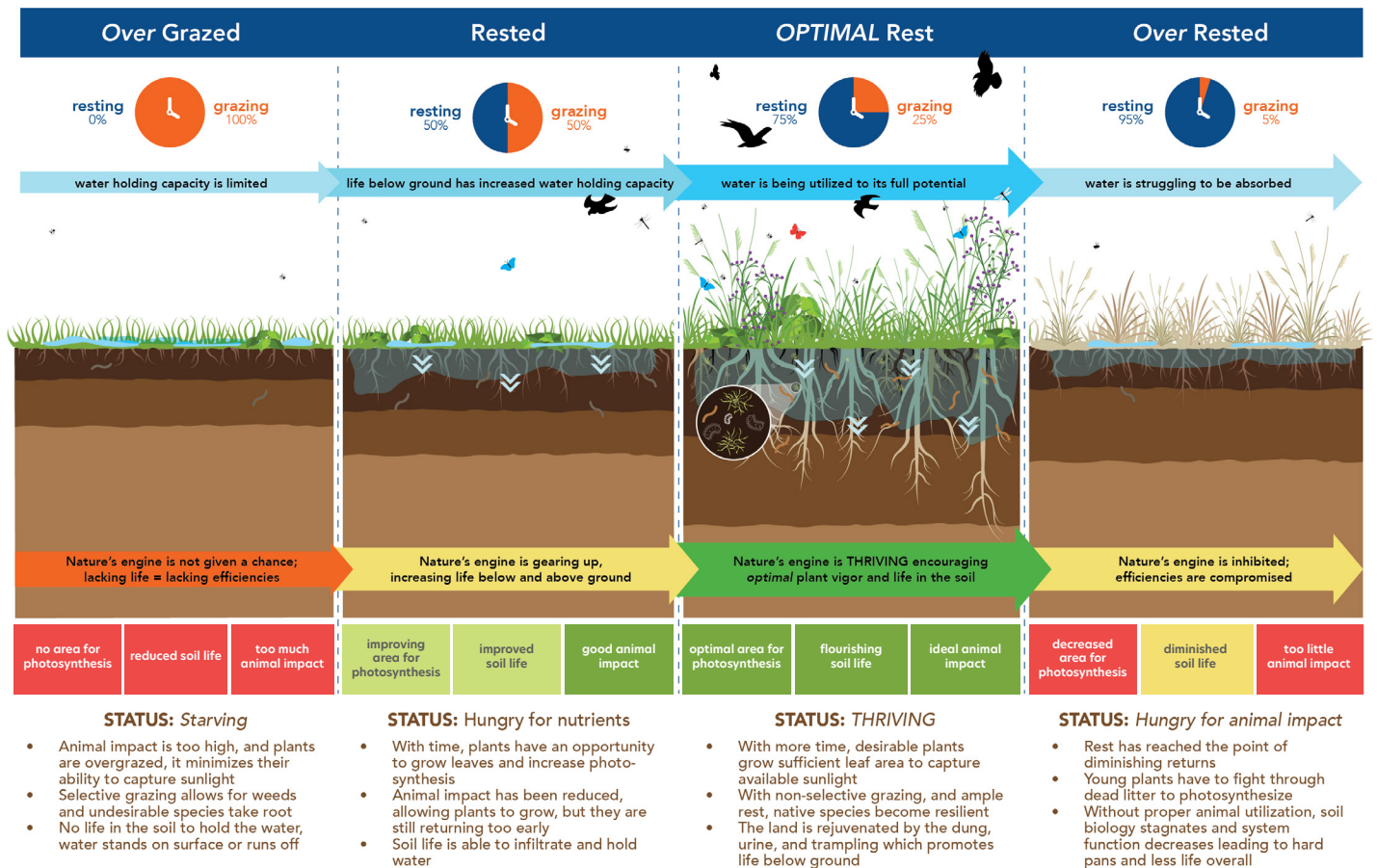
5 Core Principles of Soil Health



Regenerative grazing (also referred to as adaptive, multi-paddock, or managed rotational grazing) is a livestock production system that places environmental impacts and farm profitability at the forefront of decision-making. There is no standard formula for implementing regenerative grazing because each farm is unique. Rather, it selects practices based on observation and adaptive management in response to real-time conditions. These practices are chosen to build soil health in a way that supports human and ecosystem health, farm profitability, and community and food system resilience. Regenerative grazing can utilize both annual (i.e. cover crops, crop residue) and perennial forages (i.e. grasses, legumes, forbs).

