

## TABLE OF CONTENTS

FEEDING EDIBLE DRY BEANS TO LIVESTOCK.....	1
JANUARY CORN MANAGEMENT CLINIC.....	1
AMENDMENTS TO FARM BILL WILL SUPPORT ALTERNATIVE AGRICULTURE.....	2
SAMPLING HAY TO EVALUATE FORAGE QUALITY.....	3
FOR BETTER ALFALFA, POUR ON THE BORON?.....	4

## FEEDING EDIBLE DRY BEANS TO LIVESTOCK

Dry edible beans that are not suitable for human consumption due to damage (splits and cracks), field weathering, aging or other factors can be fed to livestock. Feeding damaged beans to feeder cattle represents an economical alternative to discarding unsaleable beans, however, the portion of beans in the diet of animals must be limited because uncooked bean can adversely effect digestion and lead to weight loss.

Researchers at the University of Nebraska IARN Research Station at Scottsbluff, NE determined that feeder steers can consume limited amounts of cull beans (Research Nebraskan, March, 1997). Ivan Rush, an animal scientist, said that beef producers can include up to 10% dry bean culls in the diet of steers without any adverse effect.

He fed steers diets of mixed feed grains with three levels of beans including, no beans, 5% and 10% bean culls. Ninety six steers that weighed 625 lbs at the start of the experiment were fed each ration.

Cattle on the 10% bean ration had the best weight gain and feed efficiency among the treatments. Steers that were fed 10% beans consumed 6.04 lbs of feed per day and gained 3.3 lbs/day, compared to the 5% bean diet group

that consumed more ration at 7.18 lbs feed/day but gained only 3.03 lbs/day. The control group consumed 6.73 lbs/day and gained 2.98 lbs/day. The researchers concluded that beef producers can safely feed up to 10% beans in cattle rations with no adverse effects.

◆Brick



## JANUARY CORN MANAGEMENT CLINIC

Precision farming, hybrid genetic technology, dryland corn, and pest issues as well as general corn development are the main topics for discussion at the Corn Management Clinic which will be January 6, 7, and 8, 1998. The short courses will be conducted on the CSU campus in Fort Collins, Grand Junction, La Junta, and Sterling. The courses are designed for crop consultants, agricultural chemical applicators and dealers, seed and implement dealers, and corn producers and buyers. Contact CSU Office of Conference Services at (970 637-8117) or [ocs@ocslan.sacc.colostated.edu](mailto:ocs@ocslan.sacc.colostated.edu) for registration information about this Colorado State University Cooperative Extension clinic.

# PROPOSED AMENDMENTS TO FARM BILL WILL SUPPORT

Amendments to the current Farm Bill (H.R. 2534, also known as the Research Authorization Bill) offered by Representative Brown of California, could well have a significant impact on rural communities.

The amendments include provisions for the development of regional multi-state centers, a national coordinating center and small grants for rural development.

This plan, now a part of the Initiative for Future Ag and Food Systems, is modeled after a proposal by CAST (the Council for Agricultural Science and Technology) called the "Jefferson Initiative". It was labeled the Jefferson Initiative because it would, many believe, fall close to what Tom Jefferson would have recommended to Congress to provide for the agricultural cornerstone of this nation.

The Jefferson Initiative basically calls for development of regional centers of excellence that would function as clearing houses for regionally distributed funds. These funds are proposed for use in developing alternative crops, alternative processing and marketing within the framework of rural communities.

If you are familiar with the USDA-AARC Corp., you will see some similarities. If you are not familiar with AARC (Alternative Agricultural Research and Commercialization Corporation), it loans money to startup businesses in agriculture for commercializing non-food and non-fiber applications (such as converting wheat straw into construction materials, milkweed into a down substitute, soybean meal and paper into a faux marble or canola oil into engine lubricants). The emphasis of AARC has been individual businesses. The emphasis of the Jefferson Initiative will be rural community development.

