

NDA Belgium – Flanders

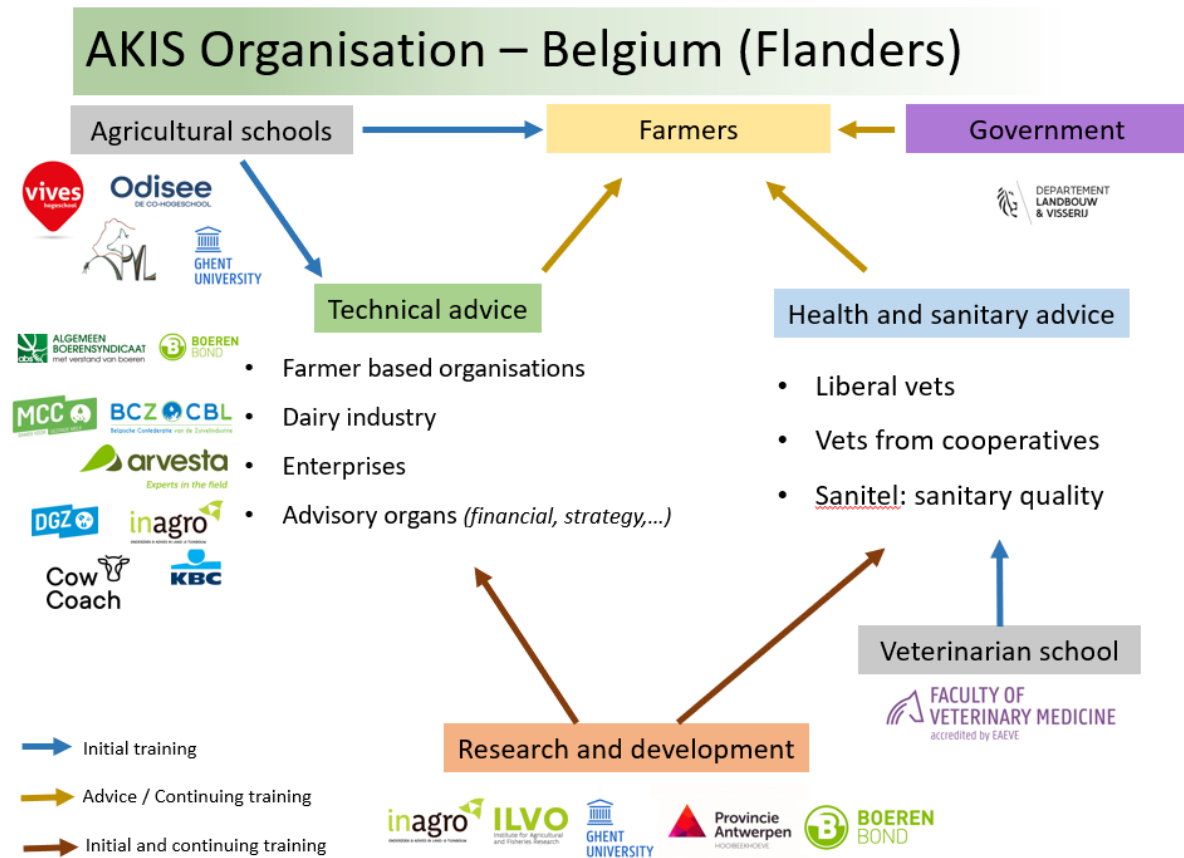


Figure 1. Dairy Agricultural Knowledge & Information System (AKIS) in Flanders

Flanders (Belgium) has a regional dairy AKIS that consists of 23 members (Figure 2):

- 7 pilot farms
- 3 advisor institutions: Inagro, Cow Coach and DGZ
- 1 enterprise: Arvesta
- 1 Financial institution: KBC
- 3 research institutions: Hooibeekhoeve, ILVO, Ghent University (Lanupro and Faculty of veterinary medicine)
- 2 farmer-based organisations: Boerenbond, ABS
- 2 dairy industry institutions: BCZ and MCC
- 1 government institution: Department of Agriculture and Fisheries, Boeren op een Kruiispunt
- 3 education institutes: Odisee, PVL and VIVES

