

OHIO AGRICULTURAL ROADMAP

Establishing a 25-year vision for Ohio's Agbioresource Sector



***Ohio's Agbioresource Industry:** Your choice for a vibrant & healthy future*

Sponsored by the
Ohio Farm Bureau Federation
*“Forging a Partnership
between
Farmers and Consumers”*



September 2005

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VISION FOR 2030

In 2030, Ohioans believe in the Ohio agbioresource industry's ability to enhance the health, the environment and the economic well-being of Ohio's citizens through leveraged diversity, flexibility and a positive business climate. A vital part of Ohio communities, the agbioresource industry is embraced for its positive contributions to local concerns and recognized globally for its quality and cutting-edge products.

Through innovation and system diversity, this comprehensive, integrated network of scientists, producers, processors and marketers quickly responds to emerging consumer needs for safe and secure food, energy, industrial and quality of life products. As the foremost steward of the environment, the Ohio agbioresource industry manages the state's natural resources and environment in a manner compatible with a viable economy and a healthy lifestyle.

agbioresource (ăg'-bīō-rē'sôrs') *n.*

An essential and innovative industry comprised of food, agricultural, green environment/landscape and bio-based industrial products.

Ohio's Agbioresource Industry: Your choice for a vibrant & healthy future

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Enhancing Our Environment
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EXECUTIVE SUMMARY



Ohio is a state whose geographical location, abundant natural resources and productive population have made it a key player in the nation's agricultural, manufacturing, educational and service sectors. Today, Ohio's agbioresource sector – a sector composed of food, agricultural, green and bio-based industrial products – is poised to become an even more vital component of the state's economy.



Currently, a \$77.5 billion dollar industry, the food, agriculture and green sector employs more than 1 million Ohioans. Add bio-based fuels, alternate energy and other industrial products and one quickly recognizes the vital role the industry plays in Ohio's economic success. Ohio has nearly 41,000 square miles of land with more than 50 percent classified as prime farmland. It is home to more than 2,500 agbioresource processors and 15 million acres of agricultural land. Food wholesaling and retailing represent a significant \$17.8 billion in economic output while alternate energy from grains and oilseeds holds huge potential for future economic growth.



This Roadmap, the result of a eighteen-month effort to evaluate Ohio's agbioresource sector, outlines a proactive, comprehensive strategy for maintaining the industry as Ohioans' choice for a vibrant and healthy future. Challenges, and potential opportunities, facing the industry are many — global competition, research funding, environmental pressures, regulatory requirements, labor availability, business climate concerns and evolving con-

sumer needs. It recognizes the need for critical action in seven areas and outlines specific actions required of the industry, government and academia to assure a healthy, vital industry that benefits all Ohio citizens.

A CHANGING PERSPECTIVE challenges members of Ohio's agbioresource industry to enhance the connections in the product chain and reduce the time required to respond to changing consumer demands and shape emerging consumer trends. It calls for unity within the industry and a drive to develop strong leadership for our future. It calls for innovative approaches to enhancing our environment and continued industry success by developing entrepreneurial skills and public-private collaborations.

BUILDING ON OHIO AGBIORESOURCE'S STRENGTHS will move Ohio toward a brighter future by leveraging Ohio's production and product diversity, skilled people, infrastructure and geographical and climate diversity. It recognizes the need for improvement in our educational system and the need to reverse the loss of skilled workers to other states.

CONNECTING WITH THE CONSUMER encourages the industry to engage in a concerted effort to connect with the consumer through enhanced communications, creation of a survey tool to refine industry understanding of consumer needs and

demands and development of a coordinated, ongoing message of the role the agbioresource industry plays in consumers' daily lives. Efforts must be directed to improving the connections in the product chain to respond quickly to these consumer needs.

IMPROVING OHIO'S BUSINESS CLIMATE is vital to the success of business activity in Ohio. Serious reform is needed in government spending and taxes, tort reform and the promulgation and enforcement of regulations. Ohio must learn to more effectively capitalize on its people's strong work ethic and improve access to financial and beginning business resources. The competitive advantage we have gained from a strong infrastructure must be maintained and complemented by the advantages of streamlining and simplifying burdensome and overlapping government jurisdictions.

WORKING WITH GOVERNMENT advises the agbioresource industry to engage government officials in efforts to reform government spending and tax structures, address the limitations of term limits and develop an outcome-based regulatory environment that incorporates public-private partnerships. An important government role in the private sector should be the creation of an atmosphere conducive to business success including public interest issues, appropriate regulation and a willingness to communicate with the public to correct misinformation.

BENEFITING FROM EDUCATION, RESEARCH AND TECHNOLOGY means engaging in establishing directions for research and technology to meet the needs of today and tomorrow. The industry is encouraged to pursue not only research agendas in areas of proven interest and success, but also foray into new focus areas that will uncover the next entrepreneurial trend. Public-private collaboration is essential to the cre-

ation of innovative solutions to emerging consumer trends. A focus on education highlights the need for entrepreneurial training for young students and a renewed effort to improve higher education attainment rates among our workers.

ENHANCING OUR ENVIRONMENT AND NATURAL RESOURCES is second nature to members of Ohio's agbioresource industry. Continuing enhancement of our natural resources, with an industry commitment to stewardship through self-regulation, is necessary to effectively and protectively use our resources. Industry must partner with government to assure that environmental regulations incorporate an outcome-based philosophy with public-private partnerships, sound science, cost-benefit analyses and metrics to achieve goals.

Implementation of this plan looks to the agbioresource industry working with government and academia to effect the changes necessary to achieve the full potential of this exciting, dynamic industry. This implementation plan requires the agbioresource industry to first look within itself to find solutions and work in partnership with Ohio's governments and academic institutions to address those issues where change is dependent upon public institutions.

The seven components of this strategy – changing our perspectives, building on Ohio agbioresource's strengths, connecting with the consumer, improving Ohio's business climate, working with government, benefiting from education, research and technology and enhancing our environment and natural resources – offer the framework for stakeholders to develop specialized strategies for each component of this vast industry. This report offers the unique opportunity for each sector to map out its long-term initiatives while working in concert with the entire agbioresource industry to assure a vibrant future for every Ohioan.

