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COLORADO CHEMSWEEP

The Colorado Department of Agriculture has developed a waste pesticide collection program that will be solely operated by a private contractor, MSE Environmental, Inc. The program, dubbed "Colorado Chemsweep," will allow Colorado growers and agri-businesses the opportunity to dispose of banned and unusable pesticides. All banned, unusable and unwanted materials which are classified as pesticides are included in the program. MSE will recover pesticides that have a brand name, trade name or active ingredient on the label. Because containers with unknown contents may require obtaining a sample for analysis prior to pickup, please let MSE know so that a sample can be obtained.

In March 1997 participants in the San Luis Valley (Alamosa, Conejos, Costilla, Rio Grande and Saguache Counties) and the Northeast Area (Logan, Morgan, Phillips, Sedgwick, Washington, and Yuma Counties) will be able to dispose of their waste pesticides through participation in "Colorado Chemsweep." Participants will pay an all-inclusive cost of approximately \$2.25 - \$2.75 per pound of waste, including normal sampling costs. The cost is dependent on the total amount of materials registered and collected in the program. Materials will be weighed at your location on certified digital scales and charges will be based on the weight of the waste prior to packaging.

This program is being conducted under the new "Universal Waste Rule" which will allow MSE to go to the site of the pesticide waste, properly package the waste, take possession of the waste, and become the generator of the waste, thus reducing future liabilities for the program participants. The program will meet state and federal hazardous waste regulations.

Banned pesticides, by definition, cannot be used and must be disposed of, often as hazardous waste. With this in mind, some of the benefits of "Colorado Chemsweep" are:

- All permits and approvals are secured by MSE.
- MSE takes possession of the waste and signs off as "Generator."
- Participants are not directly involved with regulatory agencies.
- All materials eligible for destructive incineration are destroyed.
- Ongoing liabilities for continued storage on your property are minimized.

Program information and registration forms have been sent to Dealers, Associations, Extension offices, Farm Bureaus and other Agri-Business Organizations in the 11 target counties. The registration deadline is February 14. Registrants will receive pickup information and an appointment time by March 10. Tentatively the on-site pickups are scheduled for March 10-26, 1997.

Additional programs to service other areas of Colorado are in the planning stages. If you have an immediate service need, please call MSE's Colorado Chemsweep Hotline 1-888-AGCHEM2 (1-888-242-4362).

As the Environmental and Pesticide Education Specialist, I am excited about the program because it will provide the opportunity for banned and unusable pesticides to be disposed of in an environmentally safe manner. A successful pilot program, sponsored by Colorado State University, was held in Adams, Boulder, Larimer and Weld Counties in October 1995. Participation in the program is also encouraged by Colorado Department of Agriculture, Colorado Farm Bureau, Rocky Mountain Plant Food and Agricultural Chemical Association, Colorado Corn Administration, Colorado Potato Administration Committee -- Areas II & III, Healthy Plains Initiative and Northeast Colorado Health Department. If you have any questions or need additional information, please call me at 970-491-6027 or MSE Environmental, Inc. at 800-350-0217. ☛McDonald

Take this opportunity to get rid of banned and unusable pesticides safely.

ANNOUNCEMENTS

COMPOST SEMINAR, February 20, 1997, Sterling Extension Office, 1:00 - 3:00 p.m. Cal Kuska from Kuska Associates, Jessica Davis from CSU, and Les Kuhlman from Resource Recovery Systems will address various aspects of composting manure, sludge, and municipal solid waste.

HOME ON THE FRONT RANGE: MANAGING A FEW ACRES, February 22, 1997, Rocky Mountain Christian Church, Longmont, 8:00 a.m. - 3:00 p.m. Small acreage management including horse, ratite, camelid, and small livestock production and grass, water, manure, and soil management will be discussed.

CROP PRODUCTION AND PEST MANAGEMENT FIELD RECORD, by Robert Croissant, Howard Schwartz, and Jerry Alldredge, revised 5/93. We have MANY copies of this, so if you are interested in obtaining one or more, please contact our office at 970/491-6201.
☛Davis

CHICKPEA VARIETY PERFORMANCE AT FORT COLLINS

Chickpeas (*Cicer arietinum* L.), also called garbanzo beans, are a large-seeded legume popular in salad bars and soups. Most chickpeas produced in the US are grown in the Palouse region in the Pacific Northwest or the central valleys of California, however, much of the domestic consumption is imported from Mexico and Turkey. Garbanzo beans are a cool season crop planted in the spring in the Palouse and in the winter in California. Most commercial varieties grown in the US were developed at either Washington State University or University of California-Davis.

