Legislative Council Staff
Nonpartisan Services for Colorado's Legislature

Memorandum

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TO: Interested Persons

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SUBJECT: Agricultural Data Sharing

Summary

Until the 1980s, farming practices relied heavily on shared knowledge, experience, and intuition. The introduction of precision agriculture – the use of technology and automation to make farming more efficient – both transformed farming practices and introduced a number of agriculture data challenges. Today, data-driven digital agriculture is expected to play a crucial role in producing 60 percent more food to feed the projected global population by 2050 (Yu et al. 2025). The agriculture sector now relies on interconnected data ecosystems to inform decision-making. Precision agriculture merges a wide variety of technology, including sensor networks, Internet-connected devices (also known as Internet-of-Things or IoT), and Artificial Intelligence (AI)-enabled farm machinery. Tools ranging from basic soil moisture sensors to advanced drones, satellite imagery, auto-steering farm equipment, and cloud-based databases comprise the precision agriculture data ecosystem. These devices and sensors are capable of collecting an averaged half a million raw agricultural data points per day per farm – projected to reach 4 million data points by 2036 – and sending this data to third parties for data transformation and processing (Yu et al. 2025).

Agricultural Data

Producers, mainly farmers and ranchers, collect a large diversity of data including:

- yield (crop production);
- livestock data;

- soil measurements, such as moisture or nutrient content;
- GPS coordinates;
- sensor data, such as climatic data, soil moisture, nutrient content, the acidity or alkalinity of soil, and more;
- climate and weather data, such as temperature or precipitation;
- fertilizer or pesticide application; and
- financial information.

These data help producers make informed decisions to improve production, efficiency, and agricultural practices, as well as reducing costs. Many producers collect data to inform their decision-making, with a recent survey indicating that around 82 percent of commercial producers collect yield data and 77 percent collect soil data. In the same survey, 70 percent of producers reported sharing their farm data with at least one cloud service provider. Of respondents not collecting data, 10 percent cited privacy concerns, 36 percent cited costs, 35 percent cited not knowing how to use the data, and 19 percent cited unclear benefits as their reason. This large amount of data can be used to inform producers on best practices for seeding, fertilizer/pesticide application, irrigation, carbon storage in soils, practices to lower costs, and more. In return companies may use such data for production decisions, innovation, or re-sale.

Raw vs. Transformed Data

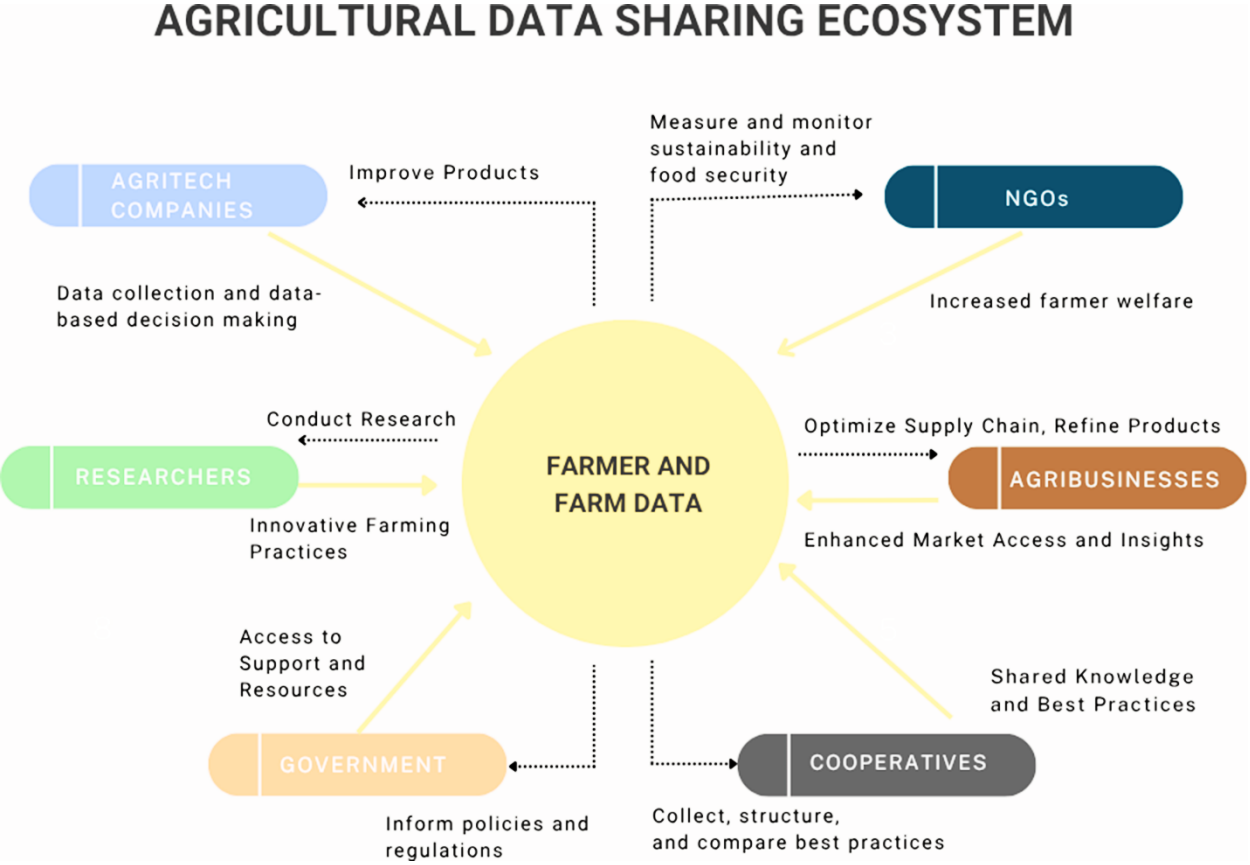
Raw data in an agricultural system is unprocessed data collected from the producer. Some examples include crop yield or fertilizer application data. Transformed data includes models or analysis based on the raw data. Some examples include transforming data for statistical analysis or making models to predict certain outcomes. Using the yield and fertilizer example, transformed data could model yield and fertilizer data to predict best times for fertilizer application or predict the optimal amount of fertilizer for a producer to minimize costs while maximizing yield.