— September 2005 —





Key Issues & Strategies

All of the following issue areas were critically examined and explored. The following recommendations were developed to assure the continued viability of the Ohio agbioresource industry for the next 25 years.



Ohio's Agbioresource Industry: Your choice for a vibrant & healthy future

A CHANGING PERSPECTIVE

VISION IN 2030

Ohio agbioresource stakeholders are unified, progressive and proactive in meeting emerging challenges and opportunities. They work in partnership with consumers to enhance the overall quality of life.

To achieve our vision, beginning in 2005
we will focus action on....

CONNECTIVITY

The industry has much to gain from enhancing the connections in the product chain and reducing the time required to respond to changing consumer demands. The industry should seek out opportunities to adopt new technologies that increase opportunities to meet consumer needs and improve profitability. The formation of a working group to assess ways of improving this connection is recommended.

RESPONDING TO AND SHAPING CONSUMER DEMANDS

Consumer demands and needs are evolving based on changing ethnicity, age and lifestyle demographics. With a coordinated, focused effort, Ohio's agbioresource sector can meet consumer needs by targeting information to the consumer and developing new consumer products. Opportunities also exist to shape consumer trends by communicating the connection between food and plant

products and a healthy, happy lifestyle. Branding offers the industry a way to communicate desirable characteristics to consumers while also developing a long-term connection between consumer and provider.

UNITY

Although the natural course of business may foster a competitive or adversarial relationship among industry stakeholders, external threats to the industry dictate the industry speak with one voice in its communication with the public, the consumer and government.

LEADERSHIP DEVELOPMENT

The agbioresource industry should focus efforts on assuring the development of leaders who can adapt to a continually changing environment and to partner and work with government officials. The industry must also advance the presence of government leaders who understand and support a strong agbioresource sector in Ohio.

ENVIRONMENTAL ENHANCEMENT

As users and stewards of the majority of the state's natural resources, Ohio's agbioresource industry is uniquely positioned to pioneer private, voluntary initiatives to safely use our resources and assure environmental health.

Benefits of renewable resource management systems must be communicated and understood by industry stakeholders. Priority should be given to industry-driven efforts to create markets for pollution credit trading, encourage risk management strategies and implement conservation practices by lowering associated costs such as insurance ratings and bank loan character ratings.



Self-regulation is critical to the success of a private and voluntary approach to natural resource protection. The industry must assume this responsibility and establish industry guidelines.

ENTREPRENEURIAL RESPONSIBILITY

The Ohio agbioresource industry must foster the development of entrepreneurs within the industry to maintain its competitiveness and attract innovation. Innovation should be encouraged and economically rewarded.

PUBLIC-PRIVATE COLLABORATION

Both the agbioresource industry and government should promote opportunities for regulators and the regulated community to engage in ongoing dialogue to create programs that meet public interest goals and assure a positive business climate.



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BUILDING ON OHIO AGBIORESOURCE'S STRENGTHS

VISION IN 2030

Ohio is a state blessed with diversity in its people, climate, geography, natural resources, economy and agbioresource industry. The state has leveraged this diversity and flexibility to create opportunities for economic growth, a high quality of life for its citizens and enhancement of its natural resources.

To achieve our vision, beginning in 2005 we will focus action on....

PRODUCTION AND PRODUCT DIVERSITY

Ohio's agbioresource industry must develop a strategy and coordinated effort to capitalize on its diversity of product mix and production systems to meet evolving and disparate consumer demands. "Tracks" could be identified to meet demands for locally produced products, quantity based needs and value-added or specialty products.

NEW OPPORTUNITIES

Exploration of alternate uses and product creation should be a priority. Opportunities exist to capitalize on trends in alternate energy sources by generation and production of “on-farm” energy sources. Energy efficient farming is advocated while industrial uses of agricultural products continue to grow.

PEOPLE

Ohio has traditionally been a source of hard working, industrious people with relatively high work force productivity compared to other Midwest states. To maintain our advantage, we must continue to seek a reliable supply of affordable, legal and skilled labor available to the agbioresource sector. Employees must be attracted to the Ohio work environment, costs of employing workers must be competitive and immigration rules must be streamlined and workable. Training and education are essential to meeting the needs of an increasingly information- and technology-intensive industry.

Positioning strong Ohio leaders in national leadership roles is vital to the continued success of Ohio and its agbioresource industry. Leadership positions in government, private industry and agricultural organizations should be targeted for Ohioans.

EDUCATION

Ohio ranks well in resources invested in K-12 education with a strong high-school attainment rate. However, despite a higher than average number of higher education institutions, Ohio suffers from a weak higher education attainment rate among workers. We continue to experience a net loss of undergraduate freshman students. We must leverage our strong public school system and reduce the loss of skilled working people.

INFRASTRUCTURE

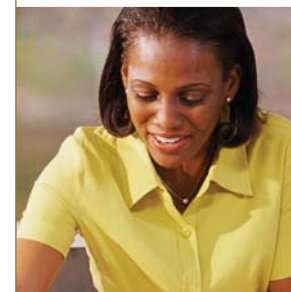
Ohio has a premier road infrastructure for movement of goods and people and delivery of services. This provides the Ohio agbioresource industry with a strong advantage in efficiently delivering products and services and bringing consumers to the “agricultural experience.” Continued advancements are necessary in the areas of rail, communication, water, drainage and energy.

GEOGRAPHICAL AND CLIMATE DIVERSITY

Ohio’s various microclimates, characterized by unique soils, weather and climates that result in unique growing conditions, provide opportunities for specialty products and unique agricultural experiences. The protection of these unique soils and regions is a priority.

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CONNECTING WITH THE CONSUMER

VISION IN 2030

Consumers embrace and value Ohio's agbioresource sector in enhancing their health, their environment and their economic well-being. The Ohio agbioresource industry is effectively and efficiently aware of, and responsive to, consumer wants, needs and demands.

To achieve our vision, beginning in 2005 we will focus action on....