THE IMPORTANCE OF REST

Playing to Nature's strengths & efficiencies

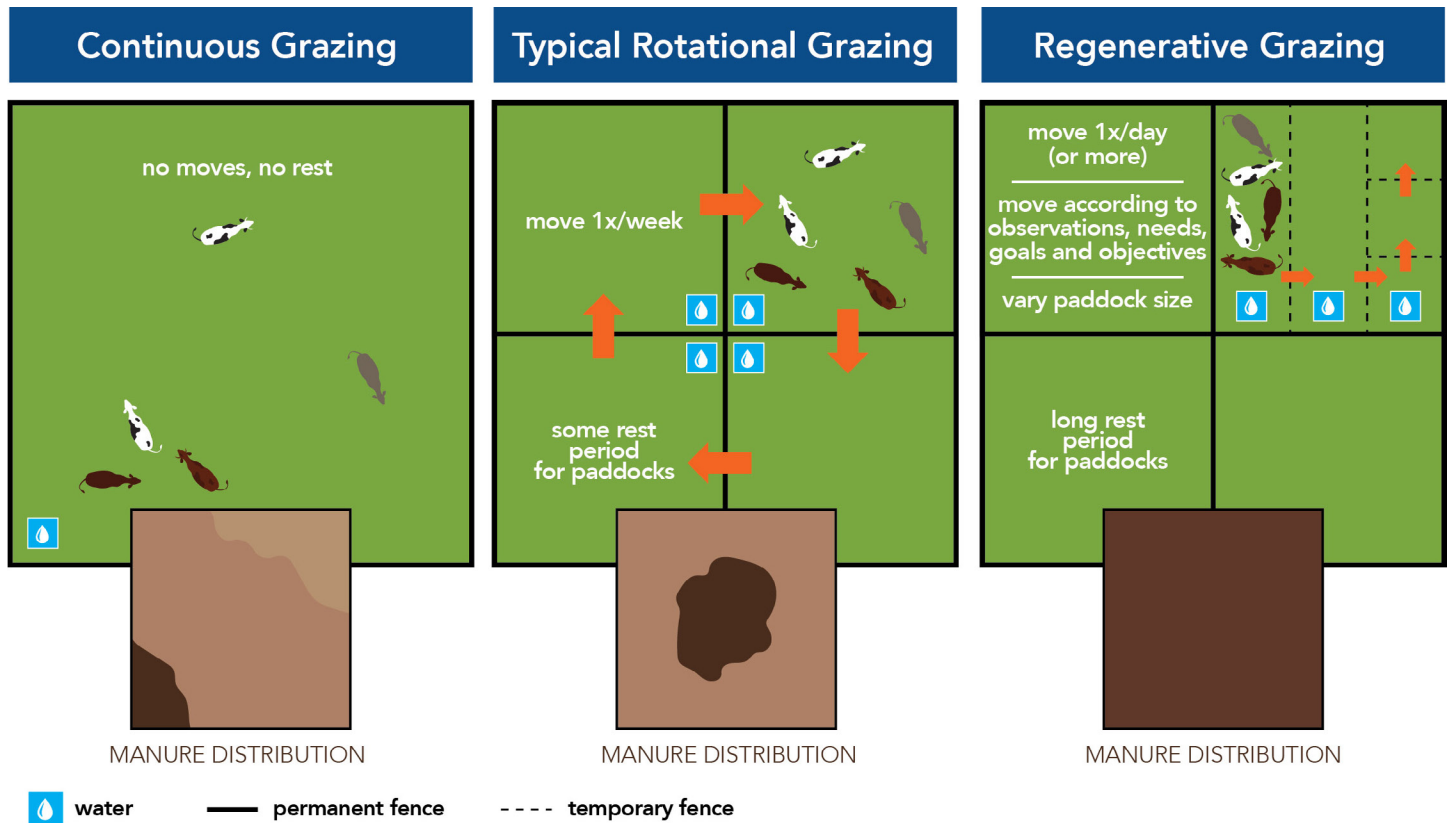


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The high stock densities and frequent rotation of animals throughout the paddock encourage the herd to eat a wider range of available forage by offering them limited selection and increased competition. These moves also spread manure deposits more evenly over the pasture and allow the forage to recover over long rest periods between grazing. These practices result in healthier, more diverse, and more evenly fertilized pastures. The frequency and timing of these moves are based on in-field observations, which ensures that the forage is not over-grazed: graze 50%, trample 50%, move.

Regenerative Grazing Solution

Regenerative grazing can result in improved water quality and flood mitigation both on the farm and downstream.¹³ Continuous, dense forage and extensive underground root systems help protect soil from erosion and sediment loss. Increased living roots and soil organic matter improve water infiltration, allowing more water to be absorbed, stored, and percolated through the soil as opposed to pooling on top and running off into surface waterways.¹⁴ Further, living forage remaining after grazing provides shade and protection for soil, lowering soil temperature and increasing



Regenerative grazing can be implemented in various ways, but is often characterized by:

- High stock densities, frequent rotation, and long recovery periods for paddocks
- Low to no synthetic inputs or tillage
- Increased diversity of plant, animal, and microbial life
- Generating revenue to build viable farm businesses and fairly compensate labor

soil moisture providing drought protection to plants.¹⁵

Regenerative grazing can also enhance the biodiversity of the landscape by providing habitat for numerous species of insects and ground-nesting birds.¹⁶

The benefits of regenerative grazing can be incorporated into commodity grain crop rotations by grazing cover crops between cash crop plantings. Using cover crops reduces phosphorus pollution by 50% and nitrogen delivery by 31%.¹⁷ By using regenerative livestock grazing, farmers can transition less productive acres from annual row crop production to more profitable perennial pastures, eliminating the need for tillage and dramatically reducing the need for synthetic inputs.¹⁸ These changes help build soil organic matter and carbon, replenishing depleted soils and, with their flooding and drought resiliency, help farms mitigate the effects of climate change.¹⁹ Practitioners of

Regenerative Grazing Solution

regenerative grazing provide a positive environmental impact, encourage economic investment in rural communities, and bring the next generation onto the farm with improved land. In doing so, they are producing an Indiana product that Indiana consumers can be proud to use.

