

WHAT IS ALFALFA?

Alfalfa (*Medicago sativa*) is an herbaceous plant from the legume family. It is prized as fodder owing to its excellent nutritional properties and its high degree of palatability.

Forages, in general, and alfalfa in particular, are essential food for livestock since they provide the necessary elements to maintain rumen function and animal health.

1. NUTRITIONAL VALUE OF ALFALFA. THE PERFECT BALANCE

Alfalfa as a source of fiber and protein. The most complete food, the perfect balance (fiber / protein).

The fibre and protein content of alfalfa varies based on different factors. The phenological state of the plant at the time of harvest is the most influential factor here. The highest protein content is obtained when the plant is harvested in the early stages before flowering. As the plant ripens, its fibre content increases and it becomes less digestible and the ratio of leaves to stalks also decreases

1.1. SOURCE OF FIBRE

1.1.1. WHAT IS FIBER? ARE THERE DIFFERENT TYPES OF FIBRE?

Neutral detergent fibre (NDF) and acid detergent fibre (ADF).

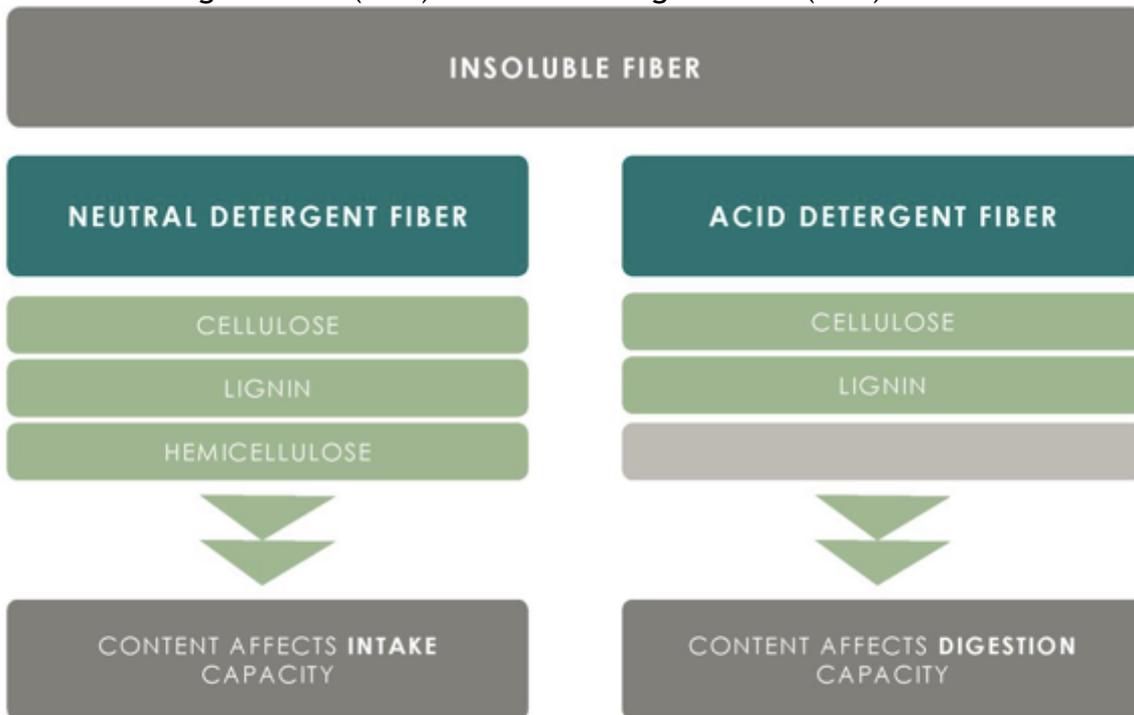


FIGURE 2

Fractions of insoluble fiber, neutral detergent fiber and acid detergent fiber.

1.1.2. HOW DOES ONE COMPARE FORAGE QUALITY?

The RFV is an index to classify forage quality, combining the ingestibility and digestibility of forage.

