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**POST AUDIT**

The Rundown podcast transcript for Performance Audit report titled ***Evaluating the Economic Impact of Hemp Production in Kansas*** – Released September 2020

**Andy Brienzo, Host and Principal Auditor:** [00:00]

From the Kansas Legislative Division of Post Audit, this is The Rundown. Your source for news and updates from LPA, including performance audits recently released to the Kansas Legislature. I'm Andy Brienzo. In September 2020, LPA released a performance audit examining the potential economic impact of commercial hemp production in Kansas. I'm with Matt Etzel, principal auditor at Legislative Post Audit, who supervised this audit. Welcome to The Rundown, Matt.

**Matt Etzel, Principal Auditor and Supervisor:** [00:32]

Thanks for having me.

**Andy Brienzo, Host and Principal Auditor:** [00:33]

First, what is hemp? Why do farmers grow it? And how have recent changes to federal and state law made it easier for them to do so?

**Matt Etzel, Principal Auditor and Supervisor:** [00:41]

Hemp is a cannabis plant that contains little to no amounts of THC. THC being the intoxicating compound found in much higher levels in marijuana. Basically, from a legal perspective, a cannabis plant is hemp if it contains no more than 0.3% THC and it's marijuana if it's anything above that. As far as why farmers would want to grow it as a crop, hemp can be grown for several different purposes. So, fiber from its stock can be used to make rope, canvas fabrics, and lots of other products. Its seed can be used to make cooking flour and different types of oil, but probably the most popular use for hemp right now is CBD, which is a chemical compound derived from the hemp flower. Right now, CBD is used in one approved pharmaceutical drug to help treat seizures, but it has a lot of other proposed health benefits that are still being researched and evaluated like pain relief for example. Legally, growing hemp in the United States was outlawed under the Controlled Substance Act in 1970. Basically, the act lumped hemp in with marijuana and made it illegal to grow. But in 2014, federal law was passed that defined hemp separately from marijuana. So again, hemp is now defined as a cannabis plant that contains no more than 0.3% THC. This basically allowed states to start growing hemp legally again and in 2018, Kansas

passed legislation to allow him to be grown here under a pilot program.

**Andy Brienzo, Host and Principal Auditor:** [02:16]

So, Kansas is an agricultural state of course, but how well suited is the climate for growing hemp specifically?

**Matt Etzel, Principal Auditor and Supervisor:** [02:22]

So, hemp already grows in Kansas natively, so it can definitely grow here, but what we found was that average rainfall, especially in Western Kansas, was a little bit below what hemp requires to really thrive. So, some western regions of the state may need to irrigate their hemp crops to get the most out of their harvest.

**Andy Brienzo, Host and Principal Auditor:** [02:45]

It looks like the team relied on assistance from an agricultural economist from the University of Kentucky to answer the audit question. What work did he do to help the audit team and what data limitations did he and the team run into during the audit?

**Matt Etzel, Principal Auditor and Supervisor:** [03:00]

Yeah. So, Dr. Tyler Mark was a consultant for us on this audit and he helped us estimate the financial returns from Kansas' 2019 hemp season. In other words, he helped us estimate how much Kansas growers could have made or lost from their 2019 hemp crops assuming that they were able to sell all their crops, which is something there isn't actually data on. He also helped us estimate what those returns could look like in the next several years. As far as data limitations go, I think the primary limitation we ran into was a lack of Kansas specific data. So, at the time of this audit, Kansas only had one complete hemp season. So, there's only one year of Kansas harvest data for us to use, which is okay, but it's always preferable to have several years of data to help you identify outliers and other year to year trends. It's also important to know that we couldn't evaluate hemp fiber separately from hemp grain because of how the state's data was recorded. So, you won't see a lot of information specific to hemp fiber, at least not separate from grain in our audit. There also wasn't any hemp cost or sales data specific to Kansas yet, which meant our consultant had to use regional, national, and some proprietary information to help estimate Kansas returns. There are also some cases where you had to make assumptions based on his experience researching hemp. So, I think with all that in mind, it's important to remember that these are estimates and very much early estimates based off of just one year of growing hemp in Kansas.

**Andy Brienzo, Host and Principal Auditor:** [04:39]

Based on the work that Dr. Mark did for the audit team, what did you conclude about the 2019 growing season?

**Matt Etzel, Principal Auditor and Supervisor:** [04:48]

We found that overall, the state's estimated financial returns for 2019 weren't that great. So, the results of his work showed that the estimated net returns for hemp for about \$4 million in total in 2019, but returns really varied depending on what you grew hemp for. So, hemp grown for grain and floral, by the way, as a it's a common term used to describe hemp flour grown for CBD, but grain and floral together they had an estimated negative return of about \$13 million meaning the cost to produce that hemp exceeded potential revenue by about \$13 million. Now, hemp grown for transplants was a very different story. So, hemp transplants are basically very small hemp seedlings that are grown in a greenhouse. They're grown as seedlings to be sold to growers and planted directly in the ground and they're pretty expensive. Our consultant estimated they sell for about \$3 per plant. So, given their high sale price, we estimated a positive return of about \$17 million for transplants grown in Kansas in 2019. So, it was really the returns for those transplants that set off the negative returns that we saw for grain and floral. But there are some key assumptions that went into those estimates for those transplants. One being that we assumed all hemp grown indoors in 2019 was grown for transplants. And this is based on our consultant working with the Department of Agriculture. And it's a reasonable assumption, but it's important to note that we don't know how many transplants were actually grown in Kansas in 2019. There were also some assumptions made on how many plants could be grown per square foot in those greenhouses and the sale prices for those transplants.