Economically, regenerative grazing brings many benefits to farmers and local communities. Transitioning from continuous grazing to regenerative grazing can increase farm net revenue by \$100/acre.²⁰ Graziers see financial benefits because they spend less on hay (purchased or produced on-farm); fertilizer, pesticides, herbicide, and other artificial chemical inputs; manure management; and infrastructure (for new operations).

Converting row crop farms to grass-fed beef farms is financially feasible, especially on highly erodible and sloping soils. A 2020 study of 15 Wisconsin grass-fed beef farms showed that the average annual return was \$135/acre, which was within 10% of row crop averages for the study area. The range in return per acre was wide, with the top third earning \$220/ac and the bottom third earning \$60/ac. The study also found that grass-finished beef received a 40% price premium over conventional grain-finished beef. A three-year study of farms in Minnesota and Iowa found that grazing cover crops, particularly diverse mixes combined with adaptive high stock density grazing, had returns of \$123/ac.²¹

Statewide Value Chains

Value chain coordination is a market-based approach to developing local and regional food systems that better serve communities. Value chain work includes the development of collaborative ties among businesses along the food supply chain, with the expectation that the economic position of these supply chain members improves. Value chain coordination describes leveraging the soft infrastructure, in the form of skills, competencies, and relationships, in a food value chain. With a robust soft infrastructure, individuals, and organizations are more readily able to acquire and utilize hard infrastructure.²²

Robust grazing value chains are critical for the transition to regenerative agriculture. Such value chains provide current and prospective livestock producers with access to affordable processing and profitable end markets. Grazing value chains must be grounded in consistent regenerative grazing practices on-farm to generate benefits for soils and ecosystems while producing healthy protein for consumers.

The Indiana Value Chain Network was established in 2019 and serves to support and grow the community of value chain professionals (VCPs) in the state, including those working on livestock and grazing value chains. Between 2018 - 2021, the network supported \$1.7 million in local food transactions. This figure grew to \$7.7 million between 2021-2022. With over 10 VCP network leaders spread out throughout the state, the network is growing and provides a unique and important opportunity to grow the markets for regeneratively raised protein products from Indiana grazing operations.²³





Photo Credit: Jason Tower

History of Grazing in Indiana

Before the introduction of modern agriculture, grazing ruminants and grassland ecosystems were part of Indiana's landscape, each contributing to the rich soils that underpin the state's agriculture sector today.³ It is generally cited that 13% of pre-European settlement Indiana was considered "tallgrass prairie" by modern definitions. Most of this prairie was in the northwest portion of the state interspersed with wetlands and is considered part of the eastern edge of the Grand Prairie that covers Illinois and Iowa.⁴ The most extensive region of pre-settlement prairie in Indiana was in the northwestern Indiana counties of Benton, Newton, White, Vermillion, Warren, and southern Lake County. Smaller prairies occurred across several northern Hoosier counties and extreme western Indiana counties such as Knox, Daviess, Sullivan, Greene, and Vigo. Historical data indicates that 26 Indiana counties had at least some prairie lands at some point in their history (V. Shelton, personal communication, January 17, 2024).

Numerous tribes maintained and expanded Indiana's prairies and grasslands (Miami, Wea, Piankashaw, Shawnee, Eel River, Delaware, and Potawatomi) for their permanent and seasonal agriculture and hunting grounds. Indigenous stewardship of these lands included prescribed fire and hunting of migratory game herds (including bison), both of which shaped the landscape for thousands of years.⁵

During European colonization, state-sanctioned efforts to control tribal communities and their traditional homelands included the near complete eradication of the American bison and forced removal of tribes from the state, clearing the way for European settler colonists and their domesticated livestock. Managed grasslands and hardwood forests were cleared for crop and livestock production. Dividing land—specifically through livestock fencing—created the geography of Indiana that we know today.

History of Grazing in Indiana

By the early 1900s, Indiana agriculture was dominated by small-to-medium diversified farms raising livestock predominantly on pasture, much like the surrounding states. A national map produced by Armour & Company in 1922 highlights this diversity, showing cattle, swine, and poultry amid corn, wheat, barley, oats, and rye.⁶ The Armour map was refreshed in 1960, representing similar diversity but with the addition of dairy, soybeans, and specialty crops (i.e., vegetables).⁷

ARMOUR FOOD SOURCE MAP



ABOUT THE FOOD SOURCE MAP

When you go to the store, you may buy any of hundreds of different foods. Where do they all come from?

Many of the foods you eat are raised on farms near your home, but other foods come from every state in the Union. These foods are shipped hundreds of miles from the farms and ranches where they are raised to the cities and towns where they are eaten. Great fleets of railroad cars, trucks and ships are engaged in moving America's food to the places where it is needed.

For example, farms in every section raise some cattle, hogs and sheep which provide people nearby with beef, pork and lamb. Yet, there are only 20 of the 48 states which produce as much meat as the people of the state eat. This supply must be balanced by shipping meat to the live animals from the areas of great production to

the districts where most of the food is needed. Farms in most regions raise such other important foods as wheat for flour, potatoes, milk, eggs, poultry and vegetables. But most regions do not produce enough of these things for the people nearby. Consequently, your food store must get more potatoes, or flour, or eggs from other sections of the country.

WHAT THE MAP SHOWS
This map shows you where various foods are produced in quantities large enough to supply other regions as well as local needs. In each instance the land is put to the best use possible. Every section is an important producer of at least one food, while some sections raise many different foods.

