What is digital agriculture?

Digital agriculture involves using sensor-based precision agriculture services or farming data made easy using technology. It is the combination of information and communication technologies to increase crop yields, farm efficiency, and reduce costs.

Who benefits from digital agriculture?

- Increased yields and efficiencies in agricultural production
- Improved crop management and pest control
- Enhanced monitoring and management of water and soil resources
- Reduced input costs and environmental impacts

How can we rethink food system innovation?

- Collaborative research between farmers and technology companies
- Focus on sustainable and regenerative agriculture practices
- Empowerment of small-scale farmers and local food systems
- Ethical use of data and privacy concerns

DID YOU KNOW...

- The privatization of research combined with concentration of power leads to data collected from producers, retailers, and consumers that is not transparent or equitable.
- The use of big data and machine learning algorithms to predict consumer preferences can lead to unfair market power and concentration of power.
- Digital agriculture can be a tool for regenerative agriculture, but it can also contribute to monoculture and industrial food production, leading to fewer consumer choices and smaller and local retailers being unable to compete.

How does digital agriculture work?

- Data Collection: Sensors and IoT devices collect data on various aspects of agriculture, such as soil health, crop conditions, and weather.
- Data Analysis: This data is analyzed using big data and machine learning algorithms to predict crop yields, weather patterns, and consumer preferences.
- Decision Making: Farmers and retailers use this information to make informed decisions about planting, harvesting, and marketing.

What are the supposed advantages?

- Increased yields and efficiencies in agricultural production
- Improved crop management and pest control
- Enhanced monitoring and management of water and soil resources
- Reduced input costs and environmental impacts

What are the critical concerns?

- The use of big data and machine learning algorithms to predict consumer preferences can lead to unfair market power and concentration of power.
- The use of data to predict consumer preferences can lead to a homogenization of food culture, reducing the diversity of produce available.
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Small diverse farms are really important for resilience in the food system. Of the world's 570+ million farms, some 84% are small (<2 hectares) and many have been losing land to consolidated and consumer choices are shaped by big tech companies. While digital technologies hold the promise of innovation—such as agroecological or regenerative food growing—that work with nature rather than against it, they can also contribute to inequitable market power.

Handpicked Podcast

STEM, Farming & Sustainability

View show notes at http://tiny.cc/hps2e2

The Laurier Centre for Sustainable Food Systems' podcast, Handpicked: Stories from the Field features researchers, students, and food system stakeholders. Join us as we explore digital agriculture, regenerative food growing, and solutions for a more sustainable and equitable food system.

Contact us: info@laurier.ca

Sources & Resources

- The price of convenience (2020)
- John Deere, one of the world's largest farm equipment companies, advertises their smart tractors with the tagline "Imagine a farm future defined by control, precision, and ease."
- AWS/cloud computing (Palmer, 2020)
- Can contribute to better crop yields
- May address labour shortages
- Can improve animal welfare

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