

APSA-80/Nutriplant - Fall Edition Newsletter - 2017

What's Trending in the World of Amway Agriculture?



- IBO Spotlight -

**Brian & Rosemary Donahue
from Allenspark, Colorado**

Brian and Rosemary share their experience and love for America's forests as they care for and nurture trees using APSA-80 and Nutriplant AG

APSA 80 NUTRIPLANT AG AND AMERICA'S TREES AND FORESTS

In the fall of 2012 I has an opportunity to introduce APSA-80 and Nutriplant AG to 6 trees heavily damaged by fire in July 2012 near Estes Park, CO. I had been to an all-day seminar in Louisville, KY earlier that year and heard a life and business changing statement by key-note speaker Scot Holland, "If it is growing, we can make it better." I knew from seminars, testing and Farm Fairs at Irrigation Research Foundation in Yuma, CO that that statement was unquestionably true for all crops agricultural. I was soon to learn that it was also true for native pines and firs in high altitude near Rocky Mountain National Park in Colorado.

Those 6 trees all began a slow, difficult but measureable recovery towards full health. They also lead me to 50-100 trees in neighboring properties. Those early experiments began to multiply to today where I am personally spraying thousands of trees of all kinds: deciduous, evergreens, hardwoods, as well as many orchard variety trees.

We personally own about 3 ½ acres near RMNP 12 miles from Estes Park, CO. By chance, I sprayed a few dozen trees around our home in 2012. At least 5 of those were hit by Rocky Mountain Pine Beetle that year.

To this day, one application each year of both products has kept all 5 trees healthy, happy and green. A county sponsored sort yard has received 100's of thousands of beetle trees from our local region since 2012. A recent hike in RMNP showed tree loss to beetles, mistletoe, fungus and other invasions to tree health to be in the countless millions. The growing fire danger in those forests is beyond words.

In May of 2014, after 2 years of a growing demand for tree spraying, my wife and I met the local DAR group in Loveland, CO. They were sponsoring a "Save The Washington Elm" Day in Loveland. The story of the Washington Elm is amazing. In 1931 the Namaqua chapter of the DAR had a member on the National Board. 1031 was also George Washington's 200th birthday. 13 seedlings were planted around the country in honor of this birthday. These seedlings were certified as offshoots from the Elm Tree in Cambridge, MA that George Washington took command of the Continental Army under on July 3, 1775. One of the 13 was planted in a school yard on the corner of State Highways 34 and 287. That seedling is now nearly 80 ft. high and wide and has a trunk diameter of 6-6.5 ft. In 2014 it was also receding and likely dying. The DAR group also reported that it was believed to be the only certifiable and living offshoot left from the original 13 from 1931. I took immediate interest in the project and volunteered a spraying with permission from the DAR and their certified arborist. I used an application rate of APSA 80 and Nutriplant AG approximately the same as 2 pints of each per acre of open spraying. Because of the tree's physiology, it circulated the solution throughout the height and breadth of the tree. It showed remarkable recovery to its full height in 3 weeks. In May of 2014 the group feared the tree would need cut down and removed. By the end of June 2014 they volunteered a letter of commendation and recommendation of what I was doing for "any tree in stress." Later that fall they also presented me with a community service award for helping them save the Washington Elm.

They also gave my wife and I the permission to harvest root shoots and clone clippings in an effort to duplicate the last known living, certifiable offshoot of the famous and historically significant tree from America's beginnings. They had a member attempt this in one of the University labs but all clones died "from every disease known to the elm tree." We began efforts in earnest with similar results. We are excited and proud to report that this year by surprise we know have 5 infant but prospering new green shoots in pots near our home in Allenspark, CO. An early dream of mine was someday be able to present to the corporation a thriving and certifiable offshoot of the famous Washington Elm to be a custodian of the next generation. What a great tribute to the agriculture products, the faithful and diligent research in and for farm lands, the genius of Ernie Brumbaugh and the pioneer spirit of Stan Evans.