Calculating forage intake potential and digestibility according the following equation:

$$\text{RFV} = \text{DMI} \times \text{DDM} / 1.29$$

Where:

$$\text{Dry matter intake (DMI)} = 120 / \% \text{NDF}$$

$$\text{Digestible dry matter (DDM)} = 88.9 - (0.779 \times \% \text{ADF})$$

1.1.3. WHAT ROLE DOES INSOLUBLE FIBRE PLAY IN THE FARM CATTLE DIET?

In ruminants favors rumination, improving the intestinal digestible protein supply and animal performance.

In other animals, it facilitates the ingestion and transit of food, improving its general state.

Specifically, in milk cows If the proportion of forage in the ration is very low in high production cows a pathology known as ruminal acidosis may occur. The clinical signs of acute acidosis include anorexia, abdominal pain, tachycardia, lethargy and even death.



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FIGURE 7
Effects of ruminal acidosis.

Acidosis is also associated with other conditions that affect production. For example, laminitis, an inflammation of connective tissue in the hoof



LIMPING IS A FREQUENT CONSEQUENCE OF LAMINITIS

FIGURE 8

An inappropriate feeding system may favour appearance of laminitis.

We can say that fiber is necessary in the feeding of all types of cattle, but we consider it essential in ruminants in general, and particularly in milk cows, because in addition to its nutritional effect, it minimizes some health problems.

2. . SOURCE OF PROTEIN

The proportions in which a large part of the amino acids, small part in which a protein can be hydrolyzed, found in alfalfa are like those found in milk.

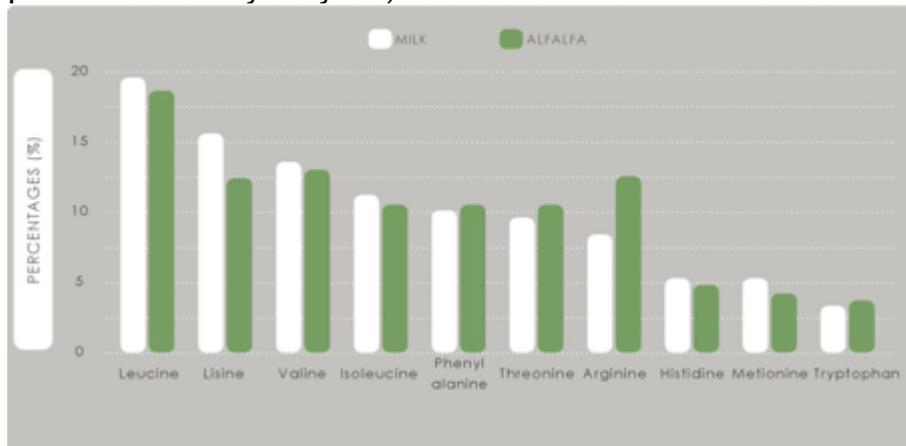


FIGURE 3

Essential amino acids of feeds will determine the production of milk and its composition (NRC, 2001).

3. . OUR ALFALFA IN THE FIELD AND FRESHLY CUT



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FIGURA 10

When properly processed, dehydrated alfalfa is an excellent quality forage.

Our alfalfa is the best fodder for cattle feed, as it provides an adequate ratio of fiber and protein.

We know the cultivation of alfalfa, we have been cultivating it for more than 500 years in our fields, and we know when we should make the cut to guarantee the maximum food quality of our product.

2. ALFALFA CONSERVATION METHODS

If we already have the best raw material, cut at the most appropriate time, to ensure that it reaches you in the best conditions, we must keep it to ensure quality over time.

The nutritional value of forage will vary depending on the conservation method employed.

