

ALFALFA INSIGHTS

VIRENXIA'S NEWSLETTER ON ALFALFA, THE QUEEN OF FORAGES

ALMARAI'S RACE FOR ALFALFA SUPPLY

THE SAUDI CONGLOMERATE ANNOUNCES PROGRESS IN SECURING 100% OF ITS ALFALFA REQUIREMENTS

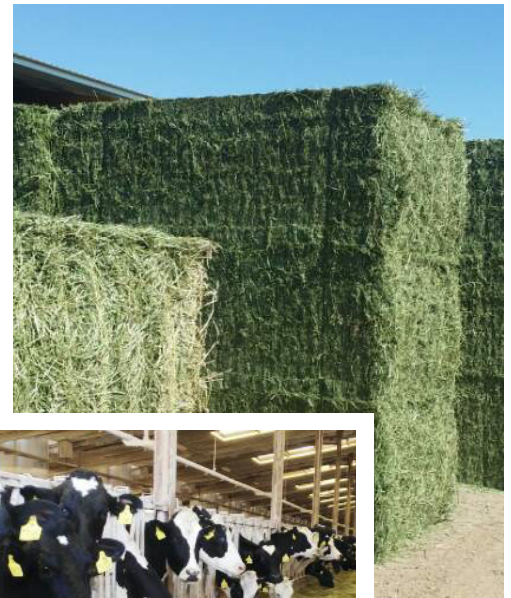
In accordance with the terms of the Ministerial Council Resolution no 66 dated December 7, 2015, and pursuing the company announcement dated January 10, 2017, Almarai is pleased to announce that significant progresses have been made in securing the supply of quality alfalfa outside the Kingdom of Saudi Arabia to support its dairy business.

These imports are originated from different locations, including the USA, Argentina, Spain and Eastern Europe, from selected third party suppliers or from Almarai run farms.

Since the governmental resolution, Almarai has gradually increased, as announced previously, the percentage of its forage requirement imported from 52% in 2016 to more than 75% in 2017. This importation of forage versus local production in 2017 resulted in an increased costs of SAR 90 million.

In 2018 Almarai is on track to reach 100%. Almarai will comply fully with the governmental Resolution by January 1, 2019.

Source: SyndiGate Media Inc.



5 TIPS TO MAXIMIZE ALFALFA LEAF RETENTION

BY EMILY GLUNK, MONTANA STATE UNIVERSITY
EXTENSION FORAGE SPECIALIST

In Alfalfa, some two-thirds of the crop's nutritive value is in its soft, fragile leaves, making leaf retention through drydown, baling and beyond critical in delivering quality animal feed. So, what steps should you take to get the most from your crop while maximizing leaf retention?

1 Choose the right conditioner

Mechanical conditioning is one of the biggest issues when it comes to maximizing leaf retention during alfalfa harvest.

"The type of conditioner you use can make a big difference [to the health of your crop]," Glunk says.

"Flail conditioners that 'scratch' the surface of the plant are more suited to grasses, while roller conditioners are more suited to alfalfa. Roller conditioners will crimp the forage... and reduce leaf loss. They have been found to dry alfalfa quicker than flail conditioners, retaining more leaf tissue, and, therefore, more quality in the bale.

"Make sure your roller conditioner is properly adjusted and operating efficiently, and shoot for about 90% of the stems to be 'cracked,'" Glunk continues. "Slower rollers also help in alfalfa to avoid too much leaf loss."



2 Rake at the right time

When it comes to raking, moisture is the thing to watch. Try to rake when crop moisture levels are at 40% or above to prevent leaf loss.

"In arid environments, a lot of producers try to not rake at all so they don't have the associated leaf loss," says Glunk.

"The type of rake can play a role, too. Recent research has found that mergers and rotary rakes have much more leaf retention compared to ground-driven wheel rakes and sidebar rakes," she says.

"While [merger and rotary rakes] are more expensive, it may pencil out in the end."

3 Size your windrows

Windrow size can have a significant effect on drydown, and therefore leaf retention and hay quality.

"The wider the windrow, the better," Glunk says, although size can also be affected by climate. "This is mainly due to quicker drydown times, which will retain more nutrients."

"If your windrow is too dense, it is harder for sunlight and air current to penetrate through, which is important in the drying process."

4 Bale at the right time

Bale size has a big influence on what's the best moisture level at time of baling. In most cases, the smaller the bale, the higher alfalfa moisture content.

"For something like a small square, we can go at a little higher moisture without worrying about heating and mold formation," says Glunk. "Typically, we are shooting for between 16 and 18%." For a large round bale or large rectangular bale, she advises around 14% moisture content. "If we get much below 12%, we will see significant leaf loss occurring," she adds. "If we are too close to 20%, we significantly increase the risk of molding and heating."

If you do bale when your alfalfa has a higher moisture content, you run the risk of premature spoilage. That risk can be minimized through the addition of a hay preservative. Applying a preservative to hay baled at up to 30% moisture helps prevent mold growth and heat buildup, both major causes of spoilage.