I am honored now to be called "The Tree Guy" and have been asked to speak at various functions and seminars across the country telling this story. I also, I believe I have just scratched the surface of how these products are helping stressed and dying trees and forests to survive, recover and prosper.

One last set of thoughts looking forward: There are approximately 4.5 billion ash trees in America. The Emerald Ash Borer is now devastating the second billion of them. Many cities and townships are spending \$millions taking down healthy ash trees in case they are invaded. The Emerald Ash Borer looks like a first cousin to the Rocky Mountain Pine Beetle and has a very similar life cycle. From 5+ years of serious tree spraying, I would wager some serious money that at the least, if we were given the chance to spray healthy ash trees, we could save a significant portion of the 3 billion ash trees that are left and possibly save some of the early stricken ones. Michael Peterson, the famous USDA scientist that helped Amway and APSA 80 become known worldwide, explained to me at the last Farm Fair in Yuma, CO the science behind something I was beginning to theorize about stressed trees and their various invaders. Stressed trees emit a low frequency signal that invading bugs can detect and actually call them in for attack. Healthy trees do not emit these signals and therefor pine beetles, ash borers, etc. bypass healthy and unstressed trees. Remember the quote from the Namaqua DAR letter of recommendation: "We recommend what Brian is doing to any one and for any tree in stress."

I would like to close this article with this thought, God always gives his people the answer for any problem they are facing. I honestly believe these products are His answer for the devastation attacking our trees and forests across America. I believe they were brought to be for such a time as this. Remember though "Faith without works is dead." The greatest products in the world do nothing sitting in containers on shelves at the corporation or in our garages and barns. Thank God for APSA-80 and Nutriplant AG. Let's get them off the shelves and on the trees.



Washington Elm in Loveland, Colorado



Washington Elm Off Shoot



Historic Plaque

Sincerely,
Brian Donahue
337764
Brian.apsa.asap@gmail.com

Introducing

The “Amway Agriculture Team”



Senior Principle Research Scientist – Formulation

Phil G. Sliva

Phil has been with the Amway Corporation for over 23 years and has been developing Home Care formulations for over 37 years. Ever since receiving his Bachelor of Science degree in Chemistry from the University of Detroit, he has formulated products that will get clothing and the home clean without harm to the environment. That's because Phil specializes in developing greener formulas for our Home Care products. Phil is a member of the American Chemical Society (ACS), the American Oil Chemists Society, and is the co-chair of the ACS Green Chemistry Institute Formulators' Round Table. He is also responsible for the eco-validation program, which includes the AISE (the international Association for Soaps, Detergents and Maintenance Products) Charter of Sustainable Cleaning and U.S. Environmental Protection Agency Safer Choice program.

Phil's innovative work has been recognized in a number of ways:

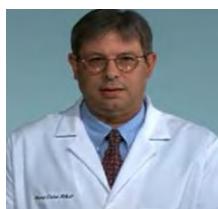
Five U.S. patents granted

Amway Creativity Award – Three-time nominee

Amway Excellence Award Winner

Partner with the U.S. Environmental Protection Agency in the Safer Choice program (formerly Design for the Environment) leading Amway to be recognized as a “2017 Partner of the Year”

Phil is the senior formulator for the entire Amway Home Care product line and has just accepted the role of overseeing the New APSA-80 launch. As a newcomer to Amway's Agricultural Team, he is excited by the opportunity.



Agricultural Specialist

Ronald C. Jackson

Ron has been with the Amway Corporation for over 30 years. Presently, he is a senior Development Tech and Agricultural Specialist in Home Care Product Development. For the past 6 years, Ron has supported Amway

Ag Products under the direction of Ernie Brumbaugh. Ron is originally from Iowa where he grew up on a farm near Fort Dodge. Having grown up in the farm community, he had the opportunity to participate in Vocational Agriculture, FFA and 4H. Upon finishing high school, Ron completed several courses towards a Degree in Wildlife Management at the Dakota School of Science in North Dakota. Ron left the farm business in 1980 during a period of financial uncertainty in the farm community, land prices rose dramatically making it extremely difficult to invest and get a start. In 1980, Ron moved to Grand Rapids where he completed his Associate in Science Degree. Prior to Amway, Ron worked for three years at Conklin Products in Product Development, Building Products Division (Coatings) located in Shakopee, Minnesota. As an Amway employee, Ron continued to pursue college course work at Grand Valley State University.

