

Northeast Indiana Food & Agriculture Cluster Strategy

Fostering Innovation as an Economic Driver Focus Group Meeting

November 13, 2020

Introduction to TEConomy Partners, LLC

- We are a consultancy focusing on innovation-based economic development:
 - Strategic planning
 - Best practices
 - Program design
 - Implementation assistance
- Typically serve complex client groups involving industry, universities, government, and other economic development stakeholders
- Staff brings “hands-on” practitioner experience

Have consulted with a number of leading initiatives across the nation

- **Central Indiana Corporate Partnership Cluster Initiatives**
- **Missouri’s Value-Added Food Manufacturing Strategic Plan**
- **North Carolina Food Manufacturing Initiative**
- **North Carolina State University Plant and Life Sciences Center**
- **Numerous Land-grant Universities**

Serve as National Thought Leaders

- **Pharmaceutical Research and Manufacturing Association (PhRMA)**
- **Biotechnology Innovation Org (BIO)**
- **Association of University Research Park**

Indiana Experience

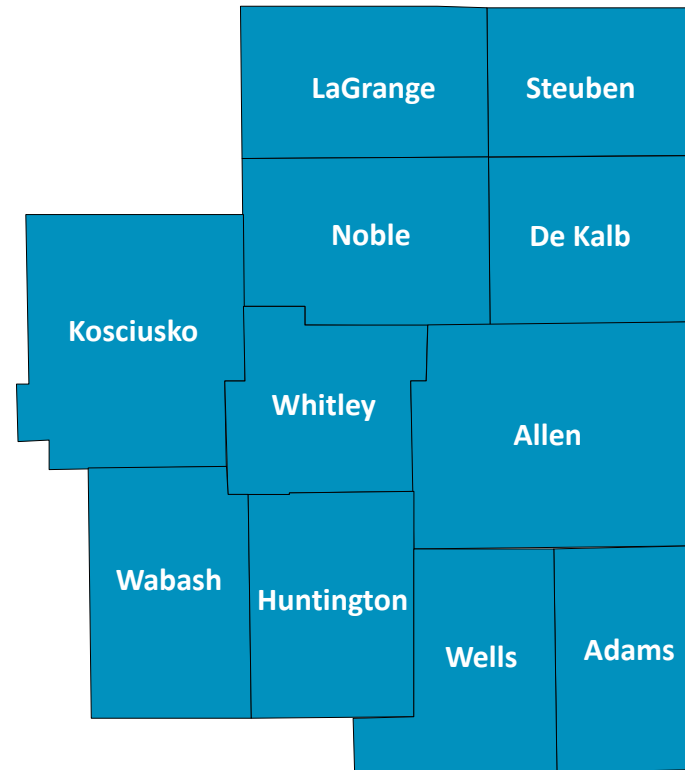
Multiple regional and statewide projects

- CICP
 - Clusters and disruptors
 - Research universities
 - Federal R&D funding
 - AI and Advanced Analytics
 - Life Sciences
- AgriNovus
 - Original situational assessment and planning study
 - Four platform reports
 - Workforce report
 - Current update project
- Regions
 - Southwest Central Indiana (Uplands)
 - Original Economic Development Strategy leading to ROI
 - WestGate@Crane Technology Park Master Plan
 - Regional Defense Industry Cluster Strategy (ongoing)
 - Greater Lafayette (Wabash Heartland) Economic Development Strategy leading to WHIN
 - South Bend – Elkhart Economic Development Strategy leading to the creation of the LIFT Network

