Pasture Project
AN INITIATIVE OF THE WALLACE CENTER

Wallace Center
AT WINROCK INTERNATIONAL

More Profitable Pastures through Stronger Beef Value Chains

Value Chain Assessment of Indiana's Blue River Watershed Region

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Wallace Center at Winrock International

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Introduction

In mid-2020, the Wallace Center – through its Pasture Project initiative – began a conversation with farmers, agriculture educators, technical service providers, and business owners in the Blue River watershed of southern Indiana. This conversation centered on the potential to expand regenerative grazing in the watershed through a better understanding and increased support for beef value chains dedicated to making pastures under regenerative management more profitable. In doing so, the Pasture Project sought to develop a process that would incentivize the conversion of marginalized cropland and underperforming pastureland to practices with positive impacts on water quality, habitat, and other environmental benefits. In doing so, the Pasture Project developed a replicable method for quickly understanding the currents state of beef value chains in a particular geography and identifying the potential actions that could leverage these business relationships to grow and sustain regenerative grazing.

Through a combination of data analysis and stakeholder engagement, the Wallace Center developed this preliminary value-chain assessment with the generous support of the Walton Family Foundation and the expertise of numerous Blue River grazing experts.

The value of regenerative livestock grazing

Regenerative grazing is an agricultural practice that uses soil health and adaptive livestock management principles to improve farm profitability, human and ecosystem health, and food system resiliency. Applicable in both annual and perennial forage systems, regenerative grazing practices build on ecological principles and the relationship between grasslands and ruminants. It is based on long-standing Indigenous land stewardship of native prairie and savanna ecosystems, enhanced by new technologies and research. Regenerative grazing typically maintains rest-rotation cycles: short periods of dense grazing followed by long forage rest periods to support vegetative recovery. Regenerative grazing is a component of regenerative agriculture, which emphasizes the reduction or elimination of synthetic inputs and tillage; increased diversity of plant, animal, and microbial life; and generation of sufficient revenue to build viable farm businesses and fairly compensate farm labor. Regenerative grazing is one of the five principles of soil health with the potential to address multiple challenges in upper Midwest, including addressing climate change.

The importance of value chain coordination

Value chains can help farmers transition to and sustain regenerative agriculture practices by connecting them to customers who value the benefits of these practices. Value chains lend themselves to the clear articulation of and "pursuit" of value propositions that are desired by end customers. Such value chains strive to provide current and prospective farmers with improved access to the information, resources, and relationships necessary for creating, stabilizing, and expanding new enterprises. While they vary by location, scale, production, or desired outcomes, most successful values chains are designed to address the specific barriers between farmers, food businesses, government agencies, and consumers in a way that creates diverse, decentralized solutions. Value-chains are typically only as successful as the level of trusted relationships between the links, and, to this end, the role of the consistent, versatile value-chain professional is key. Value chain professionals can take many shapes ranging from farmers to health care professionals to rural economy advocates. The value chain professional that is best for any given location (e.g., watershed) or product (e.g., grass-finished beef) is best determined by local knowledge, strong relationships, and commitment to shared benefit. Value chain professionals are also key to connecting different value chains throughout a region. See Appendix A for more information on the Wallace Center's general approach to value chain coordination as well as place-based value chain assessment methodology.

Regenerative grazing can be accelerated in a region by simultaneously investing in local and regional meat value chains. Many factors influence the success and sustainability of regenerative grazing systems including access to technical assistance, farm-level inputs (e.g., fencing installers, veterinary services, etc.), live animal markets, slaughter and processing facilities, distribution opportunities, and diverse direct market channels. While individual farmers can navigate these factors to build their businesses – and many do – value chain professionals can help reduce the burden of entry and transaction costs of farmers by providing tailored, timely information on how their

pastureland can be most profitable. Value chain professionals can support farmers to build their regenerative grazing operations in a way that manages risk while building multiple, profitable markets for the product of their farm – including healthy proteins and the associated ecosystem services. As markets develop and evolve, the relationship between the farmer and a value-chain professional is critical for accessing, maintaining, and benefiting from different markets based on different customer needs and preferences (I.e., convenience, nutrient density, animal welfare, environmental impact, etc.) Trusted, transparent, and consistent relationships between farms, businesses, and consumers result from building value for each link in the value chain, however individual value may be defined. Economic value is often paramount, but environmental (e.g., healthy soil, pollinator habitat, etc.) and social (e.g., farmer quality of life, equity for underserved farmers, etc.) value generation are considered to degrees.

The opportunity for regenerative grazing in the Blue River watershed region

In 2019, the Wallace Center's Pasture Project team conducted and published an assessment of Illinois and Indiana watersheds based on the potential benefit of increasing regenerative grazing. This analysis mapped and "stacked" 12 spatial datasets covering biodiversity, economic, infrastructure, and water quality criteria that have relevance to regenerative grazing. The result is an interactive tool for weighing the different criteria to highlight the watersheds with the most to gain from increasing regenerative grazing.

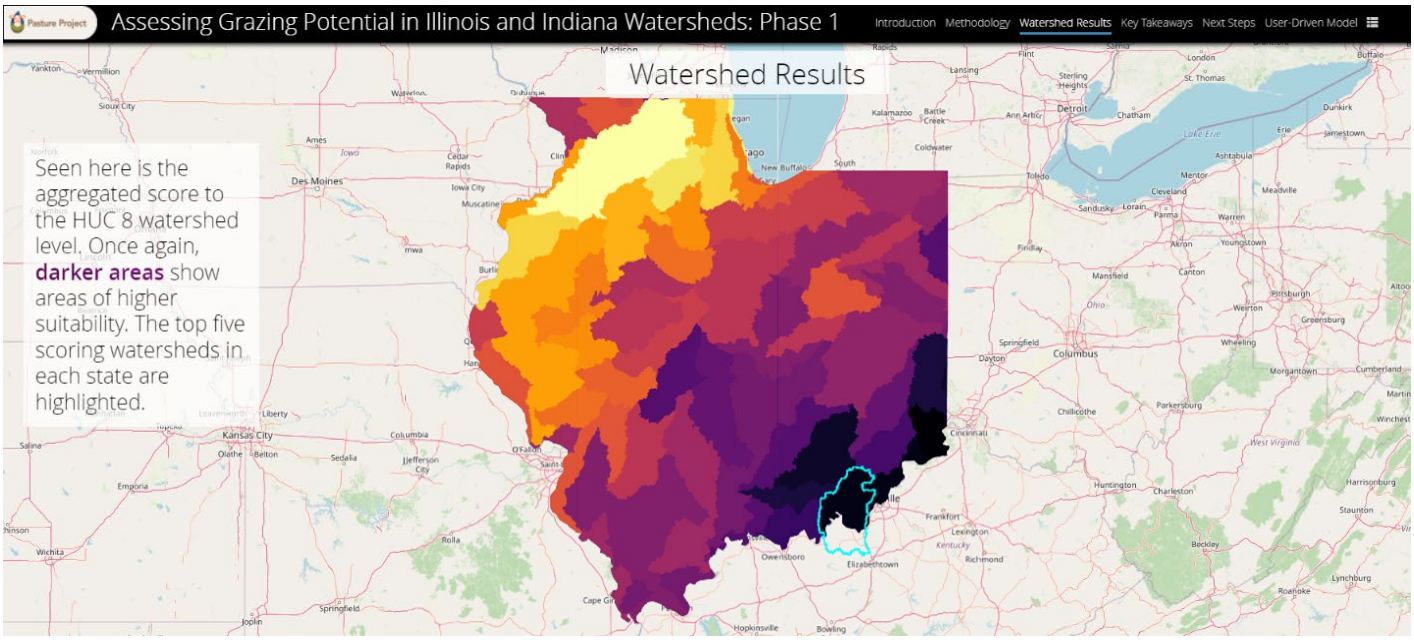

Figure 1: Assessing Grazing Potential of Illinois and Indiana Watersheds screenshot, with Blue River highlighted. (Source: Wallace Center)

The assessment acknowledged that datasets do not convey the complete picture of a watershed and its suitability for expanding regenerative grazing. To this end, the Pasture Project team researched the social characteristics of change for the top 10 scoring watersheds using proven criteria. These criteria – some developed and validated at Purdue University – included the presence of:

- assessment, planning, and other programs (historical and current) to address biophysical impairment
- watershed groups with paid staff
- high adoption and re-enrollment of conservation best management practices for agriculture
- general understanding of conservation issues facing the watershed, along with a general commitment to trusted collaboration in developing solutions
- farmers as conservation leaders with the support of farming, sportsmen, and wildlife organizations

As a result of this assessment, the Blue River was identified as one of the best watersheds in Indiana for advancing regenerative grazing. The watershed's rolling topography and karst geology make it a significant contributor of

agricultural nutrients and sediment to the Ohio River, Mississippi River, and – eventually – the impaired Gulf of Mexico. The watershed is home to important ecosystems, particularly the giant hellbender salamander – North America's largest – and is also home to significant livestock production, utilizing conventional grazing and finishing. The watershed is also near Louisville, Kentucky which influences the watershed through its outward development and consumer demands.

Building a Blue River Grazing Working Group

In March 2020, the Wallace Center convened a group of 17 individuals from the Blue River watershed region to begin the conversation on how – if at all – to increase regenerative grazing practices in the watershed. These individuals included farmers, ranchers, Purdue Extension staff, county conservation district staff, NRCS (Natural Resources Conservation Service) staff, and non-profit staff.

Photo: Blue River Grazing Working Groups meeting in 2020 (Source: Wallace Center)

Through the conversation, it was clear that the Blue River watershed had significant livestock production and was supported by several technical experts who were familiar with grazing practices. The watershed has numerous cow-calf operations and grain finishers operations, which has resulted in a strong "freezer beef" culture (selling whole, half, or quarter beef animal cuts and ground products to customers – often directly from the farm – at a lower bulk cost). Through the day-long discussion, the Wallace Center team worked with meeting attendees to zero in on two opportunities for incentivizing more regenerative grazing in the watershed: articulating opportunities to sell more well-raised calves of preferred genetics and building greater awareness of opportunities to sell finished beef – particularly grass-finished beef – directly to customers. Both interventions could increase the profitability of well-managed pastures in the Blue River watershed and the surrounding region, thereby improving water quality and other outcomes. The Blue River Working Group has been convened bi-monthly between 2020 and 2021 by the Wallace Center to support the development of this report. The working group represents committed stakeholders in the region. Additional individuals outside the region have also offered support to the working group. This includes faculty at the Indiana State Department of Agriculture, Indiana University, and Purdue University.