A study was conducted for the past two years at the Agricultural Research, Demonstration and Education Center, Fort Collins, CO to compare yield levels of four commercial garbanzo cultivars. The plots were planted on two planting dates under irrigated and non-irrigated conditions. The cultivars were all large seeded Kabuli types, and included 'UC-15' and 'UC-27' from the University of California-Davis, and 'Sanford' and 'Dwelly' from Washington State University. The trials were planted in 30-inch rows on April 6 (early planting) and April 27, 1995 (late planting) and April 9 (early) and May 3, 1996 (late). The irrigated plots received approximately 8 inches of supplemental water with an overhead sprinkler irrigation system in 1995 and about 14 inches in 1996. The preemergence herbicide Dual 8E was applied at 2 lbs/acre on April 1 during both years. A granular form of *Rhizobium* appropriate for garbanzo beans was applied with the seed at planting.

Seedling emergence and establishment was delayed by cool weather during April and early May in 1995. In 1996 seedling emergence and stand establishment was excellent. Flowering and pod fill occurred during late June through early August. The plots were relatively disease free, but a few plants expressed Pea Enation Mosaic Virus symptoms (confirmed by Dr. H. F. Schwartz). The virus significantly reduced yield of the infected plants; however, infection intensity was very low. Seed yield was evaluated from approximately a 20-ft linear section of row in 1995 and from two rows 27 feet long in 1996. The dryland plots were harvested in early to mid August, and the irrigated plots were harvested in mid September. Plots were adjusted for missing areas in the row and yield levels reported herein are likely 10 to 20% higher than what would be obtained in a farmer's field.

CHICKPEA VARIETY RESULTS:

Dryland Trials

Yield results are shown in Table 1. Yield levels among varieties were not statistically different in either year. UC-27 had higher observed yield than the other entries in the early planted plots. In the late planted plots, yield levels were very similar among varieties. Mean yield in the early planted plots was higher than later planted plots in both years. Among the varieties, UC-27 had the highest observed yield at the early planting date and appeared better adapted than other varieties. UC-15 had higher yield at the late planting date.

Mean seed size was evaluated from unscreened field run seed, and ranged from 56 to 67 seeds/oz. UC-27 had the largest seed, at 56 seeds/oz. Seed color appeared acceptable, but was not evaluated by a garbanzo seed expert. Based on the yield and seed quality evaluations, UC-27 appears to be the best variety under the dryland test conditions in this evaluation and planting in early April is superior to late April or early May.

Garbanzo beans are better adapted to dryland conditions or minimal irrigation in our region.

Irrigated Trials

In the irrigated trials, seed yield was generally lower than in the dryland trials in 1996. The plots received enough irrigation water to stimulate excessive vegetative growth which caused the plants to flower late and reduced pod set. In 1995, mean yield levels in the irrigated trials were higher than in the dryland trials. Among varieties, Sanford and Dwelly had consistently higher yield than UC-15 or UC-27 across years and environments under irrigation, with the exception of the late planting time in 1995. Yield levels in the late planted trials were higher than the early planted trials in 1996, the opposite of 1995. In 1996, mean seed size ranged from 69 to 77 seeds/oz. among varieties. Seed sized less than 58 to 60 seed/oz. are unacceptable for No. 1 commercial garbanzos, hence none of this production would qualify for canning quality. The low seed yield in the irrigated trials compared to the dryland plots, coupled with small seed, suggests that garbanzo beans need minimal water for production in our region and would require careful irrigation if grown under irrigation. Based on our results, garbanzo beans appear to be better adapted to dryland conditions or minimal irrigation in our region.

Table 1. Yield of four chickpea varieties planted early (April 6 to 9) and late (April 27 to May 3) in irrigated and non-irrigated environments at Fort Collins, CO.