You will notice that fruits and vegetables

come from California and the southern states where the climate is warm. Cotton is also important in the South. It gives us three things: First, cotton cloth; second, salad oil, shortening and margarine made from the cotton seeds; and third, a livestock feed made from what is left of the seed. Up north, where the climate is cool, we find the best dairy country. Wisconsin, Minnesota and New York are famous for butter and cheese.

The Corn Belt in the Middle West is the center of beef and pork production because cattle and hogs thrive on corn. The area has sufficient rainfall, hot summer days and warm nights which are just right for corn.

Recently, this section has also raised more and more soybeans. Just like cotton seed, soybeans are crushed and the oil is used for food while the remainder of the beans is fed to live-

stock and poultry. Cattle and poultry are raised in the Great Plains states, we find the best wheat growing section. Wheat is one of the most widely grown crops. Not only does it provide flour, but some wheat is fed to livestock and poultry as grain and the part of the wheat kernel not used for flour is also a good stock feed.

and into many useful non-food products as well. Our American food supply system excels that of any other people. Farmers and ranchers have developed efficient methods of producing basic foods. We have a great system of packing plants, mills and factories for processing food. We safeguard the goodness of food in many ways and we distribute it in adequate quantities to every city, town and village. Finally, we have 400,000 fine, clean stores and 130,000 restaurants which sell food to you—when you want it and as you want it.

ARMOUR AND COMPANY
NOTE: While the leading business, production and farm crop areas are shown in each state with reasonable accuracy, it was obviously impossible to show relative proportions accurately or to include all food products produced in each state.

OUR GREAT GRASS CROP

Grass isn't shown on the map because we don't eat grass. Yet grass is a very important source of human food because it helps feed the animals which give us meat and milk. Even chickens and turkeys eat some grass.

About 700 million acres, or more than a third of all the land in the United States, grows nothing but grass. You can see this range area on the map in the Rocky Mountain region and in the western and southern states where cattle and sheep are pictured.

In addition to the grass of the range country, practically every farm raises grass which livestock feed on in green form or eat as hay. Thus, we find a large part of the production of most farms goes to feed livestock which convert grain and grass into food suitable for humans

and into many useful non-food products as well.

Our American food supply system excels that of any other people. Farmers and ranchers have developed efficient methods of producing basic foods. We have a great system of packing plants, mills and factories for processing food. We safeguard the goodness of food in many ways and we distribute it in adequate quantities to every city, town and village. Finally, we have 400,000 fine, clean stores and 130,000 restaurants which sell food to you—when you want it and as you want it.

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ARMOUR PACKING PLANTS
Atlanta, Ga.
Baltimore, Md.
Birmingham, Ala.
Chicago, Ill.
Cleveland, Ohio
Columbus, Ohio
Dallas, Texas
Dayton, Ohio
Detroit, Mich.
Fort Worth, Texas
Grand Rapids, Mich.
Green Bay, Wis.
Harris, Pa.
Indianapolis, Ind.
Kansas City, Mo.
Lexington, Ky.
Los Angeles, Calif.
Louisville, Ky.
Memphis, Tenn.
Milwaukee, Wis.
National Stock Yards, Wash. D. C.
New York, N. Y.
Oklahoma City, Okla.
Perry, Okla.
Pittsburgh, Pa.
Portland, Ore.
Reading, Pa.
St. Louis, Mo.
St. Paul, Minn.
St. Paul, Minn.
St. Paul, Minn.
Seattle, Wash.
Shreveport, La.
Wheat Ridge, Colo.
Wheat Ridge, Colo.

Excerpt from the Armour Food Source Map, 1960

This map was accompanied by text that read in part: "Our Great Grass Crop: Grass isn't shown on the map because we don't eat grass. Yet grass is a very important source of human food because it helps feed the animals which give us meat and milk." Mixed livestock species were common on Hoosier pastures until the 1950s and 1960s (later in some areas). The most common combination, especially from the 1930s to the 1960s, was cattle and swine utilizing the same pasture. This practice came to a quick halt with the introduction of pseudorabies, which was carried by swine and was easily transferred to other animals.

History of Grazing in Indiana

By the 1950s, agriculture in Indiana and the Midwest was transforming during the post-war boom. Agronomist Norman Borlaug and the Green Revolution began to shift agriculture toward high-yielding cereal crop varieties underpinned by chemical inputs, mechanization, and commodification. This resulted in the steady erosion of the knowledge and infrastructure for pasture-based livestock management as farming shifted to corn and soybean production over the following decades. This trend accelerated in the 1970s under Secretary of Agriculture Earl Butz's "Get Big or Get Out" policy which encouraged further removal of livestock fencing as farmers increased acreage production and their reliance on machinery.



Photo Credit: Jason Tower



Photo Credit: Liz Brownlee

The 1980s Farm Crisis and the devastating spike in farm foreclosures further exacerbated the decline in diversified farm systems. Farmland ownership consolidated, and confined animal feeding operations tied to row crop feed emerged, becoming the more common form of livestock production. By the end of the 1970s, farm diversity had taken a major hit. Farms that once had several types of livestock had reduced to only one or two types; monoculture cropping rotations replaced three- or four-year rotations with hay that were common until this point.