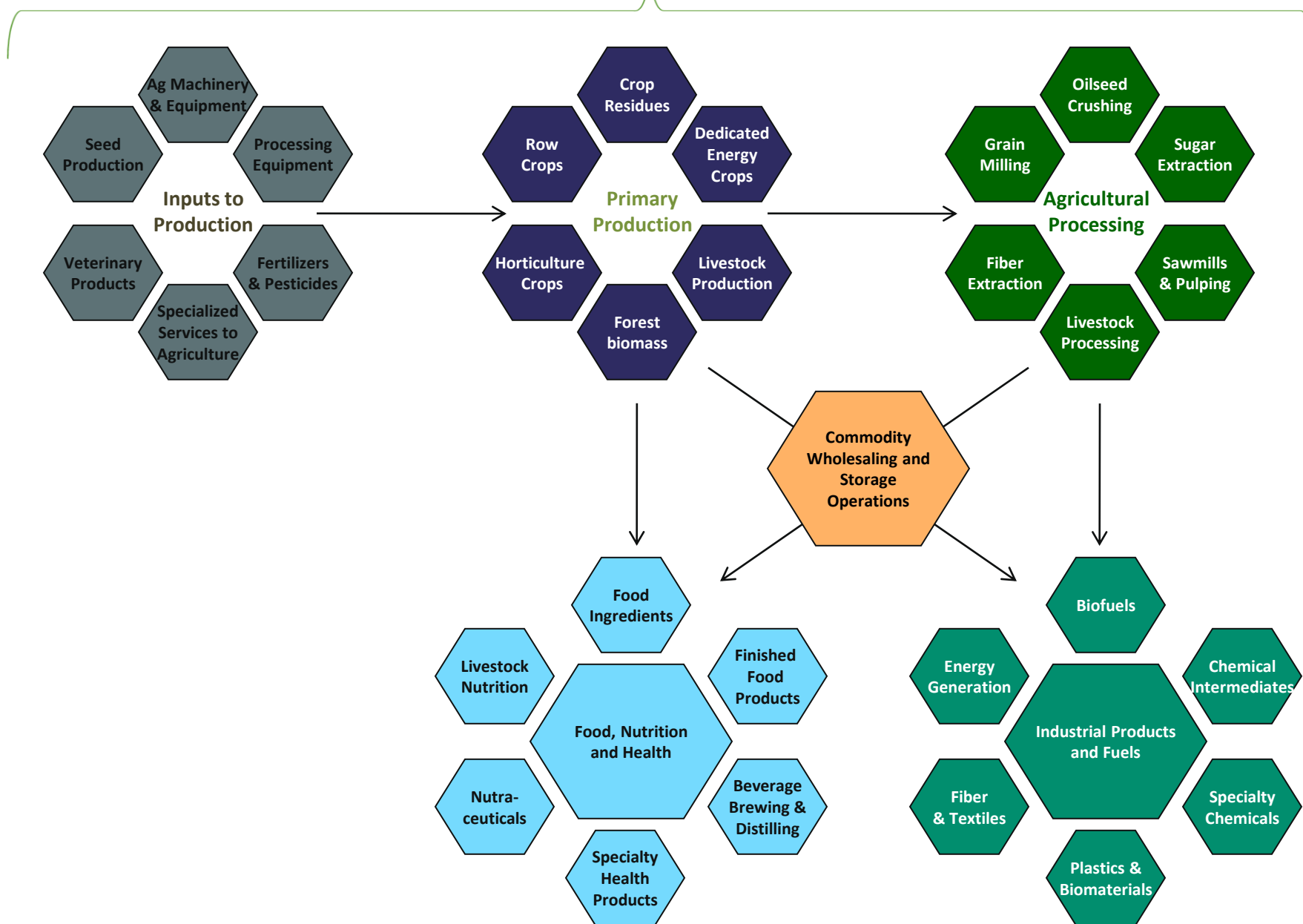
Northeast Indiana Food & Agriculture Cluster Strategy: Project Purpose

- Understand the current position and performance of the food and agriculture cluster
- Evaluate the innovative strengths and opportunities for the cluster using quantitative and qualitative methods.
- Align strengths and opportunities with line-of-sight to markets
- Develop strategic plan to advance the cluster.

