

# SOYBEANS AND OTHER OILSEEDS

## EXECUTIVE SUMMARY

The oilseed sector of the Kansas agricultural industry includes the production of soybeans, sunflower and canola along with the first purchaser users of these oilseeds, like crushers, refiners and biodiesel manufacturers. The oil produced from these seeds goes into a variety of products from vegetable oil to other food products and even biodiesel. The by-products from the production of this oil are also an important part of the oilseed sector, as soybean meal is a major ingredient in the livestock feeding business. Oilseeds are a successful crop in dryland regions of Kansas, and advancements continue to make them even more efficient through genetics and crop management systems. Demand is strong for oilseed products, both domestically and internationally, and production would grow even more if Kansas had additional processing options in the state.

Although great potential exists in the oilseed sector, a number of challenges still present barriers to growth. The lack of additional processing plants means growers must ship their product out of state, which decreases profitability. This adds to transportation concerns if growers need to transport product long distances. Declining water in some regions of the state is a threat to growers, and advancements which aim to make soybean production more water efficient have fallen prey to negative consumer perceptions of biotechnology.

Realizing the growth that is possible within this sector will require input and discussion among key partners in the oilseed industry. Efforts to recruit new businesses, especially processing plants, would benefit current and future growers. Collaboration with industry organizations and agricultural researchers could contribute to technological advancements and public outreach, which will need to work together. Significant opportunities exist to expand the success of current farmers and businesses as well as to attract new players to the industry. The strategic growth plan for this sector will be critical to its future.



## STATUS

The oilseed sector of the Kansas economy is composed of primarily soybean, sunflower and canola production as well as the first purchaser uses of the oilseeds such as crushers, refiners and biodiesel manufacturers and the feed stream users. Kansas ranks 11th in soybean production with 148.6 million bushels, 4th in sunflower production with 1.35 million hundredweights in 2015. The state has six soybean crush facilities. The oil goes into familiar products such as vegetable oil for all manner of food products and oil for biodiesel.

According to estimates prepared by the Kansas Department of Agriculture and based on the Implan economic data model, the soybean and other oilseed industry in Kansas has a direct output of over \$1.28 billion and creates 1,079 jobs in the state. Through indirect and induced impacts, the industry supports a total of 4,467 jobs and creates a total economic contribution of approximately \$1.8 billion.

In this sector of Kansas agriculture the by-products can be just as important as the oil. Soybean meal is a major ingredient in the livestock feeding business, and Kansas has more than 2.2 million cattle on feed, 1.8 million hogs on feed and a growing poultry industry. Canola oil for cooking is by far the largest consumer of Kansas produced canola. Sunflower and canola feed streams are also marketed to specialty markets such as bird seed and food.

Two key challenges for oilseed production in Kansas have been suitability of the growing conditions and adoption by Kansas farmers. Soybeans are widely grown in the United States and are a key part of the crop rotation in the eastern part of Kansas. Soybeans are also highly sensitive to drought and high temperature/low humidity growing conditions that make them less suitable for the central and western parts of Kansas. Sunflowers and canola are grown extensively in the northern plains of the U.S. The industry in that region benefits from well-established infrastructure, such as crop consulting, input suppliers, extension services, storage facilities and processors. The infrastructure to support sunflowers and canola is more limited in Kansas, with only one sunflower processor in the state and no canola processors. Many farmers are unfamiliar with the production and harvesting methods for sunflower and canola, which do not match exactly with harvest practices used in wheat, corn, sorghum and soybeans.

The pro-business climate makes Kansas a prime location for oilseed processing to expand in Kansas. The climate would be improved by an increase in the resources available to farmers to help support the production of unfamiliar oilseeds such as sunflowers and canola. The genetic technology to make more acres in Kansas suitable for soybean production would also benefit this sector. Increased biodiesel production and consumption with efforts similar to those employed for ethanol production would increase demand for this product as well.

## OPPORTUNITIES

In order to develop a strategic growth plan for the soybeans and other oilseeds sector, it is important to understand the areas where Kansas has a comparative advantage and the best opportunities for growth or expansion.

Factor	Implications for Growth and Development Opportunities
<b>Big Data Use</b>	As more and more data becomes available related to cropping systems, there are more opportunities to use the data to improve profit margins for soybean and other oilseed farmers, thereby increasing its economic impact and the number of farmers interested in growing these crops. Kansas is home to leaders in the agricultural technology industry, further developing technology solutions to improve the efficiency of oilseed production.

