N°3
DECEMBER 2018

VIRENXIA

ALFALFA INSIGHTS

VIRENXIA'S NEWSLETTER ON ALFALFA, THE QUEEN OF FORAGES

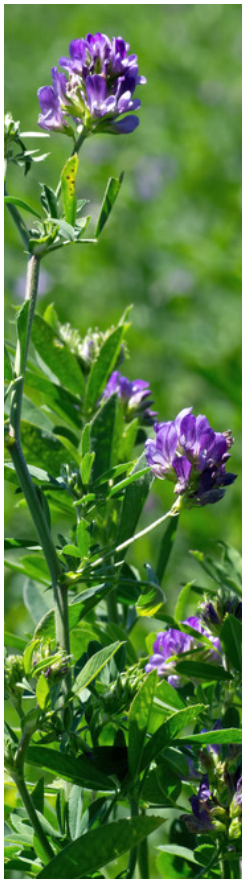
LOW LIGNIN ALFALFA

HI-GEST 360 COULD BE A GAME CHANGER

Alforex Seeds announced the issuance of U.S. Patent No. 9,648,826 for the company's Hi-Gest® 660 low lignin alfalfa variety.

Hi-Gest 660 is a unique and widely adapted semi-dormant alfalfa variety delivering competitive yield, persistence and superior forage quality along with germination salinity tolerance. With new Alforex alfalfa varieties featuring High-Gest Alfalfa Technology, growers can get improved fiber digestibility and forage quality along with management flexibility. Farmers have responded favorably to Hi-Gest® 660 not only for its role in supporting enhanced milk production, but for the harvest flexibility it offers.

Hi-Gest low lignin alfalfa allows farmers to delay harvest an additional five to seven days and achieve quality comparable to non-low lignin alfalfa varieties cut at the usual harvest date.



Improved fiber digestibility

Lignin is the complex organic compound that hardens and strengthens the plant's cell walls. In mature plants, lignin increases yield but negatively affects forage quality.
To minimize this dilemma, producers have traditionally had to find a compromise between yield and quality by harvesting at late-bud stage to one-tenth flower.

Better digestibility for more milk

Varieties with Hi-Gest increase the rate of fiber digestion by 5-10%, which improves animal intake; increases the extent of fiber digestion (as measured by uNDF240) by 5-10%; and raises crude protein by 3-5%.*
The net impact can be 2.5 or more pounds of milk per cow per day.

On-farm studies during the 2015 growing season, showed Hi-Gest actually reduced indigestible fiber at 240 hours (uNDF240) by 22% and increased crude protein by 11%.

More harvest flexibility

Varieties with Hi-Gest provide the management flexibility to work around the weather or manage tonnage and quality to maximize return per acre. Producers can get even higher quality dairy hay at their normal cutting schedule or choose to increase yield and maintain harvest quality of conventional varieties at there normal cut date.

BALANCING HAY QUALITY & QUANTITY

According to University of California Alfalfa and Forage Specialist Dan Putnam

Ensuring a high enough quality for your alfalfa crop is certainly important. Yet, making sure that cutting meets your feed quantity needs–and overall economic returns for the animals that crop is feeding–is the highest priority.

"Cutting schedule is, overwhelmingly, the most powerful method under a grower's control to manipulate forage quality, since both maturity and leaf percentage are impacted," Putnam says. Yet, he adds, "If yield and stand persistence were not important, the earliest possible cutting dates would typically provide the highest quality forage, but these cutting intervals would rarely provide optimum economic returns."

The Tradeoff

The dilemma of whether to cut for quality or yield is often referred to as the "yield-quality tradeoff." The reason for this relationship is relatively simple, according to Putnam. There is a linear increase in yield as alfalfa matures from very early to very late growth stages. In contrast to yield, as alfalfa matures, there is a linear decline in forage quality (protein, relative feed value, relative forage quality or total digestible nutrients).

"Leaf percentage declines, along with increased lignification of the stem, make late cuts a 'double whammy' that causes severe quality decline as the crop matures," he says.