Also, consider your climate. If you're in a more arid environment, you can boost leaf retention by baling at night, when moisture is more likely in the field. If you face more damp conditions, it's best to bale during the day when hay moisture levels are closer to the ideal range.

"Once hay is cut, the plant has begun drying, and the drier it is when you bale, the more likely you are to lose leaves during that process," Glunk says. "Remember the ideal moisture range when determining when to bale, day or night."

5 Watch Mother Nature

"The biggest thing to think about is how weather is going to affect your alfalfa. A slow, [lengthy] but light rain may have more negative impacts than a quick and heavy rain based on previous research," Glunk says.

"The farther out from harvest the precipitation occurs, the more of a negative impact it will have. If you know rain is coming Wednesday and your only options are to cut either Monday or Tuesday, harvesting Tuesday will have less of an impact on [quality] than harvesting Monday."

While controlling the weather is impossible, there are new tools that can help you maximize alfalfa leaf retention by conducting field operations under optimal conditions. Weather tools offered by the National Oceanic and Atmospheric Administration (NOAA), Weather Underground and even Google, for example, help you keep an eye on the right time to get into the field or harvest.

With a little prevention and the right tools, you can maximize leaf retention, thereby maintaining a quality alfalfa crop. "We can't control things like the weather," says Glunk, "but we can monitor conditions closely, and with the right equipment and management, we can maximize the quality of our alfalfa."



MOLYBDENUM IN PLANTS AND SOILS

Molybdenum is essential to plant growth as a component of the enzymes nitrate reductase and nitrogenase. Legumes need more molybdenum than other crops, such as grass or corn, because the symbiotic bacteria living in the root nodules of legumes require molybdenum for the fixation of atmospheric nitrogen. If insufficient molybdenum is available nodulation will be retarded and the amount of nitrogen fixed by the plant will be limited.

If other factors are not limiting the amount of molybdenum will determine the amount of nitrogen fixed by the plant. Increasingly vigorous plant growth, higher protein contents and greater buildup of nitrogen in the plant and soil accompany nodulation and symbiotic microbial activity.

*Source: Albrigo, L. G., Szafranck, R. C. and Childers, N. F.,
The Role of Molybdenum in Plants and Soils.*



Root Nodule

PEST OF THIS SEASON

COWPEA APHID

What is Cowpea Aphid?

With scientific name *Aphis craccivora*, the Cowpea Aphid is readily distinguishable from other aphids inhabiting alfalfa because it is the only black aphid found infesting the crop. It is a relatively small aphid and the adult is usually shiny black while the nymph is slate gray. The appendages are usually whitish with blackish tips.

Cowpea Aphid numbers are highest from April to September; numbers peak from October to January in the desert.

This aphid has an extensive host range, including beans, cotton, and weeds.

Which damage can they do?

Cowpea Aphid injects a powerful toxin into the plant while feeding and, when their numbers are high, this can stunt or even kill plants.

While feeding, this aphid produces a considerable amount of honeydew upon which sooty mold can grow.

The black sooty mold reduces photosynthesis and may make leaves unpalatable to livestock. The honeydew also makes the alfalfa sticky, which causes problems with harvest.



How to manage this Pest?

There are no known varieties of alfalfa that are resistant to Cowpea Aphid and economic thresholds have not been developed specifically for this pest.

Treatments may be necessary if large numbers of Cowpea Aphids are present.

Border harvesting or strip cutting can be important for preserving natural enemies.



Biological Control

Two common aphid parasites, *Lysiphlebus* sp. and *Diaeretiella* sp., have been identified from the desert production areas.

Although parasitism as high as 95% has been documented, aphid numbers can become so high that enough non-parasitized individuals remain to cause significant injury.

This aphid is also susceptible to the usual complement of aphid predators including lady beetles (convergent lady beetle, multicolored Asian lady beetle, twice stabbed lady beetle), lacewings, big eyed bugs, damsel bugs, and syrphid flies. Early in the season (February and early-March) many of these predators are generally not active, but in the low desert the seven spotted lady beetle, *Coccinella septempunctata*, is abundant and feeding on the aphid.



Adult lady bird beetle and larva feeding on Aphids

Cultural Control

Use border-strip cutting during harvest to help maintain populations of parasites and predators within the field.

Organically Acceptable Methods

Use biological and cultural controls on organically certified crops.

Organically certified insecticides such as Azadirachtin, Neem oil and Pyrethrin are also registered for use on alfalfa to control aphids.

Monitoring and Treatment Decisions

Cowpea aphid infestations are typically patchy in a field, especially early infestations. Stems on alfalfa plants in infested areas are often completely covered with aphids, whereas plants in other areas of the field may appear aphid-free.

Because of the spotty distribution of cowpea aphid infestations, spot treatments may be feasible, especially if the infestation is on the field border.

No guidelines or economic threshold levels have been established for cowpea aphid in alfalfa.

Use the following thresholds, which were developed for the blue alfalfa aphid:

Plant height	Aphids
Under 10 inches	10 to 12 per stem
Over 10 inches	40 to 50 per stem

Source: UC IPM Pest Management Guidelines: Alfalfa



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