



Producing antibodies in Sweden: Agrisera (Vännäs)

Is There Antibody out There?

Northern Sweden is not just about bad-tempered elks and canned, fermented Baltic herring. At a homestead near Umeå, for example, a small enterprise focuses on the production of antibodies.

When Greger Nordlund was 27, he decided that his life needed a radical change. Unhappy with his boring job at an insurance company, he resigned, left the small town of Umeå (a metropolis is his eyes) and returned to his birthplace, Vännäs, a village of just 4,000 people. "I didn't like that job in Umeå", Nordlund remembers. "I wanted back to the countryside and to perform labour with my own hands."

That was in 1976. He bought a dairy farm in Vännäs and began a relaxed career as a milk producer. Three years later he met an old university friend by chance, who made a strange suggestion. Nordlund should buy hens and a rooster and produce fertilized eggs for a small biotech company called Bionative (now Swedish Orphan).

Paving the way for cancer drugs

During the late 1970s and 1980s, Bionative manufactured interferon as a cancer drug. To induce the cellular production of interferon, they needed huge amounts of the Sendai virus (SeV).

Nordlund took up the challenge and his cows were no longer alone. At the start, twenty Swedish hens were engaged for the production of SeV. Business went well and, by the early 1990s, ten employees were harvesting Sendai viruses from more than 6,000 eggs per week. Meanwhile, Nordlund had expanded his collection of animals and was using 25 goats as antibody producers. "As a farmer, you have to be inventive," Nordlund smiles, "you have to handle a lot of things and keep them rolling, in addition to repair tractors and all these things."

Life was superb until 1994, when everything changed overnight. Nordlund lost Bionative as a customer and was abruptly faced with ruin. "At that time I learned not to lay all eggs in one basket", he says, meaning that it is risky to rely on one or two customers and to offer only a few products.

These hard times are behind him now. Agrisera, as Nordlund's company has been called since 1985, has expanded its staff to 17 and has an annual turnover of more than €1 million. In addition, the company

has shifted its focus to the production of antibodies.

Shifting to antibody production

But where is the huge herd of goats needed to produce vast quantities of antibodies? Nordlund smiles. Most of Agrisera's antibodies are now produced in rabbits and chickens. His enterprise boasts various prominent customers, including AstraZeneca and Bayer Crop Science, and was closely involved in the Swedish Human Protein Atlas (HPA) programme that was set up for a systematic exploration of the human proteome using antibody-based proteomics. In recent years, Agrisera has tried to focus on antibodies for plant research, benefitting from its close ties with the Umeå Plant Science Centre and other institutions around the world.

Asked whether Agrisera is profitable, Nordlund smiles again. "We started with a farm and 100,000 SEK (€10,000) and have never been able to burn money. It's our own money. Yes, we realise profit."

WINFRIED KOEPELLE



Greger Nordlund, Chief Executive and founder of the antibody manufacturer, Agrisera, flanked by colleagues.