In response to the loss of pasture-based livestock production and subsequent benefits, efforts emerged in the 1960s to protect and promote the state's grass and forage agriculture. In 1966, the Indiana Forage Council (IFC) was created with the mission of providing research and education for profitable forage production and utilization. IFC remains active and is affiliated with the American Forage and Grassland Council (AFGC).⁸ In 1991, a group of organizations concerned that grazing technical assistance and resources were declining at the USDA's Natural Resources Conservation Service (NRCS), came together in Billings, Montana to form the Grazing Lands Conservation Initiative (GLCI). Six national organizations, including AFGC, sponsored GLCI (later to become the

History of Grazing in Indiana

National Grazing Lands Coalition, as it is currently known) and 22 states participated in its origination. A multi-year push to promote state GLCI groups in the 1990s led to the creation of the Indiana Grazing Land Conservation Initiative in 1994 to address the lack of technical assistance for grazing in the state. These efforts were accelerated by funding from the USDA that was authorized through the 1996 Farm Bill⁹ and improved in the 2002 Farm Bill.¹⁰

Indiana's GLCI was formed with the support of the Soil Conservation Service (SCS) under the leadership of Stacy Odom and the support of Victor Shelton. Early programs such as Grazing Land Applications (GLA) and NutBal were utilized to help with grazing planning and management, along with the development of decision support tools for fences, watering systems, rock pads and other grazing practices. The Indiana GLCI expanded to include representation from farmers and trade associations, as well as representatives from the Indiana Forage Council, seed and grazing equipment companies, and individuals interested in the impacts of grazing. Beginning in 1996, the Indiana GLCI made a push to grow its audience



Photo Credit: Elisabeth Spratt



Photo Credit: Liz Brownlee

and membership under the leadership of Del Hall. This took the form of grazing field days, bus tours, demonstrations, and training sessions to push awareness of grazing opportunities in Indiana (V. Shelton, personal communication, January 17, 2024).

In 1999, grazing became a feature of the Pathway to Water Quality exhibit at the Indiana State Fair and, through the leadership of Jerry Perkins and Victor Shelton, grazing grew in presence at the fair, remaining a popular feature to this day for Hoosiers.



Photo Credit: Indiana NRCS

History of Grazing in Indiana

Indiana hosted the Great Lakes Forage and Grazing Conference in 2000 and 2001 and was likely the first official “grazing” conference in Indiana. In 2002, the inaugural Northern Indiana Grazing Conference (NIGC) was held in Shipshewana. The NIGC continues today, and is a popular event, particularly with the Amish grazing community. Also in 2002, the Heart of America Grazing Conference (HOAGC) was held in Illinois thanks to the collaboration of grazing leaders in Missouri, Illinois, Indiana, Kentucky, and Ohio. The HOAGC continues today with most of the original states being active as rotating hosts for the event. In 2010, the Southern Indiana Grazing Conference was first held to provide an NIGC-like option in the southern half of the state, continuing today. In December 2000, the first National Grazing Lands Conference was held in Las Vegas. Several GLCI committee members, USDA NRCS Grazing Specialists, and NRCS State Conservationist Jane Hardisty represented Indiana.

Throughout the mid-to-late 1990s to early 2000s, requests for grazing assistance grew rapidly and two NRCS staff were assigned to grazing activities across the state: Jerry Perkins in the north and Victor Shelton in the south, with assistance from the State Resource Conservationist Ron Lauster. In 2006, the NRCS moved to having dedicated Grazing Specialists in all four areas of the state. The Indiana GLCI committee collaborated with the NRCS, and other state agencies identified grazing resource concerns throughout Indiana, helping to focus the deployment of resources through federal programs like the Environmental Quality Incentive Program (EQIP) and the Grassland Reserve Program (GRP).

The emergence of crop insurance and the ethanol industry, as well as high commodity prices of the 2000s caused a decline in grazing. Hay, pasture, and grassland acres were converted to cropland to take advantage of these new opportunities. The state’s farming population has progressively aged and diminished over the decades, further contributing to this decline. Mechanization and synthetic inputs have made up this labor shortfall, suppressing farmer willingness to reintegrate more labor-intensive livestock grazing into their operations, despite the economic and environmental benefits and support from the USDA through the GLCI program. Between Fiscal Year 2002 and Fiscal Year 2008, the USDA distributed over \$175 million to state and national GLCI efforts (M. Krome, personal communication, January 2, 2024). However, Fiscal Year 2008 was the last official funding via the GLCI program, outside a special allocation for Wisconsin. The GLCI program would be revitalized in 2021 and funding resumed in Fiscal Year 2022, but at a substantially lower amount than the historical average (K. Hine, personal communication, December 19, 2023). No GLCI funding went to Indiana in this revitalized funding stream as no funding requests were received.

History of Grazing in Indiana

Severe droughts in 2005 and 2012 were a turning point for adopting conservation agriculture practices. The droughts coincided with declining commodity prices and added momentum to the no-till movement and encouraged the adoption of cover crops. The development of the Indiana Nutrient Loss Reduction Strategy in 2016 solidified numerous initiatives to move Indiana agriculture further toward conservation goals.¹¹ However, the potential of livestock grazing benefits to support soil health and water quality were not captured by the strategy.

