

Testimony to House Committee on Education and Workforce
Building an AI-Ready America: How AI is Creating Opportunities Across
America's Workforce

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Chairman Allen and members of the Education and Workforce Committee, I would like to thank you for the opportunity to share my experiences and options on how I believe Artificial Intelligence “AI”, is and will continue to impact agriculture. As a fifth-generation farmer, I am passionate about both the current and future goals of agriculture. I believe it is a key industry for both our state and nation's success and survival. As a farmer I am acutely aware of the challenges our industry faces each day, and the importance of our ability to adapt to meet those challenges.

Technology in general has been and will remain a key to us being able to do more with less. As we battle higher input costs, weather, and countless other issues, technology has allowed us to find efficiencies. AI is, in my opinion, the most robust and potentially impactful tool we have had in my lifetime. It is important to note that AI, like all other technology, is only a tool and must still be developed and used by an individual. The real power of AI is in its ability to process and generate responses in a fraction of the amount of time it would take an individual to review the same data.

AI is still an emerging technology and as such its full potential and dangers have yet to be realized. However, it has been proven that those of us who are willing to embrace such advancements are the ones who weather the literal and proverbial storms. We cannot sit back and allow the world around us to change, while we remain rooted in the

past. I'll share some actual examples of how we are currently implementing AI in agriculture, some of the areas of risk, and some of the potential uses I believe are coming.

Time is one of the most valuable and limited resources that we all have, and as such it is the area where I see AI making its biggest impact on our industry. Most farmers will tell you there are not enough hours in the day, and we are required to do multiple time-consuming tasks. AI can process and generate several "busy work items" we are required to do, allowing us more time to focus on the hands-on farming work we were called to do. There are far fewer individuals involved in agriculture today than in the past, and there are several reasons why. The nature of our work is challenging, the cost of capital required to operate is high, and we have not done a good job educating those outside of our industry on the importance of the Ag Industry. There will always be a physical element to the nature of work in our industry, but even that looks different today than it did in my youth.

AI has the potential to bridge the gap between some of these workforce challenges. From a jobs standpoint, I see AI creating a new opportunity in our industry for individuals who in the past would not have considered agriculture. As a farmer, part of adapting this new technology is realizing that it will require a different type of employee. By creating this new role, we are allowing more time to do the work we have always done. In essence, the workforce makeup will change, but this new division of labor will allow us, as an industry, to be more productive.

A couple of years ago most people, much less farmers, did not even know what AI was. Today there are several of us who have begun to implement it in some way into our business. Generative AI has been used by farmers to identify parts, look up settings, create maps, log records, make ordering decisions, identify problems, etc. ChatGPT is widely available and is one such platform used for such applications.

In many cases now, we can take a few pictures and make a few comments about a broken piece of equipment, and we are giving back a few areas to review and/or the specific part numbers needed to be replaced. You can also get a detailed breakdown of the procedure to replace the broken parts. There are a number of benefits to being able to do this. First, it empowers someone who would have felt unqualified to make a repair capable of doing it. Second, many times we can make the repairs cheaper than if we had to hire them to be done. Third and most importantly, we can get the piece of equipment back up and running faster.

Many of the pieces of equipment we use have numerous settings, and there are books that are several inches thick with details on how to set it based on various criteria. Now with AI we can take a few pictures, input some data about the equipment, and the

application being done, and AI will give us the recommended settings to use. We can even take additional pictures and get AI to help us fine tune the settings if needed. This allows us to let someone without as much experience with a specific piece of equipment operate at a more efficient level. It can also save a tremendous amount of time during setup and while using the equipment.

As farmers we are constantly performing numerous tasks within individual fields. It is critical for us to apply proper applications at appropriate times. However, we are not infallible and as humans it is possible for us to make a mistake or misunderstand what we were asked to do, or where we were to do it. AI can quickly and easily generate a map specifically broken into tasks with details of what is to be applied and when. Within a matter of seconds, we can create and print this map and give it to an employee. This reduces the risk of them making a mistake, but it also saves us time in explaining what to do where and when.

We are required to generate and retain a number of different types of records, and many of these records are kept for food safety purposes. Therefore, they are critically important, but they take time to generate and maintain. AI can very quickly automate much of this type of work. We can speak a few words into our phone, and it will log and print a ticket for a load report. Those of us who store products on site can generate a map of the facility and document the specific data we need about each area and what is stored there. This function can save a tremendous amount of time and allow us to have a more redundant data storage system, which reduces the risk of data loss.

Many times, we are dealing with ordering large quantities of different products. In the past we would have made charts and calculations by hand or using a calculator. While this method is still widely used within the industry, we can now begin to use AI to help generate these calculations. We can even begin to focus on the timing of ordering and potential savings created by ordering at specific times and quantities. This may seem like a very mundane use of AI, but it goes back to saving time, and how much more quickly AI can process this function.