Many producers might not transform their own data, instead relying on a cloud-based software system. For example, a producer could purchase and install soil moisture sensors that automatically upload the data to a web-based application. The measured soil moisture would be considered raw data, while any analysis, such as optimal timing for irrigation based on the soil moisture and climate data, would be considered transformed data. If allowed by the terms and conditions, the owner of the web-based application could sell this uploaded data, or use it to optimize its own operations, algorithms, or models.

Entities Buying and Using Agricultural Data

Several different entities purchase agricultural data including agricultural technology companies, nongovernmental organizations (NGOs), agribusinesses, cooperatives, governments, and researchers as described in Figure 1. Use of agricultural data has the potential to allow agritech companies to improve products, NGOS to improve sustainability and food security, agribusinesses to improve their products and supply chains, cooperatives to understand best practices, governments to inform policies and regulations, and researchers to conduct research. Producers may benefit from this data-driven work, which could increase farmer welfare, improve market insights, reveal best practices, support allocation of resources from governments or inform regulations, and generate innovative farming practices (Berisha et al. 2025).

Figure 1
Entities involved in Agricultural Data Sharing



Source: Berisha et al. 2025

Some examples of entities using agricultural data include:

- **Agricultural carbon credit companies**: These companies assist farmers in adopting carbon sequestration practices such as no-till or cover crops and model carbon storage in the soil from these practices using agricultural data. The companies then sell these credits to other companies looking to offset carbon emissions and pay farmers a portion.
- **Government and researchers**: Colorado State University and the U.S. Department of Agriculture (USDA) plan to pair farming data and remote sensing to use AI to improve soil health.
- **Seed companies**: Seed companies can collect GPS coordinates, climate data, planting, and harvesting data to generate maps to determine optimal planting locations, timing, and strategies. More recent innovation allows seed companies to use this same data combined with satellite or drone data and input this into machine learning and AI models to precisely predict how to increase crop yields on a small scale.

The results from one survey show that 90 percent of commercial producers used GPS guidance or auto-steer for farming equipment, 59 percent used technology guided by data for seeding, and 71 percent used technology for fertilizer application.

Agricultural Data Ownership

The agricultural data generated by IoT-enabled farm machinery, sensors, and related systems are not subject to personal data protection legislation, like the General Data Protection Regulation (GDPR) in the United Kingdom, nor through any federal legislation in the United States. Agricultural data has minimal personal private data and mostly comprises fact recording of natural phenomena (e.g. soil moisture, weather reports), information that does not cleanly fit into current property law and privacy protection laws. As a digital law and privacy issue, the concept of data ownership has been discussed as a method of consumer protections. For example, proposed laws recognizing personal data as an individual's property could establish property rights and associated protections.

Data ownership issues in agriculture are unique for a number of reasons. In other sectors, data can often be considered distinctly separate from physical assets, but in agriculture, data is intimately tied to the land, so data ownership may be seen as a reflection of land ownership and use rights. The unique, independent nature of data sources in agriculture can also complicate ownership rights, as data collected from a particular device often generates more useful insights when combined with data collected from other sensors and devices. For example, determining

an accurate irrigation prescription model cannot be done with soil moisture sensor data alone; it might also require the collection, processing, and integration of weather forecast data and crop growth information to generate useful insights regarding accurate irrigation (Berisha et al. 2025).