Agriculture snapshot of Blue River watershed region

The Blue River watershed is defined by both its topography and the development force that is changing its land uses – specifically for agriculture. The landscape and the forces that shape it are the natural starting point for assessing how to increase regenerative grazing and effectively tie it to robust local and regional meat value chains. The watershed spans six counties in Southern Indiana: Clark, Crawford, Floyd, Harrison, Orange, and Washington. Of these counties, a majority of the watershed lay within Floyd, Harrison, and Washington counties with only small portions overlapping with Clark, Crawford, and Orange counties. Floyd, Harrison, and Washington counties contained 2,148 farms managing 396,557 acres, according to the USDA 2017 Census of Agriculture. Most farms in the watershed are small – defined at less than 180 acres. 69% of Washington County farms fall into this category, followed by 84% in Harrison County and 87% in Floyd County. This agricultural profile is reflective of the watershed's rolling topography that is dominated by forest and shrubland, which averages 50% of the land cover in the watershed's three primary counties according to the USDA's Cropland Data Layer for 2017. Both limit farm size which – along with average slope – discourages row crop agriculture and encourages livestock production. The profile of the watershed is also heavily influenced by proximity to an adjacent major metropolitan area. The Louisville, Kentucky metropolitan statistical area (MSA) is home to over one million residents and has been steadily growing in recent years. This growth influences the Blue River watershed as development increasingly spills across the Ohio River. Floyd county is closest to the city and 21% of its land cover is categorized as developed, with less than 30% categorized as agriculture. By comparison, only 6% of Washington County's land over is categorized as developed and 47% is in agricultural use. Development is increasing and rapidly changing the portion of the watershed closest to the city.

Photo: Blue River (Source: Creative Commons)

Most farms in the Blue River watershed's three primary counties produce less than $25,000 in annual sales. Not surprisingly, 52% of farms in the more developed Floyd County make less than $2,500 in annual sales and 33% make less than $25,000. For Harrison, these percentages are 43% and 39%, respectively; for Washington, these percentages are 34% and 31%. The majority (57%) of Washington County's agricultural sales are from livestock, poultry, and product – followed by Harrison (48%) and Floyd (9%). Unfortunately, the percentage of farmland use favors cropland over pasture with Washington County being 69% cropland, Harrison being 68%, and Floyd being

55%. Pastureland in these counties averages just under 12% of farmland use. Washington and Harrison Counties – furthest from the Louisville MSA – are the most significant livestock-producing counties on the watershed. In Washington County, poultry dominates with broilers and other meat-type chickens (2,658,737) at the top of the 2017 livestock inventory followed by turkeys (507,182), layers (72,335), hogs and pigs (20,417), cattle and calves (18,737), and sheep and lambs (2,501). Harrison County has a similar cattle and calf inventory at 16,152 head in 2017. The dominance of cropland and poultry in the region is likely due to the presence of Tyson Foods poultry operations including a feed mill, hatchery, and processing facility in Harrison County. It is noteworthy that Washington County is the 14th largest producer of cattle and calves in the state and Harrison County is the 21st. USDA National Agricultural Statistics Service (NASS) estimates 296 rotational or management intensive grazing operations in Floyd (23), Harrison (131), and Washington (142) counties as of 2017. The same three counties have a considerable number of cow-calf farmers, with 419 operations recording calf sales in 2017. Overall, the Blue River watershed is a significant livestock-producing geography with a strong cow-calf production base and some regenerative grazing (I.e., rotational or management intensive) practices are present. Small livestock production for home consumption or supplemental "freezer beef" income is typical in the area. These factors bode well for expanding regenerative grazing practices and associated benefits, including those through improved value chain coordination and direct market access.

Estimating benefits of regenerative grazing in Blue River watershed region

To understand the potential benefits of increasing regenerative grazing in the Blue River watershed, the Wallace Center team built an interactive modeling dashboard to produce scenarios for transition, including the resulting livestock production levels to inform the value-chain analysis. This dashboard utilizes available land use data for cropland and pastureland to produce a baseline map of agriculture in the watershed. Both cropland and pastureland are included due to the potential for regenerative grazing practices to improve the environmental and economic performance of pastureland under continuous grazing management and of cropland by utilizing cover crop grazing or by transforming to perennial pasture. Users can set criteria for cropland and pastureland separately or simultaneously, resulting in an updated acreage map. The criteria that can be used to limit cropland acres include slope, revenue from corn grain before rent (average between 2018-2022), revenue from corn grain after rent (average between 2018-2022), proximity to a stream, and soil drainage class. The criteria that can be used to limit pastureland acres include slope, proximity to a stream, and soil drainage class. Revenue is not a filterable criterion for pastureland due to the complexity of livestock operations which very rarely complete the full lifecycle of an animal on the same acre. By filtering, the dashboard displays an adjusted map of the criteria eligible cropland and pastureland acres and displays the total number of cropland and pastureland acres represented. The dashboard applies a set of standard assumptions – based on peer-reviewed research, USDA standards, and expert input – to the total number of filtered acres to display the potential animal units produced from converted cropland, the potential animal units produced from improved pastureland, costs of conversion and improvement, potential nutrient loss reductions, potential soil loss reductions, and potential greenhouse gas emission reductions.

As an example, filtering the dashboard shows that there are 10,197 cropland acres in the Blue River watershed that are greater than a 10% slope, less than 10 feet from a stream, and are not making any revenue per acre after rent (on average between 2018-2022). These steep, unprofitable acres are likely contributing to surface water runoff, and they could be more profitable if converted to well-managed pastureland that infiltrates water, holds soil and retains nutrients. For pastureland, the dashboard shows that 26,232 acres could benefit from regenerative grazing. Converting 10,197 acres of cropland would cost an estimated $5,751,199 – or $564 per acre – but would support 5,099 new beef animal units annually, increasing per acre profitability. Conversion could also reduce nitrate loss by 142,760 lbs., phosphorus loss by 71,380 lbs., soil loss by 81,577 tons, and CO^2 equivalent greenhouse gases by 8,287 tons. Improving 26,232 acres of existing pastureland would likely cost $3,921,702 – or $150 per acre – but would increase the annual animal units on these acres by 3,935. An estimated 52,464 lbs. of nitrate, 34,102 lbs. of phosphorus, 26,232 tons of soil, and 1,656 tons of CO^2 equivalent greenhouse gases could be avoided by this investment in improved grazing management.

Try the Blue River interactive dashboard by clicking here

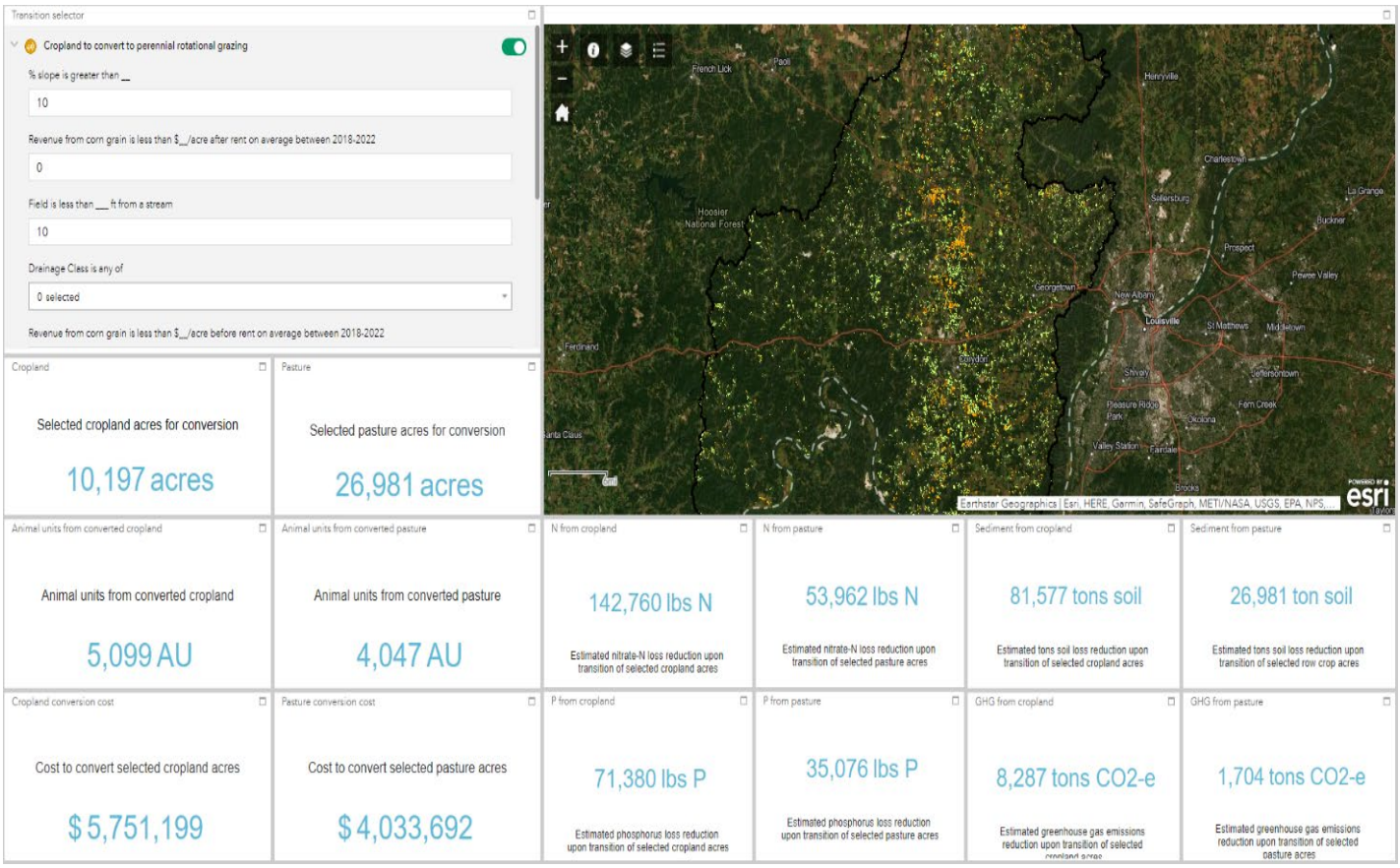

Figure 2: Regenerative grazing scenario dashboard screenshot from Blue River watershed application. (Source: Wallace Center)

The dashboard snapshot in Figure 2, provides a simple yet effective means of setting goals for estimating the costs of and understanding the potential benefits of increasing regenerative grazing in the Blue River watershed. This is particularly important for estimating the animal unit productivity of the acres in the watershed that are best suited for regenerative grazing.

