

Logan Ag News

December 2015

Monster Rain

The early October rain that inundated South Carolina is estimated to have dropped more than 11 trillion (11,000,000,000,000) gallons of water on the state. It has been called a "1000 year rain". Dozens of South Carolina residents died, homes and businesses were destroyed, and roads and bridges washed away.

South Carolina covers approximately 20.5 million (20,500,000) acres. Given the fact that an acre-inch of water (the amount of water required to measure one inch on 43,560 square feet) is 27,000 gallons, approximately 20" inches of rain fell on every acre in South Carolina during this epic storm.

Illinois, by comparison, has about 37 million acres. A similar rain event in Illinois would have dropped nearly 20 trillion gallons of water.

Winter Diesel Fuel Management Practices

Cold temperatures occurring during Midwestern winters often create problems with operability of diesel-powered trucks and equipment. To better understand winter diesel management, a review of diesel fuel terminology is necessary.

Operability is the coldest temperature a diesel engine will function before the fuel line becomes plugged with waxy solids.

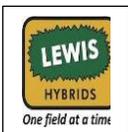
Cloud Point (CP) is the temperature at which wax

continued on page 2

LOCATIONS

- * Griggsville, IL (217) 833-2375; 1-800-LOGAN AG
- * Pittsburg, OH (937) 692-5181 (JACK BAKER)
- * Paris, MO (573) 406-8579 (DEAN OSBORN)

www.LOGANAG.com

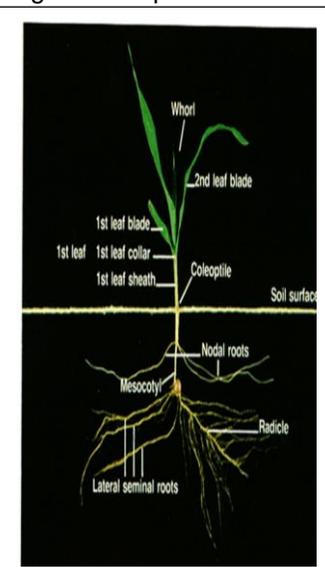


Starter Fertilizer In Tough Times

Without unforeseen developments in grain markets, 2016 will be another financially challenging year for growers. Many are faced with the question of whether to strive for additional bushels of production or continue the course and hope all turns out well. Our opinion is that we utilize proven means to increase production and decrease the cost per bushel. Use of starter fertilizer continues to provide solid yield gains and positive return on investment (ROI).

It all begins with the roots.

The importance of in-furrow starter fertilizer requires a close look at the early season development of the root system. The initial roots developing from the kernel are the **radicle** and **lateral seminal roots** (sometimes referred to as primary root system). These roots seek and take up nutrients before the plant spikes through the soil, and supply the plant's fertility requirements during the first few weeks until **nodal roots** are developed.



The corn plant does not require great amounts of nutrient in the early stages of growth, but the small radicle and lateral seminal roots do not touch much nutrient-rich soil. Adding a small amount of starter fertilizer near the seed (below, above, banded to the side) enables the developing primary root system to intercept the highly concentrated zone of nutrients.

Why is the early growth stage of corn important?

During the first four weeks, nearly all plant parts are initiated and it is of utmost importance to alleviate as much stress on the plant as possible during this period. Tassels begin to develop, as well as the uppermost harvestable ear. Kernel row determination begins at V5, and is complete by V8 (about 4 weeks after emergence). While plant genetics greatly influence the number of rows around the cob, stress on the plant can

continued on page 3

crystals begin to fall out or precipitate, giving the fuel a “cloudy” appearance.

Cold Filter Plugging Point (CFPP) is the temperature at which wax crystals plug a 45 micron filter. Keep in mind that most fuel filters are much smaller than 45 microns, with many rated at 10 microns and some down to 2 microns.

Have you noticed more weather related issues in Ultra-Low Sulfur Diesel (ULSD) than in previous formulations? ULSD, with its lower sulfur content, does not have the ability to hold wax in suspension as long as Low Sulfur Diesel (LSD). Further complicating winter operability is the variation in #2 diesel fuel and expanded use of biodiesel. The cloud point of #2 diesel fuel varies depending upon the refinery and terminal, and may range from -10°F to +14°F. The addition of 11% soy biodiesel increases the cloud point by 10°F.