Ron's work experience with Amway Product Development includes having worked in all of the Home Care product lines. These include; APSA-80, Nutriplant, Liquid Dish, Auto Dish, Car Care, Laundry, the CMS-Cleartrack Vacuum and Commercial products. Over the years, Ron has formulated products in Car Care and Shoe Care and designed and patented a Soil Separator Bucket. Also, Ron has developed several product demonstrations and is listed as co-inventor on seven Amway Patents. He has also been a two time recipient of the Amway R&D "Excellence Award", a "Creativity Award" nominee and a Team winner and finalist for the "Amway R&D Development Team Award".



APSA-80 & Fall Burndown Strategies That Can Help Bring Weed Threats Under Control

- Residual herbicide activity can help control late-season weeds to reduce potential seed production, manage early winter annuals and provide control into spring.
- Fall herbicide application can be an important initial step for managing resistant weeds such as waterhemp and giant ragweed.

What ever your weed management strategy, APSA-80 can maximize herbicide performance and help get the most out of your weed control dollars.

The APSA-80 formula contains a highly efficient surfactant that is devised to breakdown the weed's waxy leaf cuticle and allow the herbicide to penetrate.

The Wax Paper Demo is very effective at showing this very critical characteristic of a spray adjuvant.

APSA-80 Wax Paper Demo

Breaking Down the Waxy Plant Leaf Cuticle

By Reducing the Surface Tension & Contact Angle of Water

Materials Needed:

- APSA-80
- 2 10 oz. drinking glasses
- Wax Paper
- Green Food Color (optional - used only as a tracer)
- Tap Water
- Pipet



Directions:

1. Form a 10 x 10 inch sheet of wax paper around the 10 oz. drinking glass and lower the formed wax paper cup into the glass and use a rubber band to secure the upper portion of the wax paper formed around the glass lip.
2. Wax paper usually has only one side waxed. Make sure the wax paper with the waxed side is the side that is making contact with the water or APSA solution.
3. Pour $\frac{1}{4}$ cup of colored ambient water into each formed cups
4. Add 2-3 drops of APSA-80 to one of the formed cups

APSA-80 Wax Paper Demo



Water

APSA-80 Solution

Conclusions

In order for most postemergent herbicides and many insecticides/fungicides to work, the active ingredient and the water carrier must penetrate the waxy leaf cuticle or barrier. Once inside the leaf, the active can be translocated to the site at which it is biologically active and kill the weed, insect or microbe. The wax coating on the wax paper simulates the leaf cuticle or insect exoskeleton.

Results:

The immediate result will be that the APSA-80 treated water with lowered surface tension will begin to emulsify the wax and allow the APSA-80 solution to migrate through the waxy barrier of the wax paper. In the field, pesticide spray with APSA-80 penetrates the waxy leaf cuticle making the herbicide more effective. The demo may take a minute or two to develop, but after several minutes the results will be quite obvious.

The take away is simple, adding APSA-80 to a postemergent herbicide tank mix lowers water surface tension and contact angle which allows the herbicide to penetrate the waxy plant leaf barrier which is necessary for effective weed control.

From the APSA-80 Desk

The following paper speaks to the use of surfactant (APSA-80) as it relates to water infiltration and distribution within the soil. Some of the references in the article are older but still very relevant for today's soil and water management.