COMMUNICATION

Maintaining our partnership with consumers and retaining their trust requires continual communication. Quality information delivered by the right people must be a priority of all agbioresource stakeholders working in a coordinated effort. Encouraging the incorporation of agbioresource topics as an integral part of daily lives in K-12 education would result in an informed, discerning consumer better equipped to make sound choices. The agbioresource industry must participate in consumer discussions rather than expect consumers to come to industry forums.



UNDERSTANDING THE CONSUMER

There is a critical need for the development of a tool to conduct an ongoing assessment of consumer needs. It is also important to recognize who today's consumer is – consumers exist along every part of the product chain and are looking to the agbioresource sector to supply more than just food and fiber.

RESPONDING TO AND SHAPING CONSUMER DEMANDS

Consumer demands and needs are evolving based on changing ethnicity, age and lifestyle demographics. The Ohio agbioresource industry can meet consumer needs for product quality, convenience, nutrition, food safety, price and the “experience” of food, plants and fabrics by targeting information to the consumer and developing new consumer products. Opportunities also exist to shape consumer trends by communicating the connection between agbioresource products and a healthy, happy lifestyle.

CONNECTIVITY

The industry has much to gain from enhancing the connections in the product chain and reducing the time required to respond to changing consumer demands. The industry should seek out opportunities to adopt new technologies that increase opportunities to meet consumer needs and improve profitability. The formation of a working group to assess ways of improving this connection is recommended.

PROMOTION

A coordinated, ongoing effort to share the positive role agbioresources play in consumer and environmental health should include a consistent, positive message that addresses consumer concerns and questions. The agbioresource industry must partner with the media to minimize misleading, unsubstantiated claims.

Ohio's Agbioresource Industry:
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CONSUMER: Producers of agbioresource products and services all along the production chain including processors, retailers, governments and the end-user.



IMPROVING OHIO'S BUSINESS CLIMATE



Ohio offers one of the best environments for operating and starting new business ventures. It leads in public-private coordination that attracts innovation and meets the societal needs of its citizens.

To achieve our vision, beginning in 2005 we will focus action on....

GOVERNMENT SPENDING & TAXES

Serious reform is needed in Ohio's tax structure to allow Ohio businesses to be more competitive and improve Ohio's economic development environment. State government should focus on modernizing and simplifying the tax code, reducing the burden on capital investment and eliminating the state's estate tax. Reforms in government spending must come hand-in-hand with tax reform. State officials must reduce increases in spending with an emphasis on managing health care costs and consider consolidation of government activities.

REGULATIONS

The Ohio agbioresource industry must have an outcome-based regulatory environment that incorporates public-private partnerships, sound science, a

cost-benefit analysis and metrics to achieve goals. This system must have agbioresource stakeholder involvement in the development and implementation of not just traditional production and processing based regulations, but also those focusing on consumer concerns. State and local regulations must be coordinated to provide a consistent environment for agbioresource businesses to compete and succeed and not only protect our natural resources but also leverage them as an asset. Local regulations such as zoning should consider the proper utilization of natural resources.

HUMAN RESOURCES

A reliable supply of affordable, legal and skilled labor must be available to the agbioresource sector. To assure this supply, employees must be attracted to the Ohio work environment, costs of employing workers must be competitive and immigration rules must be streamlined and workable. Training and education are essential to meeting the needs of an increasingly information- and technology-intensive industry.

TORT REFORM

Comprehensive tort reform is vital to achieving a positive business climate. Lawsuit abuse and the resulting fiscal unpredictability are costing businesses as they modify operations to absorb increasing insurance rates. The Ohio executive, legislative and judicial branches all have a role in addressing this grievous issue.

INFRASTRUCTURE

Ohio's state government must focus on maintaining an adequate infrastructure including rail, roads, energy and communication to maintain Ohio's competitive advantage.

OVERLAPPING JURISDICTIONS

Considerable burdens are placed on businesses when overlapping government jurisdictions result in confusing and contradictory regulations and burdensome tax codes.

Streamlining and simplifying these government controls are essential to Ohio's long-term competitiveness.

BUSINESS INCUBATOR

The provision of a business incubator for start-up agbioresource businesses, in collaboration with education, research and technology efforts, would greatly enhance the success rate of emerging and innovative enterprises.

CONNECTIVITY

Both the agbioresource industry and government should foster opportunities for regulators and the regulated community to engage in ongoing dialogue to create programs that meet public interest goals and assure a positive business climate.

FINANCIAL RESOURCES

Ohio must improve access to financial support for beginning firms and entrepreneurs introducing innovation to the agbioresource industry.

INDUSTRY ROLE

The agbioresource industry has an essential role in supporting and conducting research for developing a solid public policy direction.



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WORKING WITH GOVERNMENT

VISION IN

2030

To achieve our vision, beginning in 2005 we will focus action on....

Ohio's state and local governments effectively balance the needs of business, the public and the environment. Collaborative planning for long- and short-term challenges and opportunities has resulted in a dynamic economy, thriving communities and a clean environment.

GOVERNMENT SPENDING & TAXES

Serious reform is needed in Ohio's tax structure to allow Ohio businesses to be more competitive and improve its economic development environment. State government should focus on modernizing and simplifying the tax code, reducing the burden on capital investment and eliminating the state's estate tax. Reforms in government spending must come hand-in-hand with tax reform. State officials must reduce increases in spending with an emphasis on managing health care costs and consider consolidation of government activities.

AGENCY REGULATORY FOCUS

The Ohio agbioresource industry must have an outcome-based regulatory environment that incorporates public-private partnerships, sound science, a cost-benefit analysis and metrics to achieve goals. This system must have agbioresource stakeholder involvement in the development and implementation of not just traditional production and processing based regulations, but also those focusing on consumer concerns. State and local regulations must be coordinated to provide a consistent atmosphere for agbioresource businesses to compete and succeed and not only protect our natural resources but also leverage them as an asset.

TERM LIMITS

Term limits have changed the complexion of the state legislature. Concerns include a lack of focus on long-term issues in a short-term environment. The state legislature must be encouraged to address issues of concern to Ohio's agbioresource sector and our citizens that are long-term in nature.