Understanding beef production in Blue River watershed region

Meat value chains can be complex and often serve both conventional and grass-finished farmers. The way that an individual animal moves through its lifecycle depends on multiple factors including farmer preference, available infrastructure, and end market. In general, beef cattle production follows three major stages: cow-calf (birth until 6-8 months), stocker (until 9-15 months), and finishing (18-24 months). “Backgrounding” and “pre-conditioning” are steps that may happen between the cow-calf and stocker phase when underweight calves are improved before moving on to stocker or finishing operations. The goals of backgrounding and pre-conditioning is to reduce loss and increase efficiency during a calf’s transition to a post weaning state. Before the finishing phase, beef cattle are fed on pastures or supplemental forage. When cattle move to the finishing stage, they either finish their lives on pasture or stored forages (i.e., grass-finished), or transition to a mixture of corn and other grains, supplemented by other forages (e.g., corn silage), soybeans, cottonseed meal, and other food byproducts. The latter is often termed “grain-finished” and constitutes most beef. Most consumers are familiar with this “flavor profile of choice” that is characterized by tenderness and intermuscular marbling. Equally, grain-finishing allows for year-round production as it relies on storable feedstuffs. Often, farmers play specialized roles in beef production, producing a particular stage of cattle. Intermediaries often move animals between farms at various stages, including aggregating cattle to move them to different slaughter facilities and on to end markets. However, some farmers play multiple or all roles. This is particularly true for grass-finished beef farmers selling their products directly to the consumer. Some grass-finished

products do end up in conventional beef markets. This is often due to convenience, quality concerns, or limited access to direct-to-consumer markets willing to pay a premium for grass-finished.

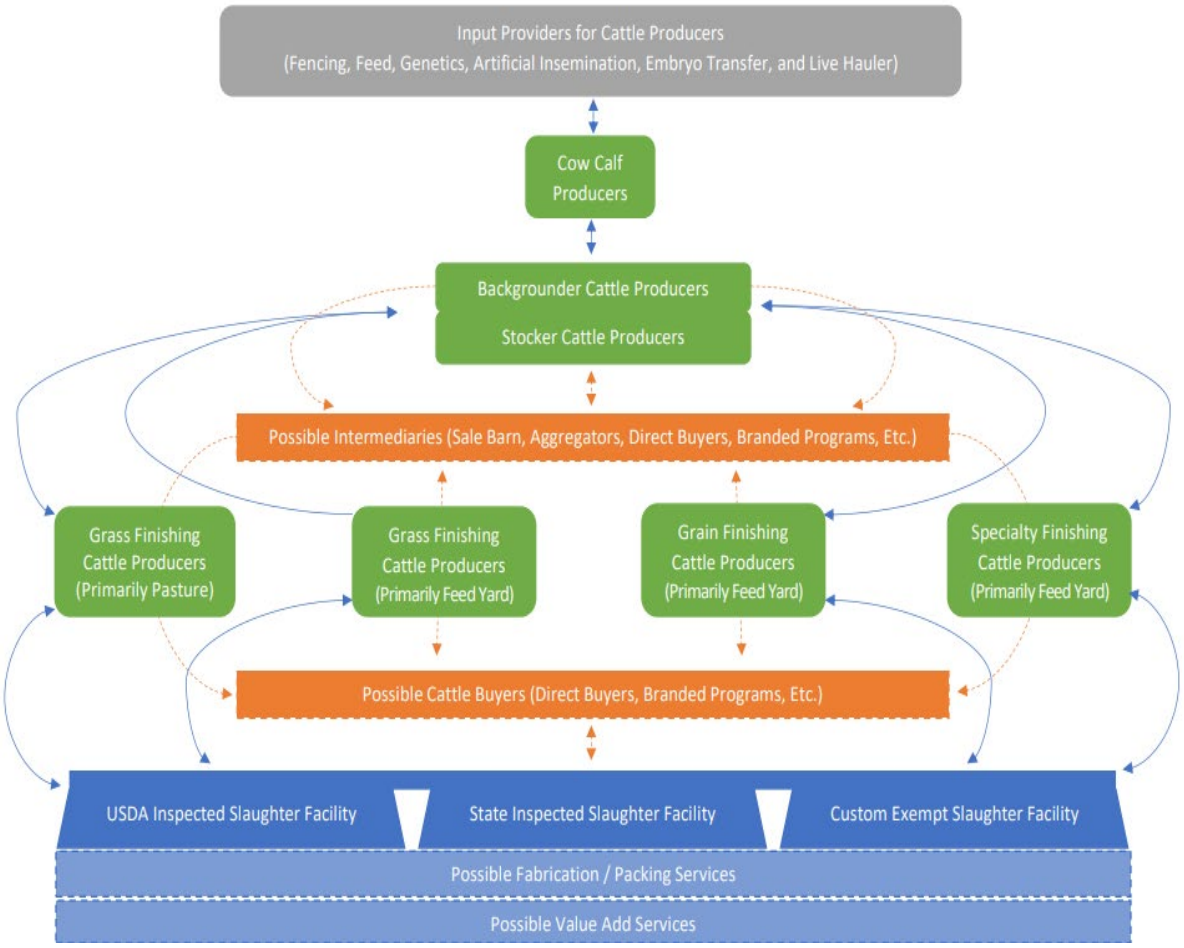

Figure 3: Conventional and grass-finished beef system diagram. (Source: Wallace Center)

The diagram above outlines the basic beef animal production "ecosystem," including how the conventional beef production systems overlap and support animals destined for grass-finished markets. The connections between entities are dynamic, frequently changing, and often difficult to track. Many times, one individual serves multiple roles and evolves their business in response to varied factors such as upturns and downturns in markets – most recently, COVID-19 dramatically impacted local, regional, and national meat systems. However, this diagram is helpful when researching all the entities that influence cattle and beef production.

To understand the overall "ecosystem" of current beef production in the Blue River watershed, the project team mapped relevant businesses that correspond to Figure 3. This included a multi-stage process that pulled publicly available data from multiple sources. To understand this for the Blue River watershed, businesses were identified and mapped, by relevance, using NAICS and/or SIC codes. The Standard Industrial Classification (SIC) codes and the North American Industry Classification System (NAICS) were each developed to support the collection, analysis, and publication of data relevant to the U.S. economy by government agencies. They are both standardized, self-designated, and searchable systems that include codes relevant to beef production. Though NAICS was designed to replace SIC, businesses are still classified with both codes, and for some agricultural industries, SIC codes are more specific. Relevant data points have been included on the Blue River Beef Value Chain Businesses Map. This is a fully interactive map that allows for different business types and type segments to be spatially visualized with relevant information. A screenshot of this map is included for this report, but the linked map provides full functionality.

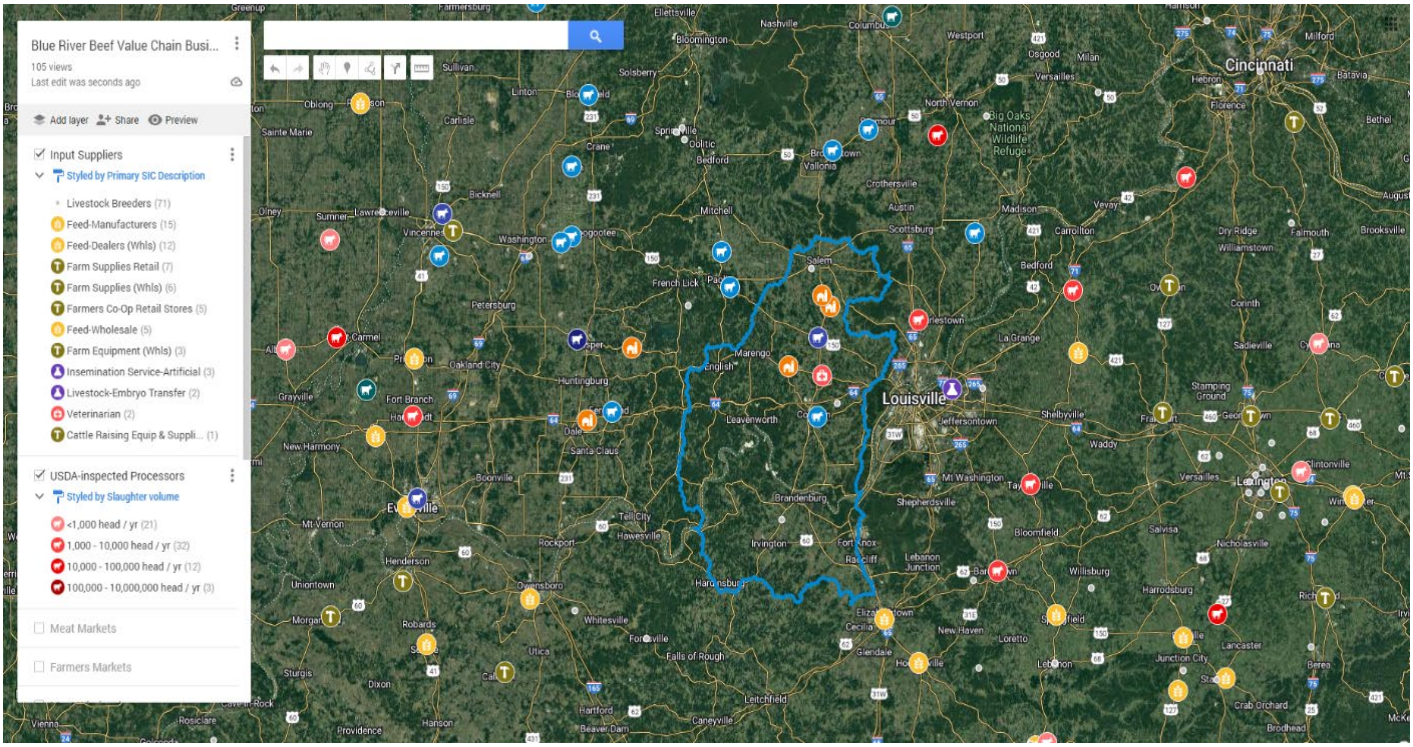

Figure 4: Blue River Beef Value Chain Businesses map screenshot. (Source: Wallace Center)

Livestock input provider businesses

The presence of livestock input providers are indicators of the health of beef value chain businesses in an area. SIC and NAICS codes were used to identify businesses in the following input categories and filtered for relevance: fencing and supplies, feed supplier, genetics, artificial insemination, embryo transfer, livestock haulers, and veterinary services. What is apparent is that few input providers are operating as registered businesses in the watershed or within a 50-mile radius, except for veterinary services. This may be that input businesses are not registered, coming from further away, or being provided by farmers themselves. Fewer input providers can make it more difficult for livestock farmers to find the options they need for their businesses to thrive.

Established beef farmers

The presence of livestock operations – specifically those practicing well-managed grazing – can help encourage the development and growth of beef value chains. USDA NASS estimated 296 rotational or management intensive grazing operations in Floyd (23), Harrison (131), and Washington (142) counties as of 2017. The same three counties had a considerable number of cow-calf farmers, with 419 operations recording calf sales in 2017. Given that cow-calf farmers are typically pasture-based, this and the presence of rotational grazing operations indicate numerous livestock operations interested in increasing pasture profitability. All cattle that eventually enter the beef supply chain spend a significant portion of their lives on pasture, with many transitioning to grain only at the end of their lives. Market signals paired with accessible value chains can incentivize farmers to keep cattle on pasture.