Application of Surfactants in Commercial Crop Production for Water and Nutrient Management in Sandy Soil¹

Guodong Liu, Monica Ozores-Hampton, Gene McAvoy, Ben Hogue, and Crystal A. Snodgrass²

Introduction

Most soils used for commercial crop production in Florida are sandy in nature and are classified as sands, fine sands, or sandy loams. These sandy soils are often water-repellent or hard-to-wet, which can pose a major challenge to growers. The hard-to-wet or water-repellent nature of such soils arises from the fact that they are often hydrophobic (derived from the ancient Greek **hydro**: water and **phobos**: fear) or difficult to wet once they are dry.

Water-repellent soils are unable to effectively adsorb or retain water. On these soils, water may simply pool on the surface or may move down preferred pathways, leaving large amounts of soil dry even when a large volume of water is applied. Thus, managing water and nutrients in sandy soils is often challenging.

According to the scientific literature, water-repellent soils have been found and studied in 21 states in the United States. Florida is one of the states with the earliest reports of water-repellent sandy soils (Jamison 1942; Dekker,

Oostindie, and Ritsema 2005; Oostindie et al. 2012). In the 1940s, *Science* published a paper titled “An Interpretation of the Cause of Water-Repellent Sandy Soils Found in Citrus Groves of Central Florida” (Wander 1949). Since that time, researchers have studied ways to help agricultural producers deal with the challenges of water-repellent sandy soils, and recently UF/IFAS scientists reported how to alleviate soil water repellency using surfactants (Park et al. 2004). This article provides an overview of surfactants and how they may be used to better manage water and nutrients in sandy soils for vegetable and fruit production.

What problems are caused by water-repellent sandy soils?

Water repellency causes reduced and uneven infiltration of water into soils and results in poor crop yield. Blackwell et al. estimated that water repellency caused an annual economic loss of 40% in crop production (quoted in Ghadim 2003). The following problems are caused by water repellency in sandy soils and result in economic losses (Doerr and Thomas 2000; Wahl 2008; Hall 2009):

1. Rapid leaching of surface-applied agrichemicals
2. Loss of water and nutrient availability
3. Uneven distribution of nutrients and water
4. High soil evaporation
5. Severe runoff
6. Soil erosion
7. Low productivity

Why are sandy soils water repellent?

Water repellency is determined by the properties of the outer surface of the organic coatings on soil particles. Amphipathic or amphiphilic (derived from the Greek **amphis**: both and **philia**: love, friendship) compounds are key constituents of the organic component of the outer layer of soil particles. These compounds have both polar and nonpolar components—they attract water at one end and repel it at the other. A few possible mechanisms are usually responsible for water repellency in sandy soils (Horne and McIntosh 2003; Hallett 2008):

1. **Changes in molecular orientation of organic compounds.** The amphipathic compounds change orientation when sandy soils become dry. In the wetted state, these compounds usually have their polar (water-attracting) ends pointing outwards. However, when soils become dehydrated, there is a reconfiguration or reorientation of the compounds so these amphipathic compounds may present a hydrophobic end on the surface.
2. **Changes in ionization of functional groups in organic compounds.** Under moist conditions, the functional groups are ionized and hydrophilic (derived from the Attic Greek **hydro**: water and **philia**: love). However, when soil is dry, the functional groups become protonated and hydrophobic.

3. **Changes in the screening of hydrophobic compounds.** Under moist conditions, the hydrophobic material is effectively screened or covered, but water repellency develops when the soil dries and the hydrophobic compounds become more exposed (Figure 1).

Water repellency in soils can be alleviated by applying a surfactant.

