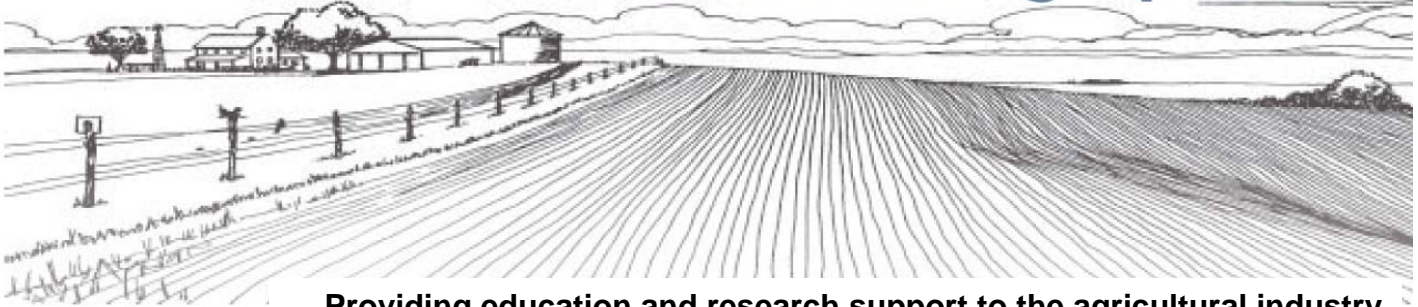


Extension Ag Update



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Corn Drydown Decisions: Some factors to consider

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The rate of corn drydown is affected by many factors such as planting date, fall weather, hybrid, and ear characteristics. Consider the following facts:

- for field corn the ideal harvest moistures ranges from 15 to 20%.
- mature corn will have a “black layer” (at the base of the kernel), indicating the end of dry matter accumulation.
- After black layer, most moisture loss is from the kernel.
- Mature corn has about 30% moisture content, requiring 2 to 4 weeks for grain moisture to drop to 15%, under good conditions.
- Purdue data shows that planting date affects drydown. “Average daily drydown rates will range from about 0.8 percentage point per day for grain that nears maturity in late August to about 0.4 percentage point per day for grain that nears maturity in mid- to late September”.
- warm dry weather speeds drying rates, kernels can lose up to 1.0% moisture per day.
- cool moist weather slows drying rates, kernels may lose as little as 0.3% per day.
- poor stalk quality become increasingly susceptible to stalk lodging, decreases harvest efficiency with downed corn.
- hybrids can have different rates of dry down, generally related to maturity date.
- characteristics of the husk and ear affect dry down. Ears will dry down faster when there are “fewer and thinner husk leaves; ear tips protrude beyond the husks; ears drop from an upright position earlier; or they have thinner or more permeable pericarp”. (Dr. Neilson, Purdue)

RESEARCH RESULTS

Facing Compacted Soils? Practice Continuous No-Till for Better Yields

Writer: Candace Pollock, pollock.58@cfaes.osu.edu, (614) 292-3799 Source: Randall Reeder, OSU Extension, OARDC, reeder.1@osu.edu, (614) 292-6648

When using heavy machinery on cropland under potential compaction situations, farmers may get better yields by practicing continuous no-till than with annual deep tillage. According to results from a six-year Ohio State University compaction study at the Northwest Agricultural Research Station near Hoytville, land in continuous no-till showed less effect from intentional compaction than soil that was deep tilled (subsoiled) each fall.

Researchers compacted corn/soybean rotation plots in the fall of 2002 and 2005 using a 20 ton/axle, 600-bushel grain cart. Averaged over six years, corn yields were reduced by 15 percent on subsoiled plots, as opposed to a 9 percent reduction in no-till fields. For soybeans, yields on subsoiled plots were down 24 percent, compared to a 13 percent yield drop under no-till. "We think continuous no-till performed better because of better soil structure," said Randall Reeder, an Ohio State University Extension agricultural engineer. "Good no-till soils are firm, with natural channels for root growth and movement of water and air. Tillage tends to destroy that soil structure."