Further, operations specifically producing grass-finished beef can be strong advocates for growing regenerative grazing in an area and have the business models for accomplishing such growth. To identify known grass-finished beef farmers, the project team combined multiple online directories that included American Grassfed Association, EatWild, Farmers Pal, Indiana Grown, Local Harvest, and farmer's market vendors lists for Bedford, Bloomington, Evansville, and Louisville. While these directories and sources are limited by being voluntary, skewing toward direct-market enterprises, and potentially outdated, they do provide a baseline for preliminary stakeholder analysis and engagement that can be improved over time. Through this process, 7 known grass-fed/finished beef operations were identified in the watershed and 4 additional operations were located within 50 miles of the watershed (limited to Indiana). These should be considered as farmer outreach continues as these operations have the potential to influence grass-fed/finished beef production in the region overall. Two of the longest-standing and well-known

operations in the watershed are 3D Valley Farms, located in Depauw, Indiana, and Grass Corp, located in Leopold, Indiana. 3D Valley Farm is a multi-species, rotationally grazed farm operated by Steve and Jane Carr along with their extended family. Their beef, chicken, eggs, and pork are sold directly from the farm through an online and on-farm store, as well as through the New Albany Farmer's Market and a variety of local restaurants and health food stores. Similarly, Grass Corp is operated by Stan and Martha Steckler along with their extended family. As the name implies, Grass Corp offers grass-fed beef and lamb, free-range pork and eggs, pasture-raised chicken and turkey, and grass-fed raw dairy products. These products are sold via the farm's online store for home delivery or pick up at set delivery points – including outside Cincinnati, Evansville, Indianapolis, and Louisville.

As highlighted, the region has a strong "freezer beef" culture (selling whole, half, or quarter beef animal cuts and ground products to customers – often directly from the farm – at a lower bulk cost). Combined with the smaller farm sizes and lower per farm profitability, the presence of a strong freezer beef culture seems to indicate that many farmers in the region keep beef animals to leverage low-cost finishing feed to provide supplemental income. Preference for buying whole, half, or quarter animals directly from the farm seems to indicate that consumers in the area prefer locally produced meat.

Livestock wholesale businesses

Livestock wholesalers are available within and nearby the watershed. There are 5 registered livestock wholesalers in the watershed and numerous others in the immediate area. These businesses – sometimes referred to as "sale barns" - typically provide an easy point of sale for cattle buyers interested in breeding, feeder (I.e., calves, yearlings, etc.), or finished stock. These sale barns allow buyers to aggregate cattle from other farms at different points of the animal lifecycle and can support pooling cattle based on production practices, such as grass-finishing. However, there is no easy point of information on which of these businesses support differentiated categories for grass-fed/finished, etc. These businesses can also standardize the animal genetics and performance they are interested in purchasing, raising the overall quality of the livestock in each area and allowing for specialization and differentiation. Most notable for the Blue River are sale barns operated by United Producers Inc (UPI). This is a large farmer-member-owned and operated cooperative that has 35,000 members in Illinois, Indiana, Kentucky, Michigan, Missouri, Ohio, and Tennessee. They operate 30 facilities in the region that move 3 million head of livestock each year. Beyond offering local markets – two of which are nearby the Blue River watershed in Little York, Indiana and Irvington, Kentucky – UPI also provides livestock marketing services that help ensure livestock farmers can sell their animals, at times directly from their farm to meatpackers that operate larger slaughter facilities. UPI also provides credit services in the form of short-term loans for livestock, general farm operating expenses, and crop inputs. The cooperative also provides annual loans that typically service larger infrastructure (e.g., buildings, equipment, land, etc.) purchases of cooperative members. UPI's market in Little York, Indiana handled sales of 3,352 cattle between January and March 2022, with a weekly average of 306 cattle sold. During this period, roughly two-thirds (2,244) of all cattle sales were feeder cattle – which includes calves – going to finishing operations throughout the region. The remaining third (1,081) were cattle for slaughter. UPI's market in Irvington, Kentucky handled 7,847 between January and March 2022, with a weekly average of 604 cattle sold – nearly double the size of the Little York market. During this same period, 85% (6,689) of all cattle sales were feeder cattle and the remaining 15% were cattle sold for slaughter.

Livestock slaughter and meat processing facilities

Both USDA and State of Indiana data sets on animal slaughter and meat processing were used to map this critical link in the beef value chain. It should be noted that USDA inspected slaughter facilities included in this analysis and subsequently mapped were limited to smaller-scale facilities – defined as processing less than 10,000 head of livestock annually. This is because farmers focused on local and regional beef value chains – individual farmers or those aggregating animals from other farmers – tend to be smaller and cannot access larger slaughter facilities that have minimum quantity and consistency requirements for appointments to be made. Smaller slaughter businesses often offer more custom services to meet the needs of farmers or aggregators who are selling direct-to-consumer. USDA inspected slaughter and processing facilities – which offer farmers or aggregators the ability to move their finished products across state lines – are not currently available in the watershed but there are 16 within approximately 100 miles of the watershed. It should be noted that 10 of the 16 USDA inspected slaughter facilities are in Kentucky, requiring farmers or livestock haulers to cross state lines and comply with relevant live animal transport regulations. There are 9 custom-exempt slaughter facilities and 1 state-inspected slaughter facility in or within 50 miles of the watershed. Custom-exempt slaughter facilities – including First Capitol Meats, the only

slaughter facility within the Blue River watershed – provide services for farmers but the resulting meat cannot, legally, be sold because it has not been inspected. There is only one Indiana state-inspected slaughter facility in the Blue River watershed area - Merkley & Sons Packing – who are inspected by the Indiana State Board of Animal Health (BOAH). Meat coming out of a BOAH inspected facility may be sold within the state and – since Indiana is a member of the USDA Cooperative Interstate Shipment Program (CISP) - with select other states. The CISP was authorized in the 2008 Farm Bill and launched by USDA in 2012, allowing state-inspected meat and designated products in the participating states to be sold across state lines.

COVID-19 and associated slowdowns in meat processing facilities have prompted many custom-exempt facilities to transition to state-inspected facilities. In Indiana, BOAH inspection and the CISP can significantly increase opportunities for both farmers, slaughter facilities, and processing facilities. COVID-19 relief funding from the federal government and state governments provided the capital that many custom-exempt facilities – which are often small – needed to retrofit their infrastructure, protocols, workforce training, safety, inspection, and other capacities to meet the BOAH and CISP requirements. The Indiana Meat Processing Expansion & Development Grant Program redistributed federal dollars authorized under the federal Coronavirus Aid, Relief, and Economic Security Act. A total of $4M was granted to 41 facilities throughout the state in Fall 2020 – including First Capitol Meats inside the Blue River Watershed. Additional grants were made to facilities throughout southern Indiana and the impact of these grants will increase the overall capacity of the region to support farmers who are starting or expanding their herd to meet increased demands for locally produced meats.

There are two slaughter and processing facilities in or adjacent to the Blue River watershed that are expanding to meet the growing demand for locally produced meat – both significantly driven by farmers. First Capitol Meats in Corydon, Indiana was acquired by the Steckler Family in 2020. The previous owner was seeking to retire and the Steckler Family – who operate a multi-species, pasture-based farm that sells meat directly to consumers – saw an opportunity to expand services critical to businesses such as theirs. Beyond leveraging federal funds for improvements, First Capitol Meats – a long-time custom-exempt facility – is moving to be state-inspected and enrolled in the CISP program, both of which would dramatically expand options for farmers in the watershed. Further driving opportunities are plans to build a new facility with greater capacity, updated equipment, and improved services – including a retail storefront. The new facility is still being planned in coordination with the input of larger livestock operations in the area, but it will replace an assemblage of buildings that have reached the end of their usefulness. In the interim, the new owners of First Capitol Meats have boosted efficiency and throughput, with plans for steady growth.

Photo: First Capitol Meats (Source: REUTERS / Alamy Stock Photos)

First Capitol's growth, tied to larger livestock operations, mirrors the growth of Sander Processing in Celestine, Indiana. Starting in 1984, Sander Processing built its main processing facility in 2003 where it offers a range of services for farmers and a retail counter for customers. Working with several larger livestock operations – including the Steckler Family's GrassCorp farm, Fischer Farms, and 3D Valley Farm – Sander Processing opened a new state-inspected facility in nearby St. Anthony, Indiana that triples processing capacity. Fischer Farms – a multi-species grain finishing farm also based out of Celestine that distributes products regionally – is a partner in this new 10,000 ft^2 facility, allowing them half of the space to pack orders for their direct and wholesale customers. Given that Fischer Farms purchases from multiple farms in the area to support their branded products and that Sander Processing's new facility is state inspected, this expansion will support a significant uptick in livestock operations.

Aggregating animals into larger hauling loads can make it more cost-effective for farmers to access slaughter and processing facilities further away. This means that slaughter and processing bottlenecks can be addressed indirectly through the ability to aggregate semi-loads of animals and develop effective working relations with the best livestock haulers. Hauling longer distances to get to larger, better equipped, and cheaper (even after transportation costs) slaughter and processing options is a prevalent and important solution across the US. Larger beef brands design their farmer outreach and subsequent aggregation program based on the clustering of key operations, often centered around preferred processors with essential capacity and services. There are no registered livestock haulers in the Blue River watershed but there are five haulers within 50 miles.

Understanding beef sales in the Blue River watershed region

The market channels for beef in and around the Blue River coming out of the Blue River are diverse yet difficult to track. Many cattle move into the conventional beef system starting at the sale barn where they are aggregated for finishing (i.e., calves and yearlings) or slaughter by larger operations with access to feedlots, slaughter facilities, and processing facilities, as well as standing brands. The smaller slaughter and processing facilities focused on for this analysis typically work with individual farmers who are providing for themselves (custom-exempt) or selling directly to customers in a variety of ways. Direct markets are those markets to which the farmer sells directly to the end-user. It is the most lucrative but also the most labor-intensive way to sell small and medium-sized amounts of beef.

