FROM THE GROUND UP

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AGRONOMY NEWS

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TABLE OF CONTENTS

SAFFLOWER GAINING INTEREST IN COLORADO

Safflower contracts are now being offered by National Sun Industries in Goodland, Kansas. Ken Berndt, who heads the contracting efforts for NSI would like to contract Colorado safflower at 11.5 cents/lb. National Sun is offering a contract for your entire crop. They will offer premiums for oil contents above 38% and that should be no problem for Colorado unless a very early frost or a very dry summer occurs. Safflower requires a long, warm season and should produce well when planted below 5,000 feet elevation.

Safflower is a member of the thistle family and carries the thistle's trademark spines around each head and other parts of the plant. You definitely will not want to walk through a maturing safflower field. It is inspiring to see an occasional grasshopper impaled on a safflower head. It is an excellent way of keeping two, four, and six-legged foragers out of your field. Harvest will not be a problem if you go slow and don't plug the combine. I can tell you from personal experience, you only do it once!

Safflower seed is slightly larger than wheat. Recommended seeding rates are 20-25 lbs/A planted with grain drills having row spacing up to 14 inches wide. Seed should be planted 1 to 1.5 inches deep. Low seeding rates cause the plant to branch close to the ground and very high rates may cause excessive leaf disease problems. Soil temperatures at planting time should be 40°F or higher. Safflower is very frost tolerant as a seedling. This allows High Plains growers to plant early in April and up until early May. You should have good, deep soil moisture before planting safflower. It will produce with very little summer rainfall if the soil profile is filled to a depth of six feet (the depth of rooting). While safflower is more drought tolerant than small grains, it will use any available soil moisture. Plan on fallowing or irrigating before the next crop season. The crop leaves very little residue but with proper management should work well for you.

National Sun Industries (NSI) would like to contract Colorado safflower at 11.5 cents/pound. It is offering a contract for the entire crop.

If you have an interest, contact Ken Berndt (NSI representative) at 800/542-7333.

Weed control in safflower may be necessary. The following herbicides have clearance in safflower: Eptam, Genep, Dual, Treflan, and Carbyne. Fertility requirements vary depending on field conditions but generally, safflower in a fallow rotation will require phosphorus and in a non-fallow situation, nitrogen. Safflower will penetrate soil profile 6-8 feet deep and utilize nutrients that have leached below the root zone of other crops. Diseases occur generally in years of excessive rainfall. Diseases noted in Colorado trials include Sclereotinia white mold, safflower rust, and alternaria leaf spot. All of these can be easily controlled with the use of clean, treated, and resistant varieties. Insects to watch for are cutworm, lygus, seed corn maggot, and thrips.

Harvesting occurs when most leaves have browned and a small amount of green remains in the bracts of the last heads. The stems are dry but not brittle and the seed threshes freely. Seeds should be at 8% moisture. The small grain combine cylinder speed should be set at 500 rpm and have a concave clearance of 5/8 at the front and 1/2 at the back. You should increase shaker speed to clean out any residue. Shatter is not a problem. Safflower yields have been slightly less than or equal to sunflower. Safflower has a test weight of at least 40 lbs/bu as opposed to sunflower with a test weight of 28 lb/bu.

If you have an interest, contact Ken Berndt (NSI) at 800/542-7333, Bill Meadows (Mountain States Oilseeds) 208/226-2041, or Continental Grain (Culbertson, Montana) 406/787-8489. ▫Johnson

COLORADO STATE UNIVERSITY RELEASES NEW SEMIDWARF WHEAT VARIETY

Colorado State University Agricultural Experiment Station announced the release of a new wheat variety known as Jules. The variety has out-performed varieties currently grown in the long-season areas of eastern Colorado.

Jules is a semidwarf-height, leaf-rust resistant, hard-red winter wheat variety suitable for long-season growth.

This new wheat has the yield potential and growth characteristics to replace such varieties as Yuma, TAM 107, and Lamar in areas where a slightly later variety can produce more grain.

The new winter wheat was evaluated in the state-wide wheat variety tests for three years. It was the highest yielding variety in tests performed during each of the past two years at sites near Julesburg and Genoa.

Jules is a cross between a Nebraska experimental line related to Agate and a semidwarf variety known as Hawk, which is still grown in Colorado. It is a high-quality bread wheat, superior to TAM 107 and TAM 200 in bread-making traits. In all measures of end-use quality, Jules has proven equal to Yuma and only slightly inferior to Lamar, the current quality standard.

