FROM THE GROUND UP

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AGRONOMY NEWS

Volume 13, Number 7 July 1993

TABLE OF CONTENTS

1993 DRY BEAN FIELD DAYS SET FOR AUGUST

Dry bean producers and processors will have an opportunity to view the Colorado State University Crops Testing/Research trials during Colorado State University's bean field day programs in eastern Colorado. The series of programs will be held at four locations on the Eastern Plains, August 17 and 18.

The field day program will include presentations on cultural practices, disease control, environmental monitoring for forecasting disease epidemics, new varietal descriptions, and a review of ongoing dry bean research programs at CSU. Participants will have an opportunity to walk through the variety testing and research plots at each location.

Dry bean research leaders from Agronomy, Plant Pathology and Weed Science, Entomology, and other departments at Colorado State University will be present for interaction with attendees. ▫Shanahan

1993 DRY BEAN FIELD DAYS TEST PLOT LOCATIONS, DATES, & TIMES					
DATE	TIME	CROP LOCATION	CONTACT	COOPERATOR	DIRECTION TO PLOTS
AUGUST 17	10:00 AM	Wiggins	Bruce Bosley (303) 867-2493	Steve Bruntz	Hwy 34 to Road 3, South 1 mile on Road 3 (West Side of Road)
AUGUST 17	4:00 PM	Ovid	Gary Lancaster (303) 474-3479	Kent Gerk	1 mile West of Julesburg on Hwy 138, (North Side of Road)
AUGUST 18	10:00 AM	Yuma	Jim Zizz (303) 332-4151	Jim Hendricks	North of Wray on Hwy 385 to Road 54 West 3 miles on Rd 54 (South Side of Road)
AUGUST 18	4:00 PM	Burlington	Ron Meyer (719) 346-5571	Steve Scott	South on Hwy 385 to Rd K East to Road 53 South 1/4 mile (West Side of Road)

STATE MANAGEMENT PLANS FOR PESTICIDES PROPOSED BY EPA

The U.S. Environmental Protection Agency has recently developed its strategy for protecting groundwater from risks of contamination by pesticides. This strategy, outlined in Protecting the Nation's Groundwater: EPA's Strategy for the 1990's, focuses on the use of FIFRA authorities to protect groundwater. The centerpiece of the strategy is the development and implementation of State Management Plans (SMPs) for those pesticides EPA deems to pose a high risk to groundwater.

A SMP is a written document by each state which wants to label a specific pesticide, outlining how the state will protect its groundwater from contamination by that chemical. They will be massive documents which include:

- ☐ the state's philosophy and goals toward protecting groundwater
- ☐ responsibility of state agencies
- ☐ basis for comment and planning
- ☐ monitoring for the pesticide in groundwater
- ☐ prevention action
- ☐ response to detections of the pesticide in groundwater
- ☐ enforcement mechanisms
- ☐ public awareness
- ☐ records and reporting

Aquifer vulnerability studies, monitoring data, and pesticide use data are all key components of the management strategy.

In the event that the EPA requires a SMP for a specific pesticide, its legal sale and use will be confined to states with an approved SMP. The Colorado Department of Agriculture will be responsible for writing the SMPs required, but they have contacted me regarding Extension's ability to help provide some of the information needed.

The herbicide Amber (triasulfuron), produced by Ciba Plant Protection, is the most likely product to require the first SMP. This is based upon a leaching study conducted by Ciba

during the registration process. Amber is a very low use rate product for weed control in wheat and barley. Although this sulfonylurea herbicide poses very minimal threat to human health, the fact that it was detected three feet below the soil surface prompted EPA to issue a conditional registration pending the development of SMPs. Amber's current label will expire in February 1994 and Ciba is working with the state and the EPA to avoid the requirement for a SMP to continue its label. They are proposing an educational program emphasizing a Best Management approach. Ciba has contacted me to determine if Extension would support this approach and perhaps have some participation in this educational effort. Whether or not this satisfies the EPA remains to be seen. The BMPs they are promoting for Amber are:

BMP - Best Management Practice

1. Conduct a Farm Site Evaluation to determine conditions, practices, and areas on your farm that may present potential groundwater concerns.