The Blue River watershed is in proximity to Kentucky's largest city and consumer market - Louisville. With a current population of 766,757, Louisville has grown 3.11% since 2010.[1] It would be natural, then, to assume that Louisville is the best choice of direct market outlets for Blue River beef. And it is a great market, but with notable limitations. Sellers should be aware, however, that since the Master Tobacco Settlement in 2000, Kentucky has used half of the subsequent funds to promote and improve Kentucky agriculture. Since 2008, the state has spent $28 million on the Kentucky Proud marketing program, which, among other things, pays rebates to restaurants, schools, and hospitals for up to 20% of the Kentucky agriculture products they buy. Kentucky Proud has 69% consumer recognition of the brand. The Kentucky Proud program does not eliminate Louisville as a market for Indiana farmers interested in selling grass-fed beef directly to businesses, but it can put these farmers at a competitive disadvantage. Participation in the Kentucky Proud program is not required, and businesses interested in purchasing locally sourced grass-fed beef can still work directly with Indiana farmers. Further, the Kentucky Proud program can create bookkeeping headaches, and many of the most aggressive buyers of Kentucky products max out their lifetime allotment of rebate. Both result in potential opportunities for Blue River farmers in Kentucky and Indiana. Direct markets accessible to the Blue River beef farmers include:

Meat brokers, wholesalers, and meat markets

Both meat wholesalers and smaller meat markets (typically supplied by wholesalers) are also present in the watersheds, as identified by NAICS and SIC codes. There are 3 meat wholesale businesses and 2 meat market businesses in the watershed. In the greater area, there are significantly more with the greatest concentration in the Louisville area. These businesses are critical for farmers in that they will often purchase larger cuts or "primals" from farmers or processors to be broken down into smaller cuts or value-added products. Selling primals can save farmers time by avoiding having to pay to fabricate, manage, and market different cuts. Wholesalers and meat markets can often take larger quantities on a more consistent basis than might be possible through other direct market channels like restaurants and farmer's markets, which have limited processing and storage capacity.

Farmer's markets

When many farmers think of direct markets for their food, they think of farmer's markets. Many counties, large towns, and cities have their own farmer's markets. There are over 200 farmer's markets within 150 miles of the Blue River Watershed according to the National Farmer's Market Director. Indianapolis, Bloomington, and Louisville may offer the most lucrative opportunities but could also be more competitive. Market managers often strive to create a balance of different vendors at their market, potentially limiting how many meat vendors can be present at any one market. Product differentiation can help farmers have a competitive edge in getting into a market's vendor pool and selling their products to marketgoer. Examples of this are offering value-added products (e.g., jerky), multiple proteins (e.g., beef, chicken, etc.), and certified products (e.g., organic, grass-fed, etc.) Beyond competitiveness for available meat vendor spots, there are logistical challenges a farmer should consider. Often, the largest markets tend to be on Saturdays, creating challenges for farms interested in selling at multiple markets in a given week. While farmer's markets offer benefits like the greatest per-pound income, they require more work than most other direct markets. Packing and unpacking, driving time and fuel, setting up, tearing down, and hours at the market are all costs to the farm. More direct costs include freezers, market fees, and the gear required (tables, tents, signs, etc.). Before committing to a market, sellers should check out the websites of a few to see what's required and what the rules are and visit sites to see farmers in action selling their products, talk to a few of them and talk to the manager about selling there.

Markets can be labor-intensive, time-consuming, and prone to vagaries of weather, but they are generally accepted as the way to get started in direct markets. Farmer's markets are often springboards to other business ventures. Fischer Farms began its direct market sales at farmer's markets while they continued selling animals at the sale barn, improved their cattle genetics, and built additional market channels. Today most of the sales of their grain-finished beef are through distributors and include markets in Chicago, Indianapolis, Louisville, and Bloomington, including Indiana University food service. Similarly, Groce Family Farm – located in the Blue River Watershed - attends Bardstown Road Farmer's Market in Louisville. While only 10% of the farm's annual income is from sales in this market, the location serves as a pickup for CSA clients. Two-thirds of the meat sold at the market has been prepaid for through CSA subscriptions. The farm also uses the farmer's markets to recruit new CSA members.

Links to area farmers market's:

- Indianapolis farmer's markets
- Bloomington farmer's markets
- Louisville farmer's markets
- Indiana Grown farmer's markets
- Hoosiers Farmer's Market directory
- Kentucky Proud farmer's market directory

Community Supported Agriculture

CSAs take many forms, but the basic concept is a system by which a consumer commits to future purchases by paying in full or with a down payment for dependable scheduled pickups at predetermined locations or home delivery. CSA requires attention to customer service but can be a lucrative source of income while minimizing the logistics associated with farmer's markets. Local Harvest has a directory of CSAs in Indiana, Kentucky, and nationwide. Meat CSAs provide income year-round and can be a place to bundle underselling meat. Based on information from Groce Family Farm, their CSA members like ground meat and products made with it (like sausage). Adding species can make the CSA more appealing and increase the diversity of subscribers. Groce initially purchased beef from other farmers to go along with the farm's pork and chicken cuts, but now raises grass-finished beef for the CSA. The farm has approximately 130 members who make the equivalent of $100 in purchases per member per month, resulting in the CSA being the largest income stream for the farm. Living Roots Farm in nearby French Lick, Indiana offers as beef CSA along with many other products. Edible Kentucky & Southern Indiana and the USDA Local Food Directories are both resources for listing and finding CSAs.

Restaurants

Local restaurant sales can be a lucrative direct market though restaurant clients can require a farm to have a predictable supply of cuts with consistent quality at competitive prices. Often, restaurant customers want popular cuts (e.g., ribeye steak) or hamburgers (e.g., ground beef) so farmers working with restaurants often have to find additional markets for less popular cuts. Farmers should be prepared to stop into restaurants to take orders, sample

new products, drop off on-demand deliveries, and work with chefs to develop new menu items that move more products. However, restaurants are excellent for building name recognition and giving consumers a positive experience that could lead to CSA membership or other direct market purchases from the farm. The Indiana Foodways Alliance (IFA) promotes Indiana restaurants through food tourism. IFA has more than 220-member food and beverage places in Indiana, divided into 21 trails which includes the Go SoIN tourism efforts of Floyd and Clark Counties. Independent restaurants (as opposed to chains) are often interested in local food. New Albany (Floyd County) has a thriving local restaurant scene, as do Louisville, Indianapolis, Bloomington, Evansville, and many of the smaller cities in or close to the Blue River watershed including Corydon, Paoli, and French Lick. Some restaurants provide shared use kitchen access, which can be rented by farmers to create value-added products.

Farm stores

Selling products directly from the farm is a logical place for many new direct marketers to start. On-farm sales can be as informal as leaving a self-service freezer with a payment box in a barn or office. Or it could take the form of a separate building fitted with upright transparent freezers full of priced and labeled cuts along with a cashier to manage inventory, answer customer questions, and make sales. While not in the watershed, Seven Sons Farms' brick-and-mortar store started in 2000 as a tiny farm shed outfitted with an egg cooler and a couple of freezers, with an honor-system payment process that – until retired in 2018 - yielded $300,000 annually in sales. Now, the store has a dedicated manager who stocks Indiana and specialty products in addition to the farm's normal proteins and accepts credit cards. Inside the watershed, farm stores are popular with 3D Valley Farm, Denny's Grass-Fed Beef, GrassCorp farm, and Purlee Family Farm all offering farm store sales, including grass-finished meat.

Photo: 3D Valley farm store (Source: cumaps.net)

Online retailing

Spreading the word about a direct market enterprise requires a website that tells the farm story and allows customers to see the products on offer. Websites can also offer ordering and payment capabilities. Fulfillment may take place at central drop points, and/or as curbside delivery on the farm, and/or as direct home delivery by the farmer, shipping by a third party, or a mix of these methods. Jerry Steckler- operator of GrassCorp in Dale, Indiana – was originally a dairy farmer but diversified to offer additional proteins in the mid-1990s. He started his protein business by giving away samples to friends and family, who spread the word. Initially, customers were notified of availability through snail mail or phone calls. Today, GrassCorp offers an online store that offers home delivery or pick-ups from 17 different locations in southern Indiana. The website's blog about the farm helps customers understand the happenings on the farm and how their food is produced. Similarly, 95% of Seven Sons Farms sales are placed over the internet and are shipped directly to consumers anywhere in the contiguous U.S. using UPS or regional carriers. The orders are packed and shipped from the farm. 3D Valley Farm and Fischer Farms both do extensive business through their online retail platforms. Small farms working without a large staff might consider another option for online sales: partner with companies that specialize in online retail, which might guarantee a whole-animal purchase and eliminate the headaches of providing having a separate online retail system. Like any other direct market, online retailers require high quality and consistency, and the farmer will realize less profit.

Companies like Butcher Box, Crowd Cow, and Market Wagon can serve as online retailing options for small farms looking to sell online. Bear Creek Cattle in Palmyra, Indiana delivers their products sold through their online store through Market Wagon while also making sales directly from their farm store.

Brick and mortar retailing

Small retailers, food co-ops, and health food stores in small and large towns are often enthusiastic promoters of local food, including proteins. Like restaurants, the locally owned retailer is the most promising customer. Like restaurants, they can offer a dependable direct market for products. Lost River Market and Deli, an anchor tenant in downtown Paoli, is an outsized success in small-town Indiana. While just outside of the Blue River watershed, the food co-op has more than 1000 co-op members in a town of 5000 people. Further north, Bloomingfoods in Bloomington, Indiana has over 13,000 members and operates two locations that offer prepared foods in addition to groceries. Rainbow Blossom Natural Food Market in New Albany, Indiana, and multiple locations throughout Louisville also support local growers, as do other meat markets like Huber's Preferred Meats in Sellersburg, Indiana, and Main Street Meats in Pekin, Indiana. Selling at these independent retailers, like selling to restaurants, requires the farmer to introduce himself/herself and maybe leave a sample of products with the buyer or manager. It is likely the store already carries some local products. Chatting with the buyer, inquiring about what their needs are, and being able to fill in those gaps will lead to more success. Regular check-ins and quick responses to issues improve relationships.

Links to area retailers:

- Bloomingfoods
- Huber's Preferred Meats
- Lost River Market and Deli
- Main Street Meats
- Rainbow Blossom Natural Food Market
- Indiana food co-op directory

Produce and local food prescription programs

There is a growing interest in food prescription programs in Indiana. Food Prescriptions are regiments of healthy food meant to promote local food resources, nutrition education, and behavior change. In Paoli, the Indiana University Center for Rural Engagement has partnered with Lost River Market & Deli and Comprehensive Health Care, a primary care health clinic, to improve the food options for patients with chronic diseases, particularly diabetes. Through a grant-funded "produce prescription" program, this partnership is designed to benefit both Lost River and the clients of the clinic. Recipients of produce boxes also attended "Cooking Matters" nutrition education classes geared toward what they received in their boxes. Health data from participants has been collected but not yet analyzed. While food security was not a criterion for entry into the program, survey data revealed most participants were food insecure. Principals anticipate further funding from the state department of health that will allow Lost River to expand the program into Lawrence and Washington counties. While not initially included, grass-finished beef is a natural addition to these boxes as studies show it is more healthful than regular beef and there is consumer demand for protein.