	Dryland				Irrigated			
	Early		Late		Early		Late	
	1995	1996	1995	1996	1995	1996	1995	1996
	Yield(lbs/acre)							
UC-15	944	872	951	823	1147	479	1224	722
UC-27	1022	1047	853	753	981	375	1079	538
Sanford	854	934	737	680	1163	830	639	780
Dwelly	853	968	784	485	1070	615	870	937
Mean	918	955	832	685	1090	575	953	744

• Brick

SWINE WATER QUALITY BILL BEFORE THE GENERAL ASSEMBLY

The General Assembly of the State of Colorado is currently considering a bill which requires a permit from the Colorado Department of Public Health and Environment for any swine confined feeding operation of 2,500 or more swine (weighing 55 pounds or more). The bill was introduced by Senator Joan Johnson from Adams County and sponsored by the Rocky Mountain Farmers Union. It requires the Water Quality Control Commission to publicize regulations to implement the permit requirements. These regulations will require owners of the swine operations to:

- ▶ submit a swine waste management plan including soil classification and prepared by a professional engineer or a qualified consultant,
- ▶ provide a bond to pay the costs of cleanup in case of abandonment, spill, or contamination,
- ▶ report spills or contamination immediately with a written report within three days,
- ▶ locate manure or wastewater impoundment at least 1,000 feet from any other such impoundment,
- ▶ drill one monitoring well up-gradient and one monitoring well down-gradient from each swine feeding operation, and
- ▶ pay \$200 for a permit fee.

Many agricultural groups oppose the bill. Cooperative Extension agents should be informed so that they can participate in the discussion. In particular, the implications for the growth of rural counties and the conceivable regulation of other livestock industries should be considered in addition to the potential environmental impact of such a bill. ➡ Davis

The new bill would require permits for all swine operations of 2,500 head or more.

DEVELOPMENT OF CROTALARIA AND KENAF IN COLORADO

The fiber industry is growing at a rate of 4% per year on a world-wide basis. That rate is underestimated for developed countries, but it does give one reason to think about what we might do to supplement or replace much of the wood fiber currently being used for everything from paper to chipboard. The economics of switching to annual crops appears to be there. With existing technology, the cost of producing paper from hemp runs about \$2100 per ton. The cost of paper from wood pulp is \$800 per ton. The biggest difference is due to plant size. A typical hemp mill in Asia runs about 12,000 tons per day, while a wood pulp plant produces about 230,000 tons per day. Fortunately, new technologies emerging from Europe can reduce pulp and paper manufacturing costs to \$530 per ton.

Current values are as follows (converted from Canadian dollars, courtesy of the Canadian Gov't.):
Pulp for paper: \$250/ton.
Chopped for wallboard (deliver Seattle): \$85/ton.
Round bale for textile: undeveloped, but cotton (nearest competitor) value is \$2,000/ton.
Chopped for paper: \$55 to \$85/ton.
Bast fiber (35% of yield) separated: \$200/ton.
Core fiber (livestock bedding, wood pellet replacement, cat litter, peatmoss replacement): \$100/ton.

Currently in Colorado we have tested kenaf and sunn hemp (crotalaria) for fiber production in the Arkansas Valley. Kenaf yields of 5.4 tons per acre and crotalaria yields of 4.6 tons per acre have given us reason to further evaluate these crops. Both crops reached heights of 10 to 12 feet grown under irrigation at Rocky Ford, though crotalaria is adapted to dryland conditions.

Kenaf, a relative of cotton and hibiscus, is suited to irrigated conditions and can tolerate the heat common to the Arkansas and Grand Valleys. The fiber length from kenaf limits its utility primarily to paper pulp, though two companies are exploring its use in

resin-based building materials and in wallboard construction. The fiber is very similar to soft white pine fiber.

Crotalaria, a relative of the faba bean, is a nitrogen fixer and is suitable to the Plains. It is a relatively new addition to the fiber industry and was evaluated in the Southern U.S. where its lower yields eliminated it from the massive USDA funding for kenaf. Now the USDA is rediscovering this crop, whose primary use to date has been in the manufacture of burlap. Crotalaria fiber is intermediate between industrial hemp and kenaf and is suitable for textile as well as pulp use.

To date our field trials indicate no insect damage on either crop and certainly no weeds. These fiber crops put on such biomass that weeds can't survive. The Rocky Ford trials were virtually weed free the entire season once the crop reached three to four feet tall.

Harvest was done with a sickle bar. I would recommend that tall guides might be used to lay the crop in a swath. We waited until frost dried the crop before harvest, but if a round bailer is available the crop might be cut green, soon after a frost, and allowed to "rot" (they call it retting) in the bail. The other option, if this is for paper pulp use is to chop and ensile it with lime and "add value" by selling pulp the next spring.

There is one disadvantage: kenaf doesn't bloom in our short growing season, and the crotalaria was just in flower at first frost. We will look at a wider germplasm, but it's doubtful we can produce either crop for seed in Colorado. •DJohanson

Sincerely,



Jessica Davis
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