

A holistic transition from conventional dairy cattle to agroecological dairy goat farm:

“Gaining self-sufficiency and resilience by producing, processing and marketing grassland-based products, and by educational activities for children”

Farm: **Vincent DELOBEL, ‘Chèvrerie de la Croix de la Grise (Goatfold of the Grey Cross)’**

Location: **HAVINNES (TOURNAI), BELGIUM**



Picture 1 (Credit: Vincent Delobel)

Background

Francis Delobel and Christiane Faux, Vincent’s parents, created the farm in 1982. They started a conventional farm with Holstein-Friesian dairy cows. They progressively discovered the ‘skids and nonsense’ of this conventional farming. In 1997, they became organic for better connecting with nature and being consistent with their vision about their place in nature. They first delivered all their milk production to a French dairy factory. Some years later, this dairy factory was bought by a larger group (Lactalis) that was not interested to collect their milk anymore. They then heard that a cheese factory was looking for organic goat milk. They decided selling their dairy cows and bought 200 dairy goats. Again, all their milk production was delivered to the cheese factory. After some years, the relationships with this factory degraded. Francis and Christiane took another drastic decision: selling three quarters of their goat flock, building a cheese production workshop with the result of the sale and starting to process their milk into cheese. Cheese was mainly sold on local markets. This corresponded to their wish to give back the human and social dimensions to their profession.

The farm was still small, about 20 ha. The half was permanent grassland and the other half arable land where forage crops (cereals and temporary grasslands in rotation) were grown. This was not enough for guaranteeing a sufficient income. Therefore, other activities were needed. Francis and

Christiane thought offering educational activities to children from primary schools. These activities initiated children into nature and farm life. It was a success.

Vincent (pictures 1 and 2) graduated from Wageningen University in The Netherlands where he obtained a Master in Rural Ethnography in 2014. He took over the farm of his parents in 2016.



Picture 2 (Credit: Vincent Delobel)

Detailed description

In 2018, the farm has an area of 23 ha, 9 ha of permanent grassland and 14 ha of arable land including 9 ha of temporary grasslands and 5 ha of complex cereal/pulse mixtures. These mixtures are harvested as grain and used as concentrate feed for goats. The most complex ones can contain rye (*Secale cereale*), triticale (x *Triticosecale*), oats (*Avena sativa* and *A. nuda*), spelt (*Triticum spelta*), forage pea (*Pisum sativum*), and vetch (*Vicia sativa*) (picture 3). Permanent grasslands are mainly grazed and temporary grasslands are cut for hay and grazed.



Picture 3 (Credit: Vincent Delobel)

This dairy goat system is very innovative notably because it is one of the few in North West Europe where goats can graze and are not kept indoors in a barn their whole life (pictures 4 and 5). The area grazed by dairy goats is managed in a rotational system. Rotation is organized with fixed external fences and perpendicular mobile electric fences by modules of three grazing days. The first day, dairy goats have access to an area corresponding to one and a half grazing day. Then the electric fence is moved the second and third days, the new daily area corresponding for each of these days to 0.75 grazing day. There is no electric back fence. This system allows more daily space the first day but the grass in excess is consumed the second and third days while respecting a maximum of three days per period of stay. The fourth day, the system starts again on a new area. The rest period is at least 40 days for controlling goat internal parasites.

Temporary grasslands are sown with a complex forage mixture including 14 species of perennial grasses (3 species, 3 cultivars), perennial legumes (5 species, 9 cultivars), chicory (*Cichorium intybus*), plantain (*Plantago lanceolata*), and forage winter oilseed rape (*Brassica napus*) as a 'starter' (1,5 kg/ha). Chicory is used as a dock (*Rumex* spp.) control mean on wet heavy soils. Its root system is similar to dock and it is supposed to take up its ecological niche. Plantain and chicory provide a lot of minerals, proteins, and tannins to the animals. Their tannins help to control goat internal parasites. Animals find also tannins in shrub and tree leaves in hedges (picture 4). Forage oilseed rape harvested as hay does not induce an unpleasant taste to milk. The high plant diversity

of this forage mixture is appreciated by goats. It is cut four times per year for producing hay. When hay is not dry enough, it is harvested by a pick-up loader wagon and it is dried out in barn on wooden pallets between straw bales with a blowing system (3-5 HP). Temporary grasslands are kept for three to five years. They are followed by cereal/pulse mixtures for grain in the crop rotation. Lactating goats ingest about 2 kg of DM of hay per day when kept indoors.