We are also beginning to use AI to help diagnose problems within the crops. I can take a picture of a weed or a pest, and AI can tell me what it is and how to treat it. This again is a time-saving function. I am not required to get out a manual and review pages of data to identify a problem. Here is an example of how we are combining a few of these functions. Assume I see a pest, I take the picture and give it details about the geographic location, soil type, etc. Within seconds AI can identify the pest, recommend treatment options, tell me how much product to order based of the field size, and generate a map

with load specifications for me to give to an employee, and I can also get it to log a record of the application after it has been completed.

Sadly, AI is not the answer to all of the challenges we face in our industry or others. AI is not infallible, and many times it can and does give incorrect or incomplete answers. There are huge potential liability risks associated with using AI. There are also many paths yet to navigate around data privacy and ownership. Because AI is still in its infancy, industry specific and non-specific chatbots still need a tremendous amount of training before the confidence levels improve to the level of mass adoption of the technology.

For those of us who have been farming for a long time, we rely on our past experiences and those experiences of those who came before us to help make decisions. AI searches vast amounts of data to quickly respond to a query. But like an individual it can make a mistake and many times will return an answer that is wrong or needs to be tweaked. With decades of experience, I can look at what it gives me and usually determine if doesn't look or sound correct. But if I were someone who didn't have the same background to pull from I would likely not be able to catch those mistakes. Today we still have trained individuals with appropriate experience that have the ability to use AI as a tool to help them save time and increase production. The biggest problem I see with this in agriculture and other industries is that as we become more dependent on AI for some tasks, people who used to do that work by hand will no longer get that training. Which means 10 years from now, everyone will be completely reliant on what AI gives them and not able to tell when it seems off. Therefore, AI will need to improve to the point where it makes a minimal or acceptable level of mistakes.

The liability risk around AI is an area I see many questions arising from as we begin to use it in more areas and with more frequency. Who does the risk belong to: the chatbot and its owners, the individuals who use them, or everyone. I believe insurance coverages and limits will be the topic of much debate as we encounter new issues that were previously unthought of. As AI reshapes paradigms, it has the potential to create new risks that we never knew existed. Managing these risks will be something we must monitor closely, as AI has the potential to make monumental changes at a rapid pace.

As I mentioned earlier, AI requires access to mass amounts of data. As we use generative AI, every input we use becomes a part of the database it uses from that point on. There are Open AI platforms and Enterprise AI platforms. Open platforms are basically just open information that is available to any and everyone. Whereas an enterprise platform is closed to a degree, usually remaining within whatever company it is housed and used. Clearly, like all data, it could be the target of some type of breach. I say all this because data must be protected. Also, data has value which means someone has ownership of it.

Clearly, the chatbot's creator has engineered a valuable tool, but many times, its users are paying to improve the tool that they have no ownership of. Without the constant use and data that the users are inputting into these AI platforms, there would be little to no improvement or advancements made within them. Because industry specific platforms, by their very nature, are more proprietary it would be interesting to see a tier system or reward offered to key users that help advance the AI, especially since we are and will likely share in the potential liability risk.

Regarding the example I gave earlier about the pest I could use AI to help identify, I will mention a few things to consider about the possible shortcomings with AI. First, it could misidentify the pest. It could give me the wrong treatment option, by either giving me the wrong rate to use or even something that is

off label in my area or on the crop type. It could miscalculate the amount of product to purchase or mix for the application. AI could print the wrong map or rates needed for my employee. Lastly, it could have made a mistake in how it logged the data for the application. In essence like any other tool, AI is not perfect and it is important for those of us who do decide to adopt this new technology to be aware of the potential risks, how to mitigate them, and the importance of the human element when using this technology. Especially, since we will share if not own entirely the liability associated with the mistakes it can and does make.

As I mentioned, I believe AI has the ability to be the most impactful technology developed in my lifetime, and I believe the only limit to its potential is our own imagination. As we begin to integrate more data into these platforms, I could and expect to see AI being used to assist in all types of decision making that are not yet possible. Imagine using long range weather forecast to help determine optimal planting dates based on rainfall expectations and timing during the growing season. Possible crop rotations based on market trends and/or expected world events. The number of possible metrics and how to use them to forecast the best possible utilization of the resources we have will be the key to the future of agriculture. AI is a tool that provides speed of use that we have never had before. As a farmer I am constantly concerned about the stewardship of resources that God has blessed me with the opportunity to oversee. Today the resources are not just limited to the land, seed, energy, and other physical things, but also the intangible things. The adoption and proper management of these intangible things like AI will be what allows us to ensure that the agricultural industry will be here in our state and nation for the future generations to steward.

I would like to thank you again for allowing me this opportunity to share the insights that I have learned over the decades of hard work within the agricultural industry.