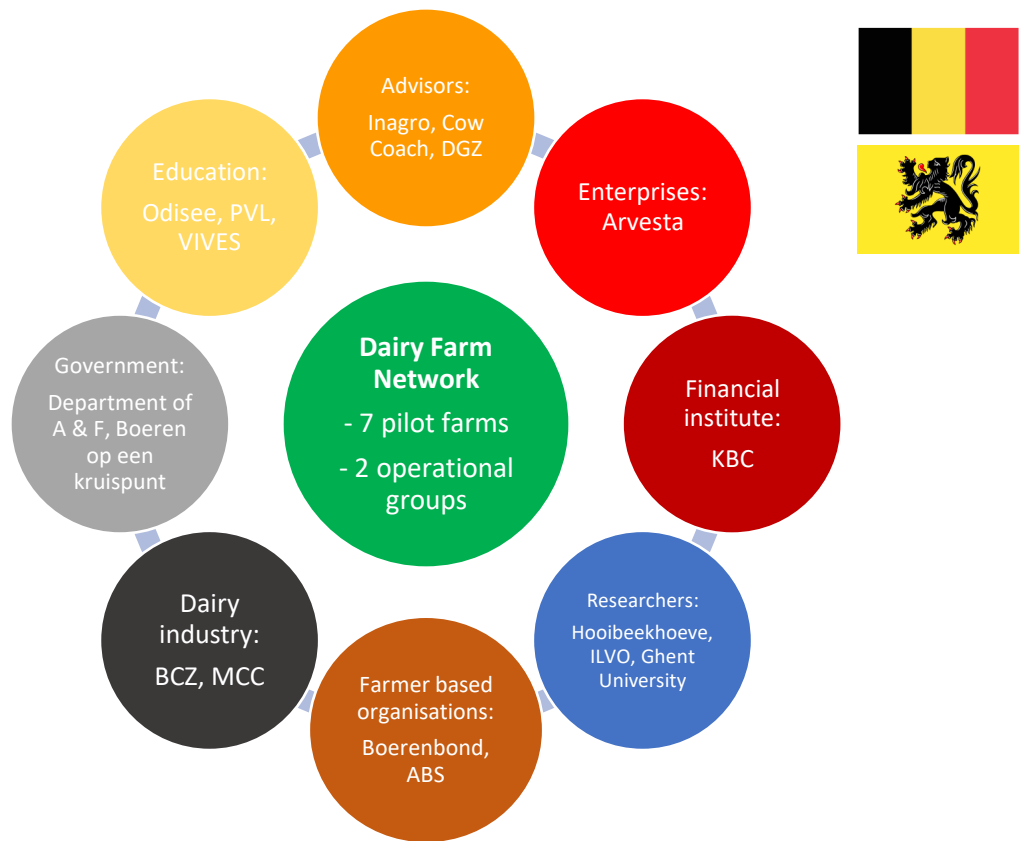


Figure 2. The regional dairy AKIS of Flanders (Belgium) consists of 7 pilot farms and 18 non-farmer institutions each with their own expertise.

Below, each member will be described into more detail.

Pilot farms

The seven pilot farms are spread over Flanders and are depicted in Figure 3.



Figure 3. Location of the 7 pilot farms in Flanders (Belgium).