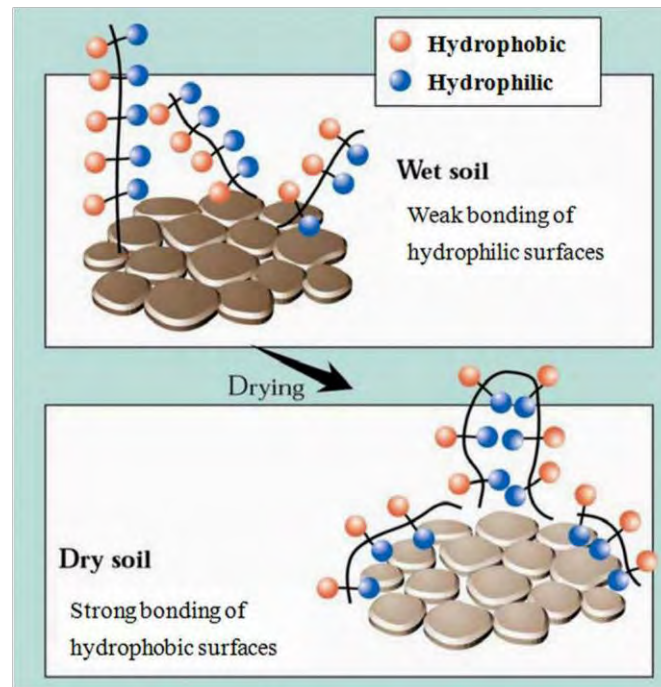


Figure 1. The transient nature of water repellency caused by hydrophilic-hydrophilic and hydrophilic-surface bonding during dehydration.
Credits: Hallett 2008

How can we characterize soil water repellency?

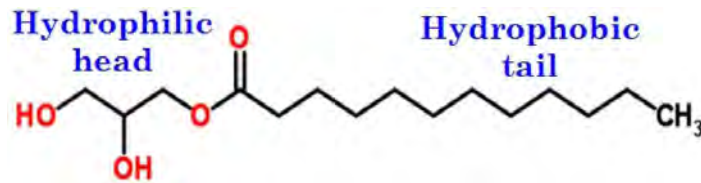
There are a few methods to measure soil water repellency. The most commonly used method is the water drop penetration time. In this method, if a water drop doesn't enter the soil spontaneously, the soil is considered to be water-repellent because its soil-water contact angle is $>90^\circ$. The procedure for this method is to place a drop of water on the soil and observe. If the water penetrates the soil impulsively, the soil is NOT water-repellent; otherwise, it is water-repellent. This method is almost always used because of its simplicity (Letey, Carrillo, and Pang 2003; Madsen, Coronel, and Hopkins 2012).

What is a surfactant?

A surfactant is a *surface-active agent*, also known as a wetting agent, which, when used in a small quantity, distinctly affects the surface characteristics of a system. Soaps and chemical detergents are typical examples of surfactants because of their dual (also known as amphipathic) character. A surfactant consists of a hydrophilic polar head group, often ionic, and a hydrophobic tail, usually a long-chain hydrocarbon (Figure 2). A surfactant has an affinity for either oils (hydrophobic) or water (hydrophilic) and acts as a wetting agent to introduce a degree of continuity between water and soil particles. A surfactant can be used to reduce the surface tension of a liquid (such as water), the interfacial tension between two liquids, or the tension between a liquid and solid (such as water and soil). This property allows a surfactant to be mixed or dispersed readily in water or other liquids. Surfactants reduce the surface tension of water, allowing it to penetrate and wet soils more easily and evenly. Thus, a surfactant can promote the absorption and retention of moisture in soil.

Non-ionic surfactants

This type of surfactant is an adjuvant with no electrical charge (Figure 6). These surfactants are widely used in agriculture because they are compatible with all types of pesticides. They usually have a long alcohol chain with a hydrophilic alcohol head and hydrocarbon tail that is hydrophobic (i.e., lipophilic).



How does a surfactant work in sandy soils?

