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Introduction

Harvest conditions have been near ideal over the last ten days and the extended weather forecast continues to look good. After bringing in a disappointing soybean crop, yield estimates look better for the corn crop across the region. When you get a spare moment, please submit any soybean aphid treatment yield comparisons you may have. Your help in submitting data will greatly improve soybean aphid management recommendations in 2004. Drying corn to 15.5% moisture content is essential for proper storage, use the given table and formulas to calculate grain weight losses due to drying, particularly when corn is dried to moistures for long term storage. The value of the corn crop is not all in the grain, be sure to utilize the entire plant if possible. Corn stalks (stover) have value for feed and bedding, particularly this year when traditional feed sources are limited. Although the risk for soil compaction is low this fall due to dry soils, still be conscious of heavy axle loads when in the field and use controlled traffic lanes as much as possible. When pulling soil samples this fall, if the soil is too hard to pull a good sample, then don't sample. Wait until soil conditions are more conducive for probing.

Row-Crop and Forage Information

Take the Soybean Aphid “Treated vs. Non-Treated” yield check strip survey. If you treated for soybean aphids and left an untreated area for yield comparisons, I am interested in your findings. Depending on how much information you want to provide, the form should take between 1 and 5 minutes to fill out. The larger the data base of treated and non-treated strips I can gather, the better the information this area will have for making management recommendations for future soybean aphid infestations.

You can find the “Treated vs. Non-Treated” on-line and printable form at these URL's:

http://www.extension.iastate.edu/carroll/crops/aphid_treatment_form.htm (on-line form)

<http://www.extension.iastate.edu/carroll/crops/Soybean%20Aphid%20Insecticide%20Treatment%20Survey.pdf> (For Printing)

Refer back to the “Aphid Page” for survey results when they become available.

(<http://www.extension.iastate.edu/carroll/crops/soybean-aphid.htm>).

How much corn-grain weight will I have after drying to storage moisture?

Weight loss due to drying is referred to as “shrink”. Shrink is comprised of weight loss due to removal of water and miscellaneous handling losses. Shrink factors used by grain handlers typically account for both water shrink and handling loss. Weight loss due to water shrink is by far the largest weight loss factor. There are several mathematical equations and methods to determine “water” shrink, but to simplify the process, the water shrink factors have already been calculated and are presented in table 1. The “water” shrink factor to use depends on the desired final moisture content of the grain. A good estimate of handling loss is 0.5%, which is added to the water shrink to obtain “total shrink”.

Final grain moisture content	Water shrink factor
--%--	--% shrink per point--
15.5	1.183
15.0	1.176
14.0	1.163
13.0	1.149
12.0	1.136

Water Shrink = (percentage points removed) * (water shrink factor)

Total Shrink = (Water Shrink + 0.5%)

Example: You plan to dry shelled corn from 25% to 15.5% moisture (a removal of 9.5 percentage points), the water shrink would be $[9.5 * 1.183$ (from table 1)], or 11.24% of the original grain weight. Total shrink would be $[11.24\% + 0.5\%$ (handling loss)], or 11.74%. So if we started out with 1000 lbs of 25% moisture corn, we would end up with 882.6 lbs of grain dried to 15.5% moisture; $[1000 \text{ lbs} * 0.1174$ (total shrink loss) = 117.4 lbs of lost weight; then $1000 \text{ lbs} - 117.4 \text{ lbs}$ (lost weight) = 882.6 lbs of dry grain]

Source: Calculating grain weight shrinkage in corn due to mechanical drying, D.R. Hicks and H.A. Cloud, Univ. of MN. NCH 61.
<http://www.extension.iastate.edu/Publications/NCH61.pdf>

Corn stalks have feed and \$ value Cornstalks can be a great source of winter feed for cattle. Cornstalks that are supplemented with protein, vitamins and minerals can supply the nutritional needs of cows that are in moderately good body condition. Cornstalks are generally considered to have about 80 to 90 percent of the energy of mixed grass and legume hay per pound of dry matter, but only 20 to 30 percent as much protein. Adding soybean meal can be a good way to increase protein content. Bruce Anderson (Nebraska Extension Forage Specialist) recommends that if you plan to graze cornstalks, the stalks should be grazed as soon as possible after harvest. The nutrient value of stalks declines the longer they are exposed to weathering. Grazing stalks right after harvest will put more condition on cows and faster gains on young stock. For information on estimating dollar value of cornstalks baled or in the field, obtain the October 6, 2003 ISU ICM newsletter, also found on-line at: <http://www.ipm.iastate.edu/ipm/icm/>.

Soil and Fertility Management

Minimize the effects of soil compaction The impact on yield from soil compaction has been reported to be as much as 10 to 20 percent in unfavorable years. A major effect of soil compaction is the alteration of the soil's physical (bulk density, soil strength, and porosity) and the hydraulic (infiltration rate and movement of water within the soil profile) properties. Changes in the soil's physical properties alter the ratio of water to air in soil. Plant roots require air as well as water to develop a healthy root system. The main cause of soil compaction is field traffic from machinery. Soil compaction is most likely to occur when soil moisture is at or near field capacity. Under these conditions, aggregates can be "lubricated" by water and readily reposition themselves through the air spaces under heavy traffic.

Most soil compaction occurs from the first pass of the implement; therefore minimize field-wide compaction by using controlled traffic lanes. For example, avoid driving loaded grain carts randomly through the field. Check wheel and tire size and pressure. Larger wheels and tires allow better flotation, and lower tire pressures reduce the load on the soil. Increase the tire's "footprint" with larger wheel diameters. Spend the extra time with your implement and tire dealer to obtain proper tire size and set tire pressure, the extra time this fall may pay off quickly next year through higher yield potential soil conditions.

Source: Soil compaction may be cutting into your yield; ICM Newsletter 7/8/2002. Mark Hanna, ISU Extension Agricultural Engineer, and Mahdi Al-Kaisi, ISU Extension Soil Specialist

Soil Sampling Dry Soils When collecting samples this fall for soil testing, watch the soil sampling depth. It can be difficult to sample to the recommended 6-inch depth when soils are dry and hard. **If you can't sample to the correct depth, don't take the samples.** Shallow sampling will result in incorrect results and recommendations. If low rainfall persists after harvest, less K may be leached from remaining crop residues. This could impact soil test K results. (Dr. John Sawyer, ISU Extension Soil Fertility Specialist in "Drought impacts on soil fertility management" (<http://www.ipm.iastate.edu/ipm/icm/2003/10-6-2003/droughtsoilimpact.html>))

Crop Update Newsletter Prepared By:
Todd Vagts, ISU Extension Crops Specialist
Serving northwest Iowa

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University Extension

For further information pertaining to this newsletter; please contact me or any of the county extension offices. This newsletter can also be accessed on-line at http://extension.iastate.edu/carroll/crops/newsletter_2003.htm. If you would like this letter to be emailed directly to you, please send an email with the desired email address to vagts@iastate.edu.

Todd Vagts
Iowa State University Extension
Field Specialist, Crops

1240 D. Heires Avenue Office: 712-792-2364
Carroll, IA 51401 Cell: 712-249-6025
Email: vagts@iastate.edu Fax: 712-792-2366
Web Page: <http://extension.iastate.edu/carroll/crops/homepage.html>

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