The GLCI committee eventually lost momentum due to lack of earmarked funding and disbanded in 2011 after several years of insignificant committee activity. Grazing education and technical assistance activities were increasingly led by the NRCS Grazing Specialists, Purdue University researchers (including the Southern Indiana Purdue Agricultural Center), Hoosier Grazing Network members (led by Ed Heckman), conference committees (NIGC, SIGC, HOAGC), and the Indiana Forage Council. Victor Shelton's Grazing Bites newsletter maintained grazing awareness in the state and continues today.¹² Grazing schools were established around this same time at the Southern Indiana Purdue Agricultural Center (SIPAC) and at the Feldun Purdue Agricultural Center. Both continue on an annual basis, depending on demand. Purdue Forage Field Days are also an annual event and held at the Purdue Beck Agricultural Diagnostic Center in West Lafayette. Forage identification, weed identification, and problem-solving discussions are usually part of the event.

Grazing is a long-standing part of Indiana's agricultural and land management history. There are numerous assets that are present in the state because of the work and leadership of the state's grazing advocates and practitioners over the recent decades. While the decline and disbandment of the Indiana GLCI is unfortunate, many of the involved leaders are still advancing grazing work in the state and supporting a younger generation of grazing leaders. However, investments must be made to ensure the legacy of Indiana grazing is not lost.





Photo Credit: Jason Tower

Challenges:

The following challenges were identified through conversations and interviews with grazing, pasture, and forage experts throughout Indiana, including active graziers. This list is reflective of those conversations, which were not comprehensive; it highlights common responses.

The misperception that grazing systems cannot be profitable in Indiana

Despite there being many Indiana grazing operations that are more profitable per acre than other competing production systems, there are limited publicly available case studies of such operations in the state. Compared to the abundance of information about the profitability of row crop systems, this lack results in the misperception that grazing is not profitable on a per acre basis and the overemphasis on the per animal profit and loss in a grazing system. Further, there is a lack of accessible planning and management tools for farmers to use in starting and managing profitable grazing operations. Without relatable examples and the tools needed to address their interests and priorities, farmers stick to the “status quo.” Further, inconsistency in access to animal processing services in different regions can change the profitability of a grazing operation. If individuals face delays in slaughter slot availability, they have to haul animals further for these slots, or cannot get the fabrication and packaging they need to meet consumer demands. However, recent government investments are attempting to increase access to processing businesses.

Competing against “status quo” money and resources

Current government “safety net” programs and agribusiness maintain corn/soy dominance in the state. Crop insurance, vertical integration, and private technical assistance offerings make the “status quo” more appealing for many farmers than entering or expanding grazing. With input and other providers associated with row crop production maintaining regular relationships with farmers, it’s difficult for alternative options to emerge as on-par and credible.

Limited grazing technical assistance

As Indiana has transitioned to predominantly corn and soybean production, the technical assistance support from county, state (including universities), and federal sources have also transitioned to focus on commodity grain production. While the state USDA NRCS office has grazing specialists in the four regions of the state, there are still not enough knowledgeable and experienced grazing technical service providers to meet current or increased demand. This leaves farmers with fewer resources, including certified grazing planners that can help farmers access federal cost-share. Those providing grazing technical assistance need to have significant “lived” experience with grazing to help create effective grazing plans and follow-up support. Shifting leadership at agencies and institutions that support these individuals can undermine their effectiveness.

Lack of educational materials on pasture, forage, and grazing for young people

Despite a strong agriculture education sector in the state, very little information on pasture, forage, and grazing management is included in the curricula for 4H, FFA, vocational, and high education programs. Often, materials on these topics are geared toward adult learners who may have more experience running agriculture enterprises than the average young person or student. These materials are also fragmented, forcing the learner to find them on their own without a guarantee that what they will find will be high quality and relevant.

Limited crossover between cropping and grazing communities

While many farmers maintain both cropping and livestock operations, the two are seen and maintained as separate and distinct cultures. This limits opportunities for discussions about how cropping on vulnerable acres might transition to perennial pasture through contract grazing of cover crops or other transition practices. Integrating livestock – despite being a principle of soil health – is generally viewed as antagonistic by the cropping community. This is further hindered by the loss of grazing infrastructure on row crop acres – namely permanent perimeter fencing, but also animal loading and watering infrastructure. Many farms have a legacy of some level of animal grazing and, subsequently, livestock infrastructure. As small and medium-sized farms are consolidated into larger farms focused on row crop production or confined feeding production, such grazing infrastructure is lost on the landscape. This limits opportunities for active graziers to work with row crop producers on cover crops or other grazing between their seasons. Even when one producer has both row crops in production and livestock in production, they don't consider the benefits of combining them.

Various grazing practices, terminology, certifications, etc. can be confusing

Adaptive multi-paddock, rotational, mob, regenerative, and other grazing practice terminology can be confusing to those seeking to start a grazing operation. The same is true for learning to build livestock fence, install watering systems, and simply become comfortable with handling livestock animals. This learning curve requires a person to seek their own educational resources and mentorship, as there aren't always easy learning pathways. It also requires individuals to “stick with it” long enough to become profitable and to scale up.

Low visibility of who is in the grazing community

Many graziers are not aware of who is grazing around them, creating a sense of isolation. While the state has two well-established grazing conferences to bring people together, there is limited awareness of graziers in different regions of the state who might be considered leaders and influencers who could help others interested in grazing get started or improve their operations. There are also competition concerns that arise between graziers who might consider providing education and mentorship as potentially compromising their established markets.