Water repellency is caused by the structure and composition of soil, as well as other factors. Coarse soils with low clay content are more prone to water repellency. Soil particles in sandy soils are greater than 50 μm in size and have low surface area. Thus, their adsorptive area is low. In addition, their low surface area makes it highly possible for hydrophobic waxes from plants and soil microbes to coat the coarse soil particles. These coatings significantly contribute to soil water repellency. Quartz is by far the most common component in sandy soils and is a crystalline form of silicon dioxide (SiO_2), also known as silica. As a soil particle, silica itself is not water-repellent but it can self-organize and become water-repellent by reacting with organic waxes from plants and microbes when the soil becomes dry (McHale et al. 2007). Other factors such as low organic matter levels also contribute to sandy soil's water repellency. Fire can burn off soil organic matter and induce soil water repellency (DeBano 2000). Water repellency affects the wetting pattern of soil and may result in an uneven wetting pattern. It can also result in large yield reductions in dry seasons and contribute to late starts to the growing season.

A surfactant's structural characteristics determine its compatibility to both hydrophilic and lipophilic materials in soil. Thus, surfactants can react with both water-friendly and water-repellent soil particles (Figure 7). Therefore, surfactants can significantly improve sandy soil by enhancing the soil's water retention and nutrient-holding ability (Ghebru, duToit, and Steyn 2007). For example, a surfactant increases potato petiole nitrate-nitrogen ($\text{NO}_3\text{-N}$) by 28.9% from 4.5 to 5.8 g/kg 75 days after emergence (Arriaga, Lowery, and Kelling 2009). With surfactants, commercially grown vegetable crops can obtain water and nutrients more efficiently (Sarvas 2003). These effects of surfactants on soil quality may enhance yield and profitability for commercial crop production in Florida's sandy soils.

Summary

1. Water repellency can be a major problem in sandy soils, causing rapid runoff, nutrient leaching, and yield loss. Water and nutrient management in sandy soils can be a challenge to growers.
2. Dehydration (drying) causes changes in orientation of amphipathic compounds in sandy soils and frequently results in water repellency occurring in dry soils.
3. Surfactants are amphipathic in nature with both hydrophobic and hydrophilic characteristics. Soil water repellency can be alleviated with surfactants, which have a hydrophilic head and a hydrophobic tail.
4. There are four types of surfactants based on the property of their polar heads: non-ionic, cationic, anionic, and amphoteric (i.e., zwitterionic). All of them have the potential to be used in agriculture.

5. A small amount of surfactant can significantly improve soil wetting characteristics and increase the capacity of water retention and nutrient holding in sandy soils.

Acknowledgements

Dr. Paul Hallett at Scottish Crop Research Institute, UK, kindly provided Figure 1. Evonic Industries provided Stockosorb 660. Dr. Lincoln Zotarelli, UF/IFAS, provided constructive suggestions and comments to improve the manuscript.

From the Nuriplant Desk

The Science behind Nutriplant products and what makes Nutriplant AG and SD superior to other products on the market.

by Dr. Pawel Witriak



Nutriplant AG is a liquid concentrate obtained through a unique, proprietary technology. It enhances crop production through improvement of photosynthetic activity, increased chlorophyll concentration in the tissue and increased nutrient uptake through the root system. The genetic potential of a crop is rarely achieved due to the abiotic stress such as heat, cold, drought and excessive UV radiation, encountered during the growing season. Abiotic stress disrupts the metabolism of the plant and reduces nutrient absorption and translocation. When nutrients are limited during crucial stages of plant development such as flowering, fruit set and fruit maturation, yields and crop quality can be dramatically reduced. Through its antioxidant activity Nutriplant AG reduces impact of abiotic stress, leading to better yields and improved quality of crops. Nutriplant AG contains nitrogen, phosphorus, potassium, sulfur, boron, cobalt, copper, iron, manganese, molybdenum and zinc. Nitrogen and boron are essential for bud vigor and fruit set. Nitrogen and zinc are needed for fruit size. Phosphorus hastens maturity and improves fruit quality, while potassium improves fruit color and increases cold hardiness. Sulfur is needed for flavor and protein synthesis. Cobalt increases resistance to stress and copper contributes to color and flavor development. Iron promotes flowering and fruit set. Manganese aids in sugar metabolism, and molybdenum is involved in transport of phosphorus, a very important element in energy transport and storage. The synergism of all of these elements makes Nutriplant AG effective. Benefits reported by farmers include increased stress resistance, improved quality, increased yields, easy to apply and cost effective.