At the same time, later harvest schedules tend to improve stand persistence compared with cutting early. "Taking all harvests early is a sure recipe for stand loss," Putnam adds. When stands decline (fewer plants per square foot), weeds begin to intrude, lowering the quality of subsequent harvests.

One Solution: A Staggered Approach

So, what to do? Rarely is there a single strategy that works for any one producer. That's why Putnam recommends cutting schedules that target, during a given year, some harvests for quality and others for yield and stand life.

"A more integrated 'staggered' approach to harvest–balancing yield, quality, persistence and economics–promotes persistent higher hay quality," he says. "Vary the interval and give fields a 'rest' at different times during the summer. Allow the plants to go to full yield, enabling them to deepen root systems, and crowd out weeds."

That breather for a stand of alfalfa is, according to Putnam, vital both for its ability to produce in the short and long term. That's because alternating the number of cuttings benefits the root and crown health, and therefore may also help maximize quality and yield later in the year and the next. Mixing strategies also assures a supply of both high- and medium-quality hay during the year, as well as the necessary tonnage for feeding goals.

Other Factors Affecting Time of Cutting

Seasonality and Temperature

The effectiveness of staggering harvests during the growing season to sustain alfalfa growth in the long term does have one caveat: Summer heat can stress growing plants, making it important to base a staggered harvest approach as much on attentiveness to weather conditions as on the calendar.

"Vary the interval and give fields a 'rest' at different times during the summer when producing top dairy quality is difficult to accomplish due to summer heat," says Putnam. "This allows greater quantities of carbohydrates and nutrients to be translocated to the roots to replenish what we call 'root reserves,' which improves stand longevity and prepares for subsequent harvests."

Time of Day … or Night

There is also a benefit to afternoon harvests due to the accumulation of soluble carbohydrates, or sugars. "Sugars contribute directly to TDN; thus, afternoon harvests may improve quality," Putnam adds. Depending upon the rapidity of curing, this advantage may or may not be reflected in the final hay product.

Moisture

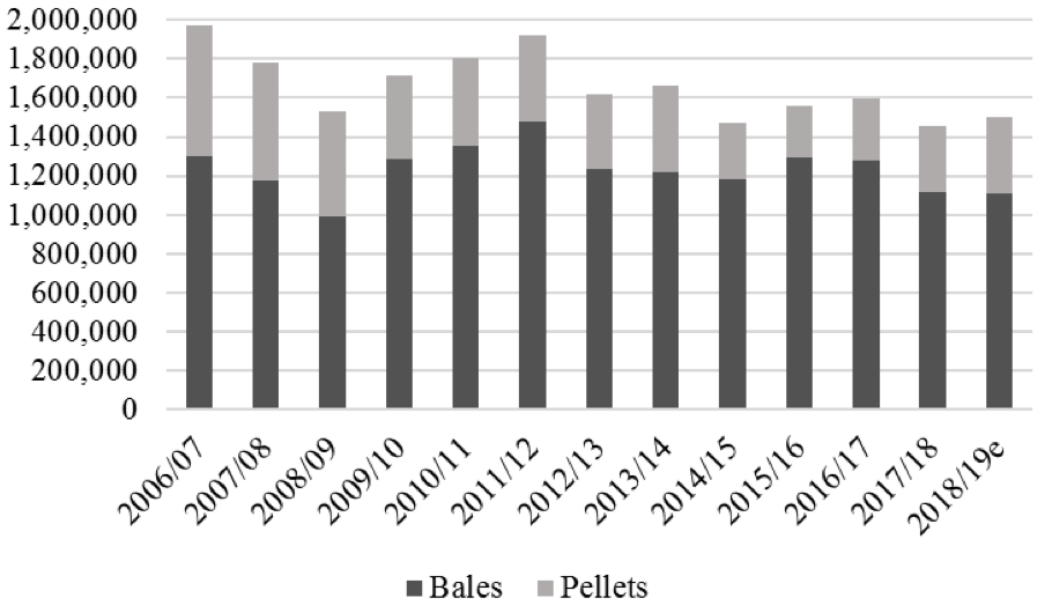
Another consideration is available moisture during baling, says Putnam. "Dew can provide much-needed softness and leaf retention." That's why, he says, "nearly all growers in the West bale at night or in early morning during summer months to maximize leaf retention." It's also important to bale when plant moisture levels themselves are right, allowing the crop to retain as much of its leaf content as possible while drying down before baling. The ultimate goal is to bale between 12 and 22% moisture. The exact time frame depends on the size of the bales, as larger bales are at greater risk of molds at higher moisture content.