# OPPORTUNITIES (cont'd)

Factor	Implications for Growth and Development Opportunities
<b>Domestic Consumption</b>	A strong consumer base for canola oil already exists in the U.S. Nearly 80% of all canola utilized in the U.S. is imported from Canada. Great demand exists for U.S.-grown product in this sector.
<b>Double Crop</b>	Soybean and sunflower double crop acres could increase if producers plant shorter season wheat varieties and harvest the crop at a higher moisture content. Many wheat millers prefer to control the drying process themselves.
<b>Export Markets</b>	Kansas soybeans have a relatively higher protein content than those produced in the corn belt. Building relationships with trade partners such as Mexico will increase the demand for Kansas-grown soybeans.
<b>Genetic Advancements</b>	Advancements in soybean and canola genetics in recent years make oilseeds a viable crop on more acres of dryland in Kansas than ever before.
<b>Human Capital</b>	<p>Kansas is home to strong leadership in the oilseed industry, creating additional investment opportunities.</p> <p>The Kansas State University Department of Agronomy is a recognized leader in oilseed production and breeding.</p> <p>K-State's grain science department is recognized as the top program in the nation. Researchers across the K-State College of Agriculture are improving oilseed processing and finding more and efficient uses for oilseeds and products.</p>
<b>Land Availability</b>	Kansas has the second most farm land of any state, roughly 90 percent devoted to agriculture.
<b>Livestock Feeding</b>	<p>Kansas is a top 3 state in cattle production and top 10 in hogs. Kansas is also among the fastest growing dairy states. Livestock feed is the largest consumer of Kansas soybeans. Any advancement in the livestock industry will have a positive impact on the soybean industry.</p> <p>Canola by-products are a desirable feed stream for the dairy industry.</p>

# OPPORTUNITIES (cont'd)

Factor	Implications for Growth and Development Opportunities
<p><b>Processing</b></p>	<p>Additional processing such as crush plants, soy milk and other processing/packaging facilities will increase demand and improve local prices.</p> <p>A facility in Goodland crushes virtually all canola produced in Kansas.</p>
<p><b>Supporting Infrastructure</b></p>	<p>Kansas is home to some of the world's leading crop genetic companies and research facilities, which could lead to the production of seed suitable to the Kansas climate.</p> <p>Existing intermodal, transload, rail and shipping container facilities provide a solid export infrastructure for oilseeds and value-added products with additional improvements planned.</p>

# SUCCESS STORIES

Key successes in the industry:

- In 2012 a new oilseed processing operation opened in eastern Kansas. Currently, 104.9 and 419.8 million pounds of oil and meal are processed, respectively, directly employing 268. The \$152 million capital investment contributes an estimated \$231 million to the Kansas economy annually.

# CHALLENGES

While Kansas is poised for major expansion in the soybeans and other oilseeds sector, the following factors represent challenges serving as barriers to achieving the objective of the strategic growth plan.

Challenge	Details of Challenge
<p><b>Consumer Perception</b></p>	<p>Negative consumer perception of biotechnology threatens future advancements that have made soybean production possible in many areas of the state.</p>
<p><b>Critical Infrastructure</b></p>	<p>A lack of adequate housing in rural areas compounds the issue of a shortage of agricultural workers.</p> <p>Kansas has adequate grain and liquid rail infrastructure. However, a lack of rail access in the western portion of the state will require processors of specialty products to ship products across the state to be loaded onto the rail or use alternative transportation.</p> <p>A lack of processing plants in western Kansas adversely impacts soybean and sunflower local prices, increasing the relative profitability of corn.</p> <p>As oilseed producers improve yields and efficiency, transportation becomes a larger issue. Aging infrastructure of highways, bridges, rail and barge also pose challenges. Investment in infrastructure and increased truck weights on additional axles can make the transportation system more reliable and cost-effective.</p>

## CHALLENGES (cont'd)

Challenge	Details of Challenge
<b>International Trade</b>	Access to international markets for oilseed products is key to growing the industry. Resistance to free trade agreements at the federal level can hinder this access
<b>Policy</b>	Though not unique to Kansas, there exist significant challenges due to federal laws and regulations, including: reduced Renewable Fuel Standards mandates, Waters of the U.S., the Endangered Species Act, burdensome Occupational Safety and Health Administration regulations and more.
<b>Water</b>	Although not as water intensive as corn, water use in the production of soybean, sunflower and canola is greater than in crops such as sorghum, wheat and cotton, according to historical data.
<b>Workforce Development</b>	Growth in oilseed processing will require a skilled and a non-skilled workforce, which continues to be a significant challenge throughout the entire agricultural industry.

## NEXT STEPS IN STRATEGIC DEVELOPMENT

The development of a long-term growth strategy will require input and discussion among key partners. The following strategies have been identified as next steps in developing a strategic growth plan for the oilseed industry.