**Andy Brienzo, Host and Principal Auditor:** [06:39]

So, despite this relatively low return for 2019, it looks like the team concluded that hemp could become a more profitable crop in Kansas in future years. Tell me more about this.

**Matt Etzel, Principal Auditor and Supervisor:** [06:50]

Yeah, that's right. So, in working with our consultant, we learned it isn't that uncommon for states to go through a bit of a learning curve when it comes to growing hemp. You know, hemp grows differently in different parts of the country. So, for example, varieties of hemp that grow well in one state might not grow well necessarily in Kansas. Also, some growing practices like when to plant hemp could also vary regionally. So, I think it takes some time to understand what works best to grow hemp in Kansas and it was probably this unfamiliarity with growing the crop here that led to some of those negative returns we saw for grain and floral in 2019. So, with that in mind, our consultant estimated how with more time and experience Kansas' hemp returns could look in several years and he did this by assuming Kansas could have future harvests similar to those in Kentucky and Kentucky being a state that has already gone through this learning curve because they've really been growing hemp since 2014. What we found was that the future financial returns for hemp were much higher than 2019 to returns.

**Matt Etzel, Principal Auditor and Supervisor:** [08:01]

So, if you remember net returns from 2019 were about \$4 million. We estimated that in the next few years, those returns could be around \$22 million annually and the reason for the increase really comes from improved harvest for grain in floral hemp, which increased their future returns by about \$18 million together. But again, these projections assume Kansas will follow a similar learning curve and have similar harvest results as Kentucky, which is yet to be seen. We also found that future returns for hemp on a per acre basis, were pretty successful compared to other Kansas crops. So, for example, hemp grown for floral had projected returns of about \$3,500 per acre. And that's compared to Kansas sorghum, which on average across the state had returned to about \$40 per acre. Again, there are some important assumptions to keep in mind. This per acre analysis also assumes Kansas will have similar results as Kentucky over the next few years. Also, floral hemp is particularly expensive to grow-around \$12,000 an acre. I think because of that cost, hemp growers may choose to grow floral on a smaller scale compared to other Kansas crops. Finally, one of the main reasons hemp returns are projecting so high is because of the popularity and high sale prices for CBD right now. But it's important to keep in mind that CBD markets are relatively new and changes in demand for CBD over the next few years would really affect the price and ultimately the returns for floral hemp.

**Andy Brienzo, Host and Principal Auditor:** [09:41]

The team also talked to stakeholder groups from Kansas and elsewhere about the risks associated with growing hemp. So, who did you talk to and what did you learn from these conversations?

**Matt Etzel, Principal Auditor and Supervisor:** [09:53]

We did. We talked to nine licensees involved with Kansas' 2019 growing season. We also talked to agricultural officials from five other states and we talked to officials from Kansas State University and we asked them for their opinion on any legal or environmental risks associated with growing hemp. And there were some common themes that emerged. So, one thing that came up several times was a lack of approved pesticides and herbicides for hemp, which can make hemp susceptible to weeds and pests. Another thing that came up was this issue of cross-pollination. So, hemp does grow naturally in Kansas. And what can happen is that naturally growing hemp can inadvertently pollinate floral hemp grown for CBD. That pollination reduces the CBD content and ultimately the value of those crops. So, it's something to definitely be aware of if you're growing hemp for CBD in Kansas. From a legal perspective, we heard growers really need to be cautious of the THC levels in their hemp crop. You know, as I mentioned before, hemp cannot have THC levels above 0.3%. The Department of Agriculture is responsible for testing grower's hemp crops. So, basically anything that tests above 0.3% THC is considered marijuana and it has to be destroyed, which creates some risk for crop loss. And then from a regulatory perspective, we've heard it can be difficult for law enforcement to tell the difference

between legal hemp being transported and illegal marijuana. So, it's important for state officials to work closely with law enforcement on how best to manage that and tell the difference between those two plants.

**Andy Brienzo, Host and Principal Auditor:** [11:38]

Finally, what's the main takeaway of this report?

**Matt Etzel, Principal Auditor and Supervisor:** [11:41]

I think the main takeaway is that hemp has the potential to be an economically successful crop in Kansas, but it's a very new crop to the state and really to the country. So, there are still a lot of unknowns. I think ultimately hemp's economic success in Kansas will depend on whether the state's hemp harvests improve over the next few years and will also depend on what the market for hemp products, I think especially for CBD, will look like going forward.

**Andy Brienzo, Host and Principal Auditor:** [12:09]

Matt Etzel is a principal auditor at Legislative Post Audit. He supervised an audit examining the potential economic impact of commercial hemp production in Kansas. Thanks for joining me today, Matt.

**Matt Etzel, Principal Auditor and Supervisor:** [12:19]

Yep. Thanks, Andy.

**Andy Brienzo, Host and Principal Auditor:** [12:20]

Thank you for listening to The Rundown. To hear more podcasts, subscribe on Spotify or Apple podcasts for more information about Legislative Post Audit and our audit reports, visit our website at [kslpa.org](http://kslpa.org) and follow us on Twitter at @ksaudit

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