Project Geography: The Northeast Indiana Regional Partnership 11 County Region



The Food and Agriculture Industry is a Diverse and Complex Industry Cluster



Primary Production Anchors the Cluster in the Region

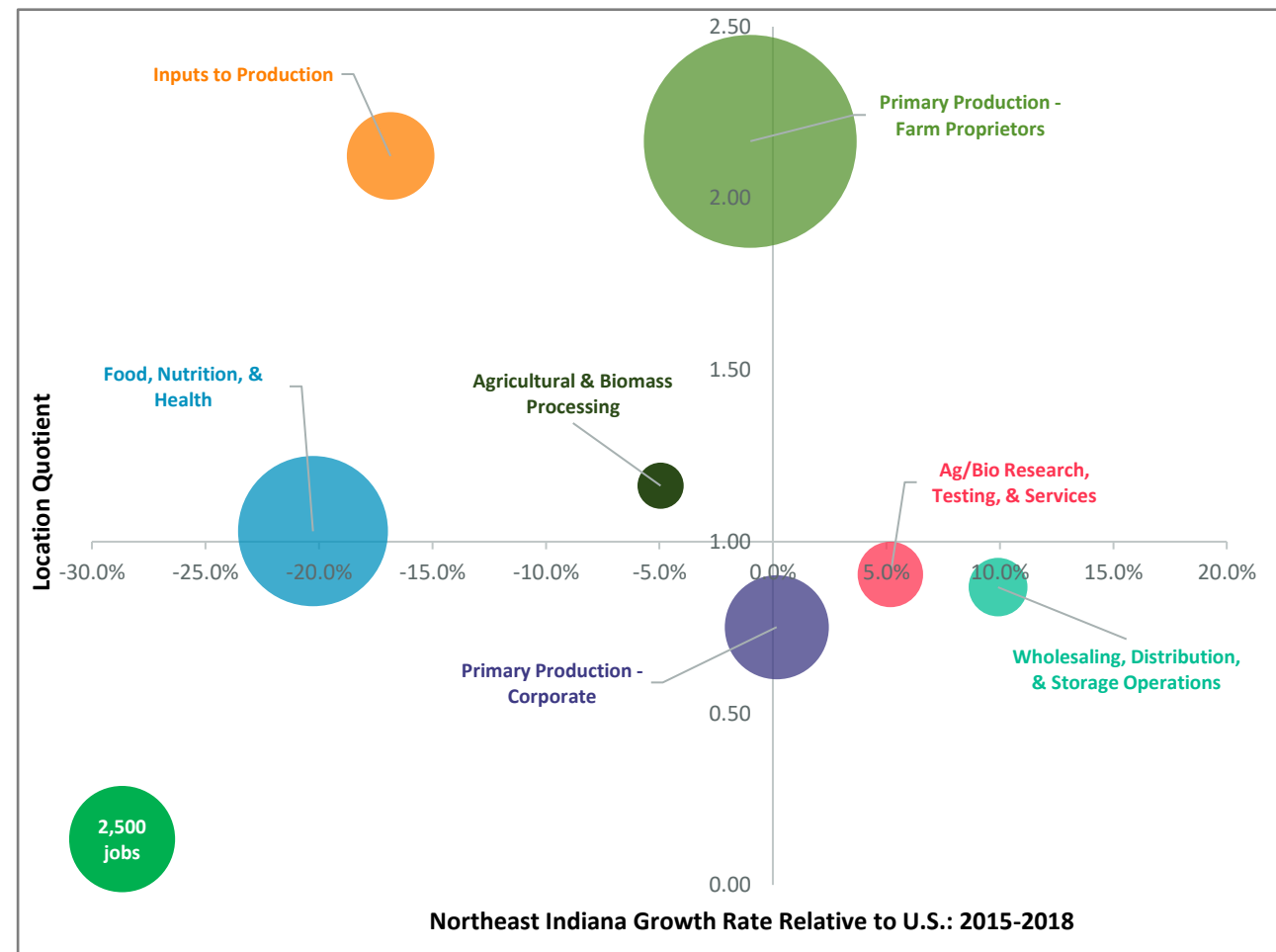
- With over 11,000 farms in NE Indiana covering 2.2 million acres (78% of the total land area), primary agricultural is a substantial component of the region's economy.
 - Crop production is comprised of mainly two commodity products - soybeans and corn production account for 81% of total harvested cropland
 - Livestock and poultry production in the region is much more diverse. The region has significant operations in hog production and in poultry (including layers, ducks, and turkeys). There is also a significant level of dairy and lower levels of beef production.
 - The crop production and poultry and livestock production integrate in that much of the soybean and corn produced in NE Indiana are sold as commodities that then become feed products for livestock and poultry production.
 - Only Lagrange County has a significantly more diverse ag production profile (however, it is likely a result of Amish producers).
- A heavy dependence on just two principal crops means that the financial performance of the farm economy in Indiana is heavily influenced by national and global trade and pricing.
 - Average realized net income per farm is quite low, averaging just \$16,527 per farm in NE Indiana (vs. \$29,356 for Indiana and \$36,778 for the US)
 - This is in part driven by the smaller farm size found in the region, average of 202.7 acres (which is less than half of the average US farm size - 441 acres and below the state average of 265 acres)
 - Many farmers have off-farm employment to be able to sustain their farming operations

