# THE EUROPEAN ALFALFA DRYING SYSTEM

**Eric Guillemot**[1]

## 1/ SUMMARY

Alfalfa drying developed in the Fifties in Europe and became a high-performance industry in the early Eighties. Being exposed to the vagaries of the worldwide protein market, this industry looked for energy savings and tried to increase its value added by growing innovative crops.

The European Alfalfa industry is responding to the demands of the European citizenry for water and environmental protection, biodiversity and better landscape by offering new benefits, but it must operate in markets influenced as in many other sectors by speculation on the part of hedge funds .

Key words: alfalfa, history, challenges and assets of the European alfalfa drying industry

## 2/ SOME HISTORY

Let me give you some background about our industry: In 2010, the alfalfa drying industry in Europe included 300 plants and 50,000 farmers cultivating half a million hectares and producing some 4,200,000 tonnes of finished products.

Alfalfa drying began in Europe in the early fifties. At the time, this fodder preservation technique was advanced and innovative when compared to ensilage and hay making. There were lots of permanent meadows and legumes, mainly lucerne. Agriculturally, growing legumes was necessary and outlets had to be sought for such crops.

The beginnings of green fodder drying were empirical. There were many drying plants, they were often very small and set up on large farms.

A new era dawned in the early Sixties, with the dissemination and popularization of synthetic fertilizers as well as the development of plant- protection products and the introduction of high-yield seeds. At the same time, some farmers began to specialize. Some were breeding animals, others were growing major crops. That spelled the end of an agricultural model whereby farmers employed their family as unskilled farmhands. Europe also inaugurated the CAP or Common Agricultural Policy that aimed to increase production in order to put an end to the food shortages that had been plaguing the peoples of Europe for many decades.

Such factors led to a reduction in the need for legumes, which were no longer an agricultural necessity, and to the shutdown of many breeding facilities located on farms. The farmers that were producing dairy products had to dismiss the farm labor needed to make hay, which was

---

[1] Eric Guillemot, ericguillemot@aol.com Secretary General, European Association of Dehydrators, Brussels **In**: Proceedings, 2011 Western Alfalfa & Forage Conference, Las Vegas, NV, 11-13 December, 2011. UC Cooperative Extension, Plant Sciences Department, University of California, Davis, CA 95616. (See http://alfalfa.ucdavis.edu for this and other alfalfa conference Proceedings.)

partly replaced by corn ensilage .This led to the gradual reduction of alfalfa acreage in the 1960s.

I must add that the students as future breeders were taught to use a corn ensilage model complemented by soybean cake to feed dairy herds ; This was so successful that milk production per cow exploded in line with the expectations of the CAP.

This should have led to an increase in alfalfa acreage and to a greater number of drying facilities. However, the CAP placed greater emphasis on growing cereals to the detriment of other crops.

The first oil shock in 1973 put paid to the determination of many driers. The second oil shock a few years later killed the ambition of drying operators in many regions. However, at that time, agricultural leaders realized that the old drying system had many drawbacks and was too much of a cottage industry . This is how large industrial facilities came to be set up, employing qualified engineers who strove to optimize energy efficiency and yield .

In 1974 the European Commission cottoned on to the fact that 75% of vegetable proteins bought by breeders were imported. This dependency would get worse as large farms were increasingly specializing, and using compound feed as a substitute for feed produced on the farm.

This brought three types of risks for European breeders: First, a supply risk, second, a risk of large fluctuations in prices due to the imbalance between supply and demand and to the wide swings in the value of the US dollar, which was the currency used in international trade. Third, a health risk as to the origin of the product.

As a consequence, the European Commission decided to guarantee the future of European breeders by aiding the fodder drying industry.

The European Union directed breeders to look after agricultural areas in which plant cultivation did not provide sufficient income to farmers.

Alfalfa is a crop that produces the most proteins per hectare: 2,400 kg of proteins per hectare on the basis of 13 tonnes of dried matter at an average rate of 19% as compared to 800 kg of proteins per hectare for soybean.

The European Union devised an elaborate aid system to help driers invest in more efficient drying plants This mechanism, which did not benefit all driers, made it possible to shut down obsolete plants and to regroup them at more energy efficient production sites.

The European Union then took the decision to provide a support system to aid dried alfalfa producers. Initially the system operated by fits and starts and was ineffectual. But beginning in 1978/1979 it became fully operational and production of dried alfalfa soared. Most of the production was consumed inside the EU, with some tonnage being exported to countries in the Mediterranean basin. Far from being an obstacle to the import of proteins, the European aid mechanism helped to secure the future of European breeders and to boost protein imports. However, between 1986 and 1988, the difficulties in financing the CAP led to a massive scale back of the resources provided to this industry in an effort to maintain the right balance between other crops.