1. Dirk Vandecandelaere (Wervik)
 - Volume of milk production:
1.000.000 kg per year
 - Dairy cows:
115
 - Reason to include this farm:
This company is a rather average company. The farmer has questioned the resilience of the dairy sector on a few occasions, so this farm can be of added value when involved in the project.
2. Johan Van Hecke (Maldegem)
 - Volume of milk production:
620.000 kg per year
 - Dairy cows:
65
 - Reason to include this farm:
This company is rather a smaller company in Flanders but today, through an operational group (LOKROB, see below), it is investigating the possibility of reducing the cost of concentrates by developing an automatic system that distributes fodder beet (or other tasty roughage) in small portions through the milking robot.
3. Karel D'Hooghe (Zele)
 - Volume of milk production:
910.000 kg per year
 - Dairy cows:
90
 - Reason to include this farm:
This dairy farmer is currently investing in a new low-emission barn (max. number of cows 110) and his roughage is based on grass, grass/clover only.
4. Koen Op 't Roodt (Olen)
 - Volume of milk production:
3.830.000 kg per year
 - Dairy cows:
300

- Reason to include this farm:
For Flanders, this is a larger, intensive company with focus on high production
5. Nico Vanneste (Oedelem)
- Volume of milk production:
970.000 kg per year
 - Dairy cows:
110
 - Reason to include this farm:
The farm works very labour efficient.
6. Steven Van Parys (Machelen)
- Volume of milk production:
1.100.000 kg per year
 - Dairy cows:
120
 - Reason to include this farm:
This dairy farmer has succeeded in integrating existing automations into 1 new barn, so that this barn can be considered fully automated. Which automations: 2 robots, feed kitchen with automatic feeding system through a central corridor, manure scraper with manure separator and automatic filling of the deep litter boxes, controlled cow traffic, ...
7. Van Hecke – Cornu (Oudenburg)
- Volume of milk production:
850.000 kg per year
 - Dairy cows:
90
 - Reason to include this farm:
This company is focused on cost control. Top production is not the objective.

Operational groups

1) LOKROB - Alternatives to conventional feed concentrates (attractants) in milking robots for dairy cows

- Starting and end date:
1/01/2021 – 31/12/2022
- Objective of the project:
Pelleted concentrate feeding in automatic milking systems is the standard in today's dairy farming. It supports the milk production in high yielding dairy cows, and it is an extra incentive for cows to go to the milking robot. High power feed consumption in milking robots is one of the factors that puts pressure on profitability on robotic farms. The farmers in this OG wish to focus on alternatives for these concentrates (e.g. fodder beet, potatoes, waste apples, pears) on the one hand and to develop an alternative reward system without feed materials on the other hand.
- Description of activities:
The practical studies will focus on:
 - 1) Developing, optimising and testing a system for the automatic and continuous provision of fodder beet/potatoes in the AMS.
 - 2) Searching for a non-feed alternative reward systems to lure cows to the milking robot. Selection and testing of an alternative reward system (e.g. calf vocalisations in AMS, aromas, smell diffusion in AMS, coat brush in waiting room or after AMS, pasture access after milking) based on available literature.
 - 3) Evaluate the economic and environmental benefits of the alternative systems as compared to traditional feed concentrates.
- Website:
/
- Coordinator name and contact:
ILVO, Leen Vandaele: Leen.vandaele@ilvo.vlaanderen.be
- Partners:
 - 1) 2 dairy farmers: Johan Van Hecke, Apers-Mertens
 - 2) ILVO
 - 3) Meyland
 - 4) Achten BV
 - 5) Lely
 - 6) proFarm – Jan Bourgeois bv
- Funding Organisations:



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2) MILKTOOLS - Dairy farmers want to switch operational faster and more rationally

- Starting and end date:

1/03/2021 – 28/02/2023

- Objective of the project:

Dairy farmers make short-term operational decisions on a daily basis, but too often decisions are still based on a habit rather than on well-founded figures. The OG will develop a user-friendly web-based calculation tool that will allow dairy farmers to make interim calculations on the major key parameters for the sector. These should enable them to take faster and more rational action with regard to operational decisions. In this way, the OG of dairy farmers aims to improve their economic resilience and disseminate the results of their own findings to the whole dairy sector.