Buying clubs

Food buying groups or clubs consist of groups of individuals who have a reason to buy in bulk, perhaps to get better prices, often to source certain foods important to the club members' values or health concerns. Pasture-raised proteins often fit these values. These clubs can be as simple as friends or neighbors coming together to pool their purchases for a whole animal or sophisticated enough to offer a full range of supermarket-type products to a large and diverse customer base. Seven Sons Farms converted from raising commodity beef to grass-fed beef in 2000 and started buying clubs soon after when several customers drove from Chicago and Indianapolis to buy beef in bulk. Conversations with patrons led Seven Sons to distribute principally through up to 50 buying clubs for nearly 20 years. The farm stopped club drops in 2020 as direct delivery proved more popular during the COVID-19 pandemic.

A club can start easily, with an agreement between a farmer and a friend who lives in a neighborhood or town where people can form a group to buy local beef. The farmer may choose to reward an organizer with a deep discount on his/her beef package – or perhaps several pounds of free ground beef. The organizer gathers and transmits the orders and serves as a pickup point. Terms might include how often to make a beef drop, whether to buy a supply of coolers that can be exchanged each week (one empty one for one full one), how payment is made, and so on. Like all direct markets, some systems make buying clubs easier, and customer service is important. Delivery vehicle,

hiring a delivery driver, ordering systems, bulk packaging, and payment methods are just some of the considerations for buying club sales. To simplify orders for a lower labor commitment, farmer Jerry Steckler of Grass Corp, recommends having the whole animal processed conventionally and sorting the cuts into "packages" such as "The Steak Package" and "The Roast Package." He offers five packages, including one that's only ground beef. Otherwise, the packages have a variety of products, but the "name" product dominates the selection and reflects the cost (with steak being the most expensive, etc.) Steckler's range of packages includes "The Bone Package" for consumers who make their own bone broth. Other possibilities: The Grill Package, The Sampler Package, The Braise Package. As production scale improves and systems begin to be built, it may be more lucrative to allow customers to order from a large selection of retail cuts of beef.

Large employers

Large companies whose employees work in a single geographical location provide an opportunity for meat-bundle and special-order drop-offs. The best access to these populations is through a contact inside the building, who can disseminate information, post items on bulletin boards, and vouch for products. Lacking that, outreach to the Human Resources department may find an ally who will help marketing efforts. Be prepared to discuss terms including drop-off location, day and time, and who will manage the drop-off, as employee pickup may be staggered. In southern Indiana, large employers include Samtec (Floyd), Baptist Hospital (Floyd), and Caesar's Southern Indiana (Harrison). To the west (Evansville), there is Toyota and Deaconess Hospital, to the east, Cummins in Columbus, IN. In Louisville, large employers include UPS, Norton Healthcare, and two Ford Motor Company plants.

Special gatherings

Notable protein enthusiasts include Whole30 and Paleo dieters, keto dieters, and CrossFit gym users, of which there are hundreds from Indianapolis to Louisville, including smaller southern Indiana cities and towns. In addition, shared-use commercial kitchens are frequently used by chefs preparing special diet meals, including high protein, for their clients. To be compliant with Whole30 guidelines, Seven Sons Farms offers a selection of Whole30 designated products, like sugar-free breakfast sausage, hot dogs, and bacon, among others. Other public events, such as festivals, present opportunities for farmers to supply grass-fed beef. New Albany's Harvest Homecoming, Lanesville's Heritage Weekend, Tell City's Schweizer Festival – there are scores of festivals in southern Indiana that might be outlets for people vending local-beef hamburgers, hotdogs, or grilled rib-eye sandwiches.

Photo: New Albany's Harvest Homecoming vendors (Source: News and Tribune)

Institutions

Large institutions can be volume users of beef but can be difficult to access. Many, like hospitals, universities, and large corporate facilities, will hire food service contractors to provide meals for their clientele. These dining contractors – like Aramark, Sodexo, and Morrison – have strict rules about where they can buy food. On the other hand, some large dining facilities are "self-operated," and while they aren't as tightly restricted as a dining service contractor might be, they do make purchase commitments to their food providers and are often offered rebates for meeting their commitments. The farmer may need support from an enthusiast inside the institution, or a community member, to break through the normal purchasing requirements. Deaconess, a large hospital in Evansville, Indiana, and Indiana University Southeast in New Albany, Indiana are examples of area institutions with self-operated dining services, which could have some purchasing flexibility be interested in local beef. Fischer Farms has successfully built a relationship with Indiana University-Bloomington to supply ground beef.

Actions to support regenerative grazing and value chains in the Blue River watershed region

The Blue River watershed is well-suited for expanded regenerative grazing and could generate significant benefits in increasing the number of well-managed pastureland acres in the geography. To accomplish this, several potential value-chain interventions could be pursued by those in the watershed and broader regenerative grazing advocates. Many of these interventions are not unique to the watershed as national and global consolidation of meat has resulted in common challenges for local and regional meat value chains. However, there are some unique circumstances and opportunities in the Blue River region that can be leveraged to incentivize regenerative grazing and meat value chains.

1. Deepening investments in coordinated farmer outreach, education, and technical assistance to encourage regenerative grazing

Farmers in the Blue River watershed are fortunate to be well-supported by excellent technical service providers. USDA Natural Resource Conservation Service (NRCS), Purdue University Extension, Indiana Conservation Cropping Systems Initiative, county soil, and water conservation districts, and other organization staff are active and knowledgeable on livestock production and grazing practices. These experts should be consistently and adequately supported to help encourage regenerative grazing in the watershed. These experts have strong, trusted relationships – the bedrock for critical outreach and education on converting cropland to pastureland, improving practices on existing pasturelands, and accessing the existing financial resources (i.e., USDA NRCS Environmental Quality Incentives Program, etc.) Specifically, these experts should be resourced to provide more opportunities for offering coordinated outreach and educational efforts to reach existing and potential graziers. Specific investment and effort should be placed on supporting farmers to understand the value of appropriate genetics for producing high-quality animals – cattle and calves – for grass-finishing, should they be interested in selling animals or products into grass-finished value chains.

The watershed has strong county cattlemen's associations, which should be actively engaged, as well as the Indiana State Department of Agriculture's Certified Livestock Producer Program. The certification program recognizes livestock farmers who take extra steps to safeguard the environment, animal well-being, food safety, emergency planning, and biosecurity. NRCS's Grazing Lands Conservation Initiative and Purdue University's Management-Intensive Grazing in Indiana manual is an excellent resource that should be promoted, along with the Southern Indiana Grazing Conference supported by the two entities. The Southern Indiana Purdue Agricultural Center – located just outside the watershed – is another excellent resource for farmers grazing livestock. The Center conducts grazing research, provides weather data, and hosts regular grazing workshops and schools – including the annual Indiana Grazing School run by the Indiana Forage Council. There are also long-standing efforts to protect and improve the habitat of the Hellbender salamander which have been led by Purdue University for many years and – increasingly – has focused on engaging farmers to improve management practices that are associated with reducing nutrient and sediment run off.

2. Expanding the use of the Midwest Grazing Exchange and other contract grazing efforts to increase opportunities for land access

Access to land can be a limiting factor for the interested farmers to start or expand grazing operations. Equally, owning herds of cattle can also be prohibitive due to the associated costs and required labor. However, there are tools currently available that can help farmers and landowners in the Blue River region lower barriers for accessing land and cattle. The Midwest Grazing Exchange is a free online tool for landowners to list land they're willing to rent for grazing and for livestock farmers to list herds they're willing to move to rented land. This matchmaking service can help kickstart grazing through "contract grazing." Similarly, there are larger businesses willing to own cattle and pay farmers to contract graze them on their own land. Specifically, Fischer Farms and Seven Sons have established efforts to do this throughout the region and are willing to pay for good contract grazing. Increasing options for grazing leases and contract grazing agreements creates opportunities for underserved farmers who may face barriers in accessing land. Working with landowners or livestock owners can lower the cost to begin or operate a grazing operation.

Beyond land access, these arrangements can also encourage multi-species production on the same acreage which can boost the number of profitable enterprises, accelerate soil health, and produce multiple proteins to meet consumer preference.

3. Improving calf market opportunities by "matchmaking" or brokering relationships between Blue River cow/calf farmers and interested regional buyers

A clear directive of the Blue River Region Grazing Working Group was to identify improved markets for calves produced in the watershed. Given the watershed's geography's fragmented topography, producing calves is likely more profitable than finishing cattle on grass – which requires significantly more pastureland than the watershed can offer. However, calves with genetics well-suited for grass-finishing can be sold in the broader region to increase the profitability of cow/calf farmers. With the growth in demand for locally produced beef and grass-finished beef, alongside dips in production caused by COVID-19, increased sales of well-raised, well-suited calves from the Blue River to the broader region could be lucrative, drive demand, and – ultimately – increase the profitability of pastureland in the watershed. Through this project, three potential calf buyers were identified: Fischer Farms, Seven Sons, and The Berry Center. These three buyers have established beef brands that are sold throughout the state and the broader Midwest. Each buyer and associated brand target a different beef consumer, creating the potential for collaboration. Fischer Farms produces grain-finished products, with a strong emphasis on quality without compromising environmental sustainability. Seven Sons produces grass-finished products that carry strong recognition of the associated environmental benefits. The Berry Center operates Our Home Place Meat, which produces rose veal and "grain-on-grass" beef products that prioritize good production practices and strives to center farmer parity in its production pool. Rose veal is harvested from milk fed, grass fed yearling beef calves. According to The Berry Center, "processing calves at weaning weight, a central trait of rose veal, was the regional tradition before industrial meat production encroached upon livestock farming." All three buyers are committed to supporting the farms they source from with education, technical assistance, and additional opportunities (e.g., contract grazing, etc.) Building a corresponding pool of farms interested in meeting the standards of these buyers could boost calf sales while improving the overall quality of calves and, subsequently, pasture in the watershed. The Wallace Center has already confirmed the interest of these buyers, as well as the Indiana State Department of Agriculture to host a seller and buyer meeting in the Blue River area – potentially connected to existing farmer outreach and education events like the Southern Indiana Grazing Conference or Indiana Grazing School.

