FROM THE GROUND UP

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AGRONOMY NEWS

Volume 12, Number 11 November 1992

TABLE OF CONTENTS

SEED SAMPLING

Seed must be tested for germination and purity before it can be sold. Information from these tests is necessary for labelling purposes. Seed harvested this fall should be tested before conditioning to find out if germination levels are high enough to continue the conditioning process. Germination on year old seed lots must be retested because the Colorado seed law specifies a 12 month time limit on seed sold within the state.

A test may only use one pound or less of seed to label thousands of bags. This ratio of seed tested versus actual lot size could lead to major discrepancies if the sample is not representative of the entire seed lot. Specialized equipment has been designed and methods have been standardized to assure accuracy and representivity of seed samples. It may be difficult or expensive for an individual with just a few seed lots to have the equipment to collect samples "by the book," but knowing some of the concepts of sample collecting will help to achieve results that are indicative of the true analysis of the seedlot.

A representative sample should be just that - representative. It should be a true miniature of the entire seed lot. The more sub-samples or probings

that contribute to the sample, the higher the probability of accuracy. If you are bagging seed, a handful of seed from every second, third, or fourth bag may be a random sampling method. For seed already bagged, sampling by use of a hand trier or probe in a minimum of five to a maximum of 30 random-sampled bags (depending on the total number of bags in the lot) is recommended. In some cases, the bags that are most accessible to the sampler may also be those that are most subject to temperature and humidity variations, and therefore most prone to viability deteriorations.

Bulk seed stored in a bin must also be carefully sampled. Fine material accumulates below the fill spout while light, chaffy material moves to the outside edges. Natural temperature variations can cause moisture accumulations at the tops and bottoms of bins. Samples taken from unloading spouts or from the top of the seed pile have a high potential of being non-representative. The best method of sampling is to use a long bin probe pushed into the seed mass at an angle. Hopefully, the probe will be long enough to penetrate the entire depth of the bin, but in any case, several probings should be made at various points to achieve a uniform sample.

When sampling is complete, there will probably be more seed than is needed for testing. This sample should be well mixed, and divided so that a two pound sub-sample is removed for shipment to the state seed lab or other commercial lab for testing.

To have an accurate seed test, the sample checked must be truly representative of the entire seed lot. A seed test may only use 3000-5000 seeds, but the results could be used as the standard for a seed lot of billions of seeds. Therefore, the accuracy of the test is heavily related to the accuracy of the sample. ▫Stanelle

For the most up-to-date agronomic information on efficient use of manure for crop production and preservation of surface and ground waters, read the new publication, "Utilization of Animal Manure as Fertilizer", Coop. Ext. Bulletin No. 552A.

This publication is now available through the CSU Bulletin Room.

NEW BULLETIN ON ANIMAL MANURE PUBLISHED

A publication by R. H. Follett, D. G. Westfall, and R. L. Croissant, entitled **"Utilization of Animal Manure as Fertilizer"**, Colorado State University Coop. Ext. Bulletin No. 552A (1992) has just been published. A file copy of the bulletin has been sent to each county by the Bulletin Room. Additional copies can be ordered by the county Extension offices and departments for $2.25 each. The bulletin will be sold to the public for $3.50 each (including postage).

The objective of the publication is to provide agronomic information for the efficient use of manure for crop production and to help preserve surface and ground water quality.

The bulletin provides information on such topics as manure composition, availability of manure nutrients to crops, developing a fertilizer/manure application plan, procedures for sampling and analyzing manure, and determining how much animal manure to apply. The worksheet uses an example situation to illustrate how to determine proper manure application rates and how much, if any, supplemental commercial fertilizer will be needed. In addition, a worksheet is included to help calculate application rates for your farm.

A laboratory analysis is the only accurate way to ascertain the nutrient value of manure from a livestock enterprise. The sample should be sent to the laboratory at its "natural"

moisture condition. The manure should be placed in a plastic bag or container and preserved by freezing until it can be delivered to the laboratory. The analysis report should include information on dry matter, total N, organic N, ammonium N, nitrate N, phosphorus, and potassium content. The report should give the results in pounds per ton for solid manure or pounds per 1000 gallons for liquid manure. The Colorado State University Soil Testing Laboratory runs manure samples. The cost of the analysis is $32.50. ▫Follett

ALTERNATIVE & SPECIALTY CROPS

St. Louis, Missouri was the place to be during October 6-9. There, the exposition of American agriculture, "BIOBASED PRODUCTS '92", confirmed for industrialists, researchers, and government that agriculture is still America's number one industry. Exhibits at the exposition included soy-based inks, newsprint, and poultry litter made from kenaf; hydraulic oils and grease from rapeseed, castor, and crambe; degradable plastics from corn, potato, and wheat starch; pesticides encapsulated in starch from potatoes, wheat, and amaranth; and pharmaceuticals for cancer treatment from yew trees. The list of crops and crop products are seemingly endless. Besides industry, several universities and the USDA were represented with products such as "B-Trim", a soluble fiber that can be added to beverages without affecting flavor or texture and will provide the equivalent of 4 bowls of oatmeal fiber per 12 oz. serving.