The Food and Agriculture Industry Cluster is a Significant Driver of the Region's Economy, but is losing ground

- The overall cluster employed 21,878 individuals in 2018 (7% of total private sector employment)
 - This was a decline of 4.6% from 2015 employment levels of 22,935
- NE Indiana's decline in food and agricultural employment is particularly concerning when compared to state and national growth rates
 - State of Indiana growth rate was 0.6%
 - National growth rate was 2.0%

The Relative Growth Rate Decline is Driven by Industry Subsectors that have Historical Strength in the Region

- Only Wholesaling, Distribution & Storage Operations and Ag/Bio Research, Testing & Services grew at a rate faster than the nation and neither are currently as concentrated in the region in comparison to the nation (LQ<1)
- For the other subsectors that have an LQ>1, market share is being lost as the rate of growth is not keeping pace with the nation
- While NE Indiana's central location provides good proximity to U.S. production and processing industries for inputs and robust distribution advantages, this strength does not appear to be leveraged

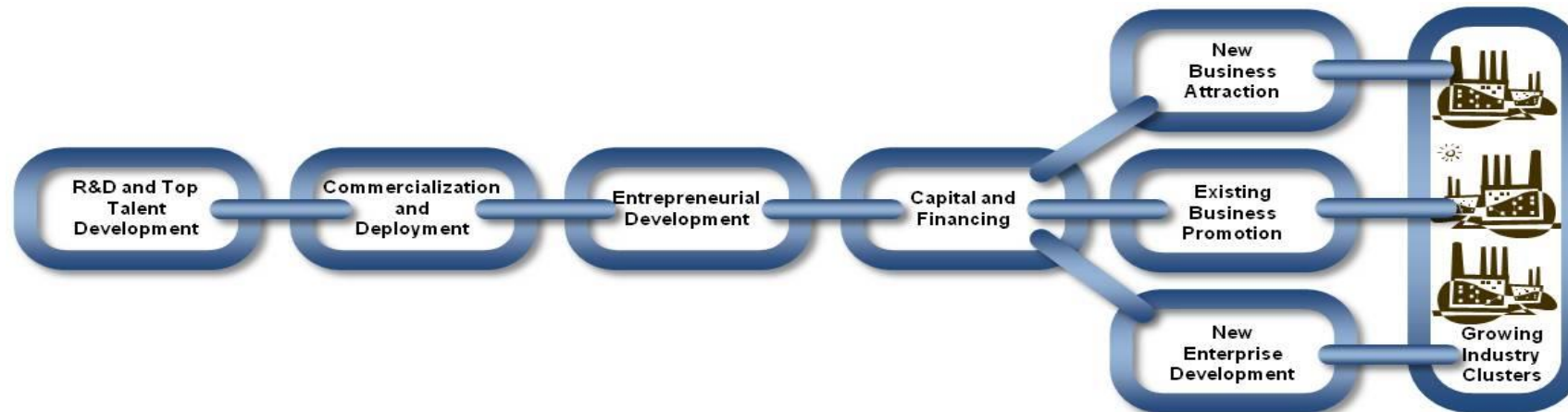


Source: TEconomy analysis of Enhanced CEW data from IMPLAN Group, LLC and BEA Farm Proprietor Data