Nutriplant SD, manufactured through a unique proprietary technology, is designed to enhance seedling emergence and growth. Ingredients contained in Nutriplant seed treatment products activate a number of crucial enzymes and help optimize metabolic pathways necessary for proper seedling development. Seedlings grown from seeds treated with Nutriplant SD have bigger root and shoot mass. The product also improves growth of root hairs to help with efficient uptake of nutrients and water. Stronger, more vigorous seedlings develop into healthier plants capable of producing higher yields. Our research also indicates that Nutriplant SD, when used in combination with commonly used pesticide and fungicide treatments, helps the seedling to overcome initial inhibitory effect of these compounds. Nutriplant SD helps plants overcome the negative effects of abiotic stress, the main cause of yield reduction in crops. Nutriplant seed treatment contains magnesium, sulfur, cobalt, copper, iron, manganese, molybdenum and zinc. (Nutriplant SD also contains calcium.) Calcium is needed for root and leaf development and improved plant vigor. Magnesium regulates uptake of other nutrients and activates a number of crucial enzymes. Sulfur, zinc and copper are essential for formation of proteins and

activation of enzymes necessary for seedling growth. Iron and manganese are crucial in sugar metabolism to produce energy for seedling emergence. Magnesium and molybdenum aid in the transport of phosphorus, which is important in energy transfer. Cobalt influences plant resistance to stress. The synergism of all of these elements makes Nutriplant seed treatment effective. Benefits reported by farmers include quicker emergence, better stands, stronger root systems and increased yields. Generally, Nutriplant AG and SD outperform competitive products based on the field trials.

Crop Production News

The Dicamba Data Will Show Promise and Limitations in 2017



You would have to live under a rock to not have heard about farmers' issues with dicamba this growing season. Arkansas banned the pesticide, Missouri temporarily banned and then changed the label, and complaints are skyrocketing in Indiana and Illinois.

For a discussion of the problems, check out Illinois [farmer Jeremy Wolf's descriptions](#) of the problems on his non-dicamba-tolerant soybeans in the heart of central Illinois. If this isn't enough, read University of Missouri's article: ["Ag Industry, do we have a problem yet?"](#)

Monsanto and BASF's public relations teams have been working in overdrive to contain the fallout. Read Monsanto's Robb Fraley's [list of reasons](#) why he believes Monsanto is not to blame. However, he later took a more conciliatory approach and explained ["We are taking these reports extremely seriously."](#)

Federal crop insurers, who usually come to farmers' rescue when faced with crop damage, have been quick to point out that crop insurance policies do not cover dicamba drift. The USDA started its own FAQ page just for this reason, explaining "chemical damage caused by improper application by a producer or inadvertently

through a third party" is not a covered loss.

No one really wants to take responsibility for the issues, so who is going to pay for losses when this is all said and done? For the first time in history, I think ag data is going to show us who is responsible, but also tell us the limitations on what we can learn from data in 2017.

In the past, sorting out who caused the widespread damage we see today would be nearly impossible. But the collecting, storing, and using ag data will change that. Monsanto's Climate Corporation likely has a very detailed database of dicamba sprayings (from its users). In fact, Robb Fraley tells farmers in his most recent letter to contact the Climate Corporation to "help understand whether unusual environmental conditions or weather patterns might have affected applications this season." Ag retailers too have precise records of when and where their applicators sprayed dicamba in 2017, as well as detailed weather data. Thus, in many cases, figuring out who caused dicamba damage will not be as impossible as people think.