Previous compaction research at the same site gave results more favorable to subsoiling, but there was a key difference. Once annual subsoiling began on the compacted plots, there was no additional intentional compaction for 12 years. In that situation, subsoiling gave consistently higher corn and soybean yields, compared to shallow chisel plowing. When the research practices were changed in 2002 to include intentional compaction every three years, and continuous no-till replaced chisel plowing, the benefit of deep tillage disappeared, said Reeder.

"The current research is much closer to the real world because the average square foot of soil on farms with big equipment is going to be driven on at least every three or four years," said Reeder, who also holds a research appointment with the Ohio Agricultural Research and Development Center.

Soil moisture plays a big role in compaction, said Reeder, and as spring progresses and Ohio receives more rain, soil moisture may be the factor in deciding when to start planting. "Wet soil compacts deeper than dry soil," said Reeder. "Typically in late April and early May, there is only one day out of three that is dry enough to plant." Reeder said that under compacted soils, farmers could easily lose 5 percent to 10 percent of their corn or soybean yields. So, how do farmers know if their fields are compacted?

"Most farmers don't know, because they don't have any non-compacted area for comparison," said Reeder. "But there is a way to get around this mystery. It's called controlled traffic. With controlled traffic, a grower never has to be concerned about whether or not the soil is susceptible to compaction."

Controlled traffic is a method whereby all farm equipment is the same width (or multiples of that width) and traffic is confined to specific paths year after year. Without switching to controlled traffic, there are other ways growers can help minimize compaction:

- Run tires at the correct pressure for the load. "Many farm tires are overinflated, which reduces the tire footprint, increasing compaction," said Reeder. "Many farmers can easily reduce tire pressure and it won't cost them anything." Over inflation also reduces traction.
- Remove excess weights that make a tractor heavier than necessary. Extra ballast needed for a tillage operation could be removed when pulling a planter.
- Add more tires, or switch to bigger tires or rubber tracks. The more rubber that comes into contact with the ground, the less pressure on the soil.
- Consider improving surface and subsurface drainage. A good drainage system helps the soil dry out faster, reducing the potential for soil compaction.

Compaction can have a number of impacts on the soil and the plants growing in it. Compaction destroys the soil structure and causes erosion by keeping water out. It prevents plant roots from penetrating deep into the soil, and traps carbon dioxide while preventing oxygen from reaching plant roots. The result suffocates the plant either killing the plant or impacting yield performance. Continuous no-till may be one practice to help minimize the negative effects..

RESOURCES TO CONSIDER

Publications Plus –*University of Illinois Agricultural and Horticultural Publications*

Call 1-800-345-6087 or order on the web www.PublicationsPlus.uiuc.edu

It's a one-stop shop for a current catalog of research-based information (Mastercard and VISA accepted)

NEW: Illinois Agronomy Handbook

<https://pubsplus.uiuc.edu/C1394.html>

This new publication covers best management practices for agricultural producers in the Midwest. The 24th edition of the handbook is completely revised and updated with new information and guidelines. Call 1-800-345-6087 or order on the web

Farm Machinery & Labor Sharing Manual

http://www.mwps.org/index.cfm?fuseaction=c_Products.viewProduct&catID=774&productID=17841&skunumber=NCFMEC%2D21&crow=2#

A manual to help farmers lower their machinery and labor costs through cooperation. The *Farm Machinery & Labor Sharing* Manual discusses both operational and organizational issues. It includes sample sharing agreements and worksheets for allocating costs fairly. This manual includes cases studies that highlight the various types of arrangements, identify potential problems associated with sharing resources, and explains the strategies these groups used to resolve them.