Jules has the yield potential and growth characteristics to replace such varieties as Yuma, TAM 107, and Lamar in areas where a slightly later variety can produce more grain.

Funds from the Colorado Agricultural Experiment Station, Colorado Wheat Administrative Committee, Colorado Seed Growers and private industry provided support for Colorado State researchers to develop the new variety over a period of 11 years.

TAM 107 and Yuma are the wheats to beat in the development of new varieties of the semidwarf-height class. Jules has proven superior to both in grain yield, baking quality, and leaf-rust resistance. Its test weight is lower than most varieties, particularly under late-season heat or drought stress. Hence, we only recommend Jules for longer, cooler growing areas like northeastern Colorado or higher elevation areas.

The new winter wheat variety was named Jules to recognize one of the major dryland wheat-producing areas in the state and to indicate its particular adaptation to this area.

We also want to emphasize the important leaf-rust resistance and winter hardiness of this variety for these areas of the state.

Foundation seed was distributed to selected seed growers last fall who are producing registered seed for 1993 plantings. ▫Quick, Shanahan

CERTIFIED CROP ADVISORS PROGRAM

The American Society of Agronomy is coordinating a new, voluntary certification program open to anyone who provides crop management recommendations to farmers. The purpose of the program is to establish base standards of competence for crop advisors and salespeople who influence how pesticides and fertilizers are used. Given that over 75% of U.S. farmers rely on recommendations from agri-chemical dealers, this certification and its educational requirements have the potential to improve the way chemicals are used in agriculture, and perhaps minimize unwanted environmental impacts. The goal of this program is to help the agricultural industry meet the current challenge of environmental stewardship and enhance the credibility of our professional.

The CCA program has been developed by the American Society of Agronomy in cooperation with the agri-chemical industry, Cooperative Extension, and other agricultural organizations. However, the program is designed to be administered at the state level by a board of local representatives. To date, over 30 states have initiated the program, including Kansas, Oklahoma, and Nebraska. Organizational efforts are just beginning here Colorado.

The CCA program does not require a college degree as does the ARCPACS certification. Rather, it has a base requirement of four years of post-high school experience working with crop

producers. To become certified, applicants must apply to the board in the state in which they work and pass both a national and state examination.

Eligibility for Certification:

1. Anyone may apply for certification, but the state of residence must have an appointed state board in place. Hopefully, this will be in place in Colorado shortly.

2. Applicants must have their credentials reviewed and meet one of the following:

   a. Two years of experience providing crop management advice to farmers, plus a Baccalaureate degree in agriculture or equivalent, or

   b. Three years of experience plus an Associates degree in agriculture, or

   c. Four years of experience providing crop management advice post-high school graduation, or

   d. Prior certification by ARCPACS

3. Applicants must pass both the national and state CCA exams

4. Applicants must sign and agree to adhere to the ARCPACS Code of Ethics

An applicant cannot be certified until all of the above steps are completed.

The national exam has been developed, and the first test was given on February 5, 1993 to 850 applicants in seven states, including Nebraska. The exam consists of 200 multiple choice questions, and there is currently a $75 fee required. The next test will be held on August 6, 1993 in at least 15 states. Since Colorado has not yet established a state board, it is anticipated that the first exam held here will be February, 1994. Thereafter, the exam will be held twice yearly or as specified by the board.

The national CCA exam includes questions to test applicants' knowledge of:

1. Soil Fertility
2. Soil and Water Management
3. Pest Management
4. Crop Production

The state exams consist of 75 multiple choice questions intended to address region-specific problems and state regulations. I have not seen any of the exams yet, so I cannot comment on their degree of difficulty. However, it is anticipated that Extension will be called upon to do some training to prepare applicants for the test. This represents a good opportunity to strengthen and expand some of our existing educational programs as the demand for CCA credentials increases.

Bob Croissant, Hunter Follett, and I will be working with the agri-chemical industry this year to help establish the CCA program in Colorado. The program has been endorsed by the U.S. Senate Agriculture Committee, the USDA, and many industry leaders and is currently in progress in most of the major agricultural states. These groups feel that given the environmental pressures facing agriculture, there is a need to establish minimum qualifications for those giving advice to farmers. Private crop consultants, agri-chemical dealers, commercial applicators, SCS and

If you know of any farmers or consultants using innovative production practices, we would like to feature these ideas in upcoming newsletters. Let us know about any new practices in your area.