Picture 4 (Credit: Vincent Delobel)



Picture 5 (Credit: Vincent Delobel)

The main objectives of the grazing system consist in producing high quality grass for dairy goats, decreasing their internal parasite pressure, and reducing daily work associated with the move of electric fences. Regarding the control of workload for moving fences, the 4-wire Gallagher system has been adopted because it is easy to handle. Seasonal dairy production is synchronized with grass growth. It starts in April and ends in autumn. In rainy days of the grazing period, goats have to be fed in barn with hay because grazed fresh grass would be too wet. Hay should be high quality at that lactation period. In contrast, hay distributed in winter can be lower quality because there is no milk production at that period of the year. Flexibility of the feeding system is thus a necessity during the grazing period.

Goats are Saanen crosses with a high proportion of Saanen blood and a smaller proportion of Poitevine blood. There are about 80 goats, 2 bucks and 20 female kids.

Vincent fitted in with the strategies of his parents: developing a thrifty and self-sufficient system, resilient and resistant to crisis, close to nature. This was achieved by decreasing production costs,

processing a large part of raw milk, developing a customer base and selling processed products in short and local marketing chain.

He developed also several innovative agroecological techniques: agroforestry for timber production on arable land, orchard of ancient cultivars of fruit trees, complex legume-based forage mixtures for temporary grasslands, complex cereal/pulse mixtures for grain production, and reduced tillage techniques. In continuation of his father's practice, part of soil work is made by draft horses in complement to a small tractor.

Vincent is always looking for innovations and improvements of his system. He kept contacts with Wageningen university researchers and developed relationships with several other universities and research centres in Belgium and other European countries.

He founded a local group of innovative farmers who meet regularly for exchanging experience and experiment results. This group clusters about 30 farms that are conventional or organic and share the same concern about the development of agroecological practices. They consider themselves as representatives of the 'new peasantry'.

He is also active in policy and lobbying activities at Belgian and international levels for defending peasant rights.



Picture 6 (Credit: Vincent Delobel)



Picture 7 (Credit: Vincent Delobel)

Results

Dairy goats produce 450 litre of milk per animal and per year. Total annual production is about 30,000 litres.

All milk is sold as raw milk or processed in raw milk cheese. Cheese is fresh or fermented and presented in different shapes (e.g. crottin, little cheese ball, small cheese log, goat milk camembert) (pictures 6 and 7). Fresh cheese is sold at about 13€/kg and fermented cheese at about 25€/kg. Consumers highly appreciate milk and cheese quality. There is no intermediate; the added value is kept in the farm.

The stocking rate is about 1.1 livestock unit (LU) per ha of grassland area and 0.85 LU per ha of agricultural area.

The educational farm welcomes 1,500 children per year (pictures 8 and 9). Children lead for instance goats to grassland plots and make other activities such as goat milking, cheese making and tasting, initiation to environmental problems, organic farming and agroecology, and wild plant and bird watching. Children can also make a farm tour in a horse-drawn wagon or ride horses. At the end of the visit, each child receives a cheese and brings it back home which contributes to product promotion. Five-day stays cost about 110 euros. The price of one-day visit is about 10 euros.



Picture 8 (Credit: Vincent Delobel)



Picture 9 (Credit: Vincent Delobel)

This agroecological system on a very small farm has been able to create two jobs. Francis and Christiane are still working half-time on the farm. This is an impressive performance.

Adoption criteria

The system is working because it is small scale and very flexible. The adoption of this resilient, thrifty and self-sufficient system has been motivated by survival. The farm is too small for providing a decent income to a family in a conventional system. The alternative would have been to enlarge farm size which would have been difficult because of access to land problems and would also have required massive debt.

The success of this farm is based on a progressive, well-thought transformation, and on a clear strategy that was also defined little by little for facing agricultural income degradation and dependency on agro-food industries.

A strength of this farm is its coherent approach. Innovations did not consist in the adoption of isolated techniques but in a holistic approach where all elements are complementing each other and ensure the profitability of the whole system.

Future prospects

Vincent has the objective to continue improving the farming system. The following topics are his priorities. He would like to develop a better organic manure management for reducing nutrient and particularly nitrogen losses. He considers that losses are too important during the composting process. He will explore other manure treatments such as Bokashi. He would also like to test the effect of the addition of whey, the by-product of cheese production, on litter quality and fermentation. He wants to further develop his no-till crop rotation. Reducing parasite pressure in goats, especially in young animals, is a permanent concern in his grazing system. New sources of tannins for instance could be identified and better used. He wants to progressively increase fruit production and tree plantation in general in his agroforestry system. Improving infrastructures and better equipments are important for reducing workload. He has also the ambition to reduce energy consumption and move towards a fossil energy-free farming system.

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