The current bill (similar versions in both the House and Senate) requires the Secretary of Agriculture to provide for a research initiative (to be known as the "Thomas Jefferson Initiative for Crop Diversification") to conduct research and development, in conjunction with other public and private entities, on the production and marketing of new and nontraditional crops needed to strengthen and diversify the agricultural production base of the United States.

The provisions of the Bill include the following objectives:

1. to identify and overcome agronomic barriers to profitable production;
2. to identify and overcome other production and marketing barriers; and
3. to develop processing and utilization technologies for new and nontraditional crops.

The purposes of the initiative are:

1. to develop research and development at a regional and national level to overcome development barriers of new crop opportunities for farmers and related value-added enterprise development in rural communities; and
2. to ensure a broad-based effort in compassing research, education, market development, and support of entrepreneurial activity leading to increased agricultural diversification.

To insure the broad based nature of the initiative, Rep. Brown proposes a centrally located, nonprofit center to fund and coordinate the initiative as well as provide coordinated research and education programs in cooperation with other public and private entities. The Center would also provide research and education grants. The funding will be regionally based and the funds will be divided between regional efforts centered at land-grant universities and colleges to promote site-specific crop development efforts. Funding for this aspect will be through the regional centers. While many may see this as just another competitive grants program, remember that the funding will be regional so we only compete with our neighboring communities and not the whole U.S.

The whole project will be administered through the Cooperative State Research, Education, and Extension Service (CREES) of the Department of Agriculture and it will require recipients of grants to contribute an amount of funds from non-federal sources at least equal to the amount provided by the Federal Government.

So where does that leave us? Depending on how the budgeting works, new crops could get a significant boost in the next Farm Bill. Currently the Senate version carries a funding of \$100 million for 1998 and \$170 million per year thereafter. The House Bill carries no designated amounts but it appears the House will accept the Senate figures. If this carries, new crops will have direct appropriation from Congress. If funding is not included, it goes to the Appropriations Committee and who knows what would be allotted.

Where does that leave Colorado? At this time we have one of the strongest new crops programs in the country -- as far as functionality goes. In fact, a great deal of the Jefferson Initiative is modeled after the Colorado program. The quinoa project is held up nationally and internationally as one of the limited new crop success stories of the 80s. Our blue corn and canola industries are the stories of the 90s.

# ALTERNATIVE AGRICULTURE IN RURAL COMMUNITIES

Politically and financially we are not as well off. Politically, we lack the clout of our eastern neighbors in Kansas and Nebraska, especially. That means they will be our partners in any significant efforts we make. Financially, the Jefferson Initiative requires a match of non-federal funds. States like Kansas, Minnesota, Wisconsin, Oklahoma, and Michigan have a funding infrastructure to provide rural startup costs. Colorado effectively does not. That means for Colorado to participate, rural communities or individuals will have to shoulder the capitalization burden to make up the non-federal fiscal component. So if we are to participate in the survival of our farms and rural communities, we must be financially culpable for our decisions.

Obviously, somebody near and dear to us has to be convinced this is a **good project**, not just a **good idea for a project** and it will have to be an encompassing one--accounting for production, processing and marketing. So, if you have an interest in a project like this, we will try to keep you informed. Meanwhile, you might want to start taking that business class in writing a business plan. We are going to need it.

◆D. Johnson

## SAMPLING HAY TO EVALUATE

Obtaining a representative hay sample for analysis is very important in evaluating hay quality. The sample analyzed must represent the "lot" of hay quality. The sample analyzed must represent the lot of hay to be fed. Samples should be taken in "lots" of hay. A "lot" represents hay from the same cutting, field and stage of maturity. A sample should not represent more than 200 tons dry matter. For lots larger than 200 tons, two or more samples should be taken and the average of the results used to represent the lot.

The most commonly used sampling method for baled or stacked hay employs a hollow tube (probe) to extract core samples from the hay. Use a probe that can penetrate at least 12 to 18 inches into the hay package. The internal diameter of the probe should be at least 3/8 of an inch. Probes with sharpened tips must be kept sharp to cut through hay. A dull tip may reduce the amount of stem material in the sample due to the tip sliding past rather than cutting through stems.