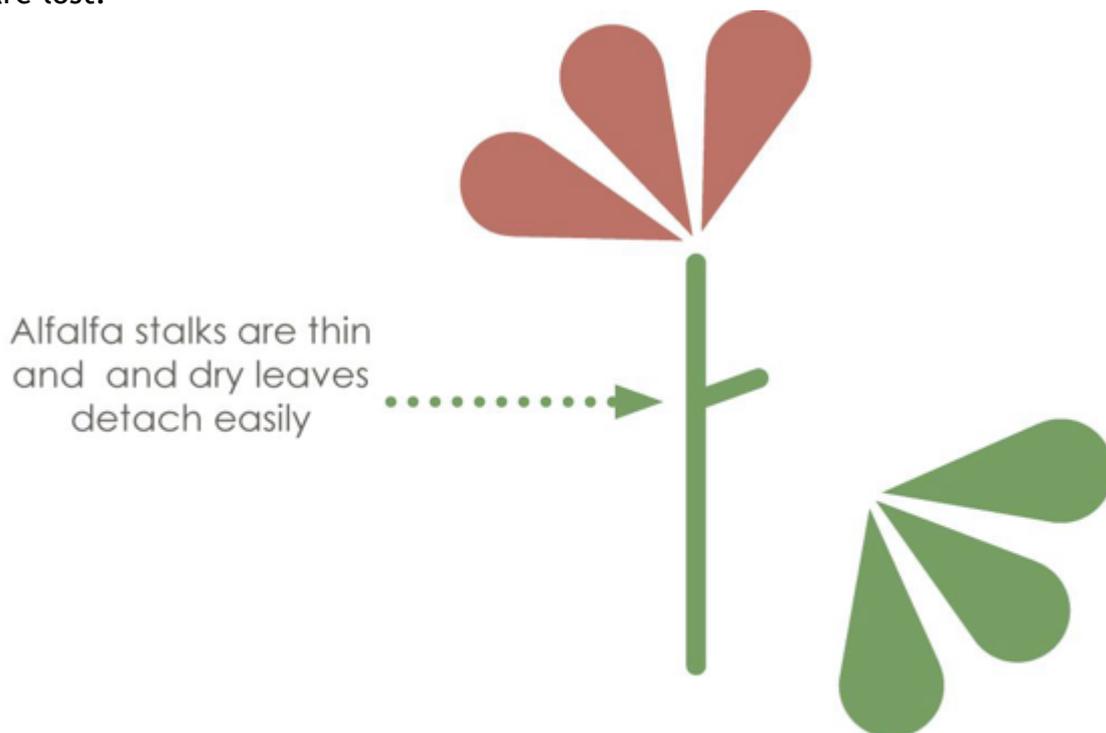
The methods of preserving alfalfa are, therefore, necessary for to make efficient use of pasture and forage crops, to guarantee the availability of alfalfa in times of scarcity, to preserve its nutritional properties and to facilitate transport from one place to another.

2.1. TYPES OF CONSERVATION METHOD

2.1.1. Alfalfa hay

Cut forage is exposed to the sun in order to reduce plant tissue moisture content via evaporation until the appropriate percentage of dry matter is obtained.

The biggest drawback of this process is that due to the high manipulation, vented, spread out or turned, many leaves that are separated from the stem are lost.



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FIGURE 3

Leaf loss is very common during hay making.

2.1.2. Silage

Conventional silage production requires specific equipment and machinery (forage harvesters, silage wagons, silage blowers, a silo and an unloader, as well as forage cutting equipment), rendering the process more complex.

2.1.3. Alfalfa dehydration

Artificial dehydration of alfalfa is an industrial method of conservation designed to reduce the dependence on weather conditions that characterizes haymaking and minimize their negative effects. Artificial dehydration reduces loss of nutritional value and decreases microbial contamination, improving hygiene and thus future conservation.

Due to the significant effect of the phenological state, it is very important to harvest at the most appropriate time. This is only possible when dependence on weather conditions is reduced. For this reason, better fodder is often produced when alfalfa is artificially dehydrated than when a haymaking process is used.