GOVERNMENT ROLE

An important government role is the creation of an atmosphere conducive to business success particularly as it relates to government restrictions on business activity. Government has a clear role to play in community development, appropriate regulation, and the creation and maintenance of the state and local infrastructure

LEADERSHIP DEVELOPMENT

The agbioresource industry should focus efforts to assure the presence of government leaders that understand and support a strong agbioresource sector in Ohio. This includes the support of strong industry leadership to partner and work with government officials.

PUBLIC INTEREST ISSUES

Government and the agbioresource industry should partner to address public concerns including, but not limited to, biosecurity and bioterrorism, environmental challenges, rural-urban interface and our educational systems.

PUBLIC COMMUNICATION

Too often, agency officials are not active in correcting misinformation generated about the agbioresource sector. While the responsibilities of government officials do not include agricultural advocacy, it is their responsibility to correct factually inaccurate assertions and false claims about government programs and initiatives. Continuity of message and messenger is desirable.



BENEFITING FROM EDUCATION, RESEARCH & TECHNOLOGY

VISION IN 2030

Via defined and focused research and education programs, an established economically viable and technologically based agbioresource system supports the development and growth of a globally aware and entrepreneurial Ohio agricultural community.

To achieve our vision, beginning in 2005 we will focus action on....

RESEARCH DIRECTIONS

Consumer, and thus industry, direction is necessary for the development of agbioresource research that meets the emerging needs of society and establishes a solid public policy direction. It is imperative that research efforts develop long-term as well as short-term agendas. This collaborative effort should not only pursue research agendas in areas of proven interest and success, but also foray into new focus areas that will uncover the next



entrepreneurial trend. Established trends such as Ohio's rural-urban interface, environmental issues, consumer quality of life issues and the need for the agbioresource sector to serve as a source of nontraditional products, signal new directions for agbioresource research.

PUBLIC-PRIVATE COLLABORATION

Partnerships are key to the development and implementation of new technologies that result in innovative solutions for challenges facing the agbioresource industry. As funding constraints continue to be part of the research landscape, creative collaborations must complement industry prioritization of research efforts.

TECHNOLOGY DIRECTION

The employment of innovative ways to problem-solve, such as the incorporation of technologies from other disciplines and multi-disciplinary team approaches, will result in demonstrative economic benefits to the sector and the general economy. New issues such as biosecurity and bioterrorism and established trends such as Ohio's rural-urban interface and environmental concerns will drive the need for new and innovative technologies.

HIGHER EDUCATION

Despite a higher than average number of higher education institutions, Ohio suffers from a weak higher education attainment rate among workers. We must leverage our strong public school system and reduce the loss of skilled working people. Given the national focus on re-establishing an ownership society and the ongoing challenges Ohio faces in remaining competitive, higher education must build on public education efforts to develop Ohio entrepreneurs.

K-12 EDUCATION

Ohio ranks well in resources invested in K-12 education with a strong high-school attainment rate. Efforts should be

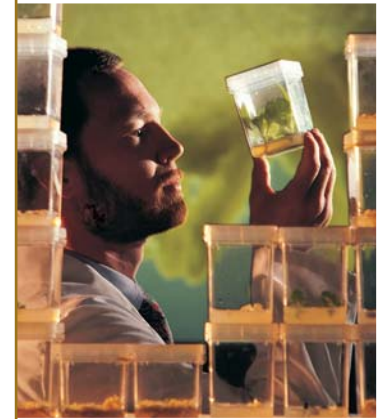
made to keep students engaged in academic topics through hands-on activities and real-world examples from the agbioresource industry. Entrepreneurship begins at a young age and must be fostered in the public schools to regain Ohio's competitive position.

BUSINESS INCUBATOR

The provision of a business incubator for start-up agbioresource businesses, in collaboration with education, research and technology efforts, would greatly enhance the success rate of emerging and innovative enterprises.

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ENHANCING OUR ENVIRONMENT & NATURAL RESOURCES



VISION IN 2030

Ohio manages our natural resources and environment in a manner compatible with a viable economy and a healthy lifestyle. Ohio's agbioresource industry serves as a model for the integration of production into a balanced ecosystem.

To achieve our vision, beginning in 2005
we will focus action on....

ENHANCEMENT

The enhancement of our natural resources continues with an industry commitment to stewardship through self-regulation, the establishment of industry guidelines for environmental enhancement and an understanding of the benefits of conservation practices and renewable resource management.

The need to continue improving water and air quality require us to set and meet attainable water and air quality standards, reduce nonpoint source pollution and recognize good drainage versus negative hydro-modification. Conservation practices are further incentivized through



credit trading programs, conservation payments, favorable insurance and bank loan ratings and other economic incentives. We must determine water budgets and define a sustainable use schedule that is based on a watershed/aquifer approach.

UTILIZATION

Ohio's rich natural resources continue to provide Ohio with a competitive advantage. The establishment of resource use guidelines to effectively and protectively use this resource is required in zoning, as well as land and water use planning. The preservation of highly productive soils for agricultural use should be accompanied by the development of soil-based criteria for nonagricultural development.

OHIO'S NATURAL RESOURCE STRENGTHS

Ohio's production diversity allows for selection of products, enterprises and operation styles best suited to the natural resource environment. Opportunities exist to capitalize on trends in alternate energy sources by generation and production of on-farm energy sources and the promotion of energy efficient farming.

REGULATION

Environmental regulations must incorporate an outcome-based philosophy with public-private partnerships, sound science, cost-benefit analyses and metrics to achieve goals. This system must have agbioresource stakeholder involvement in the development and implementation of water quantity regulations including drainage and use allocations, water and air quality standards and remediation, wildlife protection, control and eradication of exotic diseases and invasive plants, and soil conservation and use determinations.



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Plan Implementation



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AGBIORESOURCE COMMUNITY & LEADERSHIP

Primary responsibility for implementing these recommendations to benefit Ohio and the industry lies with the agbioresource industry leadership and community who are seen as pivotal to the success of the Ohio Agricultural Roadmap.