In fuel not treated for cold weather conditions, the CP is about 2 degrees above the CFPP. There are two means available to decrease the CFPP (Cold Filter Plugging Point). The most cost-effective method is the addition of a cold flow additive. A quality cold flow additive can reduce the operability by as much as 15 degrees below the cloud point. Cold flow additives do not impact fuel consumption or engine power. The other method is to blend #1 diesel fuel with #2 diesel fuel. For each 10% #1 fuel blended, the cloud point is reduced 2-3 degrees. Blending #1 fuel with #2 fuel is the only means available to reduce cloud point. Fuel economy and engine power may suffer from the addition of #1 fuel due to lower BTU’s. In extreme cold temperatures, a blend of #1 fuel and cold flow additive is recommended.



Cold flow additives surround wax particles in fuel and prevent them from attaching to each other to form larger wax crystals. In extreme conditions, the rate of

cold flow additive may be increased for additional protection. Logan Ag recommends and uses **Cloud Buster** by ET Products. Cloud Buster contains a special water de-icer and unique wax dispersant that keeps wax in suspension, and prevents wax build-up at the bottom of the fuel tank. The operability of diesel fuel with the addition of Cloud Buster is greatly improved. We believe this is *the strongest cold flow additive available*. Additionally, Cloud Buster contains LYVAN to replace lubricity lost due to the removal of sulfur in ULSD.

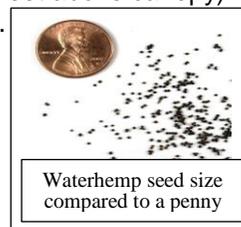
For filters and fuel lines already gelled, try **SOS**. SOS is designed to remove ice and wax formations in gelled fuel. SOS is available in convenient one-quart bottles, and is the product of choice for emergency issues.

Here are some cold weather tips to maintain optimum operability.

- **Before cold weather arrives, change your fuel filter**
- **Drain off water from fuel separators daily**
- **Make certain fuel caps fit tightly**
- **Anticipate weather conditions and treat fuel prior to cold temperatures**
- **Minimize/reduce condensation by topping off fuel tanks at the end of each day**

Waterhemp Math

The importance of full season waterhemp control was recently reviewed by Bob Hartzler at Iowa State University. Hartzler placed waterhemp escapes into two categories – plants 6 to 12 inches above soybean canopy and plants 2 to 3 feet above soybean canopy. He then estimated that the smaller plants (6 to 12 inches above canopy) produced 21,000 seeds per plant, and the larger plants (2 to 3 feet above canopy) produced 124,000 seeds per plant.

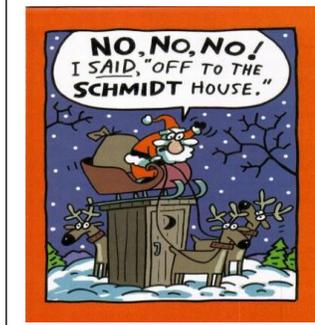


Using the smaller plant producing 21,000 seeds, one plant in 15 row feet (37.5 square feet) equals 1162 plants per acre. Seed production from these plants is 24,400,000 seeds per acre. If 60% of the seeds enter the seedbank and 6% emerge, there are 878,000 plants per acre (20 plants per square foot). Using a herbicide with 95% control still leaves one waterhemp plant per square foot. If you lay the three 8.5” x 11” pages of this newsletter side by side, you would have 2 plants!

Using the larger plant producing 124,000 seeds at the same density as above, seed production from the 1162 plants balloons to 144,100,000 per acre. If 60% of the seeds enter the seedbank and 6% emerge, there are 5,188,000 plants per acre (119 plants per square foot). Using a herbicide with 95% control leaves 113 plants per square foot. If you lay the three pages of this newsletter side by side, there will be 220 plants!