2.1.3.1. Main advantages of alfalfa dehydration process.

a) In the fields:



FIGURE 5

After a 24 to 48 hours period of field wilting, alfalfa is harvested by a chopping wagon and delivered to the dehydration plant.

b) In the milk caw:

It has been suggested that heat treatment during artificial dehydration of alfalfa can cause reactions that reduce the degradability of the protein in alfalfa in the rumen

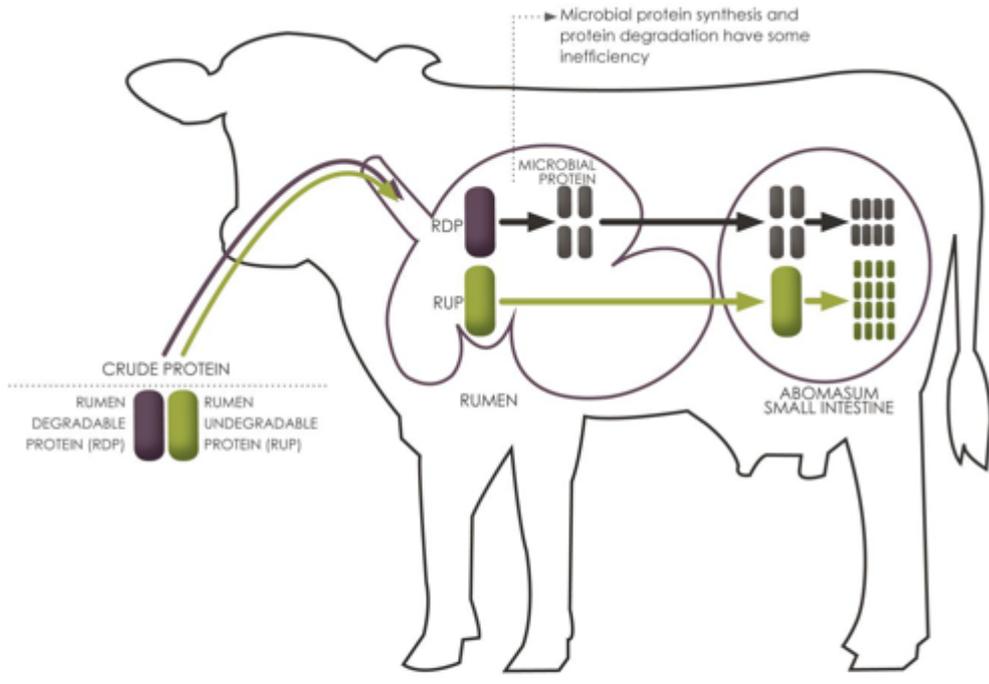


FIGURE 4

Heat treatment of alfalfa can reduce protein degradability, increasing feed protein reaching small intestine.

c) In the transport and in the nutrition of livestock:

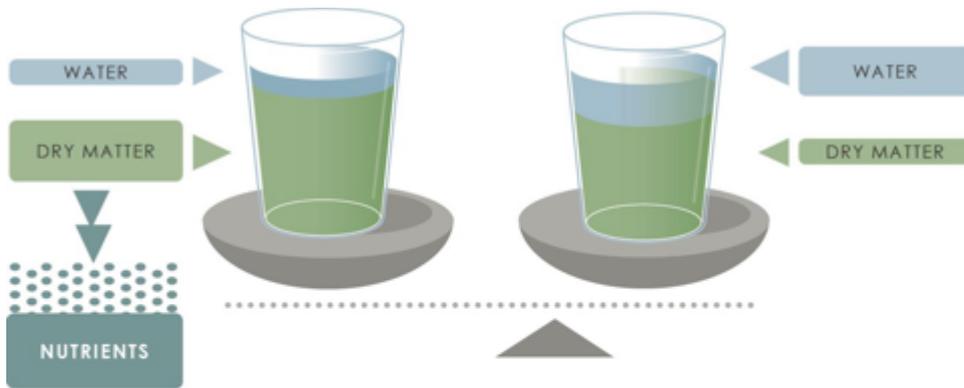


FIGURE 8

A higher dry matter content means a higher nutrient content and a higher alfalfa value.