Another key agriculture data issue concerns privacy, especially when data is sold to third parties, as data on farming practices may reveal farmers' personal information or proprietary business insights, such as the effectiveness of certain farming techniques or the profitability of certain crops. Digital farming data is often stored and analyzed using an agricultural technology provider's web-based platform. A producer may agree to terms of service or licensing agreements in order to use a vendor's devices and cloud-based services, and as a result may unwittingly authorize third-party data sharing (DeLay 2023). For example, third parties may purchase crop data and combine it with available GPS data to gain targeted insight into a producer's farm without the producer's knowledge or consent. Agreements between producers and companies are typically long, legally dense, and hard to comprehend. One study found that 95 percent of these agreements were difficult to read and almost 75 percent required university-level education to comprehend (Berisha et al. 2025). Further research studying the third-party data sharing ecosystem in the agricultural sector is needed, including which third parties are involved.

The use of IoT-embedded and AI-driven devices in agriculture data collection introduces added complexity regarding data ownership. The introduction of AI and data-driven technology in farming means that farmers are no longer solely end users of agricultural tech, as they are also contributing data to agricultural tech development (Yu et al. 2025). Farmers contribute data, but the devices licensed by agricultural tech providers may also be creating their own data, so it can be unclear who "owns" the resulting data. For instance, farmers may physically install or host sensors, but the data is frequently processed and stored remotely in the cloud by the agricultural tech providers. In these instances, does this data belong to the farmers on whose land and with whose crops and cattle the raw data was generated? Or, does it belong to the agricultural tech providers who license these tools and transform raw agricultural data? Agricultural tech providers may argue proprietary rights over the generated raw data since their devices are often essential for collecting and processing it.

State Legislation

State policy addressing agriculture data ownership and regulation is emerging; seven pieces of state legislation have been introduced since 2016. See Table 1 below for more information.

Table 1: State Policies Addressing Agricultural Data Ownership

State	Bill	Status	Description
Minnesota	House Bill 2982 (2018)	Enacted	Agricultural Data - Relates to agricultural data; classifies data created, collected, or maintained by the University of Minnesota for inclusion on an agricultural data analysis platform maintained and hosted by the University of Minnesota that identify or could identify an individual or business as private or nonpublic.
Missouri	House Bill 1414 (2016)	Enacted	Agricultural and Animal Data Disclosure – Relates to agricultural data disclosure; defines necessary terms; excludes from the public record certain information or data concerning agricultural producers or land owners, as well as certain premises registration and animal identification or tracking information collected pursuant to the federal Animal Disease Traceability Program; allows for disclosure under specified conditions; provides for civil penalties for violations.
Colorado	House Bill 26-1270	Pending	Ownership of Agricultural Data – Establishes ownership rights for agricultural data and requirements for transactions involving such data. The bill creates two categories of agricultural data – raw agricultural data and transformed agricultural data – and grants agricultural producers ownership rights over data generated from their operations. It also establishes an excise tax on transformed agricultural data transactions and enforcement mechanisms through consumer protection laws.
Missouri	House Bill 3409 (2026)	Pending	Agricultural Data Ownership and Market Competition Act - Establishes ownership rights in agricultural data for agricultural producers and regulates the collection, use, and commercialization of such data. The bill addresses data ownership, market concentration limits, disclosure requirements, data portability rights, and monetization opportunities for agricultural data. The bill would impose various requirements on data collectors and provide enforcement mechanisms through civil penalties and private rights of action.

State	Bill	Status	Description
Nebraska	Legislative Bill 525 (2026)	Pending	Agricultural Data Privacy Act – establishes protections for agricultural producers' data related to farming operations, including production, financial, equipment, and location data. The bill requires written consent before agricultural data can be collected, processed, or shared by controllers or third parties, and allows producers to revoke consent, requiring deletion of their data within 30 days. Enforcement authority rests with the Nebraska Attorney General, who may seek injunctions or civil penalties for violations, and the law does not create a private right of action.
Hawaii	Senate Bill 2790 (2024)	Failed	Would have appropriated funds for the Department of Agriculture to hire two fulltime positions to collect, manipulate, and graph data and to build an agricultural data dashboard for public consumption and a one-year study on agricultural markets for state farmers; required a report to the Legislature; declared that the General Fund expenditure ceiling is exceeded.
Montana	House Bill 966 (2023)	Failed	Providing Agricultural Data Collection Protections – Would have required companies that collect agricultural data for commercial purposes to disclose the nature of the data collection and allowed agricultural producers to opt out of having their data sold or transferred.

Source: National Conference of State Legislatures (NCSL), March 11, 2026.