At least 20 cores (one core per bale) should be taken and composited to develop one sample per lot. Bales within a lot of hay should be sampled at random. Techniques to guard against non-random sampling are to sample every fourth or fifth bale going around the stack, truck or down the row in the field or take at least five random samples from each of the four sides of a stack.

Different types of hay packages need specific sampling techniques. Rectangular bales, regardless of size, should be sampled by centering a probe in the

## FORAGE QUALITY

end of the bale and drilling horizontally into the bale. Round bales should be sampled by drilling horizontally into the curved side of the bale.

Do not include deteriorated hay in the sample if it will not be fed to animals. However, if hay to be sold includes the deteriorated exterior, it should be included in the sample. Bales stored outside should be sampled within 2 to 4 weeks of feeding so that continued deterioration does not lower bale quality from the sample taken for analysis. Loose hay should be sampled by using a probe at least 30 inches long with 3/4 inch or larger internal diameter; drill at an angle from the side of the stack to the probes full depth in 20 random locations throughout the stack. Discard any weather damaged surface layer that would not be included in the part being fed or sold.

Hay cubes or pellets should be sampled by collecting several hay cubes or handfuls of pellets from 15 to 20 locations in each lot so that a minimum of 40 cubes or 2 lbs of pellets are selected.

Samples should be properly labeled for the lot and locations where the cores were taken. The sample should also be labeled for source (area where grown), forage type (species), cutting, stage of maturity and special conditions (frost, drought, etc.). Further information such as cutting date and interval between cuttings may also help a laboratory make a decision about atypical samples.

Reference: *Hay Testing Certification Manual* Publication No. 2.

◆Self

# FOR BETTER ALFALFA, POUR ON THE BORON?

Alfalfa is known to have a high requirement for boron as compared to corn, beans, potatoes, wheat, barley, and other grasses. As growers switch to higher-yielding alfalfa varieties, the potential for boron deficiency increases. Boron deficiency usually develops in sandy, low organic matter soils. There are three ways to diagnose boron deficiency in alfalfa:

- 1) Symptoms--Since boron is immobile in plants, symptoms develop on the young leaves first. The growing tip dies, the plant looks bushy due to shortened stems, and the young leaves turn yellow on top and a rosy red color on the undersides.
- 2) Tissue Sampling--Sample the top six inches of new growth before bloom just prior to cutting and have it analyzed for boron. The boron sufficiency range for alfalfa is 30-80 ppm.
- 3) Soil Sampling--Soil boron levels less than 0.1 ppm are considered to be low. However, irrigation water frequently has additional boron in it which can make up for low soil boron levels without requiring boron fertilization.

Many producers and Co-ops on the West Slope feel that boron fertilizer is required for high-yielding alfalfa even though CSU does not currently recommend boron fertilization.

A field with low soil boron level ( $\leq 0.1$  ppm) located on the CSU research farm in Yellow Jacket was selected to test CSU's boron recommendations. Boron was applied prior to the first irrigation at rates of 0,  $\frac{1}{2}$ , 1, 2, and 4 lb B/acre. However, the highest application rate was split to avoid burning the alfalfa. Treatments were replicated four times in a randomized complete block design and US Borax supported this research with a \$2000 grant.

The yields from the first two cuttings are reported in the following chart; the third cutting has been delayed due to rain.

Boron Application Rate (lb B/acre)	1st Cutting: Yield (tons/acre)	2nd Cutting: Yield (tons/acre)
0	3.04 A	1.86 A
$\frac{1}{2}$	2.88 AB	1.91 A
1	2.79 B	1.88 A
2	2.78 B	1.91 A
4	3.02 A	1.87 A

Application rates with a common letter are not significantly different at  $p < 0.05$ .

So far, boron application has not significantly increased alfalfa yield in this study. However, the study will continue for three years, and tissue and irrigation water samples and yield measurements will be continued throughout the test. We will update you as more results become available.

◆ Davis and Berrada



Sincerely,

Sandra K. McDonald  
Extension Specialist

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