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CASE STUDY

An Agricultural Data Cooperative for Farmers and Farmer Cooperatives

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An Agricultural Data Cooperative for Farmers and Farmer Cooperatives

A “digital highway” for farmers to safely share data with service providers

JoinData began in 2017 as the first data cooperative, dedicated to Dutch farmers, with the aim to make sure that any farmer can pool, control, connect and share data—in a safe, secure and fair way—with agribusiness and innovation partners, and to make sure the data and benefits flow back to the farmer. The data cooperative facilitates the exchange of data in a safe and transparent way. JoinData has created an independent platform where farmers are able to take full advantage of digital innovations in agriculture, sharing data safely, fairly and above all with the farmer himself at the helm. The case study provides insights into data cooperativism and its governance structure, data fragmentation, and value chain development, as well as transparency and control over data.

It is no secret that data holds a lot of opportunities for innovation, growth, and productivity when shared and integrated with data from other stakeholders. There is somewhat of a tradition in Dutch agriculture of groups of farmers or communities working together on farming strategies and learning from each other. Dutch farming is leading the world when it comes to efficiency and innovation. However, the use of data among individual farmers remains fragmented and siloed. Farmers need to be able to take full advantage of farm data progress.

For farmers, it is still challenging to bring all their data together in an easy-to-use dashboard. In the Netherlands alone, there are at least 25 digital platforms for arable farmers.¹ Many platforms have been developed to serve one type of application or supply chain—usually from the primary perspective of the food processor or input supplier and their farm advisors, and less for farmers. The result is usually restricted interoperability and complex systems.

Surveys among dairy farmers show that they all consider data to be important, however, almost 40% do not know which parties they have authorized for the use of their data. In reality, a myriad of different kinds of authorizations for the use of data have been issued over the years by farmers to various parties. Farmers often don't know to whom and for which purpose these authorizations were issued.²

Farmers are reasonably reluctant to share their data. Vendor lock-in is lurking, as data cannot be easily transferred later on to another service provider, making a farmer reliant on that particular platform. Some don't want to share data as they don't want to give away sensitive data that can be used against them in contract negotiations. The fear also exists that public authorities could use their data to

1. Kempenaar, C., Mollema, R., et al. (2020). [Haalbaarheidsstudie PL4.0 data-ruimte: knelpuntenanalyse datagebruik op boerenbedrijf en aanbevelingen om de impasse te doorbreken. Wageningen UR.](#)

2. Poppe, K., et al. / Int. J. Food System Dynamics 12 (4), 2021, 301–313, 307.

intervene in their day-to-day work or penalize unsolicited practices. Privacy concerns are also raised. Digitization makes it possible to control parts of the production and move the decision making from farm to algorithms of powerful players.

Farmers in the Netherlands also face the problem of not being able to oversee what companies and organizations have received their authorization to collect their data. None of this is listed together. It may well be that a farmer issued a number of authorizations on paper (signed) while they have issued other authorizations digitally. An authorization may be out of date, for example, if a farmer switched to a different feed supplier without withdrawing the authorization from their former supplier.

“It is incomprehensible for a farmer what he is sharing and collecting in terms of data. It’s good to have an independent party that monitors this. You don’t want data to just end up with another party undesired. They could have a different interest. I often see that an entrepreneur shares his fertilization or accounting data with, for example, the purchaser of milk or potatoes. But those parties only require that once. The lines don’t have to be open all the time,”

Djessie Donkers of advocacy group ZLTO

Other challenges related to the case study environment

- Farmers lack awareness of the value of data, as well as the comprehension and implications of data being misused or what happens when it falls in the wrong hands.
- Like most other professions, farmers are hesitant to share their data, for example, because they perceive it as a missed revenue and/or they want to maintain exclusive access to the data.
- Data is usually shared without strict and clear purpose limitations.
- In order to maximally benefit from data, setting up a standard for data sharing is an absolute must.
- All parties in the value chain must be connected.
- Access to data sources is an issue, because members are mostly downstream agribusinesses, not upstream producers of data collection machines. Their business model might be at odds with sharing their data, and they might not see the added value to sharing their data—their incentive to accept interoperability is low.
- Farmers may not be willing to pay for storing and managing their raw data, unless they receive well-defined monetary benefits in return, though some may be motivated by the subjective feeling of more control, independent of any monetary gains, or even willing to pay for additional costs.
- Only large cooperatives with a sufficient volume of data collection can achieve the needed economies of scale and scope in data aggregation to produce efficient data-driven services.

How are problems solved?

Cooperatives have played an important role in the economic emancipation of large groups of the population, especially around the turn of the 19th to the 20th century. Through the cooperative, producers (especially farmers, see also agricultural cooperatives) and consumers can unite and thus jointly achieve goals that would have been unattainable for any individual, especially in the area of investment.

The Netherlands knows a long, cultivated history of agricultural cooperative mechanisms. Many dairy cooperatives have been established, some of which still exist. The largest dairy company, FrieslandCampina, is a cooperative, created by a merger of several smaller ones. It is no wonder that the first data cooperative has grown from collaboration between agribusinesses, knowledge institutions, and dairy farmers, with the purpose of stimulating innovation on farms. Large cooperatives, like FrieslandCampina and Agrifirm, were at the forefront of this. Soon after, LTO Nederland, EDI-Circle (partnership of accountants), and Rabobank joined, which was to become the nonprofit cooperative JoinData. The group saw the need for better data sharing—not only from organizations that want to make data available or use data, but especially from farmers who want to be in control when it comes to their data.