The decrease in the price of energy for more than a decade made it possible for this industry to cushion the impact from the lower aid  In 1986, the entry of Spain in the European Union

gave new impetus to the European production of dried fodder . Spain is today Europe's largest producer.

In addition, many facilities in Greece, France and The Netherlands were set up by dairy producers to process dry fodder for their own account, often batch by batch, which enabled farmers to trace back their product. But the bulk of the European production was still destined for the consumer market .

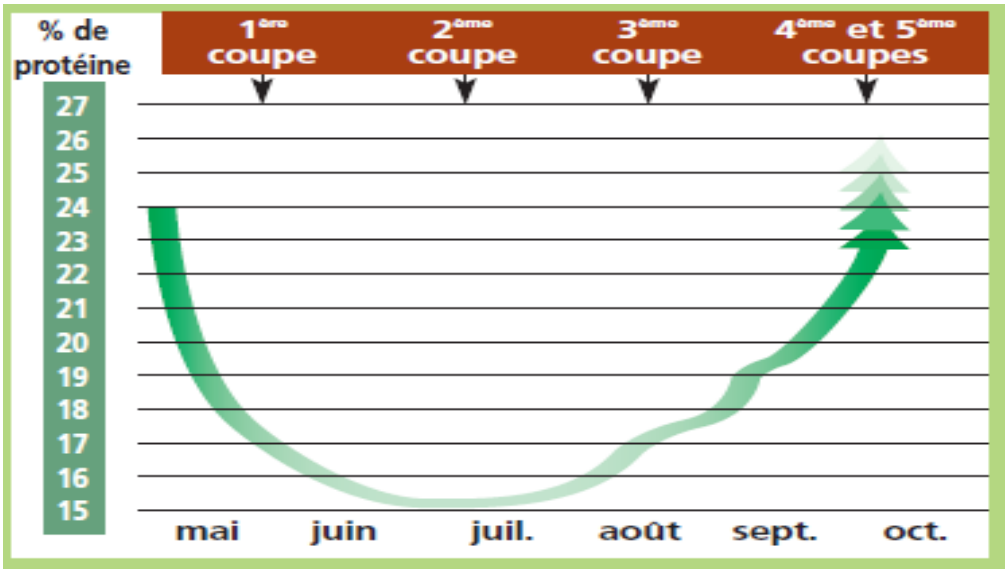
To conclude this potted history, I must point out that the EU will stop all payments as of the 2012 harvest.

European driers are faced with the dual challenge of maintaining farmers' income derived from Alfalfa and of providing a competitive feedstock to the breeders at a time where energy prices have soared and where the constraints imposed upon them in terms of sustainable development, food hygiene and safety as well as taxation are constantly increasing .

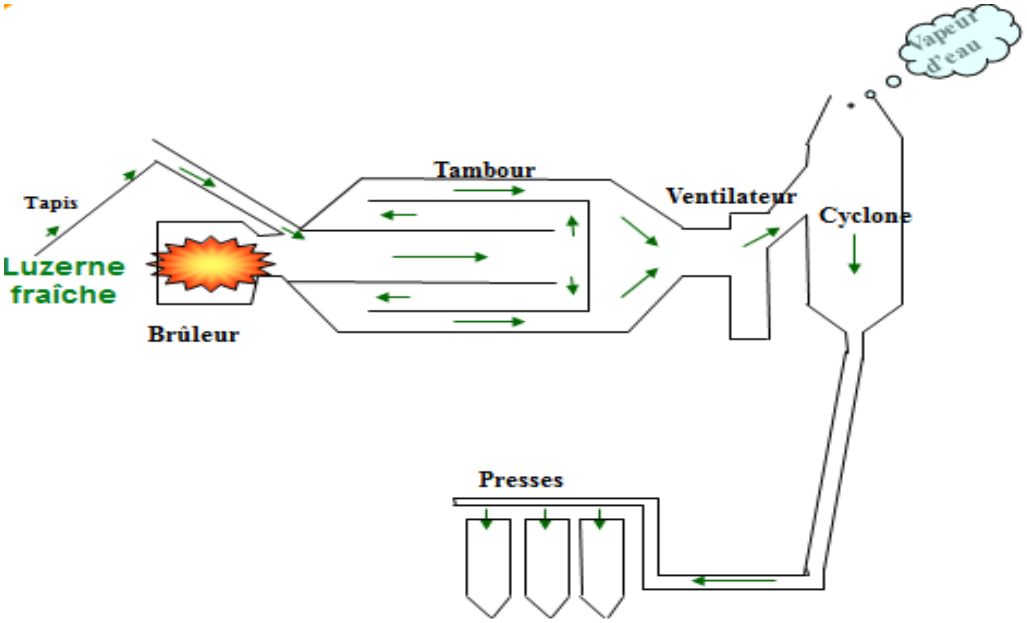
3/WHAT IS DRYING ?