- Description of activities:

The project consists of five consecutive steps to achieve the objective:

- 1) Identify relevant key parameters that reflect the operational and financial situation of a dairy farm and that fall within operational issues on a dairy farm.
- 2) Define the calculation method for the selected key parameters.
- 3) Convert the calculation method to a web-based calculation tool.
- 4) Evaluate the tool in practice. Dairy farmers in the OG are guided in interpreting their farm-specific results on the one hand and provide feedback to improve the tool on the other hand.
- 5) Inform the sector and encourage dairy farmers to get down to work.

- Website:

Website to the first tool: "Inseminate with the right straw":

<https://shiny.ilvo.be/LM/Jongveetool/>

- Coordinator name and contact:

Boerenbond, Patrick Meulemeester: Patrick.Meulemeester@boerenbond.be

- Partners:

- 1) Boerenbond
- 2) ILVO

- Funding Organisations:



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Non-farmer stakeholders

Education:

1. Odisee – campus Sint-Niklaas
Represented by Jo Vicca, teacher and researcher Agro- and Biotechnology
Odisee is an educational institution who also provides educations in the agricultural sector. By being part of the NDA in Flanders, Odisee tries to exchange knowledge about the dairy sector and how to make dairy farmers more resilient.
2. PVL
Represented by Stef Keppens, projectmanager
The Agricultural Research and Training Center (Proef- en Vormingscentrum voor Landbouw, PVL) is located next to the Biotechnicum, a secondary agricultural school. This institution provides practical tests in pig farming, dairy farming, and the cultivation of forage crops. PVL provides information and after-school training for farmers. By being part of the NDA in Flanders, PVL tries to exchange knowledge about the dairy sector and how to make dairy farmers more resilient.
3. VIVES
Represented by Joost De Jonckheer, lecturer.
VIVES is an educational institution who also provides educations in the agricultural sector. By being part of the NDA in Flanders, VIVES tries to exchange knowledge about the dairy sector and how to make dairy farmers more resilient.

Advisors:

1. Inagro
Represented by Isabelle Vuylsteke
Isabelle Vuylsteke is dairy specialist and leading the unit of Animal Production at Inagro. She started her career at Inagro working several years on practice-oriented research and demonstration in organic livestock production. Thereafter, she worked as a researcher and dairy farm advisor for several years. Nowadays she coordinates the dairy research and advice activities and is involved in several demand driven applied research projects concerning dairy management, nutrition, economic competitiveness, ... Within the R4D project, Isabelle is knowledge facilitator and co-lead on the technical area. Isabelle participates in the Flemish NDA to help to moderate the meetings, to contribute on the needs of the dairy sector, help to reflect on the solutions to resilience and also to contribute on the exchange of information.
2. Cow Coach
Represented by Kristine Piccart, consultant.
As an independent consultant, Kristine Piccart supports dairy farmers in integrating technology, such as milking robots and sensors, into their farm management. Kristine is a veterinarian by training, but after a career in agricultural research, she founded the Cow Coach consultancy in 2019 with the aim of making technology more profitable for the farmer and the cow. The exchange of knowledge and ideas about improving technology and automation is the main reason for joining the Flemish NDA.
3. DGZ vzw
Represented by Zyncke Lipkens, veterinarian.
DGZ is, together with MCC, the reliable partner of the Flemish livestock farmer and the dairy and livestock sector. Together with their various partners, DGZ and MCC continuously invest in high-quality and reliable services. As a link between the farmer, his veterinarian and the

government, they create value for all their customers, who play a central role in their activities. Working together, they can tackle the many challenges facing the sector. That is why DGZ and MCC are motivated to support R4D.

Enterprise:

1. Arvesta

Represented by Domien Dobbelaere, Technical commercial responsible Cattle.