Think about your fields from 2015, and especially unplanted acres. How many small and large waterhemp plants were uncontrolled? How many of these plants are resistant to glyphosate and/or PPO herbicides? Refer to the November edition of *Logan Ag News* for an article about PPO herbicide resistance. Visit www.loganag.com and click on **NEWS AND MARKETS** at the top of the home page. When your Logan Ag crop specialist and/or crop protection chemical representative recommends full rates of pre-emerge herbicides and post-emerge residual herbicides, consider the waterhemp math above. **The best means to control waterhemp population is to prevent emergence.**

Christmas Funnies



Final Comments

Edward L. Logan, Logan Ag President

WIN A \$50 GIFT CARD! Sign up for Logan Ag mobile updates before December 15 and be entered into a drawing for one of three \$50 American Express gift cards. It's easy to sign up. Text Logan to 91217. After you sign up, call our office at 217-833-2375 or 1-800-LOGAN AG and read the text reply on your phone. We'll then enter you into the drawing to be held December 16. Our mobile update program delivers text messages to your phone 4 times each month to help you be *"in the know on the go"*.

Crop protection chemical and fertilizer prices and programs for 2016 will be available soon. Logan Ag crop specialists work with each customer to tailor prescription weed control and fertility programs for your farm. Call soon for the best prices of the 2016 season.

Logan Ag is proud to represent top brands in the seed industry – **Lewis Hybrids, AgriGold, Mycogen** and **Credenz**. Order corn hybrids and soybean varieties, and get **7% cash discount** if paid before December 20.

Spring diesel fuel fixed price contracts take the worry out of fluctuating petroleum markets. Contact Petroleum Sales Manager Jordon Schaver, Petroleum Specialist Mike Sargent, or Edward Logan for current prices. There is no pre-pay requirement on fixed price contracts at Logan Ag.

Later this month, Logan Ag begins its **54th year** in business. Company founder James Logan (1925-2013) and wife Betty (still in the office every day!) accepted a commissioned agent's position with Standard Oil Co. of Indiana in December 1962 with one fuel delivery truck and a handful of customers. Today, Logan Agri-Service, Inc. has more than 30 dedicated full-time employees (the Logan Ag family), warehouses in Missouri and Ohio, a fleet of delivery and application equipment, and serves clients in MO, IL, IN, OH, IA, and MI. Thanks to our loyal customers for helping make this growth possible! We strive to exceed your expectations daily.

Congratulations to **Court and Haley White** on their recent marriage! Court is a crop specialist at Logan Ag. Court and Haley reside in Jacksonville, IL.

From the Logan Ag family
to yours...



decrease the number of rows and total kernel production.

Yield is impacted by many stresses during the first few weeks of corn growth. Some stress such as weed/insect pressure and soil fertility can be controlled. One of the uncontrollable stresses is temperature. Excessively cold or excessively warm temperature reduces the speed of root growth and directly impacts the absorption rate of nutrients. A concentrated zone of nutrient near the roots helps the plant overcome the impact of soil temperature stress, and allows nutrient uptake to continue through the roots. Phosphorus and potassium are needed during periods of cold and wet soil temperatures. Reducing stress on the plant during early growth stages enables the hybrid to attain its maximum yield potential. **Starter trials often boost yields by 8-14 bushels per acre.**

The concentrated zone of available nutrients provided by starter helps improve stand uniformity by giving every seed the opportunity to emerge at the same time (within 24-48 hours of row mates). Uniform emergence and fast early season growth (starter often allows plants to gain at least one growth stage) reduces the time for row closure (canopy). Faster development of row canopy aids weed control and retention of soil moisture in dry years.



Does starter fit in variable rate (VRT) fertilizer application programs? Starter can be used to manage nutrient variability across the field, and ensures P&K availability even in areas where minimal rates were applied.

A non-yield benefit of starter fertilizer is seen in harvest moisture content. Corn where starter fertilizer has been applied often is 1% to 2% drier due to early season phosphorus uptake and rapid plant growth. Drier corn enables harvesting to begin earlier and/or saves drying costs. The savings in drying costs sometimes pays for a significant portion of the cost of starter application.

Let's summarize the benefits.

- 1) Reduction of plant stress due to cold soils
- 2) Proliferation of root mass to foster greater nutrient absorption throughout the growing season
- 3) Increased yield to provide positive ROI
- 4) Decreased harvest moisture content
- 5) Reduces cost per bushel through increased production

Starters are available in bulk or totes for convenience, and micronutrients and phosphate enhancement products may be added. Equipment for planters, storage tanks, and pumps may be sourced through our suppliers. Discuss starter fertilization with your Logan Ag crop specialist, and get ready to harvest the benefits next fall.