CONNECTING WITH THE CONSUMER

Consumer demographics are evolving. Continual communication is required to understand these dynamics in order to maintain our partnership with consumers. Enhancing the connections in the product chain and reducing the time and resources required to respond to changing consumer demands is beneficial. Opportunities exist to shape consumer trends by communicating the connection between food and plant products and a healthy, happy lifestyle.

- Quality information delivered by the right people must be a priority of all agbioresource stakeholders working in a coordinated effort. Encouraging the incorporation of agbioresource topics as an integral part of daily lives in K-12 education would result in an informed, discerning consumer better equipped to make sound choices.
- There is a critical need for the development of a tool to conduct an ongoing assessment of consumer needs. It is also important to redefine the concept of consumer. Consumers exist along every part of the product chain and are looking to the agbioresource sector to supply

more than just food and fiber and should be recognized by the industry.

- With a coordinated, focused effort, Ohio's agbioresource sector should target information to the consumer and develop new products to meet consumer needs for product quality, convenience, nutrition, food safety, price and the "experience" of food, plants, fabrics, fuels, etc.
- The industry should adopt new technologies that increase opportunities to meet consumer needs and improve profitability. The formation of a working group to assess ways of improving this connection is recommended.
- A coordinated, ongoing effort to share the positive role the agbioresource industry plays in consumer and environmental health should include a consistent, positive message that addresses consumer concerns and questions. The industry must partner with the media to minimize misleading, unsubstantiated claims.

ENHANCING OUR ENVIRONMENT AND NATURAL RESOURCES

Ohio's rich natural resources continue to provide the Ohio agbioresource sector with a competitive advantage. The



protective use and enhancement of these resources for future generations is of paramount importance to the sector's long-term viability. Experience has shown that collaborative efforts based on a combination of voluntary measures and appropriate and judicious use of regulations is more effective in enhancing our environmental resources than a "one size fits all" regulatory approach. Conservation practices produce the best results when clearly understood by industry and achieved through incentives.

- The enhancement of our natural resources continues with an industry commitment to stewardship through self-regulation, the establishment of industry guidelines for environmental enhancement and an understanding of the benefits of conservation practices and renewable resource management.
- Water and air quality improvement goals require us to set and meet attainable water and air quality standards, reduce nonpoint source pollution and recognize good drainage versus negative hydro-modification. We must determine water budgets and define a sustainable use schedule that is based on a watershed/aquifer approach.
- As users and stewards of the majority of the state's natural resources, Ohio's agbioresource industry is uniquely positioned to, and should, pioneer private, voluntary initiatives to safely use our resources and assure environmental health. Benefits of renewable resource management systems must be communicated and understood by industry stakeholders.
- Priority should be given to industry-driven efforts to create markets for pollution credit trading, encourage risk management strategies and implement conservation practices by lowering associated costs such as insurance ratings and bank loan character ratings.
- The establishment of resource use guidelines to effectively and protectively use Ohio's rich natural resources are

required in zoning, land and water use planning. The preservation of highly productive soils for agricultural use should be accompanied by the development of soil-based criteria for nonagricultural development.

BUILDING ON OHIO AGBIORESOURCE'S STRENGTHS

Ohio's production diversity allows for selection of products, enterprises and operation styles best suited to the natural resource environment and changing consumer tastes. Its unique microclimates, strong infrastructure, proximity to markets and excellent research base provide opportunities for industry growth.

- Ohio's agbioresource industry must develop a strategy to capitalize on its diversity of product mix and production systems to meet evolving and disparate consumer demands. "Tracks" could be identified to meet demands for locally produced products, quantity based needs and value-added or specialty products.
- Exploration of alternate uses and product creation should be a priority. For example, opportunities exist to capitalize on trends in alternate energy sources by generation and production of on-farm energy sources.
- The provision of an incubator for start-up agbioresource businesses, in collaboration with education, research and technology efforts, would greatly enhance the success rate of emerging and innovative enterprises.
- Ohio must improve access to financial support for entrepreneurial efforts introducing innovation to the agbioresource industry.
- The identification of Ohio's unique microclimates and protection of unique soils and regions should be a priority in order to provide opportunities for specialty products and unique agricultural experiences.

AGBIORESOURCE COMMUNITY & LEADERSHIP

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WORKING WITH GOVERNMENT

An important government role is the creation of an atmosphere conducive to business success. Industry and government collaboration is necessary to accomplish the following initiatives.

- The Ohio agbioresource industry must have an outcome-based regulatory environment that incorporates public-private partnerships, sound science, a cost-benefit analysis and metrics to achieve goals. Agbioresource stakeholder involvement is critical in the development and implementation of traditional production and processing based regulations, and those focusing on consumer concerns. State and local regulations must be coordinated to provide a consistent environment for agbioresource businesses to compete and succeed.
- The industry should continue to seek a reliable supply of affordable, legal and skilled labor. To attract workers to the Ohio work environment, industry should work with government to assure costs of employing workers are competitive and immigration rules are streamlined and workable.
- Both the agbioresource industry and government should foster opportunities for regulators and the regulated community to engage in ongoing dialogue to create programs that meet public interest goals and assure a positive business climate.
- The agbioresource industry should support research for developing sound public policy.
- Industry should cooperate and work with government to correct misinformation, factually inaccurate assertions and false claims about government programs and initiatives involving the agbioresource sector. Continuity of message and messenger is necessary.

A CHANGING PERSPECTIVE

Industry success in 2030 will require enhanced communication, strategic alliances and a focus on developing

agbioresource entrepreneurs.

- Threats to the industry dictate the industry speak with one voice in its communication with the public and government.
- The agbioresource industry should focus on assuring the development of leaders who can adapt to a continually changing environment and to partner and work with government officials. The industry must also advance the presence of government leaders who understand and support a strong agbioresource sector in Ohio.
- Positioning strong Ohio leaders in national leadership roles is vital to the continued success of Ohio and its agbioresource industry.
- Government and the agbioresource industry should partner to address public concerns including, but not limited to, biosecurity and bioterrorism, environmental challenges, the rural-urban interface and our educational systems.
- Both the agbioresource industry and government should promote opportunities for regulators and the regulated community to engage in ongoing dialogue to create programs that meet public interest goals and assure a positive business climate.
- The Ohio agbioresource industry must foster the development of entrepreneurs to maintain its competitiveness and attract innovation.