Extension personnel, and agricultural producers may all wish to obtain these credentials. We are working toward having this program on line in Colorado by the 1994 crop season. If you have questions or comments about the CCA program, give call me a call at 303/491-6102.
▫ Waskom

NATIONAL CORN GROWERS YIELD CONTEST

Every corn grower is encouraged to enter the National Corn Growers Association yield contest. This contest will challenge you to raise high yields efficiently and of course, win awards. Trophies will be awarded at the NCGA Corn Classic 27 Feb - 1 Mar 1994 in Denver, CO.

The 1st, 2nd and 3rd place winners of both the national and state contests will be recognized at that event. There are minor changes in the contest rules over previous years. Entry deadlines postmarked 1 July 1993 are $50.00 per entry and late entries, accepted until 1 Aug 1993 are $70.00 per entry.

Entry forms are available from your seed dealer, county Extension agent or Colorado State University through our office by calling 303/491-6201.
▫Croissant

NITROGEN RECOMMENDATIONS FOR CORN

The Soil Test Recommendation Committee has been reviewing the nitrogen recommendations for corn. This review has been necessary because the current recommendations tend to overestimate total nitrogen requirements for corn and underestimate deep soil nitrates. This results in nitrate-N accumulation in the lower profile and possibly contamination of the groundwater. Studies are now in progress to evaluate adjusted N recommendation rates. Colorado State University is testing several nitrogen algorithms (nitrogen recommendation equations which consider all parts of the nitrogen formula) at a number of different locations to determine the best methods for predicting N requirements. Field tests using these equations for N fertilizer recommendations on corn will continue again this summer. Soil testing predictions are improved significantly when sampled to 2 feet deep. The Soil Test Committee is now recommending sampling procedures to a depth of two feet. This would include a surface sample (0-12") for a routine analysis and a subsample (12-24") for nitrate analysis. ▫Croissant, Follett

IDAHO GREEN TAG SEED

To control the spread of disease, the Idaho legislature has adopted regulations stating that beans planted for commercial use shall have a documented disease-free background. There are two ways to achieve this documentation either by planting certified seed or having bean seed fields inspected for pathological problems. Idaho certified seed fields are inspected for varietal purity as well as presence of disease by the Idaho Crop Improvement Association. Therefore, blue tag certified bean seed is approved for planting in Idaho.

The problem that bean seed dealers are complaining about is the second circumstance, green tagging of non-

More questions have arisen on Idaho Green Tag bean seed. Because of these questions, this article reviews information presented in a previous issue.

certified seed. Idaho farmers wishing to replant their own seed or seed companies who want to sell uncertified seed in Idaho must apply to the Idaho Department of Agriculture for green tag inspection. An inspector from the Idaho Department of Agriculture inspects these fields for disease contamination. Seed produced from inspected disease-free fields are allowed to be tagged as apparently disease-free. This tag is issued by the Idaho Department of Agriculture, not by the Seed Certification Service. The seed is now legal to be planted for commercial production in Idaho.

Idaho Green Tag bean seed only gives the indication that seed fields were apparently free of disease infestation and are therefore acceptable for planting in Idaho. This tag does not make any claims as to varietal purity, germination or freedom from noxious weeds. The only way to assure yourself that the seed is pure is to buy seed labelled with a certified seed tag. ▫Stanelle

FERTILITY RECOMMENDATIONS FOR DRY EDIBLE BEANS

Colorado soils vary widely in fertility, pH and salinity. Nitrogen (N), phosphorous (P_2O_5), and sometimes zinc (Zn) are common limiting nutrients for dry bean production. Fertilizer decisions should be based on the results of a good soil test.

Nitrogen applications should be based on residual soil nitrogen. To determine the amount of N needed for your irrigated bean crop, refer to your soil test and Table 1. The value shown for ppm can be converted to lbs per acre by multiplying the ppm by 3.6 to obtain the pounds of NO_3-N per acre available to a depth of one foot (also see SIA No. .502). If the soil test shows less than 10 ppm in the top foot, then 50 lbs of nitrogen is recommended. A value of 30 ppm NO_3-N indicates that you have about 118 lbs available NO_3-N per acre, a quantity that is adequate for most dry bean yields in Colorado. Since dry beans are a legume, they are capable of fixing a portion of their nitrogen needs. Nitrogen from the air provides the plant with nitrogen. The rhizobium bacteria enabling beans to fix atmospheric nitrogen is usually present in most soils if dry beans have been recently grown in the field. Inoculation may be beneficial in soils with low pH, high pH, or in saline soils. If inoculation is necessary, and you use seed treated with bactericide, be sure to apply the inoculant directly to the soil in a band adjacent to the seed furrow, rather than in the seed. Many commercial seed treatments contain a bactericide which kills the inoculant.