Basically the process consists in artificially removing the water contained in alfalfa harvested and cut in the field by applying a heat treatment for tanning the proteins, which is called the by-pass effect, and is very useful for ruminants.

The job of the drier is to offer to the market a range of standardized products that meet the nutritional requirements of different species and which are based on a raw material called alfalfa whose protein and fibre content varies according to the time of the cuts (see diagram)




European driers use the same drying process, which has proven to be the most effective from an energy standpoint (see graph).




Stockage luzerne déshydratée (bouchons ou balles)

This job requires that logistics be under the tight control of the drier. This also holds true for supply to the plant since one must operate to tight deadlines so as to ensure that the dried product shall maintain the nutritional qualities of fresh alfalfa  This varies widely depending on the climate which in Saragossa, Spain, is often dry and hot as compared to Munich, Germany, which gets a lot of rain.

By the same token, the farmer must blend various cuts in order to meet the requirements of customers. Similar blending techniques, which are highly sophisticated, are also used for producing Europe's greatest wines.

4/ THE CHALLENGES FACING EUROPEAN DEHY

Getting energy costs under control is one of the conditions for the industry to be sustainable. We are entering a period where energy prices are bound to stay durably high and very volatile due to the current economic and financial crisis. Investing in more energy-efficient plants requires visibility, which the industry lacks nowadays. Taxes on fossil fuel and on C02 emissions in the European context are going to force operators to become more energy-efficient.

Over 50 % of European production (from Spain and Italy) already meets the criterion of low energy consumption per tonne of finished product. Other countries have made huge strides since 2005/2006 through more pre-wilting in the field and the use of biomass for fuel.

Our industry can no longer be taken to task for using too much fossil fuel.

European driers have been ploughing huge sums of money into R&D either individually or through their national federations. The goal is not to sell ever cheaper products but to add intelligence to the product and come up with new ways of using dried alfalfa.

The needs of the market must be analyzed from a societal viewpoint.

This entails taking into account the fact that breeders are working shorter and shorter hours. Selling them a product that is easy to use, store and distribute is one way to solve this issue.

Veterinary prevention and control is one of the still unmet needs. By giving their herds better feedstuffs, breeders can improve the profitability of their farm. Introducing long fibers makes it possible to reduce sub-acidosis, thereby reducing veterinary bills. Using dried alfalfa will help cows in heat and result in more successful artificial insemination and a shorter interval between calvings.

There is also a demand for a rebalancing of the ratio of Omega 3- to Omega 6 in food consumed by human beings. This imbalance might explain the occurrence of brain degeneration in the elderly (Alzheimer's disease, etc.). Adding alfalfa to the diet of dairy cows will increase the content of Omega 2 in dairy products. This added value must be shared more equally with agricultural producers.

Traditional markets also provide big opportunities. This applies especially to high-quality products such as Parmesan or Roquefort cheese in which farmer add value to food.

**5/ THE ASSETS OF THE EUROPEAN DRYING INDUSTRY**

The current political situation in Europe might lead in the coming 18 months to a greening of the CAP and to a stabilization of the CAP budget, without adjusting for inflation. In concrete terms, greening consists of limiting the use of agrochemicals and of improving farming processes, to maintain high yields. Some referred to this as productive and ecologically responsible farming. A raft of binding measures will be taken to promote sustained development in agriculture. Today, decisions are still pending, and lobbying groups are vying for influence over the future directions of this policy. This is what taxpayers and voters are clamoring for. In view of the environmental attributes of alfalfa, this is an additional advantage for growing this crop in Europe.

Europeans driers have well understood that they are producing public goods by reducing CO2 emissions, improving the quality of water resources and leveraging the impact of alfalfa on biodiversity. Some driers are considering monetarizing such public goods by using private monies. But as far as biodiversity is concerned, it will take time before a market such as the one for carbon offsets emerges to compensate for the destruction of biodiversity brought about by large-scale projects such as motorways and train lines or the encroachment of cities and suburbs on farmland.

The advantages of dried alfalfa are indisputable: GMO-free and easily traceable production ; industrialists abiding by stringent contractual terms such as protein; cellulose and xanthophylls content; the product's bypass effect; and the lack of dust. Plants are now able to produce organic products while respecting the exacting standards of HACCP. The most demanding buyers often share the same opinions on animal nutrition as do other key manufacturers. Both traditional and innovative products are bound to find market niches, but the key factor driving the market is the worldwide increase in protein demand. Increased meat consumption in emerging countries will lead to an ever increasing demand for vegetable proteins, and this trend is set to continue in the midterm .

The recent involvement of hedge funds in the commodities markets has distorted our customary analysis of supply and demand patterns. Each of you will remember the sharp decline in prices brought about by the profit taking of such funds, right on the heels of unreasonable price hikes . Faced with this situation, actual market operators could be tempted to sign long-term contracts to safeguard the interests of both buyers and sellers.