

Me, a company director How I see my company 4.0



Today, **Christophe Laignel**, President of SAS **L'Enrouleur Français**, explains how his company and its employees are focused on the Agriculture of Tomorrow, and how they are solving costly problems through innovations developed in partnership with DFM.

Hello Christophe Laignel, you are now president of the company L'enrouleur Français, and you are surrounded by people with very different profiles, how did you come to work together on this innovation project?

I may have an atypical background, but it has allowed me to meet a lot of people who convinced me to embark on the adventure of entrepreneurship at the age of 50, right at the beginning of the Covid pandemic...

With a DUT in Applied Biology and an Engineering degree from the Mines, I had the opportunity to work in the food industry (Quality Control Laboratory Manager at Yoplait), precision mechanics (Production Manager at Rubimeca, a prototyping company with a strong focus on aeronautics and space), and consulting (senior consultant at Altran Group). I also had the pleasure of accompanying young entrepreneurs as director of the business incubators at the Amiens Chamber of Commerce and Industry.

It is within this framework that I was able to meet the two people you are interviewing today:

Didier Legendre, my dearest associate, farmer by trade and also our "Geo Trouvetout" who has an admirable "good peasant sense". Didier, after a long career in the potato industry, is today, with Pascale his wife, at the head of a stable of 40 horses. Also a hunter, he has co-developed with the Federation of Hunters of the Somme a cable reel (the Balzan) which has become today the French Reel.

Carolina Oña La Micela, former Financial Director of the Picardie Jules Verne University, met when she launched her firm NCLI Conseil while I was still at the Amiens Chamber of Commerce and Industry, without whom we would not be talking. Carolina allowed us to raise in the first round of financing and very quickly, 600K€ essential (and certainly not easy to obtain) to start our adventure well.

When Didier talked to me about his project of marketing a reel to be used to reel the 40 000kms of electric fences installed in France and per year, to protect the crops from the damages of game representing a global budget for the hunters' federations in France of 117M€, the story began to interest me a lot.

By studying the subject more precisely, in particular by relying on the parliamentary mission report on the regulation of large game populations and the reduction of their damage, we became convinced that there was a lot to do in this niche market. Based on the observation that electric fencing is the most effective system for preventing game damage, we had to design an industrial solution for installing and removing fences and, above all, invent our own sensor that could permanently inform us of the proper functioning of the fences.

We decided to create the SAS L'Enrouleur Français with a capital of 45K€ on the 20th of May 2020 in the middle of the covid crisis. Our first 2 objectives:

To develop a process allowing a team of 2 people to install and remove up to 8 km of fences in one day with means accessible to most people and without any particular qualification.

We quickly recruited Bertille Raguin as an apprentice product designer and who resumed her training at the IUT Génie mécanique et productique in Amiens. Bertille worked on different subjects such as the organization of our transport trailer, the layout of our cable reel, our cable reel but also on the specifications of our future application related to the sensor.

We also needed a profile oriented towards management control in order to have skills in project management and adept at social networks and therefore able to handle the communication of the French Reel. We thus welcomed Damien Delansorne.

Concerning the sensor, it was imperative to have Gerard Sinpraseuth in our team, whom I have known for several years and who has worked on many different projects around telecommunication systems, computer networks, cybersecurity, IOT, with an impressive network and especially a startup culture that is essential for us.

You all have profiles that tend towards innovation and constant improvement, what was your first observation about the agriculture sector and more specifically the fence?

The world of agriculture, like the world of hunting, is changing. Global warming, the evolution of our societies, our consumption patterns and especially the new technologies more and more accessible require strong adaptations.

Producing better quality and quantity while respecting the environment are real challenges.

When we know that 77M€ are paid by the Hunters' Federations every year in France to compensate farmers for game damage (30,000 hectares or more than 40,000 soccer fields destroyed every year), it is important to work on effective damage prevention.

Concerning the electric fence, the installation and removal are much more technical than it seems. To have a good efficiency from the semi until the harvest (8 months for corn) is far from being obvious and especially requires a regular maintenance of the fences. To obtain the highest voltages on our fences (up to 14 000V) many parameters come into play. The quality of the installation of course, the quality of the material, of the earth, but also the verification that no grounding of the cables is caused by vegetation for example or falling branches.