JoinData is a data cooperative with a mission to make sharing data safer³ and fairer, and above all, put the farmer in control of their data.⁴ The online platform facilitates the secured data for interested parties in the value chain. JoinData is now being used by organizations and agribusinesses in the dairy, arable, and pig-farming sectors. The parties affiliated to the cooperative are attempting to include other sectors, such as poultry and horticulture, to join. Other private actors, such as banks and digital tech providers, have joined the cooperative. Through the use of the **My JoinData** platform for the entire agricultural sector, data sharing can take place as efficiently as possible. Together with security and convenience, these are the advantages provided by JoinData to agricultural entrepreneurs and chain partners.

JoinData does not own or store the data shared on the platform, nor any intellectual property derived from it. The data cooperative does not use or modify it; they only distribute it from one party to another. Its goal is to ensure that data is shared securely through a “digital data highway” and is not open to unauthorized use. Farmers can manage their authorizations for sharing data and view their data streams through My JoinData. Based on the coop concept, the aim is to connect all parties to enable farmers to gain maximum benefit and retain control over their own data and authorizations. Bringing all authorizations together digitally on the platform helps farmers with an overview and gives farmers the option to manage their authorizations at any time.

A general assembly is held three times a year to discuss the past and future policy of JoinData. Members can vote, monitor how plans are implemented, and have a say in strategic matters and other important decisions. This is with a select group of representatives—large cooperatives, like the Dutch Dairy Association and Rabobank. The supervisory board supervises the management of JoinData. The board advises, solicited and unsolicited, on the general course of events. An independent audit committee oversees how farmers share their data via the platform. The committee monitors the

3. Everything JoinData does complies with regulations for safety, like the CCPA (California Consumer Privacy Act).

4. The JoinData cooperative is a collaboration between Agrifirm, CRV, EDI-Circle, FrieslandCampina, Rabo Frontier Ventures, and LTO Nederland.

process of data sharing and ensures that the farmer's position is strengthened. In order to achieve this, members can have checks carried out on authorizations and data exchange. The board is responsible for the day-to-day affairs.

Data ownership and control. Farmers can decide who and for what purpose their data will be used. The purpose limitation tells the farmer exactly what the recipient intends to do with their data. Everything on the platform is encrypted. The platform offers an overview of all active data flows. Farmers and users can choose which organizations get access to what specific data, authorize parties for specific data that is used for a predetermined goal, and stop this at any time, by withdrawing authorization. All sources and purchasers are bundled together, such as, the GPS location, milk quality, or financial data. The exchange and sharing of data will become easier if all players use the same method. This creates a standard in the sector that contributes to ease of use and efficiency.

Value chain development. By enabling exchanging, combining, and re-using data, JoinData helps farmers and other parties in agriculture run their businesses more sustainable and efficiently. The data is being used by developers to create innovative applications that give farmers and other agricultural parties more insights into their businesses. JoinData aims to encourage innovations, which will eventually result in improved performance in terms of sustainability, profitability, and welfare.

Facts and figures

Between 2016–2020 in the Netherlands, the number of cooperatives in the agribusiness sector grew by 23%, to 216 cooperatives.

- Almost 40% of dairy farmers do not know which parties they have authorized to use their data, and also are unaware for which purpose, and whether this is done safely. Only 1/3 are confident their data is handled carefully.⁵

Important factors for an enabling environment

- For personal data, the data subject as a natural person and generator of data is the obvious rights holder and the basis for data protection rights in the General Data Protection Regulation (GDPR). There is no equivalent for non-personal farm data, unless there is only one single data originator.
- JoinData is ISO 27001-certified. This means that data traffic flowing via the platform is guaranteed to be secure. ISO 27001 is a globally recognized standard and describes in detail how to deal with securing data to ensure the confidentiality, availability, and integrity of information within the organization.
- JoinData shares data in accordance with legal requirements, such as the GDPR.

5. Based on an online survey conducted by JoinData in 2021. [Dairy farmers can do much better in sharing data.](#)

Financial viability and sustainability

The sharing of data is at the core of the data cooperative's business model. Companies and other parties interested in using the data from the platform pay a fee to JoinData for their service. Parties that want to use farm data, like accounting firms, suppliers, fodder, and sensors, pay a fee to JoinData for the data "transport". As a nonprofit, the cooperative reinvests any revenues directly into the platform, such as the user interface and security. JoinData invests its time and effort in creating new partnerships, connecting all parties in the value chain, and communicating the benefits of the service. Farmers pay a fixed amount of 50 euro per year to compensate for the use of the tool. As a cooperative, JoinData can keep the rates as low as possible. Their ultimate ambition is to facilitate secured data sharing on an international level.

"It's unbelievable how many agencies can request and view my milk production just like that. Good thing that with JoinData, us farmers can now decide for ourselves who is allowed to look."

farmer Mathé van den Bosch

What was the impact and what lessons can be learned

- Implementing data cooperatives is most successful in countries where cooperatives have cultural, historical, and/or institutional relevance.
- Enabling farmers to gain maximum benefit and retain control over their own data and authorizations in the Netherlands should not differ much from low- and middle-income Countries (LMICs). There are lessons that can be shared here across the globe, especially for countries that have a similar culture regarding cooperatives. For example, how data ownership is handled, purpose limitation, and how data sharing is facilitated.
- Whereas farmers in countries like the Netherlands experience an overload of contractual data sharing agreements and the resulting lack of transparency, farmers in LMICs generally experience data-sharing "fatigue," because of repeated requests for (the same) data. A platform like My JoinData, which brings all authorizations together digitally, could help overcome this sentiment and provide for an easy-to-use, accessible platform for smallholder farmers.
- Over 16,000 farmers have become members.
- Some 260 parties, like fodder suppliers, have joined, sharing data via JoinData. Currently, there are 70 parties using data for the farmer.