4. Surveying small and medium slaughter and processing facilities to direct government resources to needed and impactful improvements and expansions

The Blue River watershed is not particularly well served by state and federally inspected slaughter facilities. While First Capitol Meats is moving in the direction of state inspection and participation in the CISP, as well as the construction of an improved facility, there is still a need for improved slaughter capacity in the area. Similar efforts may be underway with other facilities – including those funded by the Indiana Meat Processing Expansion & Development Grant Program in 2020. Given the impacts of COVID-19 on slaughter facilities, a dedicated survey of the small and medium-sized facilities in the area could identify current capacities as well as potential improvements to increase services to farms in the area. Given Indiana's involvement in the CISP, targeting the survey to identify opportunities to move interested custom-exempt slaughter facilities toward state inspection could radically transform opportunities for farms finishing animals in the watershed. The requirements of state inspection create natural opportunities for the Indiana State Department of Agriculture – specifically BOAH – to be engaged to help design, deploy, and analyze a survey of slaughter and processing facilities. This could also help identify the existing and emerging resources for slaughter and processing facilities to make improvements, including programs like such as:

- USDA's Meat and Poultry Processing Expansion Program (MPPEP): provides grants to help eligible processors expand their capacity by building new or modernizing facilities, replacing or upgrading equipment, bringing packaging and labeling into compliance, improving working conditions, improving workforce practices, and other functions.
- USDA's Meat and Poultry Inspection Readiness Grant Program (MPIRG): assists existing meat and poultry slaughter and processing facilities to obtain a Federal Grant of Inspection or to meet the requirements to be a state-inspected facility compliant with CISP.

- USDA's Meat and Processing Capacity – Technical Assistance Program: provides support to those pursuing USDA support through programs like MPPEP and MPIRG through dedicated technical assistance providers throughout the country. These providers help eligible entities to manage their federal grant application, complete business development and financial planning, address operation needs (infrastructure and workforce), and develop successful supply chains.

The growth of Sander Processing – in coordination with farms like Fischer Farms – is promising for farms in the region. Supporting such farmer-informed improvements in processing services could help ensure that grass-finished beef from the Blue River to regional markets. The perspectives and needs of farmers should drive decisions on how to support improved processing services, drawing from the recent survey of Indiana livestock farmers on processing bottlenecks completed by Indiana University.

5. Creating value-chain coordinator position focused on livestock and meat production in southern Indiana to help farmers access direct markets

Direct markets are excellent opportunities for Blue River farms interested in producing grass-finished beef. Trends toward increased purchases of locally produced, grass-finished beef are a strong incentive for farms to consider their direct market options. While Kentucky markets are limited to Indiana farmers by the Kentucky Proud Program, they should be considered given the demand such a population center presents. There are numerous farmer's markets, meat markets, restaurants, CSA customers, and other opportunities that could be cultivated by a motivated farmer. Further, local opportunities can also be lucrative as can Indiana markets surrounding the watershed. Bloomington, Evansville, and Indianapolis are all close enough to the watershed to be compelling opportunities. While these opportunities are present, they are often not apparent to individual farmers. Supporting a value chain professional in the region who has a specific emphasis on grass-finished beef could help farmers identify and pursue the right opportunities, as well as access the information needed to do so successfully. The size of livestock markets could also encourage farmers to work together to reach larger customer pools. This has been successful for farms like Fischer Farms and Seven Sons – both of which market directly to customers and source animals from farms beyond their own. Such key enterprises, in developing in-house value chain coordination capacities to support their own business interests, can provide services for other businesses, organizations, and agencies interested in local and regional value chain coordination. These proven models indicate the presence of a conducive environment for local and regional value chains and should be considered critical assets for the areas where they exist.

Any effort to establish a value chain coordinator focused on livestock and meat in southern Indiana should engage Indiana Partners IN Food. Funded by the USDA's Regional Food Systems Partnership program, this project is run by the Northwest Indiana Food Council and builds off a previous USDA Local Foods Promotion Program run by Indiana University. This prior project established a network of value chain coordinators throughout the state that included Fischer Farms. Partners IN Food will expand the existing value chain coordinator network – including hiring a dedicated coordinator to work with Black, Indigenous, and People of Color (BIPOC) owned farms and businesses to ensure their needs are met so they can fully participate in market opportunities. The project will establish Partners IN Food and Farming (PIFF) as a statewide nonprofit organization to serve as a home for the network as it works to build public, private, nonprofit partnerships that grow Indiana produced foods. PIFF will work with state agencies to create a buyer board to help Indiana farmers build relationships with institutional buyers, chefs, retailers, and distributors that result in balanced, consistent sales. This project could significantly boost any efforts in the Blue River region to connect regeneratively produced meats to communities throughout the state, including lower-income consumers (see Appendix B) – boosting benefits for farmers, value-chain businesses, and communities. Both efforts naturally connect to the USDA Agricultural Marketing Service's Local food Purchase Assistance Cooperative Agreement Program (LFPA) that originates with the "Build Back Better" initiative, authorized by the American Rescue Plan. This program will provide $400M in cooperative agreements to state and tribal governments to support local, regional, and socially disadvantaged farmers and ranchers through the purchase of domestic local foods. Using the USDA's criteria, Indiana is eligible to receive up to $6,900,000 in a cooperative agreement based on the state's poverty and unemployment rates. Cooperative agreements will likely be made in late-2022, creating an opportunity for Blue River region farmers in 2023.

APPENDIX A

Wallace Center approach to value chain coordination – general and place-based

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 strong soft infrastructure, individuals and organizations are far more readily able to acquire and utilize hard infrastructure. Value chain coordination is a set of roles that foster soft infrastructure development to build regional economies and communities. Strong soft infrastructure, in the form of skills, competencies and relationships, provides the ability for individuals and organizations to acquire and utilize hard infrastructure in their communities.

Who performs value chain coordination?

An individual who performs value chain coordination roles may be considered a Value Chain Coordination Professional (VCCP), the entities in which the work of value chain coordination takes place, such as food hubs, local governments, or organizations may be considered Value Chain Coordination Entities (VCCE). Value chain coordination may be performed by one individual within an organization, or by several people in multiple organizations. Different types of entities perform value chain coordination, including businesses, organizations and individuals. Sometimes businesses in the chain fulfill these roles, while other times external support actors, like governments or nonprofits, perform the work. Some businesses have a part of their operations directly in the value chain, such as aggregating or distributing products, while another arm of their entity focuses more on providing technical assistance, organizing convening events, conducting assessment and research or working on policy.

Roles of Value Chain Coordination

Value chain coordination involves a series of roles, which are performed by certain entity types more often than others. Additionally, some roles of value chain coordination are primary roles, that is, the roles that directly support actors in the value chain such as farmers, processors, distributors, buyers and consumers. The other type are enabling roles, which are roles that value chain coordinators perform to provide support and enable the VCCEs ability to provide the services and activities the primary roles. Primary roles include market matchmaking, providing technical assistance, organizing convening events and stakeholder meetings and innovating/catalyzing new ideas or projects. These roles are often the main foci of how value chain coordinator professionals orient and prioritize their work. These central activities are the services that they provide to direct actors in the value chain.

Primary Roles	Entity Type	Outcomes
Market Matchmaking	Businesses, Support Organizations	Business exchange matches between value chain stakeholders
Providing Technical Assistance	Businesses (often to their own vendors), Support Organizations (often within their respective region)	Appropriate and relevant technical assistance is provided to value chain stakeholders
Organizing Convening Events and Stakeholder Meetings	Primarily Support Organizations	Value chain and support actors are convened in various kinds of events and meetings. Convenings foster an environment for all other roles to take place: Especially, technical assistance provision, market matchmaking, relationship building, and catalyzing ideas, policy advocating, and resource prospecting.
Innovating/ Catalyzing New Ideas	Businesses, Support Organizations	Through catalyzing new ideas and operating novel business models (especially Hub entities), VCCPs create market niches that create competitive advantages against traditional supply chain competitions and may reduce risk and transaction costs for participating value chain actors.

Enabling roles are just as essential to value chain coordination work. Enabling roles involve resource prospecting, advocating for policy, fostering relationships, research and assessment, and accountability keeper. Most VCC entities perform all roles, however sometimes entities specialize or take a specific approach to certain roles based on their organization type. External organizations, for example, tend to be engaged in the convening role, through hosting large, public tradeshow events or conferences open to farmers, processors, buyers and sometimes end consumers. Businesses in the value chain may perform convening but often smaller meetings of stakeholders such as current or potential buyers or suppliers. All VCCs perform matchmaking and technical assistance, but businesses tend to work with buyers and suppliers whose product they are moving in their operations, while external organizations tend work in a geographic proximity, for example serving all buyers and suppliers in a region.

Enabling Roles	Entity Type	Outcomes
Resource Prospecting	Businesses, Support Organizations	Securing resources such as financial capital to support direct actors in the value chain, primary roles, or a VCCP's own operations/entity
Advocating for Policy	Businesses, Support Organizations	Keeping current and participating in policy discussions to enable a more supportive environment for value chain actors (e.g., reducing regulatory barriers, policy to promote new markets, etc.)
Fostering and Maintaining Relationships	Businesses (vendor / buyer focus), Support Organizations (food system focus)	Fostering and maintaining relationships with diverse stakeholders allows the VCCP to stay current and connected to relevant resources among support ecosystem actors and opportunities within the value chain.
Research and Assessment	Businesses, Support Organizations	Examples including feasibility studies and market evaluation studies; this role enables VCCs to make informed decisions about effectively planning interventions and programming around specific geographic and target areas of need
Accountability Keeper	Businesses (vendors/buyers primarily), Support Organizations	Enables greater communication and accountability among actors. VCCPs follow up on agreements regarding sales, standards, values, and procedures. They may mediate disputes between parties in disagreement.

Understanding how the theory of value chain coordination applies to a specific place requires a dynamic process to gather information, build relationships, and identify possible interventions. No two places are the same and – equally – no two value chains are the same. Beef value chains move differently than fresh produce value chains and, while they can overlap and benefit from shared coordination, both must be understood as unique entities within a specific geography. The Wallace Center begins the assessment of current or potential place-based value chains with the following questions:

1. What's your geography of focus?
   Examples: watershed, county, tribal nation, region, state, etc.

2. What are the specific foods or food products you want to encourage in that geography?
   Examples: meat, fish, eggs, dairy, fiber, fresh produce, nuts, maple syrup, etc.

3. Who are the individuals and groups in the geography that are involved in these foods/products?
   Examples: farmers, ranchers, landowners, processors, business owners, consumers, etc.

4. Who are the key players (i.e., influential, experienced) needed to grow these foods/products?
   Examples: key farms/ranches, food businesses, government agencies, universities etc.

5. Where is the market opportunity for this geography to benefit from improved value chains?
   Examples: new markets, access to online sales/shipping, infrastructure investments, etc.

6. What are the current challenges or potential benefits for improved value chains in geography?
   Examples: farm profitability, environmental quality, jobs, healthy food access, etc.

7. What values do you want to create and sustain when designing solutions to these challenges?
   Examples: transparency, fairness, self-sufficiency, entrepreneurship, pride, etc.

8. What are your goals for the specific value chain improvements in the target geography?
   Examples: increased production, farm profitability, business growth, job creation, fair wages, good working conditions, health food availability, improved water quality, etc.