Phosphorous is an important element for legume crops and is considered important for reproductive development of the plant. Soil test results will determine if you need to apply supplemental P. Phosphorous recommendations for irrigated beans based on the ammonium bicarbonate-DPTA soil test are shown in Table 1.

Potassium (K) levels in most Colorado soils are high to very high. However, in very coarse sandy soil or deeply eroded areas, there may be a deficiency. Soils which test above 120 do not need supplemental K. Soils testing below 120 ppm require the application of 40 lbs K_2O and soil testing below 60 ppm require 20 lbs K_2O per acre for adequate plant growth.

Zinc and iron deficiencies may limit bean productivity in Colorado (also see SIA No. .545). Deficiency symptoms of these nutrients often occur on native Colorado soils in crops such as beans, corn, sorghum, and potatoes. Both nutrient deficiencies can occur simultaneously on the same field and are often observed as irregular areas in the field where the topsoil has been removed or disturbed by leveling or erosion. Deficiency symptoms are more pronounced when early season weather is wet and cool. Zinc deficiency symptoms include plant stunting, due to shortening of the internodes, general yellowing or crinkling of the upper leaves, browning or bronzing of older lower leaves, and reduced podset. Iron deficiency symptoms appear as irregularly-shaped yellow areas of the field when viewed from a distance. Severe interveinal chlorosis occurs on new leaf growth; however, the whole plant may be affected and leaves can turn a very light yellow or even white. In cases where moderate deficiencies occur early in the season, the plant may recover late in the season after the soil warms up. Visual observations of zinc or iron deficiencies can be confirmed by soil tests and/or plant analyses. Zinc deficiencies can be corrected by applying zinc sulfate or chelated zinc compounds. An application of barnyard manure applied before seedbed preparation is the best solution to improve the iron nutrition of beans. However, iron chelated compounds may be applied to the foliage.

Fertilizer decisions should be based on the results of a good soil test.

Soils testing over 2 mmhos/cm soluble salt can injure the bean plant and reduce yield. Readings of 3.5 mmhos or greater can result in severe yield loss. If remedial action such as flushing salts deep in the soil profile with irrigation water cannot be taken, it is best to grow a more tolerant crop such as barley, sugar beets, wheat or corn.

Table 1. Available NO_3N and phosphorous recommendations for dry bean production in Colorado.

Nitrogen	
NO_3N in Soil Test -ppm-	N Fertilizer Recommended lbs N/acre
0 to 10	50
11 to 20	30
21 to 30	10
> 30	0

Phosphorous	
Phosphorous in Soil Test -ppm-	P Fertilizer Recommended lbs P_2O_5/acre
0 to 3	40
4 to 7	20
> 7	0

▫Brick

POLYACRYLAMIDES

Water absorbing polymers are being sold in Colorado to improve soil/water relationships in plants. Polyacrylamide crystals have the ability to soak up as much as 400 times their weight in water. When mixed with soil or compost, the polymer stores water, providing a reservoir within the growing medium. The water is available to plant roots and is released as leaf transpiration creates a demand.

Polymers will reduce the amount of water used by a growing plant. The

polymer's ability to save water occurs because both drainage and evaporation are reduced resulting in more efficient water use.

The polyacrylamides have proven useful for certain horticulture crops such as tomatoes, lettuce, radishes, and landscape uses when planting trees, shrubs, turf, or other plants. Most field crops seem to grow better with polymer than without it, but the cost of applying it may cancel out the benefits of higher yields. Colorado State University has conducted field experiments using polyacrylamides on field crops such as sunflowers, corn, beans, and wheat. These tests failed to get significant yield increases for field crops. The results of the polyacrylamide field tests for sunlfowers, corn, and dry beans are given in Table. 2. Polyacrylamide appears to be more beneifcail for hortiucltural and landscape uses than they are for field crops. ▫Follett

Table 2. Polyacrylamide studies in sunflowers, corn, and beans in Colorado in 1991.

Polymer Rate lb/A	Sunflower lb/A*1	Corn bu/A*2	Dry beans lbs/A*3
	Yield		
0	2337	169	2803
5	2297	169	2812
10	2300	164	2711
15	2270	166	2805
30	2109	160	2715

*1 Average of three locations
*2 Average of four locations
*3 Average of three locations

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