ALFALFA MARKET NEWS

Spain on the Lookout for New Export Markets

Spain is the EU-28 largest dry fodder producer and exporter. In Spain, approximately half of the Alfalfa is planted during the fall with the remaining half being planted in spring. Domestic dried fodder consumption, mainly by the dairy industry, is rather limited compared to production levels, which allows for an ample supply for export. In 2017/18 Spain's dried fodder area is expected to grow at the expense of corn, whose poor margins are forcing farmers to find alternative crops. Saudi Arabia's decision to phase out forage production also sent signal for farmers to increase area planted to fodder crops.

Spain Dried Fodder Product by Production Type (MT)

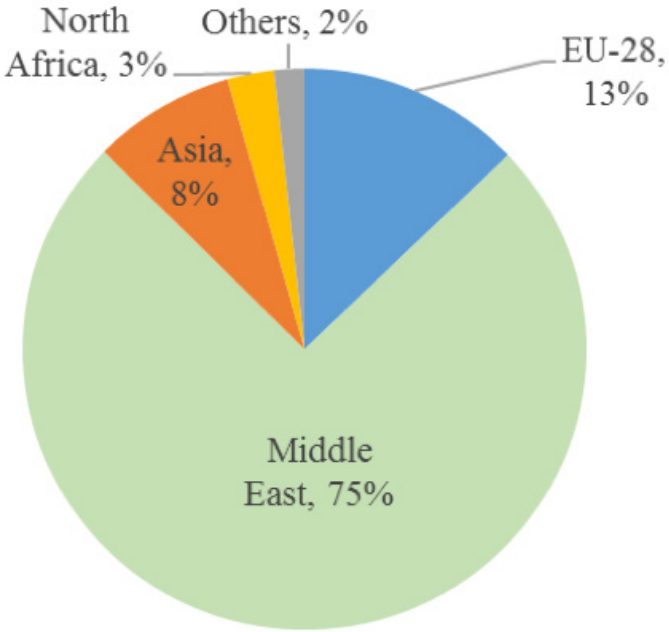


The large majority of Spanish dried alfalfa exports are concentrated in a limited number of countries. United Arab Emirates is the main destination of Spain's dried fodder exports. Other important destination for Spanish dried fodder include Saudi Arabia, China, Jordan, Morocco, Lebanon, Kuwait, Japan and Tunisia. A shorter Spanish crop combined with stiff competition with U.S. alfalfa in Saudi Arabia, prevented Spanish fodder exports to this market to grow, despite the country's decision to phase out its domestic forage production. The pace of exports to the Middle East – North African countries (namely, Jordan, Morocco, Iran, Lebanon, Kuwait and Tunisia) is growing. Spanish exports dominate these markets, while the United States, trailing by Australia, are Japan's and China's largest fodder suppliers.

Source: FAS Madrid based on AEFA data and FAS Madrid estimates

Spain's Dried Fodder Export Distribution

Domestic consumption of dried fodder only represents a small amount of the sector's demand, with the domestic dairy herd as the primary customer, along with other ruminants like sheep and goats. From 2013, the fodder needs of the dairy sector remained stable but registered a decline since 2015 as a result of the dairy quota's phase out. Nevertheless, it is the export demand, in particular the demand in the Middle East and Asia what primarily drives the changes in the global fodder market (See Trade Section). The Spanish fodder industry continues to seek new markets and work to diversify the destination of itsproducts. Spain is the world's third largest fodder exporter after the United States and Australia.