With versatility and creativity, alternative crop producers have the power to increase market demand and resolve some environmental concerns by turning raw agricultural products into viable, high-value, non-food products.

One interesting product is called "New Stone". This product is being manufactured in Mankato, Minnesota from waste paper and a resin made from soybeans. It can be used for furniture, mill work, flooring, and wall tiles. Basically, it handles like real wood but has a "granite" appearance. Twenty two board feet of New Stone takes 55 pounds of recycled newspaper and a bushel of soybeans. Right now, the company, Phoenix Composites Inc., is in a pilot phase and the initial work of a $75,000 project funded by the Minnesota Soybean Research and Promotion Council and the National United Soybean Board. The company also received a $100,000 grant from the Minnesota Office of Waste Management and $9,500 from the state's Agricultural Utilization and Research Institute.

The mood at this conference was one of taking agriculture to another level. These people were demonstrating the power of agriculture to increase market demand and resolve environmental concerns by turning raw agricultural products into viable, high-value, non-food products. Most of the costs have been through low-cost loans and grants, so the impact is relatively minor to farm budgets.

After seeing what can be done with what we often take for granted, I was wondering if this may be the beginning of a new agricultural age. ▫Johnson

COMPLYING WITH THE NEW CONFINED ANIMAL/WATER QUALITY REGULATIONS

Important issues were discussed at a meeting recently held in Greeley, concerning the newly enacted "Confined Animal Feeding Operations Control Legislation". Issues you need to be aware of follow.

Any producer who confines and feeds any number of livestock for more than 45 days per year will fall within these regulations. The livestock industry is scrambling to understand what is required of both large and small producers, and have asked Cooperative Extension to help them develop compliance strategies. The regulations specifically state that a "qualified Agricultural Extension Service Agent" may help producers prepare facility designs and plans as required (sec 4.8.7).

Any producer who confines and feeds any number of livestock for more than 45 days per year will need to comply with the new Confined Animal/Water Quality Regulations.

If you need a copy of these regulations, or want a summary of their content, contact Reagan Waskom, 303/491-6201.

The Colorado Department of Health (CDH) has said that they will enforce the new regulations only on a complaint basis due to staff priorities. If a complaint against a producer is filed, they will visit the facility, determine if the site is in compliance, and will give the producer a chance to bring the facility into compliance if he has shown a good faith effort. The CDH will not make technical recommendations for bringing the site into compliance. The producer must seek that information from an engineer, consultant, SCS or Extension agent.

All new or reconstructed feeding facilities are required to file a plan with the CDH indicating the ability to meet these new water quality regulations. CDH must respond to the producer within 45 days to approve or reject the plan. The Colorado Cattle Feeders Association recommends that all of its members prepare a plan for their operation, even if not required by the law. This plan should be kept on file (not submitted to CDH) to document a good faith effort to comply if a complaint is filed. Cooperative Extension has been asked to help develop a set of generic plans for their members to use. A work group has been established to serve as a resource of technical expertise and to develop generic management plans. At the minimum, the plans must identify how much manure is produced at the facility, the land resource available for disposal, lagoon capacity, and safety factors. The Colorado Cattle Feeders Association is coordinating this effort and has asked Cooperative Extension, SCS, ASCS, and state livestock organizations to contribute the expertise of their members.

Until these publications are available, you need to know who to contact if producers call with specific questions about compliance. The following list is provided as a starting point.

- Clarification of Regulations

Derald Lang, Colorado Dept. of Health (303)692-3500
Brad Anderson, Colorado Cattle Feeders (303)457-2232

- Design Criteria for New or Existing Facilities

John Andrews, SCS (303)236-2913
Lloyd Walker, Ag & Chem Engineering (303)491-6172

- Land Application of Manure

Dwayne Westfall, Agronomy Dept. (303)491-6201
Hunter Follett, Agronomy Dept. (303)491-6201

- Cost Sharing of Animal Waste Control Facilities

Local ASCS or SCS office

If you need a copy of the new regulations, or just want a summary of their content, contact me at 491-6201. ▫ Waskom

ASA CONVENTION REPORT

The 84th American Society of Agronomy annual meeting was held at Minneapolis during Nov 1-6. This meeting is key to communications amongst all North American agronomists. More than 4500 scientists from all over the world attended the meetings presenting 2700 papers. About half of the papers were presented as posters and the rest were orally presented during more than 200 sessions. Eight different field tours were held in the area.

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

Major topics and interest included research on water quality, efficient use of nitrates, biotechnology, and environmental concerns.

Divisions of the American Society of Agronomy include the Crop Science Society of America, the Soil Science Society of America, and the Clay Minerals Society. Subjects discussed with peer scientists related to agriculture, production, and environmental concerns throughout the world. ▫Croissant

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Sincerely,

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