In its strategy to increase efficiency and reduce costs, Enrouleur Français has set itself the objectives of a 30% reduction in prevention costs and a 10% reduction in costs

What solutions have you come up with to meet this need, to solve this problem?

The installation of fences being technical and time-consuming, we had to be able to offer a turnkey service by focusing on reactivity and cost control.

We have therefore imagined and designed a fully equipped trailer (750 kgs loaded, requiring only a classic B license) capable of transporting within a radius of 150 kms what to put up or put down 8 kms of wild boar fences => in the trailer we find a quad bike (Yamaha Grizzly 700cc and its cable reel, plastic molded stakes, corner stakes, steel cable reels and of course the cable reel...)

Our electric fences being mainly powered by 12v, we propose our security box which embeds a solar panel and its voltage regulator which allows to maintain the 12v battery in charge. This same battery feeds the energizer which allows to generate up to 14 000V on our fences. This box is secured against theft because it is electrified and it is also equipped with our sensor.

Were there any constraints, any technical requirements?

As you have understood, we work in open fields and in all weathers. All our processes and equipment must be compatible with particular climatic conditions. Concerning the remote monitoring of our fences, connectivity and battery consumption management are our main issues. The security of our people, equipment and the data sent back by our sensors is also a particular point of vigilance at Enrouleur Français.

We have chosen to work with industrial solutions that guarantee the reliability of our various solutions.

For the sensor part, we chose LoRaWan technology for its advantages in terms of autonomy but also the possibility of developing our own private networks while relying on the Orange public network.

What we measure with our sensor: every 10 minutes, we read the voltage of the 12V battery, the voltage on the fence, the internal battery of the sensor and its temperature. Our sensor is also geolocated allowing us to easily follow its trace in case of theft.

What are the human and financial benefits of modernizing and connecting fences?

The main advantages are financial. The gains to be made by using the French Reel solutions are of the order of several million Euros per year in France, knowing that the problem of game damage on crops is worldwide...

The standardization of methods and means allows us to be more efficient and the continuous control allows us to optimize and to go even further in the continuous improvement.

Our method of installation and removal, although physical, is designed to protect the health of the operators, the standardization of the material allows us to work on the volume effects and to reduce the costs of raw materials, the remote monitoring allows us to guarantee the efficiency in time and to bring back metrics allowing us to better understand the behaviors in time and in their environment always with the aim of continuous improvement.

What innovations do you see the world of agriculture moving towards?

For us, the best way to understand why and how innovations will transform the world of agriculture is to take a close look at what our partner ARVALIS, the Institut du Végétal, is doing to serve farmers and the industry.

Arvalis' main objective is to help agricultural producers, their organizations and the companies in the sectors to solve all the technical, technical-economic, societal and environmental problems they face.

The institute has 27 sites throughout France, including the Boigneville site in the south of the Essonne region, and employs more than 400 people, including 300 engineers and technicians. It is, therefore, a major player in French agriculture.

Arvalis is a customer of the Enrouleur Français since we follow 4 of their plots. Our 2-year partnership covers our skills in IOT and the deployment of connected solutions administered in our own management system.

What about you? What are your next projects?

We are currently in the process of raising funds that we hope to finalize by the end of the year. This fund raising (750K€) will allow us to continue to improve our solutions while developing the international market. Our ambition is to become a world leader in remote monitoring of electric fences.

The proximity of the agricultural world allows us to access a maximum of information and problems to solve and therefore as many solutions to invent and industrialize...

Finally, what do you expect from a relationship with a technology innovation partner?

The encounter with DFM Europe was fundamental for the implementation of the French Rewinder strategy. We wanted to work with a French design office with a real competence in LoRaWan and with an industrial vision of things.

We were thus able to benefit from functional prototypes in less than 6 months with the software solution for the administration of our sensors.

Our regular exchanges and the involvement of the teams in understanding our needs and expectations reassure us.

We wish to continue to co-develop solutions together by focusing on the most relevant solutions in terms of new technologies and telecommunication solutions.

We will need the network and skills of DFM Europe to serenely target the international market.