Innovation is a Driver of Economic Growth and Prosperity

Our Central Premise

- In today's global, knowledge-based economy, a region's economic performance is shaped by the performance of its innovation drivers.
- The regions that have achieved economic prosperity in recent years have addressed gaps and weaknesses in their innovation chain.



The Lack of Recent Agbioscience Industrial Growth, is in part, Driven by the Lack of Agbioscience-Related Innovation in the Region

- While there are certainly examples of innovative agbioscience companies in the region, there is not a critical mass of innovation to help drive growth
 - While a number of regional universities have developed degree programs, there is still limited academic R&D
 - Minimal publications activity
 - Agbioscience patenting is limited, with 52 ag/bio-related patents in last five years, with three companies accounting for 40% of patenting activity
- While Purdue is thought of highly in the region, there is limited R&D interaction, and that which does exist, occurs in West Lafayette
 - Role of Extension in driving innovation is viewed as quite limited
 - Companies/producers are more apt to access/adopt innovation through coops
 - Farmers overall are not incented to diversify. Challenging to get them to engage in new crops or new market opportunities.

Limited entrepreneurial endeavors in the region related to food and agriculture opportunities

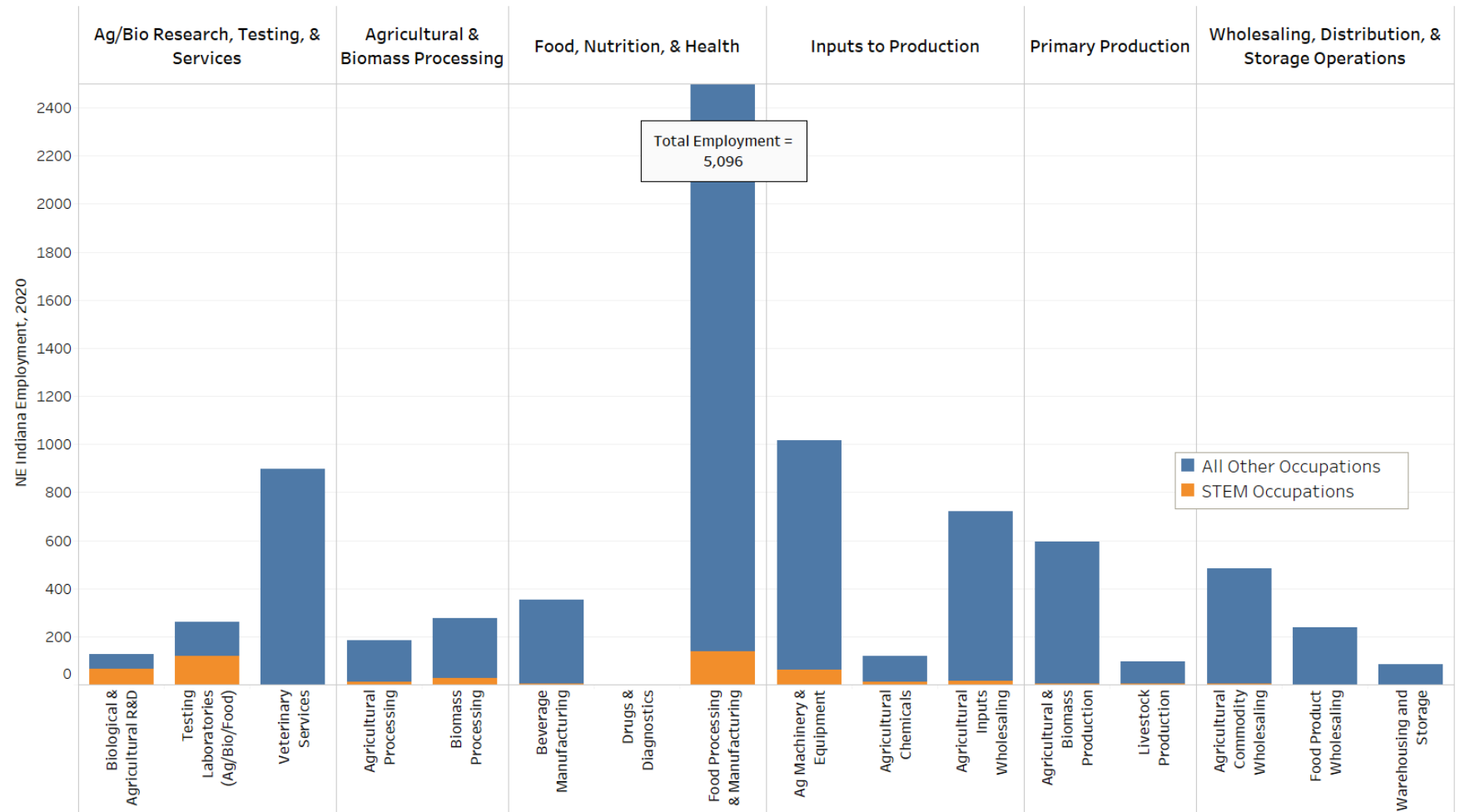
- While there are entrepreneurial service providers in the region, such as the Northeast Indiana Innovation Center (NIIC), extremely limited deal flow seen in the food and ag cluster
 - Efforts underway to develop an innovation center in Warsaw focused on Ortho and Agriculture
- Only one venture capital investment in last 5 years - Owl Manor Veterinary (provider of regenerative medical techniques related to joint and soft tissue repair for companion animals) raised \$1.2 million from Elevate Ventures
- Only one company received SBIR/STTR Awards
 - Trellis Growing Systems has received two SBIR Awards totaling \$569k to focus on the development of a Low Trellis Production and Harvesting System for Hops
- Limited efforts in food manufacturing startups:
 - No processing authority
 - Limited availability of co-packing operations for smaller runs stymies smaller value-added operations
- Limited assistance available for companies and/or farmers interested in developing value-added products. Limited knowledge regarding product development, distribution channels, market placement, etc.