BENEFITING FROM EDUCATION, RESEARCH AND TECHNOLOGY

Consumer, and thus industry, direction is necessary for the development of research that meets the emerging needs of society and establishes sound public policy. Established trends such as Ohio's rural-urban interface, environmental issues, consumer quality of life issues and the need for the agbioresource sector to serve as a source of nontraditional products, signal new directions for agbioresource research.

Ohio has traditionally been a source of hard working,

industrious people with relatively high work force productivity. Training and education are essential to meeting the needs of an increasingly information- and technology-intensive industry. Ohio ranks well in resources invested in K-12 education with a strong high-school attainment rate. However, despite a higher than average number of post-secondary educational institutions and opportunities, Ohio suffers from a weak higher education attainment rate and technical education among workers.

New issues such as biosecurity and bioterrorism and established trends such as Ohio's rural-urban interface and environmental concerns will drive the need for new and innovative technologies. The employment of innovative ways to problem-solve, such as the incorporation of technologies from other disciplines and multi-disciplinary team approaches, will result in demonstrative economic benefits to the sector and the general economy.

- It is imperative that research efforts develop long-term as well as short-term agendas. This collaborative effort should pursue research agendas in areas of proven interest and success, as well as foray into new focus areas that will uncover the next entrepreneurial trend.
- As funding constraints continue to be part of the research landscape, creative collaborations must complement industry prioritization of research efforts.
- The industry should encourage the adoption of new technologies and explore technologies from other disciplines for adaptation to the agbioresource sector.
- We must leverage our strong public school system and reduce the loss of skilled working people. Given the national focus on re-establishing an ownership society and the ongoing challenges Ohio faces in remaining competitive, higher education must build on public education efforts to develop Ohio entrepreneurs.
- Industry should encourage efforts to keep students

engaged on academic topics through hands-on activities and real-world examples from the agbioresource industry. The industry should support the identification of delivery avenues and development of teaching materials that teach state proficiency fundamentals using agbioresource content. Entrepreneurship begins at a young age and must be supported in the public schools to regain Ohio's competitive position.

AGBIORESOURCE COMMUNITY & LEADERSHIP



GOVERNMENT & COMMUNITY LEADERS

Primary responsibility for implementing these recommendations to benefit Ohio and the agbioresource industry lies with Ohio's government and community leaders, in partnership with Ohio's agbioresource industry. Both groups are seen as pivotal to the success of the Ohio Agricultural Roadmap.



A CHANGING PERSPECTIVE

Positioning Ohio for success in 2030 requires a re-examination of how Ohio's government and industry typically conduct business. Partnerships are key to the development and implementation of new technologies that result in innovative solutions for challenges facing the agbioresource industry.

- The government should provide an atmosphere conducive to business success particularly as it relates to government restrictions on business activity, community development, appropriate regulation and the creation and maintenance of the state and local infrastructure.
- Government and the agbioresource industry should partner to address public concerns including, but not limited to, biosecurity and bioterrorism, environmental challenges, the rural-urban interface and our educational systems.
- As funding constraints continue to be part of the research landscape, creative collaborations must complement industry prioritization of research efforts.

- Government should cooperate and work with industry to correct misinformation, factually inaccurate assertions and false claims about government programs and initiatives involving the agbioresource sector. Continuity of message and messenger is necessary.
- The agbioresource industry and government should create opportunities for regulators and the regulated community to engage in ongoing dialogue to create programs that meet public interest goals and assure a positive business climate

IMPROVING OHIO'S BUSINESS CLIMATE

Several issues affect how well Ohio businesses succeed. Serious reform is needed in Ohio's tax structure to allow Ohio businesses to be more competitive while term limits have changed the complexion of the state legislature, resulting in a lack of focus on long-term issues. Lawsuit abuse and the resulting fiscal unpredictability are costing businesses as they modify operations to absorb increasing insurance rates, requiring comprehensive tort reform. Ohio has a premier road infrastructure for movement of goods and people and delivery of services providing the Ohio agbioresource industry with a strong advantage in efficiently delivering products and services and bringing consumers to the "agricultural experience".

- State government should focus on modernizing and simplifying the tax code, reducing the burden on capital investment and eliminating the state's estate tax. Tax reforms should be accompanied by reforms in government spending. State officials must reduce spending increases, with particular emphasis on managing health-care costs and consolidating government activities.
- The Ohio agbioresource industry must have an outcome-based regulatory environment that incorporates

public-private partnerships, sound science, a cost-benefit analysis and metrics to achieve goals. Agbioresource stakeholder involvement is critical in the development and implementation of traditional production and processing-based regulations and those focusing on consumer concerns. State and local regulations must be coordinated to provide a consistent environment for agbioresource businesses to compete and succeed.

- The Ohio executive, legislative and judicial branches all have a role in implementing comprehensive tort reform.
- Even in the presence of term limits, the state legislature must be encouraged to address long-term issues of concern to Ohio's agbioresources industry and our citizens.

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- Maintenance and advancement in Ohio's rail, communication, and energy infrastructure is vital.
- Considerable stress is placed on businesses when overlapping government jurisdictions result in confusing and contradictory regulations and burdensome tax codes. Streamlining and simplifying requirements of overlapping government jurisdictions is essential to Ohio's long-term competitiveness.

- Government should support the provision of a business incubator for start-up agbioresource businesses, in collaboration with education, research and technology efforts to greatly enhance the success rate of emerging and innovative enterprises.
- Ohio governments must improve access to financial support for entrepreneurial efforts, introducing innovation to the agbioresource industry.

ENHANCING OUR ENVIRONMENT AND NATURAL RESOURCES

Ohio's rich natural resources continue to provide the Ohio agbioresource sector with a competitive advantage. The protective use and enhancement of these resources for future generations is of paramount importance to the sector's long-term viability. Experience has shown that collaborative efforts based on a combination of voluntary measures and appropriate and judicious use of regulations is more effective in

enhancing our environmental resources than a "one size fits all" regulatory approach. Conservation practices pro-

duce the best results when clearly understood by industry and achieved through incentives.