2.2. ADVANTAGES AND DISADVANTAGES OF CONSERVATION METHODS



FIGURE 10
Advantages and disadvantages of the main forage conservation methods.

2.3 OUR DEHYDRATED ALFALFA

2.3.1. PRESENTATIONS



FIGURE 7

Dehydrated alfalfa is available in three different formats, bales, briquettes and pellets.

2.3.2. QUALITIES

CATEGORIES	RFV	ADF (%)	NDF (%)	PROTEIN (%)	COLOR
Extra	150-170	29-32	36-40	>18	Dark Green
First	130-150	32-35	40-44	16,5-18	Green
Second	>130	>35	>44	15-16,5	Pale Green

If we already have the best product, our alfalfa, cut in the field at the optimum time, and preserved with the best method to maintain all its natural qualities (dehydration), we must know how to correctly use dehydrated alfalfa.

3. ALFALFA AS AN INGREDIENT IN LIVESTOCK FEED

3.1. DAIRY RUMINANTS

Alfalfa dehydrated is an essential ingredient in dairy ruminants feed. Its inclusion in the diet is necessary to ensure proper digestive function and achieve maximum productive potential without harming the animal's health and well-being.

However, the resulting particle size can modify the effect of dietary forage; both excessive and defective chopping may negatively affect the animal's health and productive performance.



FIGURE 1

As particle size decreases, chewing, ruminating activity and saliva production are reduced, and feed intake and passage rate increase.



FIGURE 4

A small or large particle size affects the chewing activity, saliva production and feed intake.

In summary, particle size has the potential to affect feed intake and digestibility and milk production in dairy ruminants, but its effects depend on the type, amount and storage of the forage employed. It is therefore necessary to determine optimal particle size to reap the benefits while avoiding any harmful effects caused by excessively large or small sizes.

***Our recommendations for dairy ruminants:
Use dehydrated alfalfa of Extra Quality (>18% protein) in bale***

2. . NO DAIRY RUMINANTS

For ruminants not destined to milk production, the perfect ratio between fiber / alfalfa protein of extra quality is not so important, therefore and according to strictly economic criteria we advise the use of bales, and especially of dried alfalfa pellets.

***Our recommendations for no dairy ruminants:
Use dehydrated alfalfa in pellets or bales of first quality***

3.3. OTHERS ANIMALS

Our recommendations for others animals:

The choice of a presentation or another of the dehydrated alfalfa, as well as its quality will depend on the characteristics of each farm.

3.4. MANUFACTURE OF FEED

A very interesting market to get all the benefits of our dehydrated alfalfa is that of feed manufacturers. In this market our recommendation is directed to dehydrated alfalfa pellets.

Our recommendations for manufacture of feed:

Dehydrated alfalfa pellets with protein 15%

3.5. TMR RATIIONS (UNIFEED)

Basis for the adequate design, please, consult our technical department

CHARACTERISTICS / BENEFIT

CHARACTERISTICS

- ✓ Alfalfa like forage
- ✓ Perfect balance nutritional
- ✓ High quality of insoluble fiber
- ✓ Composition of the protein (amino acids) very similar to that of milk
- ✓ We make the cuts at the right time
- ✓ We use the best system of conservation of a forage: dehydration
- ✓ Two presentations: bales and pellets
- ✓ We know our product: alfalfa dehydrated

BENEFIT

- Use of the best alfalfa gene for high production and high protein content
- Complete feed of your cattle, fiber + protein
- Prevention and minimization of acidosis in the rumen
- Replication of the proteins provided by alfalfa in the composition of the milk obtained
- Adequate ratio of leaf (protein) and stem (fiber)
- Reduction of losses due to atmospheric conditions.
- Nutritive value is increased
- Reduces microbial contamination.
- Reduce protein degradability in the rumen
- Higher dry matter contents
- Minor losses and transport costs
- It allows us to adapt to the needs of your livestock operation
- We can technically recommend their best use and the greatest success in their use, for all types of livestock.