This company has more than 120 years of experience in in the agricultural and horticultural sector. Today Arvesta is the largest Belgian full-service partner for farmers and horticulturists with a strong international network that continues to grow. They are active in animal feed, agriculture and horticulture, machinery, flour and are known for their 250 Aveve stores. By being part of the NDA in Flanders, Arvesta wants to exchange knowledge for farmers to be more resilient.

Financial institute:

1. KBC

Represented by Jan Leyten, Agricultural Economist

KBC is a financial institution. KBC focusses also on specific sectors like the agriculture sector. By being part of the NDA in Flanders, KBC wants to exchange knowledge for farmers to be more resilient.

Researchers:

1. Hooibeekhoeve

Represented by Nick Rutten, advisor.

Nick Rutten has been working at Hooibeekhoeve since 2015 as a dairy researcher. In the first years his research was mainly focussed on ammonia emissions from dairy barns. In addition, Nick tries to be the link between 'the field and the stable'. For example, he tries to associate the crops grown on the field to the ration in the stable.

As a practice centre for dairy farming and forage crops, Hooibeekhoeve can bring quite some practical knowledge to the Flemish NDA and Hooibeekhoeve also tries to pick up knowledge to use for future research.

2. ILVO

Represented by Leen Vandaele, Matthieu Frijlink and Marieke Vandaele.

ILVO is an independent scientific research institute and service organization of the Flemish government that contributes to promoting a sustainable agriculture, fisheries and agri-food sector in Flanders, Belgium, Europe and in the world. ILVO's dairy farming research group has broad expertise in all facets of dairy farming (production, quality, economy, animal welfare, etc.). In addition, ILVO includes other departments that include scientific research in all steps of the dairy production process: from soil to table. Recently, ILVO has been focusing even more on collaboration and knowledge sharing in the sector by establishing the Living Lab Livestock Farming. With this platform, active efforts are made to improve the dissemination of research results, as well as a closer connection between research and needs from practice. By being part of the Flemish NDA, ILVO hopes to further improve knowledge sharing in this sector and to keep track on difficulties in the sector in order to be able to continue designing scientific research in function of current needs.

3. Ghent University

a. Faculty of Veterinary Medicine

Represented by Hans Van Loo, veterinarian and lecturer at the Faculty.

The Faculty of Veterinary Medicine, Ghent University, is not only a university where students can reach their degree of Master of Veterinary Medicine, but also an institution that does research in a wide range of topics in veterinary medicine. The person who joins the NDA meetings visits dairy farms as advisor and performs research for the dairy sector. By being part of the NDA in Flanders, the Faculty of Veterinary Medicine wants to exchange knowledge for farmers to be more resilient.

b. Lanupro

Represented by Veerle Fievez, Professor and researcher ruminant nutrition. Animal Nutrition and Animal Production Biology (Lanupro) is a lab at the Faculty of Bioscience Engineering, Ghent University which consists of 3 research disciplines: ruminant nutrition and microbial metabolism, monogastric nutrition and carcass and meat quality. The research of the group “ruminant nutrition and microbial metabolism” emphasizes on ruminant nutrition and microbial digestion in livestock to advance knowledge towards a more resource sustainable animal nutrition. As such they aim to contribute to a responsible food production and healthy productive animals. By being part of the NDA in Flanders, Lanupro wants to exchange knowledge for farmers to be more resilient.

Farmer based organisations:

1. Boerenbond

Represented by Jan Halewyck, dairy cattle consultant

As a dairy consultant at the agricultural organization “Boerenbond” Jan organizes training and provides advice on business economics. Exploring, inventing and passing on new techniques and insights to bring other dairy farmers to a more economical, ergonomic and sustainable revenue model are always useful and definitely arises the interest of Jan. From the perspective of international knowledge exchange, he also has experience in the exchange of knowledge about dairy farming between dairy farmers in different countries as Jan also participates in the European club “European Dairy Farmers”.

2. ABS

Represented by Mark Wulfrancke, Policy officer.