SMP - State Management Plan

2. Use alternative control strategies where soils are coarse and depth to groundwater is 20 feet or less.

3. Read the Amber label thoroughly.

4. Select appropriate rate and application techniques, and if applicable, tank-mix partner.

5. Amber may be applied by ground or aerial equipment. Calibrate equipment prior to use.

6. Pay particular attention to rotational crop restrictions and precautions.

7. Do not apply Amber through irrigation systems.

8. Amber is not labelled for use in the San Luis Valley.

However Amber fares, the EPA has indicated that they will name approximately five more pesticides later this year that will require a pesticide-specific SMP by 1995 to continue their present label status. It is rumored that atrazine, Lasso (alachlor), Temik (aldicarb), and Dual (metalochlor) will be among the first chemicals required to have an approved SMP. Again, it is EPA's intent that if a state does not produce an approved SMP for the pesticide in question, the sale and use of that product will be banned in that state. The Colorado Department of Agriculture is unsure at present how they will meet all of the requirements for SMPs, especially for minor use chemicals. ▫Waskom

KENAF

What crop grows to a height of 10 to 12 feet, is related to cotton, looks like marijuana (sic) and could save thousands of acres of pine forest? The answer is kenaf. Kenaf, a member of the hibiscus family, has received attention recently as a paper pulp source. The outer bark has provided an excellent alternative to wood pulp for newsprint. The core fiber of each stalk is being developed for cat and poultry litter. Attempts to grow kenaf in Colorado have indicated yields too low for pulping purposes. Kenaf in northeastern Colorado under dryland conditions yielded 3 tons of dry matter/acre and plants matured at a height of 5 feet.

The good news could be in kenaf's forage potential. William A. Phillips (USDA) at El Reno, Oklahoma has

found kenaf can be cropped after a winter wheat harvest in June or early July to give winter wheat farmers a second crop which can be used for livestock feed. Phillips found the corn could be harvested in 60-80 days and yielded 3 tons with 30 percent crude protein compared to alfalfa's 16-21 percent. If you have questions about using kenaf as an animal feed source, you can call Dr. Phillips at 405/262-5291.

Kenaf is a high water user so if you are growing the corn dryland, this should only be considered an opportunity crop. If you have irrigation, I suggest you treat it like any irrigated crop. Since the crop looks A LOT like marijuana, you should inform the sheriff of what you are doing. Our trials in Akron involved the sheriff driving through our plots about once a week. Also, you can expect to have some of it harvested for you by unannounced, unpaid, unskilled laborers. If you are not hit by these people, you will be the first. Your satisfaction would come in knowing that they labored and are now trying to smoke something like a cotton leaf. Kenaf will not set seed (it will not flower under Colorado conditions) so you will need to go to Texas, Oklahoma, Arkansas, or California for a seed source. ¤Johnson

Why does kenaf attract unsolicited harvesters and the police?

TROUBLE SHOOTING NUTRIENT PROBLEMS

The growing season is an excellent time to scout fields for nutrient stresses as well as other problems. Although the early growing season is too early to predict final yields, much of the potential yield has been set. You should walk through each field every week. You may not be able to do much about this year's crop, but the walks will help you evaluate your 1993 practices and remind you of possible changes for 1994.

Look for signs of planter skips, incorrect seed depth, and irregular seed growth. Count plants to determine plant population. Early season field scouting allows the farmer to note problems that exist with the possibility of correcting, or at least gaining knowledge, to make adjustments for next year.

Nutrient deficiencies are more severe on young plants as opposed to mature plants. This is especially true for micronutrients. Nutrient deficiencies frequently show up as problem areas within a field having good and poor growth areas. The assessment of any poor growth condition should be approached in a systematic matter withholding conclusions until all facts are examined. The symptoms the plant plays may be secondary to the real reason for the poor growth.