Photo Credit: Jason Tower

Opportunities:

The following opportunities were identified through conversations and interviews with grazing, pasture, and forage experts throughout Indiana, including with active graziers. This list is reflective of those conversations, which were not comprehensive; it highlights common responses.

The Indiana Forage Council (IFC) is active and could grow

The IFC has been supporting farmers and landowners for nearly 60 years and has an established organizational structure. Its members represent diverse perspectives including those in agribusiness, conservation, youth engagement, research, trade associations, and professional societies, many of whom are grazing experts. While grazing is not the exclusive focus of IFC, its commitment to improving forage production and utilization in Indiana inherently includes encouraging well-managed grazing that depends on high-quality forage. Building an expanded suite of clear and compelling IFC member benefits could attract more members, generating a stronger Indiana grazing community.

Established grazing education offerings are available in the state

Indiana hosts multiple well-recognized grazing education events each year: the Northern Indiana Grazing Conference, the Southern Indiana Grazing Conference, and the Indiana Grazing School, cohosted by Purdue University and IFC in northern and southern Indiana. Indiana also hosts the Heart of America Grazing Conference periodically, adding another learning opportunity every few years. There are other learning opportunities in other nearby states. For example, the Farm Beginnings programs and regional grazing groups in Illinois could be easily replicated in Indiana.

Research institutions are present in Indiana and are interested in good grazing

Purdue University and USDA NRCS co-published the “Management-Intensive Grazing in Indiana” handbook in 2007 and have long been two of the major driving forces for grazing in the state. While NRCS has kept more grazing specialists in place than neighboring states and the Southern Indiana Purdue Agricultural Center is an anchor for grazing research and education, these assets could be more fully invested in to accelerate well-managed grazing in the state. What is more important than the number of specialists is the amount of time those specialists are resourced to spend in the field, gaining invaluable grazing experience. Key individuals keep much of the grazing focus in place within these institutions, creating the risk of losing critical advocates if they transition; more resources could help invest this knowledge in more staff to advocate for grazing. To ensure the transfer of knowledge and the continuity of key university and government agencies, institutional buy-in on the benefits of grazing technical assistance positions (such as the Purdue Extension Forage Crops Specialist) must be prioritized. Given that many of these staffing decisions are made in institutions like USDA NRCS or Purdue University, the focus should be on educating those decision-makers who are not familiar with grazing.

Pasture under continuous management is present throughout the state

There are thousands of acres of pastureland in Indiana that could be improved through infrastructure investments and better management. These acres are typically under “continuous” management, meaning the livestock always have access to all or most of the pasture. While easier, this management usually leads to overgrazing and damage to the land. Connecting these graziers to better grazing information, technical assistance, and cost-share programs for management infrastructure (e.g. temporary internal fencing, paddock watering systems, etc.) can quickly improve forage productivity via longer rest periods between grazing while boosting the pasture’s environmental performance.

USDA programs regularly fund projects in Indiana that are relevant to grazing

Each year, the USDA awards millions of dollars through various programs – primarily through NRCS programs like the Conservation Innovation Grants, Grazing Lands Conservation Initiative, Regional Conservation Partnerships Program, Environmental Quality Incentives Program, and more. The USDA also periodically offers one-time funding programs such as the Partnerships for Climate Smart Commodities, which awarded 19 projects that have a focus on forage or livestock in Indiana, totaling over \$642 million over the next five years. These projects could support grazing. The key to any cost-share funding for grazing infrastructure leveraged from USDA programs is an appropriately designed and implemented grazing plan. Well-trained technical service providers can help develop these plans and maintain the relationships with graziers to ensure cost-share is targeted and effective.

Regenerative agriculture curricula and mentorship programs are in the Midwest

Throughout the Midwest, there are multiple examples of curricula being produced by nonprofits, universities, and others that are focused on regenerative grazing and could be made more available to Indiana practitioners. For example, the Wallace Center offers a self-guided online regenerative grazing course for free. Further, there are mentorship programs like the grazing groups operated by the Illinois Grazing Lands Coalition and a farming mentorship program operated by Partners IN Farming and Food. Bringing together such efforts in Indiana and throughout the Midwest to make them more available to more Indiana practitioners could accelerate good grazing.

Multiple relevant groups, associations, and companies operate in Indiana

Indiana is the home to multiple livestock trade associations for beef, dairy, goat, sheep, poultry, and more who are naturally inclined to support grazing, particularly if it serves their members. Further, the state has companies that provide inputs (i.e., fencing, seed, watering systems, etc.) who would also benefit from a boost in grazing throughout the state. Regional organizations like the Midwest Cover Crop Council and the Nature Conservancy are already supportive of grazing and are valuable allies in advocating for good grazing management in the state. Finally, the Indiana Value Chain Coordination Network is a unique asset for the state, working ensure that Indiana farmers and livestock producers (particularly those who are underserved by conventional opportunities) can successfully access markets throughout the state. Seeking partnerships with partners who are interested in but not involved with grazing makes sense.



Recommendations:

The following recommendations were created with grazing, pasture, and forage experts throughout Indiana, including active graziers. This list is not comprehensive.

Create resources and case studies to address how grazing can be profitable in Indiana

There are graziers in Indiana who manage profitable grazing operations of different sizes for different species and utilize different supply chains. These individuals could provide the basis of case studies on profitable grazing in Indiana and the development of a resource toolkit with business planning and recordkeeping templates that could help new and existing graziers move toward greater profitability and sustainability. These resources could also specifically address profitability and sustainability on “at risk” acres that well-managed grazing could significantly benefit, but where profitable management must be carefully managed.