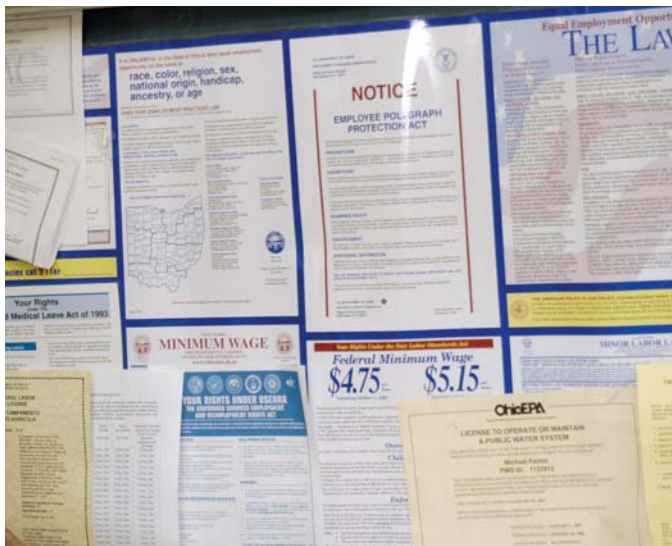
- Government should support industry efforts to enhance natural resources through self-regulation, assist in the establishment of industry guidelines for environmental enhancement and foster an understanding of the benefits of conservation practices.
- Government should set and meet attainable water and air quality standards, recognize good drainage versus negative hydro-modification and determine water budgets with a sustainable use schedule based on a watershed/aquifer approach.
- Governments should assist in the preservation of highly productive soils for agricultural use and develop soil-based criteria for nonagricultural development. Government should establish resource use guidelines to effectively and protectively use Ohio's rich natural resources for zoning, land and water use planning.
- Ohio's environmental regulatory system must include agbioresource stakeholder involvement in the development and implementation of water quantity regulations including drainage and use allocations, water and air quality standards and remediation, wildlife protection, control and eradication of exotic diseases and invasive plants, and soil conservation and use determinations.

BENEFITING FROM EDUCATION, RESEARCH AND TECHNOLOGY

Ohio has traditionally been a good source of hard working, industrious people with relatively high work force productivity. However, despite a higher than average number of post-secondary educational institutions and opportunities, Ohio suffers from a weak higher education attainment rate among workers. Meanwhile, Ohio must foster a work environment to which skilled employees will be attracted.

- To maintain our human resource advantage, Ohio government is encouraged to create an employment environment that fosters a reliable supply of affordable, legal and skilled labor available to the agbioresource sector.
- Government efforts to assure a skilled workforce should include leveraging our strong public school system and reducing the out-migration of skilled working people. Government should support higher education's efforts to develop Ohio entrepreneurs.
- Government-related costs of employing workers must be competitive and immigration rules must be streamlined and workable.
- Government should support training and education opportunities to meet the needs of an increasingly information- and technology-intensive industry.
- Government and industry should work together to position strong Ohio leaders in national leadership roles to insure the continued success of Ohio and its agbioresource industry.

GOVERNMENT & COMMUNITY LEADERS



ACADEMIA

Primary responsibility for implementing these recommendations to benefit Ohio and the agbioresource industry lies with Ohio's academic community, in partnership with Ohio's agbioresource industry, who is seen as pivotal to the success of the Ohio Agricultural Roadmap.



BUILDING ON OHIO AGBIORESOURCE'S STRENGTHS

Ohio has traditionally been a good source of hard working, industrious people with relatively high work force productivity compared to other Midwest states. To maintain our human resource advantage, we encourage academia to collaborate with the agbioresource sector to identify a reliable supply of affordable, legal and skilled labor available to the agbioresource sector. Appropriate training and education are essential to meeting the needs of an increasingly information- and technology-intensive industry.

- Strengthening collaboration between universities and the agbioresource sector is recommended to develop and prepare leaders for positions in all levels of government, private industry, associations and academic institutions
- Academia should place an emphasis on new product development and alternative uses of traditional agricultural products, particularly in the expansion of "on farm" energy sources.

BENEFITING FROM EDUCATION, RESEARCH AND TECHNOLOGY

Despite a strong high school graduate rate and a higher than average number of post-secondary educational oppor-

tunities, Ohio's workforce suffers from a low higher education attainment rate. The employment of innovative ways to problem-solve, such as the incorporation of technologies from other disciplines and multi-disciplinary team approaches, will result in demonstrative economic benefits to the sector and the general economy. New issues such as biosecurity and bioterrorism and established trends such as Ohio's rural-urban interface and environmental concerns will drive the need for new and innovative technologies.

- Academia should seek consumer and industry input in the development of agricultural research agendas to meet emerging needs of society and establish sound public policy.
- It is imperative that research efforts develop long-term as well as short-term agendas. This collaborative effort should not only pursue research agendas in areas of proven interest and success, but also foray into new focus areas that will uncover the next entrepreneurial trend. Established trends such as Ohio's rural-urban interface, environmental issues, consumer quality of life issues and the need for agbioresources to serve as a source of nontraditional products signal new directions for agricultural research.
- Public-private partnerships are key to the development

and implementation of new technologies that result in innovative solutions for challenges facing the agbioresource industry. As funding constraints continue to be part of the research landscape, creative collaborations must complement industry prioritization of research efforts.

- In addition to encouraging the adoption of new technologies, academia should explore the incorporation of technologies from other disciplines for adaptation to the agbioresource sector.
- We must leverage our strong public school system and reduce the loss of skilled working people. Given the national focus on re-establishing an ownership society and the ongoing challenges Ohio faces in remaining competitive, higher education must build on public education efforts to develop Ohio entrepreneurs.
- Efforts should be made to keep students engaged on academic topics through hands-on activities and real-world examples from the agbioresource industry. Entrepreneurship begins at a young age and must be fostered in the public schools to regain Ohio's competitive position.
- The provision of a business incubator for start-up agbioresource businesses, in collaboration with education, research and technology efforts, would greatly enhance the success rate of emerging and innovative enterprises.
- Academia should work with the Ohio agbioresource industry to foster the development of entrepreneurs to maintain industry competitiveness and attract innovation.