Off-target chemical application can produce strange patterns in fields. Some areas are not damaged, some are very damaged, and some are nearly dead. I've heard people say this unusual pattern will make it nearly impossible to prove yield damage in a field was attributable to dicamba drift. That might have been true in the past, but farmers with detailed scouting reports and accurate yield maps this season will disprove this. Overlay a map of plant tissue after off-target application with a map of yields after harvest. If decreased yield corresponds with the areas affected by off-target dicamba damage—then the answer is pretty clear. Chemical drift caused the damage.

Likewise, if it is true that moderate dicamba drift will help the yield on non-dicamba tolerant beans this fall—I've heard this many times this summer—the yield map will show this correspondence. Climate Corporation's data will be able to prove this by this fall, if it is true.

Dicamba will also show us the limits of ag data platforms today. Google can tell where the flu is trending based upon online health data and where people are searching for cold medications. In theory, American farmers should be able to predict whether a particular pesticide is causing off-target problems based upon the number of complaints, satellite images, and ag data uploads. But there is no single database that collects and analyzes this information. States each have their own complaint database and farmers, retailers, and applicators are using dozens of different platforms to store ag data information, such as applications of pesticides, what crops are planted, etc.

This decentralized system of storing information won't help us predict when a certain pesticide is failing. That isn't just a dicamba issue, but a food security issue. Wouldn't it be great if we knew, based upon collective data reporting, where certain pests are problematic in the United States so that we could predict where these pests would appear next?

Big data platforms ought to be able to answer these questions before we get into the widespread mess we find ourselves in now.

But we still have a long ways to go.

One thing is certain, sorting out liability for dicamba damage is going to come from ag data platforms. Just wait and see.

Source: Todd Janzen, [Janzen Ag Law](http://www.aglaw.us/janzenaglaw/2017/8/3/dicamba-big-data) 8/14/2017 <http://www.aglaw.us/janzenaglaw/2017/8/3/dicamba-big-data> Share this story

Monsanto's Xtend Crop System Update

The Amway Product Development & Regulatory/Safety team reports that APSA-80 qualification for use with Monsanto's Xtend Crop System is continuing to progress nicely and we should be hearing something very soon. Also, APSA-80 qualification for use with Engenia, the BASF herbicide and the Dow Enlist Duo system is also moving along as well. We will continue to keep everyone informed regarding any developments.

Some facts as it relates to the future of soybean and cotton production in the U.S.

2017 U.S. Soybean Market (82 – 83 million acres)

Monsanto is projected to control about 55 million acres by 2019

Currently 90% of soybeans planted in the U.S. are DNA altered for glyphosate tolerance

2017 U.S. Cotton Market (11 – 12 million acres)

Monsanto is projected to control about 50% of the market by 2018

Currently 70% of cotton planted in the U.S. is DNA altered for glyphosate tolerance

APSA-80 Sales in Oklahoma

It was brought to our attention in mid-June this year that APSA-80 was being sold in a Oklahoma City Farm Show but was not registered as a soil amendment as required of the Oklahoma Soil Amendment Act and Rules. It is unclear as to how this fell through the cracks over the years because we can see that the claims support as a soil amendment was provided in 2001 and the states usually send reminders to update yearly registrations. Email chains show a discussion about *APSA-80* and *All Purpose Spray Adjuvant* and the claims made for each. Perhaps there was some confusion between the two as, at the time, they were discussed as separate products.

Regardless, we prepared an application, provided the substantiation for use as a soil amendment and received an Oklahoma Certificate of Soil Registration at the end of July. We are now compliant and back in business. Apologies to our Oklahoma IBOs for the oversight. **Amway Regulatory & Safety**

“Drexel” Foam-Kill

Intended for use with herbicides



\$10 per quart!

Use Rate - 1.0 oz./100 gallon tank mix

Buy it online

<https://www.ruralking.com/> or <http://barndoorag.com/>

Note! The APSA-80/Nutriplant Newsletter is produced and edited by Amway Agriculture and is intended for use by Amway Independent Business Owners (IBO,s) and their customers.

Also, if you have a good customer success story and like to tell about it, send it to.

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Ronald Jackson – Agricultural Specialist