Algemeen Boerensyndicaat vzw (ABS) is one of the largest agricultural organisation in Belgium. ABS is a syndicate that ensures that the interests of their members (farmers and horticulturists) are defended as well as possible. ABS is politically neutral. ABS currently has approximately 4,000 members and is open to every farmer and horticulturist who is concerned about the future of his family business. By being part of the NDA in Flanders, ABS wants to exchange knowledge for farmers to be more resilient.

Dairy industry:

1. BCZ

Represented by Jolien Willems, advisor Sustainability & Communication.

BCZ is the professional association of the dairy industry in Belgium. The members of BCZ, the dairy companies, collect about 98% of the milk from the farmer and process it into tasty and healthy dairy products. BCZ represents the interests of the dairy companies. In addition, BCZ participates constructively in the social debate on topics related to milk and dairy products, such as food safety, healthy nutrition, and sustainability.

BCZ and its members are committed to achieving a future-proof dairy farming that contributes to a sustainable future and can be part of the solution. Both aspects, both ecologically and economically, must be considered. BCZ is therefore very interested in the

ideas and conclusions that emerge within this project, both nationally and internationally. These can then be included in our own operations and to stimulate further sustainability in the entire dairy sector.

2. MCC vzw

Represented by Koen Lommelen, responsible dairy and dairy farming.

MCC is, together with DGZ, the reliable partner of the Flemish livestock farmer and the dairy and livestock sector. Together with their various partners, MCC and DGZ continuously invest in high-quality and reliable services. As a link between the farmer, his veterinarian and the government, they create value for all their customers, who play a central role in their activities. Working together, they can tackle the many challenges facing the sector. That is why MCC and DGZ are motivated to support R4D.

Government:

1. Department of Agriculture and Fisheries – Flemish Government

Represented by Laurence Hubrecht and Elke Vrancken, sector advisors Cattle.

As sector advisors for cattle, Laurence and Elke fulfil a bridging function between policy, research and the cattle sector. They achieve this by building up sector knowledge, by providing input to fellow policymakers based on sector knowledge, by ensuring a good knowledge transfer from the policy to the cattle farmers and stakeholders and by following up demonstration projects, research projects and operational groups. Laurence and Elke wish to participate in the Flemish knowledge centre to get to know the needs in the dairy sector, to build up knowledge of the dairy sector, but also to contribute to the exchange of information.

2. Boeren op een Kruispunt

Represented by Leen Lietaer, Advisor.

Leen Lietaer is a daughter of dairy farmers and graduated in 2017 as veterinarian (ruminants). Afterwards she worked for another 4 years at the Faculty of Veterinary Medicine as a PhD student on a study on fertility in (dairy) cows. Since this year, Leen has been working at the non-profit association Boeren op een Kruispunt, where they try to support farmers with all kinds of questions (financial, economic, psychological, technical or social problems). This means that Boeren op een Kruispunt has a very good picture of what is happening on the Flemish farms. The organization is also very interested in the proactive approach of certain problems, hence the strong motivation to be part of the Flemish NDA.

Facilitation methods

What have we done?

During brainstorm sessions, resilience in the dairy sector was discussed, more specific: needs and possible solutions to cover the needs. The 3 main themes were addressed: 1/ socio-economic resilience, 2/ technical resilience and 3/ environment, animal welfare and society. In each meeting, the members of the NDA were divided into 2 groups: farmers and non-farmers. Afterwards, the 2 groups were brought together to have a general brainstorm session whereby the vision of both groups were shared amongst each other. The most valuable solutions were selected, tested and disseminated.

What was easy?

It was easy to find motivated members for the NDA. The meetings were very interactive, and we got a lot of input.

What was difficult?

The COVID-19 situation made it difficult to bring the group together. The members of the NDA were really motivated but a lot of needs seem to be related to regulations that are out of control of the farmers.