CONNECTING WITH THE CONSUMER

Consumer demands and needs are evolving. Opportunities exist to shape consumer trends by communicating the connection between food and plant products and a healthy, happy lifestyle. Maintaining our partnership with

consumers and retaining their trust requires continual communication. Encouraging the incorporation of the agbioresource sector as an integral part of daily lives in K-12 education would result in an informed, discerning consumer better equipped to make sound choices.

- Quality information delivered by the right people must be a priority of all agbioresource stakeholders working in a coordinated effort. Academia and the bioresource sector must participate in consumer discussions rather than expect consumers to come to agricultural forums.
- Academia is encouraged to develop a tool to conduct an ongoing assessment of consumer needs. It is also important to recognize and clarify who today's consumer is – consumers exist along every part of the product chain and are looking to the agbioresource sector to supply more than just food and fiber.
- Efforts should be made to target information to the consumer and develop new consumer products to meet consumer needs for product quality, convenience, nutrition, food safety, price and the “experience” of food, plants and fabrics.

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INITIATIVE BACKGROUND



The Ohio Agricultural Roadmap is a collaborative partnership of Ohio's agricultural producers, farmer representative organizations, agribusiness, Ohio General Assembly, Ohio government agencies, and universities. This initiative was an opportunity for the industry to critically evaluate Ohio Agriculture's opportunities and challenges for the next 25 years, to determine a desired future as an agbioresource sector, to identify obstacles that may hinder attainment of this desired future, and to lay out a roadmap that leads to the desired future.

Fifteen of Ohio's agbioresource industry leaders comprised a steering committee that spearheaded an effort that also involved leaders in all aspects of Ohio's agbioresource sector. Beginning in June 2004, the group engaged in an eighteen-month effort to identify a direction for the industry in 2030.

The specific goals were to:

- Identify and evaluate Ohio's unique economic, environmental and social climate and Ohio's strengths within a global economy.
- Identify the drivers of change impacting Ohio agriculture's present and long-term future.
- Develop a unified 25-year strategic roadmap to solidify agriculture's key presence in Ohio's communities, protection of the environment and role in the state's economic viability.

- Identify contributors to an Ohio business climate for continued success of the agricultural industry from production to post-harvest utilization through consumption.
- Prepare Ohio agriculture to meet changing consumer demands, evolving domestic and international markets, emerging technologies and growing governmental interaction.
- Strengthen the connection between consumers and the agricultural industry for a socially conscious local, national and global food and agriculture system.

On June 29, 2004 the Ohio Agricultural Roadmap envisioning process kicked off its efforts with a Summit that explored pivotal issues facing the agbioresource industry. Throughout the year, the steering committee and six issue-based working groups met and heard from subject matter experts in the following areas: (1) government and regulatory issues, (2) industry versatility and agriculture's comparative advantage, (3) Ohio's business climate, (4) environment and natural resources, (5) consumer needs and (6) education, research and technology.

This roadmap was then created to articulate critical issues to be addressed in each of these areas and to recommend key strategies necessary to meet project goals and to insure the continued viability of the agbioresource industry in Ohio.

ACKNOWLEDGEMENTS

The Steering Committee expresses deep appreciation for the commitment and efforts of the members of the six subcommittees. Their insights provided the basis for our deliberations. A special thanks to our resource experts: Larry Antosch, Ohio Farm Bureau Federation; Assistant Director Jim Buchy, Ohio Department of Agriculture; Deb Cummings, Program Manager, Battelle Memorial Institute; Stan Ernst, OSU; Ross Hakes, Monsanto Research and Technology Division; Ty Pine, National Federation of Independent Businesses; Director Gordon Proctor, Ohio Department of Transportation; Dan Navin, Ohio Chamber of Commerce; L.H. Newcomb, OSU; Bill Ravlin, OARDC, OSU; Assistant Deputy Director Kristi Tanner, Ohio Department of Development; Paul Tipps, State Street Consultants; Linda Woggon, Ohio Chamber of Commerce; Rick Yocum, Ohio Public Expenditures Council; Carl Zulauf, OSU

We also appreciate the efforts of Marilyn Trefz with The Ohio State University's College of Food, Agricultural, and Environmental Sciences and Constance Cullman Jackson with the Ohio Farm Bureau Federation for their facilitation of this report. We also thank the Ohio Farm Bureau Federation Board of Trustees for their support and sponsorship of this endeavor.

A NOTE FROM THE STEERING COMMITTEE

Dear Reader,

The report you have just reviewed is the result of an eighteen-month effort by members of the Ohio Agbioresource sector to envision what our industry should be in 2030. As members of the steering committee, we were challenged to think broadly, think inclusively and incorporate the input from dedicated industry members and resource experts.

Our industry is at a critical juncture. We believe there is an urgent need for every member of the sector to step forward with one voice and lead the changes required for us to not only continue our critical role in our state's economic and ecological health, but to achieve greatness as a part of Ohio and the global agbioresource sector. This report clearly outlines the necessary roles that industry stakeholders, government and academia must play to move our sector forward. It calls for our industry to assume much of this burden...and, in doing so, grants control of our destiny to us.

We ask you – the producer, the grocer, the processor, the marketer, the researcher, the restaurateur, the input supplier, the public servant, the industry representative and the educator – to read the recommendations and determine how you fit into the report's implementation plan. This strategy was intentionally written to allow you to incorporate its ideas into your short and long-term goals. It is a living document that we hope will be revisited as needed.

Thank you for your attention to this review of Ohio Agbioresource's challenges and opportunities. Now is the time for action. Our future depends upon you.

Your Friends in Ohio's Agbioresource Industry,

The Ohio Agricultural Roadmap Steering Committee
September 2005

STAKEHOLDER INVOLVEMENT

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— Photos provided by Ohio Farm Bureau Federation, Natural Resources Conservation Service and Ohio State University —

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