On September 2017, the Spanish Ministry of Agriculture, Fisheries and Food (MAPA) signed a Memorandum of Understanding establishing phytosanitary requirements with the Plant Protection Authorities in Iran. This agreement has allowed Spanish dried fodder exports to double its presence in this market. The MOU covers dehydrated alfalfa exports from Spain in bales or pellets. Similarly, the signing of an MOU with China, allowed Spanish fodder manufacturers to export to that country since 2014/15. However, since 2016/17, Spanish fodder exports to China have been stagnant, due to stiff competition from the United States and Australia.

Source: FAS Madrid base on GTA data

Growing Demand for Alfalfa

The alfalfa market is expected to grow at a significant pace from 2016 to 2024 owing to the global rising awareness of its health benefits. Alfalfa or Lucerne is a highly nutritious plant with a strong root system which enables it to absorb more nutrients from the soil.
Alfalfa plants contain vitamins such as A, B1, B6, C, E, and K. It also contains minerals such as strontium, manganese, chlorine, calcium, boron, nickel, and sodium. Therefore, it is expected to find increased usage in medicines globally.

Alfalfa tablets are used for curing arthritis, strokes, rising cholesterol levels, kidney problems, whooping cough. Also, alfalfa grass is used as a medicinal tea. The juice of alfalfa is used to treat hair problems. Due to ease of usage as home remedies, the demand is expected to grow globally over the forecast period.

Alfalfa is also used as a forage food due to its high nutrition value. In the regions like Asia Pacific where the pastures are scarce, demand for alfalfa as a forage crop is expected to rise. Due to rising population, global demand for dairy products has increased in the recent past and is expected to follow the current trend over the next eight years. More resources are being invested in protein-rich alfalfa based diets for increased dairy production.

The global meat market is expected to grow at an estimated CAGR of 6.4% during the forecast period. Preference for alfalfa hay has increased as farmers are more concerned about the nutrition value of animal feed. Owing to the shortage of nutritious fodder coupled with high quality and digestibility is expected to increase the demand for alfalfa over the forecast period.

The global demand for wool is growing due to its wide range of uses in clothing, upholstery, horse rugs, wool insulation, carpeting, blankets and felt. The use of alfalfa hay has benefited the farmers in terms of wool quality because of its nutritious value and hence is expected to fuel the overall demand.

Alfalfa crop is grown around the globe as it can sustain varying conditions. Increasing arable land for alfalfa owing to its sustainable nature to extreme weather condition and easy storage is expected to benefit the overall production capacity. With increasing production and growing demand, the product prices are anticipated to go down over the next eight years.

Developed regions such as the U.S., Europe have enacted laws to reduce the environment footprint. These regions are encouraging the usage of biofuels to curb the pollution caused by conventional fossil fuels. This factor is going to benefit the market as alfalfa is highly used in producing biofuels.

Asian countries like China and India have a traditional medicine system which has higher penetration. These traditional medicines have been using alfalfa to cure various ailments. People in these countries have shifted to traditional medicines due to their effectiveness, ease of usage and affordability. These factors have contributed to a rise in demand for alfalfa.