Access to Talent Is the Greatest Concern Expressed by the Food and Agriculture Industry

- NE Indiana Food and Agriculture Industry Cluster Relies Primarily on Non-STEM Workforce
- There have been increasing efforts by regional college and universities to develop new agricultural-related ag degrees, but industry demand outstrips supply
- Local school systems are also attempting to develop agbioscience curriculum, but efforts are often siloed and not building critical mass

NE Indiana Food and Agriculture Industry Cluster Relies Primarily on Non-STEM Workforce

- Only 4.4% of the occupational workforce involved in food and agriculture industries in NE Indiana is focused in occupations that primarily leverage STEM* skills
- This compares to an 11.7% STEM share in these same food and agriculture industry clusters nationally, meaning the region employs a significantly lower STEM skill base in its food and agriculture industries compared to the country



*Using US Bureau of Labor Statistics OES STEM Definition, May 2018

Detailed STEM Skills Segments in NE Indiana Food and Agriculture Industry Cluster Workforce

- Although STEM skills make up a small proportion of all food and agriculture industries, NE Indiana's food and agriculture workforce is at a deficit across key skills segments relative to national workforce composition trends

STEM Occupational Skills Segment	NE Indiana Employment in Food and Agriculture Industries, 2020	NE Indiana Share of All Food and Agriculture Industry Employment	US Share of All Food and Agriculture Industry Employment
Engineering	208	2.0%	3.8%
Scientists	98	0.9%	3.5%
Technicians	92	0.9%	1.9%
Computing & IT	47	0.4%	1.9%
Other	19	0.2%	0.3%
Math & Statistics	0	0.0%	0.2%
Non-STEM Occupations	10,081	95.6%	88.3%

