

Legal Issues To Address As AI Crops Up In Agriculture

By **Todd Janzen** (July 3, 2023)

The agricultural retailer Farmers Business Network recently unveiled "Norm," an artificial intelligence adviser for FBN farmer members.

Norm is built off of OpenAI's ChatGPT language model and trained using agronomic data. Norm will allow FBN's farmer members to use its query tool to obtain agronomic advice.

Norm is likely the first dedicated artificial intelligence platform designed specifically for farmers, but it will not be the last.

AI is on the rise in agriculture as it is elsewhere. Before AI technology becomes widespread, we should take some time to consider what AI is, how AI platforms might benefit agriculture and other industries, and what might go wrong to avert potential problems.



Todd Janzen

What Is AI Technology?

According to professor Anastassia Lauterbach, AI should be thought of as "narrow" AI or "general" AI.

Narrow AI is focused on solving a particular task. When we talk about machine learning, that is generally what we are talking about.

Machine learning involves a computer using vast amounts of data to make a decision — not just any decision — but to continue to make better and better decisions. Machine learning allows the computer to learn from its past decisions.

General AI is what we have been talking about more recently.

According to Lauterbach, general AI is similar but seeks to mirror the behavior and capabilities of a human to solve problems.

What we are seeing now with ChatGPT and other technologies is "generative" AI, which is a type of general AI that can generate new content that never existed. Generative AI like ChatGPT uses information from vast amounts of data that is publicly available, creating original content in response to inquiries from users.

How Might Farmers Use AI?

Much of farming involves analyzing vast amounts of data to make informed and better decisions for future crop years and, in the case of livestock producers, using that information to increase milk production on dairies, egg production on poultry farms, and meat production.

It is easy to envision how AI might be helpful in increasing plant and animal production.

For example, consider when a farmer asks what variety of corn to plant this year.

The market is saturated with seed companies and brands, each featuring dozen of unique varieties of No. 2 yellow corn, the most common feed corn. No human agronomist could reasonably analyze every possible variety and determine which might be best for a specific field, given the soil profile, weather predictions, pest predictions, anticipated weed pressure, the availability of irrigation, etc.

AI, on the other hand, when equipped with the right training data, could do that. AI would also be free from the inherent biases that humans bring. No seed salesperson is going to recommend seed from a competitor.

The same could apply to a modern dairy farm, when the producer asks, "Which cows should I breed this year with which bulls?"

Modern dairy farms often have hundreds or thousands of milking cows. Unsurprisingly, there are many companies that offer their bulls for breeding and promise great results. And it may surprise many that not all dairy cows are the same.

Some live productive lives longer, are more resistant to illness and better suited to different climates — dairies exist everywhere from sunny, hot Florida to northern Wisconsin. AI could be trained on all of this data and make breeding recommendations for the dairy farmer.

In some areas, we are already seeing narrow AI used successfully on the farm. John Deere has introduced See & Spray technology for its commercial sprayers.

For those unfamiliar, modern sprayers are tractors with large liquid storage tanks used to hold fertilizer or pesticides. With spray booms up to 120 feet wide, these machines can cover hundreds of acres in a day.

See & Spray is revolutionary, however, as it uses sensors to spot weeds and differentiate those weeds from desirable crops. The spray nozzles are then turned on only when a weed is sensed under the nozzle. Spray applicators only use pesticides on the weed and do not have to broadcast over an entire field.

This sort of technology is only possible with machine learning, as the equipment must be trained with vast amounts of data to distinguish good plants from bad.

What Might Go Wrong With AI?

Putting aside the Hollywood doomsday predictions of AI becoming so intelligent it decides to destroy humanity for the good of the planet, there are other more immediate and realistic concerns with AI in agriculture.

AI is only as good as the data that trains it. If the training data is corrupt or skewed by a company to increase shareholder value, such decisions could create problems.

Imagine a seed company figures out what data an AI tool like ChatGPT is using to make farming decisions and that company starts flooding the internet with false reports about its seed — data that we as humans never find through search engines, but AI zeros in on.

That seed company could skew the AI results to favor its products. Just as companies today use various tactics to game search engine optimization — making sure they appear on page 1 of Google searchers — we are going to see corporate marketing departments try to game AI systems to skew product recommendations in their favor.

Remember, too, that AI has to make mistakes in order to learn what is right.

This means mistakes will be made, on the farm and elsewhere, on the road to the future. Will AI also retain liability for these failures? This seems doubtful.

What Are Some of the Legal Implications for AI?

Companies that are wanting to use general AI to expand services to farmers should do so with cautious oversight.

Privacy has long been a big concern for farmers when it comes to their agricultural data, as evidenced by the interest in the Ag Data Transparent organization.

AI tools have the ability to violate the privacy walls that companies establish for their human users. Any company creating an AI tool should ask: Does the platform have the right to access confidential information? And, if so, are there safeguards to prevent release of confidential information?

A farmer may provide confidential agricultural data to an AI platform and not realize that information will not only be used for recommendations for his farm but for others too.

Companies should also make sure that AI platforms respect the rights of ownership of data, copyrights and other forms of intellectual property.

Currently, only humans or companies can legally create or own intellectual property. What happens when AI uses proprietary information to create new, derivative content? Who will own the resulting IP? And even more concerning, is the AI platform owner liable for violations of IP laws?

Companies trying to maximize the benefits of AI tools should also consider the ethical complications.

Is it ethical — or worse, fraudulent — for companies to attempt to fool AI platforms into making decisions that may not be based upon accurate data but instead based upon false data published to skew AI results in the company's favor? Can a marketing department flood the internet with exaggerated claims about the company's products in order to trick AI platforms into believing the (false) hype?

I don't know of any laws that address this scenario of intentionally misleading AI to generate inaccurate results.

Conclusion

There are concerns, but there are enormous positive implications for the use of AI in agriculture and elsewhere.

AI can be much better at analyzing vast amounts of data in an unbiased fashion than humans. AI can see patterns and problems that we cannot. Like all new technologies, the good will bring some bad that will have to be navigated along the way.

Todd J. Janzen is president at Janzen Schroeder Agricultural Law LLC.

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