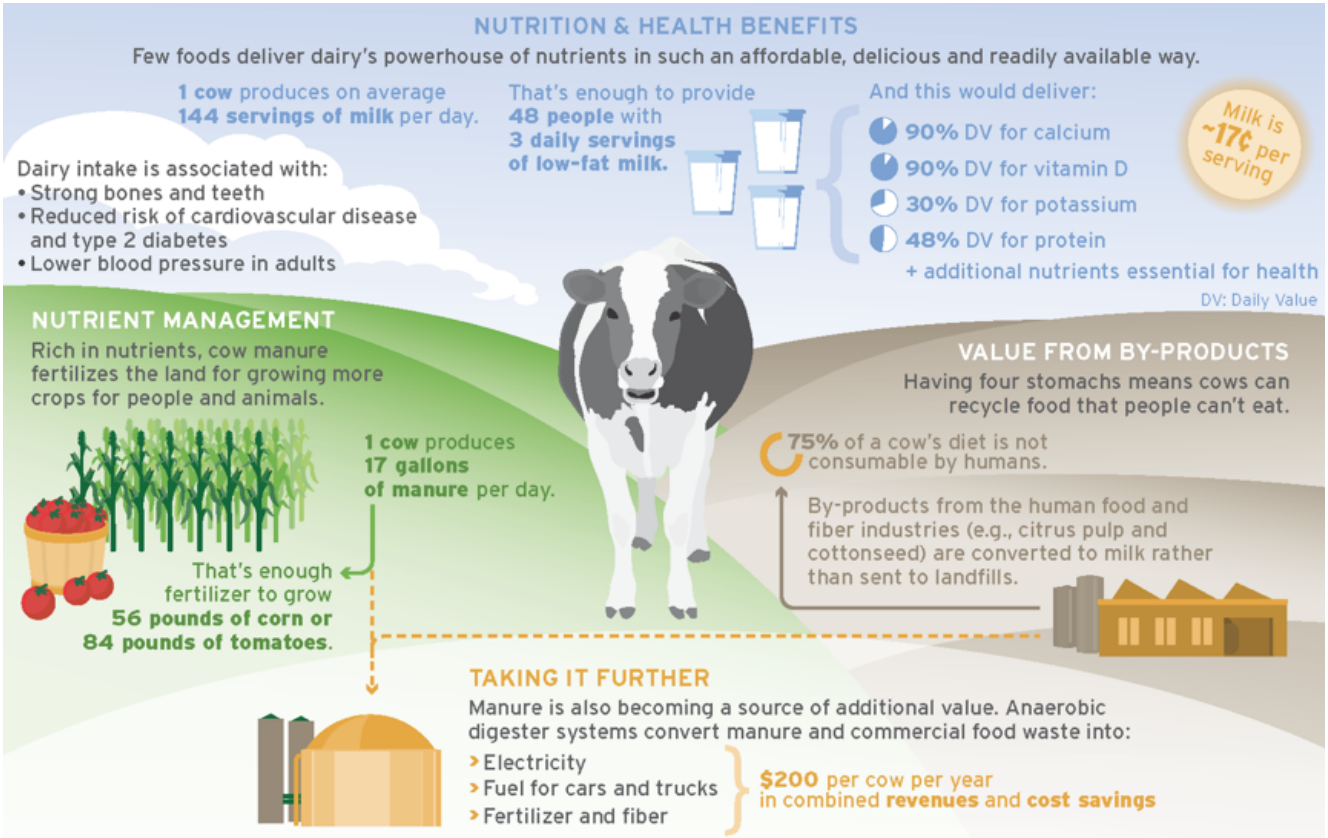
Alfalfa is primarily grown in the regions of North America, South America, Europe, and in some parts of Asia. The U.S is a major producer for Alfalfa Crops. As the global demand increases, the U.S. is bound to witness a rise in alfalfa production. Countries like Japan, United Arab Emirates, Taiwan, and Korea are the major importers from the U.S. with Japan contributing substantially.

In the Asia Pacific region, countries like India and China, alfalfa cultivation has increased in the recent past. Local farmers have shifted to alfalfa cultivation due to the rising demand. In India alfalfa is mostly grown in the north states. Alfalfa production in China increased as large scale plantations were set up in various Chinese provinces. Also, the government took concentrated efforts to narrow the technological gap in cultivation.

Lack of technological innovations, frequent draughts, rising cost & limited area of cultivation has forced the developing countries of Asian region like India and China dependent on imports. Also, the requirement of alfalfa in the dairy industry, the meat industry has rendered the market irreversible.

Source: Hexa Research; market research report

HOW ONE COW CONTRIBUTES TO A SUSTAINABLE FOOD SYSTEM



Source: Innovation Center for U.S. Dairy

Published by VIRENXIA (Global Innovation Investments LLC),
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