Tackle grazing education collaboratively to create coordinated opportunities

With such strong grazing education in the state through available grazing conferences and schools, building additional grazing education opportunities for different audiences is possible. Specifically, “beginner” field days and workshops could help build interest and more specialized “advanced” education events on topics like recordkeeping and marketing could help keep the grazing community thriving. Coordination on education offerings through a central group or partnerships between Indiana groups and institutions could also help boost communications and promotion for individual events.

Create regional grazing groups to cover Indiana, including mentorship programs

The Illinois Grazing Lands Coalition supports grazing groups in each different part of Illinois. These are peer-led groups that provide social and educational opportunities for new and established graziers throughout the state. They also provide the opportunity for both informal and formal mentorship. Such a model could be easily recreated in Indiana and connected to mentorship programs already underway or planned for the coming years.

Work with Midwest partners to build a grazing curriculum for younger audiences

Recognizing that future generations of graziers are key to growing and sustaining the number of well-managed pasture acres in Indiana, developing a well-rounded curriculum that can be delivered online in a flexible format. Recognizing that such a curriculum doesn't need to be state-specific, working with regional partners to develop and deliver it could lower costs and boost impact throughout Indiana and the Midwest.

Plan and deliver regular, coordinated grazing and pasture communications

Indiana grazing audiences look forward to “Grazing Bites,” a monthly email written by Victor Shelton, Indiana NRCS’ recently retired Agronomist and Grazing Specialist. This email is increasingly popular in the state, region, and country. The Indiana Forage Council puts out a quarterly newsletter with stories, updates, and tips. These emails provide important knowledge, providing platforms for a more diverse Indiana grazing newsletter that could hub more grazing events throughout the state, thus centralizing updates.

Work collaboratively to hub opportunities for producers to enroll in USDA projects

Each year, research projects funded by USDA grants and focused on outcomes that could be achieved by grazing seek to enroll eligible producers in Indiana to pilot new practices, expand proven practices, and much more. Many times, these projects provide financial and technical assistance to producers to get started with or expand grazing practices. However, there is no central hub available to producers to help them find enrollment opportunities, thereby limiting their access and keeping those implementing projects from sharing interested producers. Since such grants are public information, they could be aligned.

Engage state and regional partners to build a grazing “train the trainer” program

High-quality, accessible grazing education in Indiana is only possible if there are diverse, experienced trainers available to lead events. Developing a grazing “train the trainer” program will leverage the grazing expertise around the state and region to help structure, standardize, and transfer knowledge. It also creates an opportunity for different types of trainers to enter the community – including those that identify as Black, Indigenous, or a Person of Color (BIPOC). Having racial, gender, age, cultural, and other categories of diversity in a trainer pool who are all advancing similar information will help broaden and strengthen the base of the Indiana grazing community.

Link the Indiana grazing community with other Indiana groups with aligned interests

Many groups that are not traditionally seen as “grazing allies” have interests that align with the grazing community. To advance grazing in Indiana, these groups must be engaged to build a broader coalition of support. Examples include the Indiana Value Chain Coordination Network, Indiana Audubon Society, Pheasants Forever Quail Forever Central Indiana, Ducks Unlimited Indiana, Indiana 4H, Indiana Future Farmers of America, and many more. Building and leveraging relationships with both traditional and nontraditional allies is an important way to advance grazing in Indiana.

Conclusion

Organizations, businesses, and individuals across Indiana can come together and reclaim and revitalize the state's grazing heritage and the multiple economic, environmental, and social benefits livestock bring to the land. If implemented, the recommendations of this roadmap can help achieve the goal of 550,000 acres of permanent pastureland in the state by 2030—a return to 2012 levels. Doing so will help meet the state and region's growing demand for high-quality forages and regeneratively produced proteins, building economic incentives for farmers and landowners to continue to invest in well-managed grazing throughout the state.

Indiana has a strong and proud legacy of leadership in agriculture, particularly in grazing, with multiple leading practitioners and institutions throughout the state. Despite not often being recognized for its efforts, Indiana has all the right ingredients to not just increase well-managed grazing throughout the state, but to step up as a regional leader in the grazing community. Its productive soils and favorable rainfall patterns set up Indiana farmers for success in reintroducing more livestock to the landscape in a way that builds and maintains healthy soil, farms, and people. Its orientation to major consumer markets in Chicago, Indianapolis, Louisville, and other major cities means that Indiana graziers can bring their animals and products to diverse, growing markets, giving each grazer multiple options for profitability.

More importantly, Indiana farmers have a deep respect and love for the land as is evident in the state's leading efforts to implement cover crops, nutrient management, and other practices. As the no-till and soil health movements have taken hold, regenerative grazing can enhance these efforts to achieve truly regenerative outcomes.

Setting an ambitious vision for the future of grazing in the state and charting a course to realize this vision creates the opportunity for conversation and collaboration. Building stronger connections within the grazing community and between this community and others in the state is the key to realizing the potential of this roadmap in action. It will take direct and consistent action from many people to restore Indiana pastures, but the benefits and opportunities are clear: grazing is a pathway for a more abundant, healthy future for all Hoosiers.



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