

Foraging Around



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**Alfalfa: Breeding for Quality--
My Perspective**

When I've asked alfalfa growers what they expect from their alfalfa crop they generally agree on three things: high yield, high quality forage, and persistent stands. And, yes, they would like to have consistent performance every time a new stand is established.

Until recently whenever we've talked about improved alfalfa varieties relative to meeting the above criteria we've automatically talked about multiple pest resistance. It was, and is, a key term. Research has proven that an alfalfa variety with moderate to high levels of multiple pest resistance for a given area is generally super-

ior in yield and persistence, and indirectly--quality, to a variety with a high resistance to one disease or pest, but without resistance to others. So be sure that the varieties you choose do have adequate levels of multiple pest resistance for your area.

Today, quality itself is another factor receiving considerable attention from alfalfa breeders. And it is this approach that I would like to consider in today's column.

Researchers and farmers alike agree that leaves are a key factor in alfalfa quality. And studies have shown there is a direct relationship between relative feed value (RFV), crude protein (CP), and percent leaves. The challenge to alfalfa breeders has been how to improve quality by improving the

percentage of leaves.

One approach by plant breeders to improve quality has been through the introduction of multi-leaflet varieties, i.e., varieties with more than the traditional three leaflets per leaf. Several multileaf varieties are currently on the market. And while real progress had been made in the expression of the multileaf characteristic, it still tends to be somewhat inconsistent. Furthermore, there is no clear cut evidence to show that these varieties actually contain a higher percentage of leaves, and higher crude protein levels, than trifoliate varieties. In fact, there are data from several studies showing that multileafs are not necessarily leafier, regardless of level of trait expression. Let me emphasize that this doesn't mean we won't see more improvement in the years ahead.

A second approach by plant breeders to improve quality has been through the development of trifoliate varieties with finer stems and higher leaf-to-stem ratios. And there are data to show that real progress has been made using this approach. In fact, a number of studies from both public and private evaluations indicate that one recently released trifoliate variety selected for high quality consistently demonstrates leafiness and forage quality superior to any available multileaf type, regardless of expression level.

The use of new technology, namely near infrared reflectance spectroscopy (NIRS) is given much of the credit for recent quality improvement in alfalfa through

plant breeding. NIRS allows for the faster selection of plants in the breeding population on the basis of crude protein, fiber qualities, stem thickness, leaf-to-stem ratio, and any other desirable characteristics that might still be identified by breeders.

But, while quality improvement through breeding is a breakthrough, and one that farmers can take advantage of, alfalfa growers must also recognize that management still plays the most important role in alfalfa hay quality. This

includes stage of maturity at the time of harvest as well as all of the other hay and silage management practices to minimize losses. Alfalfa management, several workers say, can have a 30 to 40% effect on RFV, while germplasm can have only a 10 to 15% effect.

Finally, the holiday season is just around the corner. And I take this opportunity to wish each of you a Happy Holiday Season and a most prosperous New Year. I look forward to sharing information with you throughout 1992.

Better Feed Management Spurs Milk Increase

ENON VALLEY (Lawrence Co.)—Better management of feed and including a supplement with the silage and hay garnered the best Guernsey breed improvement for Trotacre Farm, managed by James Trotter and sons Bob and Dave.

"We just hit it lucky, I suppose," said Jim, who attributes the efforts of his two sons to improving the overall feed management.

The improvements came even in an area hit severely by last summer's drought. Although the drought had some effect, the farm

will manage to obtain enough feed through the winter months.

Jim serves as the business manager of the state Guernsey Association. Trotacre Farms manages 450 acres that produce enough feed for 40 milking cows and 40 replacement stock.

Trotacre milks from a comfort stall to a pipeline. Herd improvements include a milking increase of 2,693 pounds, a 114-pound total fat increase, and a protein increase of +80, according to DHIA records.

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