9. What assets are in place to help achieve your place-based value chain goals?
   Examples: existing activities, funding, cultural identities, political leadership, etc.

10. What resources, influences, etc. may limit your goals?
    Examples: time, funding, community willingness, leadership, knowledge, etc.

These questions, in specific application to a specific place-based value chain like beef, naturally lead to understanding the obvious links of the value chain. This includes production (e.g., number of farms, etc.), processing (e.g., slaughter facilities, etc.), supporting businesses (e.g., distributors, etc.), and end markets (e.g., consumers, value-add businesses, etc.) as well as the less obvious links such as technical service providers, economic development professionals, and others. The following diagram summarizes a place-based value chain assessment for beef used by the Wallace Center:

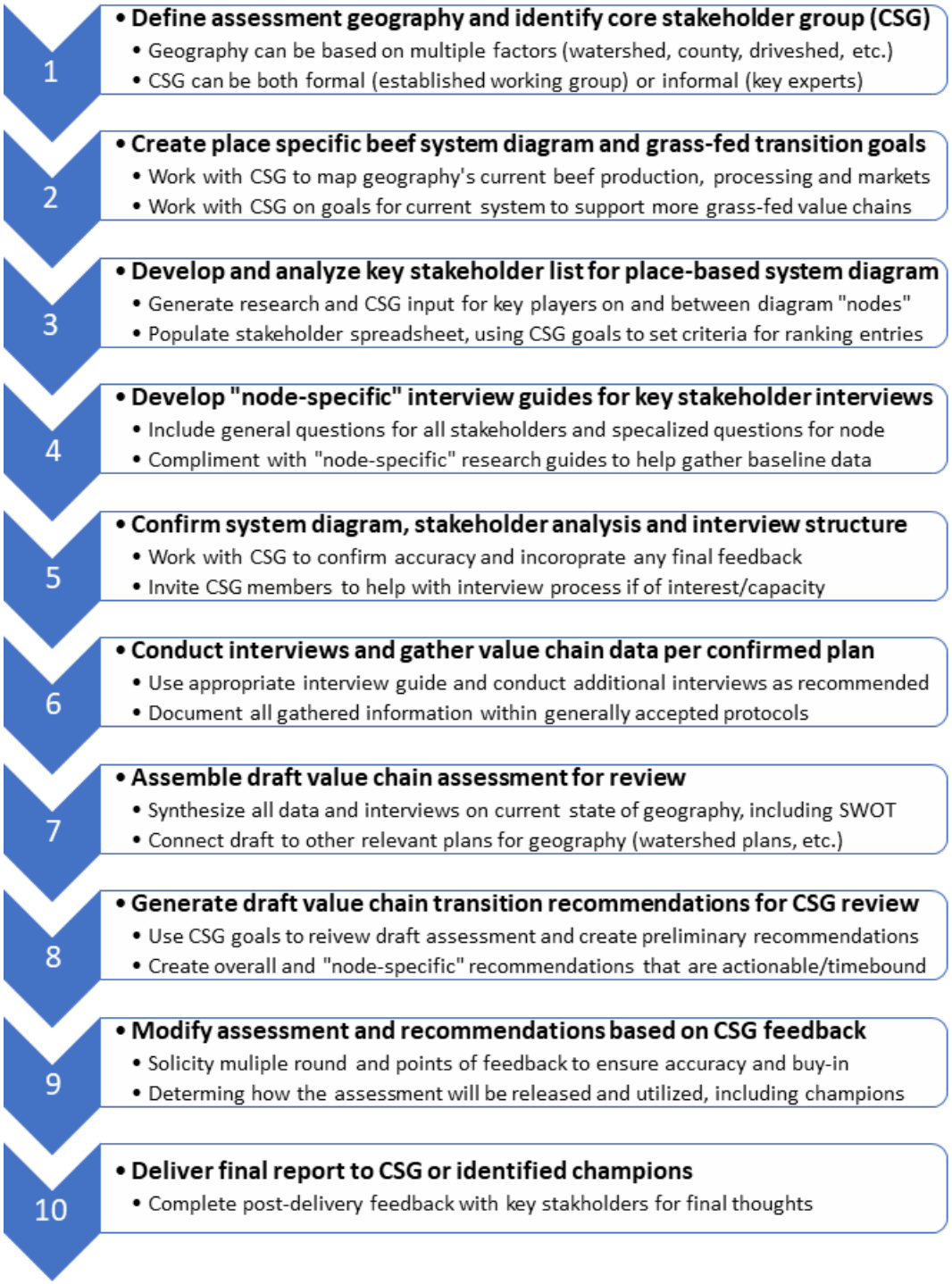

Figure 5: Wallace Center Beef Value Chain Assessment Process (Source: Wallace Center)

APPENDIX B

Equitable food access and local beef promotion in Blue River region

Equitable food access can be defined in many ways, but it's generally focused on ensuring that all people have equal access to healthy, affordable, and culturally appropriate food – particularly those who face persistent inequities in most farming and food systems, such as individuals and communities that identify as Black, Indigenous, and a Person of Color (BIPOC). Advocates for food systems equity often work with farmers to make local food accessible to disadvantaged communities in both rural and urban. The diversity of Louisville is represented in the population which is 63.8% White and 21.6% Black, 7.3% two or more races and 3.8% Asian[5]. The diversity index (likelihood of two people from an area having a different race or ethnicity) in Louisville increased from 46 to 58 since the last census.[6]

The obvious tension in connecting food equity with local protein is that, without scale and markets for offal, hide and other outputs of beef processing, local beef will naturally be more expensive than commodity beef. Still, protein is important to consumers and supporting local agriculture is often important to local advocates. "(I)ssues of food availability, food accessibility, and food literacy all rose to the top as challenges" in the focus groups held in 11 South Central Indiana counties by the IU Center for Rural Engagement. In Evansville, the Nourish food-box program provides themed food boxes (grains & beans, Mexican, Italian) to participants for $15 every other week. While Nourish purchases food commercially in bulk, buying local food, including meat, is a goal. "Local meat was one of the priorities that our focus group identified as something that was important to them," says Robin Mallery, director of Urban Seeds, which oversees the Nourish program. But, as with their produce, cost is the driving factor of where the group purchases food.

The 2017 Louisville Health Equity Report recommended that food systems as an indicator of health in Louisville. [7] In Louisville, there are several food equity groups who provide outreach to underserved communities. Community Farm Alliance, The Food Literacy Project and Dare to Care Food Bank volunteer cooking meals for the unhoused population.[8] Dare to Care specifically, which serves nearly 22 million meals per year in 13 Louisville-area counties, including Crawford, Floyd, Harrison and Washington in Southern Indiana.[9] Dare to Care receives local food through a "farm to food bank" program established by the Kentucky Association of Food Banks (KAFB), predominantly subsidized by tobacco settlement funds. In 2020 KAFB bought and distributed 2.4 million pounds of produce and 1,800 pounds of meat. "In the past, we haven't really tried to 'recruit' beef/pork farmers for the program, because we had never had much funding available to pay for it," says Sarah Vaughn, program director. Some other food access efforts in Louisville include:

- **New Roots/Fresh Stops**: Since 2009, a number of Fresh Stop locations around Louisville have provided fresh vegetables and some fruit every other week during the growing season. Consumers pay on a sliding scale: $6 if paying with SNAP; $12 for limited resources; $25 for higher income; and, $40 for Food Justice Shares. Over the years many attempts have been made to supplement with local protein. Besides stretching organizational capacity, local protein negates the equitable nature of Fresh Stops. "It's still really expensive for people at the low end of the sliding scale," said founder Karen Moskowitz.

- **Feed Louisville**: Began in March 2020 as an effort to provide hot meals 1x/day, 5 days/week to Louisville's unhoused population. Housed in a church kitchen, Feed Louisville receives donations from local farmers at the Saturday farmers market held at the church. Also supported by donations of money and from local supermarkets and supplemented by Dare to Care. "I would love to find a way to purchase local meat," said founder Rhona Kamar. Expense is the barrier.

- **Food In Neighborhoods:** And group of citizens and NGO representatives who meet to create a cohesive voice for the food security community in Louisville, as an ad hoc food policy council. Their two main initiatives are the Urban Agriculture Coalition, trying to support BIPOC led organizations, and the Policy Council, which has made some progress in securing vacant properties for people to garden. "(Access to protein) is something that is important and desired, but somewhere along the way it's going to have to be subsidized," said Abby Rudolph, a spokesman for the group.

- **Feed the West:** An initiative of community-based Change Today, Change Tomorrow group that works on education and public health in addition to food security. The group “fresh and organic” food donated by community members and Trader Joe’s to provide $85 worth of food per week to each participating family.

- **Dare to Care:** Working as an emergency feeding operation since 1969, Dare to Care aggregates food from national and local sources and works with 270 non-profits in 13 counties (including Feed Louisville) to distribute 23 million pounds of food to people in need. The group gets quite a bit of local produce through the Kentucky Association of Food Banks, which gets most of its local food dollars from the Kentucky Agriculture Board (Tobacco Settlement dispersal). However, if any funder stepped up to make local protein available (Dare to Care serves 4 counties in the Blue River Watershed). “We would jump all over it. It would be our top priority,” said Stan Siegwald, director of strategic initiatives.

One success in providing access to local food is opening farm markets to supplemental feeding programs like SNAP and the Senior Voucher program. Some farmers market managers will register with the USDA to enable the market to accept these forms of payment and will manage the paperwork required on behalf of all the farmers at the market. At the Bloomington Farmers Market, EBT/SNAP dollars accounted for $16,527 in expenditures during the 2021 market season. Further, market managers and food equity coalitions often secure match dollars from foundations or governmental agencies to entice SNAP, WIC and/or senior voucher recipients to shop at the farmers market. As of September, 2021, the Bloomington market matched $15,270 SNAP dollars, for a total of $31,797 added income for farmers between April and September[10].

This USDA program also incentivizes K-12 school nutrition directors to feature farm food in their meals and develop relationships with farmers. Indiana’s program is managed out of the state’s department of health and, unlike many other states, includes early childhood (pre-K) education providers. Indiana Grown for Schools is a network of individuals who, supported by a federal grant, assembled a buying guide for schools that lists farmers who have or want to sell to schools. The group’s current project is a toolkit designed to provide school food service directors, farmers, administrators and citizens with resources to strengthen the connection between farms and schools. Because schools have about $1.25 to spend on an entire lunch (including beverage), proteins can cost no more than 90 cents per serving, and usually less. In addition, delivery can be an issue if purchases are small, and schools are scattered around the county. Farm to School can work but has its challenges. Southern Indiana “is a mystery to us,” says the state’s Farm to School co-director Megan Pasky, adding that the Indiana State Department of Health has few community partners in the area. This could be an opportunity for farmers.