The first observation should be the field pattern or poor growth. Observations as to pattern (streaks, random, etc.) and interaction soil types are important clues. You should also get a history on the field for such things as seedbed preparation, previous crop, fertilizer rate, method of application, herbicide use, etc. You should also note whether the poor growth is unique to this field or areas. Do other fields planted to the same crop show similar symptoms?

After the general field observations are made, examination of individual plants should be made including the root system in both the good and poor growth areas. If inspection of individual plants coupled with the general field observation does not lead

to an obvious answer, then samples should be taken to further aid in the diagnosis.

The type of sample to collect will depend on your assessment of the problem whether it is a disease, insect, herbicide injury, or nutrient problem. For assessment of nutrient deficiencies, it is recommended to collect a separate plant and soil sample from both the good and poor growth areas. This allows comparison of analytical test results. For relatively young plants, 12 to 15 plants should be selected from each growth area. Each soil sample should consist of 10 to 15 cores taken nearby, being careful to avoid any starter fertilizer bands.

Before leaving your fields, check for weed infestation, insects, and diseases. If necessary, pull plants and split stocks. Some farmers fly over their fields in July and August to take pictures for their record. They often see problems that do not show up from the road. ▫Follett

COLORADO'S NEW CERTIFIED WEED-FREE HAY, FORAGE, & MULCH ACT

Weeds are often spread in hay, forage, or mulch which may be contaminated with weedy plants and seeds. The Colorado Undesirable Plant Management Act and amendments to the Federal Noxious Weed Act of 1974 (specifically Section 15, The Management of Undesirable Plants on Federal Lands), passed in 1991, provide the catalyst to prevent the spread of weeds onto private and public lands. The Colorado Legislature passed the Certified Weed-free Hay, Forage, and Mulch Act in 1993. This bill affords the opportunity to create a new market for Colorado hay and mulch producers that successfully raise their products free of noxious weeds. The bill is designed to enable cooperation within the western states on this important issue.

Briefly, the law provides a service to hay and mulch growers so that their weed-free product is certified by the state in which they plan to sell. Inspectors can be located through Cooperative Extension and scheduled to inspect a particular grower's field.

This is the first year of the bill's operation and some procedural matters are still being finalized. Certified weed-free hay and mulch should bring a premium price at the marketplace. Not only will this be an economic aid to growers, but also deter the spread of weeds. Many of our neighboring states have such laws in place. The bill creates a new market within Colorado and preserves established markets outside our state.

An effort is underway to coordinate the 12 western states' Certified Weed-free Hay, Forage, and Mulch laws. The upshot of this campaign is to allow a Colorado grower, for example, that has identified a market in another state to have his/her product certified as weed-free according to the target states' noxious weed list. This will open new markets for growers. For more information, contact George Beck at 303/491-7568. ▫Beck

WHEAT TEST WEIGHT DECLINE

Wheat, before the rains, had test weights of 60 lbs per bushel or above. Wheat from the same field harvested

Where does all the test weight go?

after several rains, is testing below 57 lbs. Wheat testing 57 lbs per bushel must be graded US # 2 because of low test weight and farmers will receive a premium dockage depending on the local elevator. Number 1 wheat must test at least 58 lbs and wheat testing # 3 will weigh less than 57 lbs per bushel.

Natural weathering causes the formation of internal fissures (cracks) and reduces kernel density. These natural cracks in wheat reduce milling time and require less energy for grinding; however, all kernels will not have these internal cracks, especially in a wheat blend. The variation in kernel structure and density contribute to complexities in milling and make standardization procedures difficult. ▫Croissant

MOISTURE REQUIREMENTS FOR DRY BEANS

Supplemental irrigation is practiced in most bean production areas in the west. Dry beans are grown where natural precipitation varies from 10 inches on the west slope to nearly 20 inches in eastern Colorado. This natural precipitation falls at varying amounts during the year. Some locations receive most of the precipitation in the winter, while in other areas the precipitation occurs primarily in the summer.

High quality irrigation water is generally available and used to supplement natural precipitation. However, water high in salt can present problems since beans are very sensitive to soil and water salinity.