Order from the website or contact Midwest Plan Services (MWPS), 122 Davidson Hall, Iowa State University, Ames, IA 50011 USA, Phone: 515-294-4337, Fax: 515-294-9589, Email: mwps@iastate.edu

Private Water Systems Handbook, Fifth Edition MWPS-14

http://www.mwps.org/index.cfm?fuseaction=c_Products.viewProduct&catID=774&productID=16921&skunumber=MWPS%2D14%2E5&crow=3#

For anyone living in a rural area this handbook is a must. This book was written to help those people who depend on a private water system to develop and maintain a safe, adequate, and dependable water system to meet their needs, considering both domestic and farm water use. Discussions include: Planning for water use, Wells, cisterns, springs and ponds that provide water to the home or farm, Pumps, Maintaining pressure in the system, Water distribution, Water quality and testing, Water treatment, Water protection, and maintenance of a quality water system,

Order from the website or contact Midwest Plan Services (MWPS), 122 Davidson Hall, Iowa State University, Ames, IA 50011 USA, Phone: 515-294-4337, Fax: 515-294-9589, Email: mwps@iastate.edu

INTERNET RESOURCES

Wheat Variety Trail Data

<http://vt.cropsci.illinois.edu/wheat.html>

Check this website for 2009 wheat yield and test weight data varieties grown at University of Illinois Agronomy Research Centers across the state

Illinois Manure Management Plans

http://web.extension.uiuc.edu/clmt/immp_contents.cfm

This program will help you accurately apply manure.

Laboratories that test Manure

http://web.extension.uiuc.edu/clmt/Workbook/APPENDIX/APP_F.DOC

A list of labs that accept manure for nutrient analysis.

Estimating a Value for Corn Stover

<http://www.extension.iastate.edu/agdm/crops/html/a1-70.html>

Can corn stover bring extra value? This publication estimates the values for bales or in-field stover. Formulas should be substituted with current prices.

Manufacturing Fuel Pellets from Biomass

<http://pubs.cas.psu.edu/FreePubs/pdfs/uc203.pdf>

Energy-Efficient Grain Drying Resources

<http://attra.ncat.org/attra-pub/graindrying.html>

This publication summarizes two low-impact technologies used to dry grain; natural-air drying and solar drying. Although not as much recent research has focused on solar technology for grain drying, solar was shown by University of Maryland studies to be feasible for small- and medium-size facilities for drying grain for on-farm use.

Dairy Production on Pasture: Introduction to Grass-Based and Seasonal Dairying

<http://attra.ncat.org/attra-pub/PDF/grassbaseddairy.pdf>

This publication addresses aspects of pasture production beginning with animal selection and forage resource assessment, grazing, facilities, reproduction and health, organic production and seasonal economics.

Biodiesel: Do-it-yourself Production Basics

<http://attra.ncat.org/attra-pub/PDF/biodiesel.pdf>

This publication is an introduction to home biodiesel production. It includes lists of equipment and materials needed to make small batches of biodiesel. It describes biodiesel and includes cautionary notes and procedures for making test batches.

The Agricultural Marketing Resource Center (AgMRC)

www.agmrc.org

This is a virtual library of agricultural value-added opportunities, business development and consulting resources for producers. Producers can investigate specific commodity information on many different niche opportunities and can locate specific laws, consultants and individual contacts within their individual state to assist them in the grant application process.

EDUCATIONAL OPPORTUNITIES

University of Illinois Agriculture Events

New programs are being confirmed every day. Keep in touch with your Extension Office for programs addressing the topics that interest you and are offered in your County. To find your counties website go to: <http://web.extension.uiuc.edu/state/findoffice.html>

Statewide University of Illinois Extension Calendar Website

<http://web.extension.uiuc.edu/state/calendar.cfm>

To search for programs throughout the state, check out Extension's searchable calendar. Search by location, topic or date to find a program of your interest.

AG FACTS

Grain Harvest Losses

- for corn, 2 kernels per square foot on average would be about 1 bushel per acre loss.
- for soybeans, 4 beans per square foot on average would be about 1 bushel per acre loss.
- If grain losses are high, evaluate fan and/or sieve settings.

About the Ag Update Newsletter

The Ag Update Newsletter is a bi-monthly newsletter providing education and research support to the agricultural industry. Current and past issues may be found at the following website <http://www.urbanext.uiuc.edu/agupdate/index.html>

Contact your county Extension office and request to be put on their agricultural mailing list to receive the local agricultural newsletter and notices about upcoming agricultural events near you. To find your counties location, phone and website go to: <http://web.aces.uiuc.edu/ve/>

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