Source: EMSI Staffing Patterns Data 2020.1

Potential Opportunities to Foster Greater Levels of Agbioscience Innovation in the Region

Create a Pilot/Testbed/Demonstration Effort to Foster Greater Innovation and Connectivity

- AgLaunch is a TN-based initiative that has formed entrepreneurial farmer networks to help companies test and demonstrate new technologies (in return for small equity stake). Could be an interesting model to collaborate in.
- NC and MN developing integrated crop/livestock research farms to enable testing and demonstration. Perhaps can do virtually through cooperative networking.
- Diversify not only the crops grown in the region, but also how they are grown (tech), including a focus on organic and non-GMO varieties. By diversifying products and/or the value-added traits associated with traditional products, new niche market and local opportunities can be explored.
- Build enhanced value-chains that increase regional value-added processing by linking food manufacturers with local agricultural processing firms, individual farmers, and/or farm cooperatives. Working contractually together producers, processors and manufacturers can partially de-couple themselves from more volatile commodity markets and benefit from a more stable and predictable operating environment.

Catalyze Agbioscience Startups

- Either leverage existing entrepreneurial efforts or create a specific agbioscience-focused entrepreneurial support effort that will provide the following value-added assistance:
 - Access to business experts (through mentorship networks, Entrepreneurs-in-Residence, etc.) that can guide startups through market entry to growth/scalability
 - Connect/tie efforts to existing/emerging industrial base
 - Deliver services throughout the region in coordination with academic assets
 - Provide linkages to Purdue for additional domain expertise
 - Provide non-dilutive sources of proof-of-concept/prototype development funding
 - Incentive angel funding by providing funding for network administration and due diligence
- Link Talent to Entrepreneurial Efforts
 - Support experiential learning opportunities (internships, co-ops, apprenticeships, etc.) of regional academic institutions to retain talent (particularly within STEM fields) by linking students to exciting innovation-based entrepreneurial endeavors.
 - Provide matching grants to fund experiential learning opportunities.

Initiate an Attraction Campaign that Leverages Synergies with the Region's Advanced Manufacturing Strengths

- Task and resource the NE Indiana Regional Partnership to serve as the coordinated effort for food and agriculture attraction opportunities.
- Target supply chain and strategic partners of existing regional firms who are seeking to expand or make business location decisions and therefore would be targets for business recruitment efforts.
- Potential effort to recruit international food equipment manufacturers and producers of digital ag technologies.
- Care must be taken to balance new employers and issues related to talent access for existing regional employers.
- Position the region to be the North American HQ (or American HQ) for European and Canadian firms seeking to expand their footprint. Efforts could entail:
 - **Active Media:** Developing a consistent and active media presence in major business and technology publications such as special sections and announcements of company accomplishments and generally raising the awareness of the region's brand.
 - **Earned-Media Campaign:** Having articles appear in newspapers and magazines globally describing the region's food and agriculture strategy. The placement of such articles, however, will require an active public relations effort to develop news stories and reach key publications.
 - **Trade Missions:** Conducting trade missions in targeted foreign markets, focusing on companies with linkages to the region's industry strengths, and undertaking reverse trade missions inviting foreign businesses to tour the region.
 - **Conferences and Events:** Building upon the region's reputation by hosting international and national conferences and events.

Other Ideas to Foster Agbioscience Innovation

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Next Steps

- Convene additional focus group to vet additional strategies/actions
- Based on input received today and during the other focus group, draft Northeast Indiana Food & Agriculture Cluster Strategy
- Reconvene Steering Committee to review/discuss draft
- Finalize strategy, incorporating feedback received.

Thank you for your active participation in today's discussion!



Innovating Tomorrow's Economic Landscape

TEconomy Partners is a global leader in research, analysis and strategy for innovation-driven economic development. Today we're helping nations, states, regions, universities, and industries blueprint their future and translate knowledge into prosperity.