Focus Area	Solution
<b>Business Development</b>	Initial steps to begin encouraging growth in this sector could include the following: <ul style="list-style-type: none"> <li>• Pursue the creation of economic development programs applicable to the oilseed support, production and processing industries.</li> <li>• Pursue the creation of programs that provide training to start-ups on interfacing with the investment community.</li> <li>• Create a marketing program that promotes Kansas as the place for oilseed research, input and processing companies.</li> <li>• Utilize successful agricultural entrepreneurs for marketing and training of potential start-ups.</li> </ul>
<b>Federal Policies</b>	Continue to monitor and take appropriate action on federal policies that could adversely affect the oilseed industry.

# NEXT STEPS IN STRATEGIC DEVELOPMENT (cont'd)

Factor	Implications for Growth and Development Opportunities
<b>Industry Outreach</b>	<p>KDA will identify potential partners and establish a schedule for strategic growth plan meetings. KDA will also proactively reach out to key industry leaders and major processors in Kansas regarding the development of a strategic growth plan.</p> <p>Continue efforts to attract more processing plants.</p> <p>Continue consumer education to ensure that biotechnology is retained.</p> <p>Partner with K-State canola researchers and the Great Plains Canola Association to evaluate the feasibility of increased canola production in Kansas focusing on production practices and marketing.</p> <p>KDA will dedicate staff time to encourage processing and logistical facilities to add value to oilseeds within the state.</p>
<b>Research and Extension</b>	<p>KDA will partner with K-State where applicable to obtain funding for research and extension focusing on canola.</p>
<b>Water</b>	<p>Continue implementation of the action items identified in the <i>Vision for the Future of Water Supply in Kansas</i>, including continued outreach related to increased adoption of voluntary, flexible water conservation tools like Water Conservation Areas and Local Enhanced Management Areas.</p>

## OPPORTUNITIES TO EXPAND PRESENCE

Initial list of potential opportunities:

- Increase livestock feeding through more livestock and increased oilseed use in current feed rations.
- Increase exports to developing portions of Asia and Africa.
- Recruit to Kansas emerging technology companies utilizing oilseeds for household products, chemicals and building materials.
- Expand of food-grade oilseed crops to capture high-value market share.
- Increase market opportunities for canola such as processing and exports.
- Explore feasibility of a soy biodiesel plant in Kansas.
- Enhance canola research through federal grants.
- Develop a canola production guidebook for producers to ensure those willing to add canola to their crop rotation have access to the best information.
- Recruit of a soy milk plant.
- Improve transportation infrastructure and seek to increase truck weights on additional axles.

## OBJECTIVE

Based on feedback and information gathered from stakeholders and key partners at the Agricultural Growth Summit in August 2016, specific growth objectives for the Kansas soybeans and other oilseeds industry will be developed.

# Kansas AG SUMMIT

GROW SMARTER. GROW STRONGER. GROW KANSAS.

## KANSAS STRATEGIC AGRICULTURAL GROWTH SOYBEANS AND OTHER OILSEEDS — NOTES

### MEETING SUMMARY

From April to July 2016, Kansas Department of Agriculture executive and agricultural marketing team members met with soybean and nontraditional oilseed farmers and industry representatives. Individuals identified for the one-on-one conversations represented both small and large operations and ranged in geography throughout the state. Many expressed that the state's higher protein content and climate make Kansas a good place to grow. Common themes of challenges impacting the growth of the soybean and oilseed industry in the state included transportation cost and efficiency, some federal regulations, and the lack of oilseed processing.

### Consumer

- Need to promote alternative crops and encourage crop rotation
- Anti-GMO sentiment threatens the ability to utilize technology

### Research

- Need for additional research funding for nontraditional oilseeds
- Explore research in by-product or value-added opportunities
- Need for research on oilseed-specific diseases

### Rules & Regulations

- Regulatory challenges against the industry are a concern (such as WOTUS and Endangered Species Act)

### Transportation and Infrastructure

- Need for additional oilseed processing (specifically soybean)
- Closing of the Producers Cooperative plant in Oklahoma City is a challenge
- Transportation efficiency — such as 90,000 lbs. on six axles — can reduce cost
- Greater access to rail and barge would be beneficial

### Water and Natural Resources

- Long-term water supply is a concern in some areas of the state
- Need for development of irrigation efficiency technology
- Areas of the state are naturally suitable for oilseed production without additional irrigation



### Workforce and Quality of Life

- Access to full-time and seasonal labor is a challenge
- Need to develop specialized equipment (i.e. farm machinery: combines, sprayers, etc.) operation skills more quickly or find a way to obtain employees with these skills

### Other

- Need for increasing collaboration between university, industry and grower network representatives (for nontraditional oilseeds)
- Due to higher protein content, Kansas soybeans are attractive to foreign buyers

### Potential Action Items

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