It is advantageous to have a full soil profile at planting. A medium-textured soil wetted to a 18-24 inch depth should satisfy the moisture needs of the bean plant until early to mid-July (see Figure 1, Table 1). During the growing season, 85% of the water is extracted from the top 18 inches of soil, with the remainder extracted below this level.

Table 1. Water Holding Capacity by Soil Type.

Soil type	Stored Water Per Foot of Soil
Clay	2.5 inches
Clay Loam	2.0 inches
Loam	2.0 inches
Sandy Loam	1.5 inches
Fine Sand	1.0 inches
Coarse Sand	0.5 inches

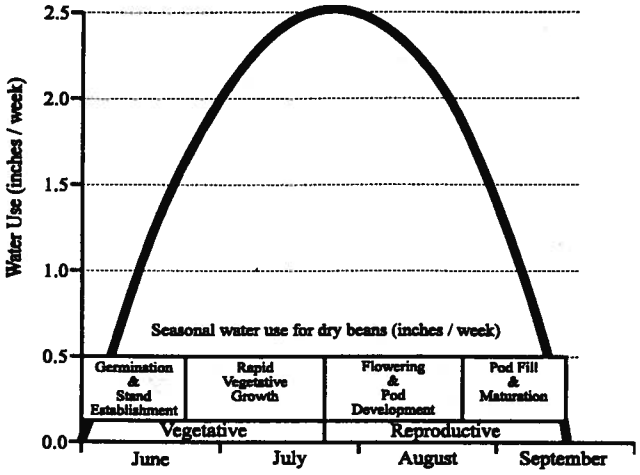
The first post-planting irrigation should be applied when approximately 50% of the available soil water has been depleted. The depletion rate will depend on the soil texture, depth and root development of the crop but 50% depletion of available soil water usually occurs 3-4 weeks after planting. The amount of irrigation water applied at this time should be sufficient to bring the top 12-18 inches of the soil profile to field capacity if the soil profile was full at planting. Overirrigating prevents soil aeration necessary for nitrogen fixing bacteria and provides a favorable environment for some root-infecting pathogens. Subsequent irrigations should be scheduled to prevent soil moisture stress, especially during the critical flowering and pod development stages. These stages are the most important to maintain available soil moisture levels above 50%. This time period also coincides with the warm

Where trade names are used, no discrimination is intended, and no endorsement by the Cooperative Extension Service is implied.

physiological maturity (when pod fill has ceased), irrigation water is no longer needed. Irrigating after this time will only increase damage by white mold.

Water use by dry beans varies throughout the season and may exceed 2.5 inches per week. Plants which have deep healthy root systems are able to utilize water stored deeper in the soil profile. All cultural practices which encourage deep rooting will also enable the bean crop to more efficiently use soil moisture and minimize losses due to stress-related flower and pod abortion. Application of cold ground water during hot parts of the day (greater than 95° F) can induce floral abortion and cause plant stress. ▫Brick

Taken from **Colorado Dry Bean Production and IPM**, Bulletin 548 A



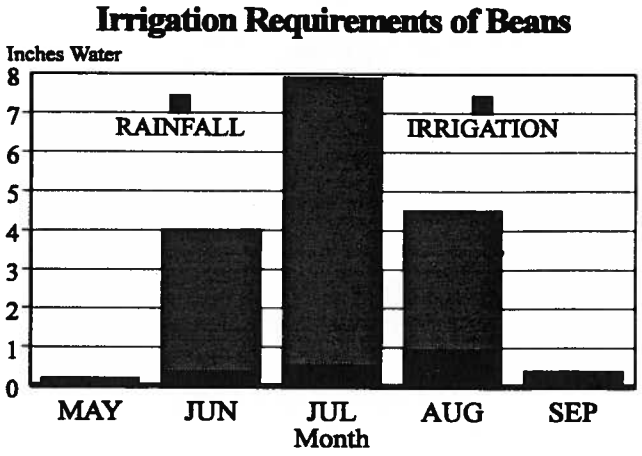


Figure 1. (a) Seasonal Water (Yonts & Nuland, 1984). (b) Irrigation Requirements of Beans.

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Sincerely,

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