AG RX | AN EMPLOYEE OWNED COMPANY

December 2016

News from AG RX

QUARTERLY NEWSLETTER

IAP Integrated Agribusiness Professionals | PrimeraTurf

Inside this Issue

Our mission is to be the trusted leader and innovator in providing our customers with insight and solutions to enable them and AG RX to deliver a superior return on investment, in a safe and environmentally sound manner while creating a culture where our employee owners can develop and succeed.

Update from The Desk of Chris Oliva

Well another year has come and gone. A good year for some and for others not so much. Those who wanted rain were disappointed, but with the rain in recent weeks maybe that will change. We witnessed one of the strangest elections that I can remember, should make for an interesting upcoming year. For AG RX some things went the way we had planned and hoped for, some did not. In the end, we continue to look to be your retailer of choice on the central coast. We appreciate all of your business and look forward to a prosperous 2017 for all.

Now for some housekeeping. Please make sure we have all your permits so we don't miss a beat starting next week. We are planning the Citrus & Avocado meeting and should have that date next week. Starting next year we will be making some changes to this newsletter. Please let us know if any changes need to be made to your email.

Happy New Year from AG RX!

County Ag Commissioner Permit Renewals

With the end of the year here please remember to renew your County Agriculture Permit and send them to your AG RX Representative or to permits@agrx.com.

Up Coming Events

California Weed Science Society 2017 Annual Conference
January 18-20, 2017
Portola Hotel & Spa, Monterey

CAPCA ED Polyphagous Shot Hole Borer Training
January 25th, Santa Paula Ag Museum

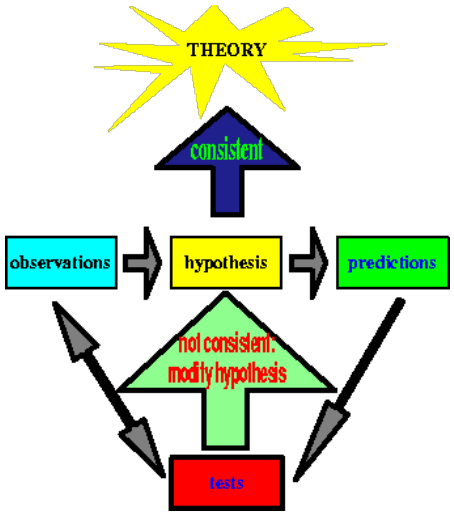
What Does Good Agricultural Research Look Like?

David Holden, Holden Research and Consulting

This is a question you should all be asking because you are asked to make decisions for your farms on a regular basis and quite often you are not given evidence based information to make those decisions. So good scientific research should answer questions that pertain to our production programs and in an understandable way. You are not asking for basic university driven research, you want applied research that helps to guide your daily farming practices.

So the answer to this question is simple. Does the research follow scientific methodology? Below is a description of the "scientific method" care of: http://physics.ucr.edu/~wudka/Physics7/Notes_www/node6.html.

The scientific method is the best way yet discovered for winnowing the truth from lies and delusion. The simple version looks something like this:



- *1.* Observe some aspect of the universe.
- *2.* Invent a tentative description, called a *hypothesis*, that is consistent with what you have observed.
- *3.* Use the hypothesis to make predictions.
- *4.* Test those predictions by experiments or further observations and modify the hypothesis in the light of your results.
- *5.* Repeat steps 3 and 4 until there are no discrepancies between theory and experiment and/or observation."

This is not difficult to do. Let' step through it a bit.

1. I notice when I throw fish scraps in my garden, the plants get greener.
2. I guess (hypothesize) that there is something in fish scraps that help my plants grow.
3. I predict that if I plant a garden and put fish scraps on half of it, I will have greener and larger vegetables in the treated half.
4. Treat half of the gardens with known quantities of fish scraps and measure the results.
5. Repeat and repeat for consistency.

So beware of products that have no data generated in this way. Also beware if only part of the scientific method was followed, like basing a sales brochure on a single piece of data or one year's worth of research. In the long run it is a good idea for ask for evidence of the effectiveness for products that you are being asked to buy.

On The Road With AG RX- Lucas and Lewellen

Chris Oliva

As you drive along the Central Coast on the 101, you notice all the vineyards that are part of the beautiful landscape. This last fall I visited one of these vineyards as they harvested grapes. I met with Dan Iness, who is the Vineyard Manager with Lucas and Lewellen, as they harvested Riesling and Pinot grapes that day. L & L grows 24 varietals on their three vineyards. Harvest is generally anywhere from late summer into fall. They are looking for a brix of 24-25. Brix is a measurement of the sugar level. They usually start around 23 and want to finish around 24-25. Too early and the juice can have a green taste. The rootstalk that these vines were on was planted in the late 70's. Depending on what is popular at the time, different varietals can be grafted on to the vines. The grafted vines will have production the following year. There were 6 crews working that day and all of their grapes are harvested by hand. It takes about 2,000#'s of grapes to make 160 gallons of wine. I was curious to what they would taste like, I don't really know what I was expecting but they were extremely sweet.

I was able to go to their winery and see the next processes that take place. I met with Ian Fainer, who is the Cellar Master with L & L. He gave me a tour of the facility, explaining the steps along the way. The grapes are taken and prepared for the primary fermentation. Red wine was being made from the pulp of the grapes and the fermentation occurs together with the skins. This fermentation takes between 10-12 days. The wine is then pumped into tanks and the skins are pressed for remaining juice. It is kept warm as the sugars begin to convert into alcohol. In the secondary fermentation bacteria is added to continue the fermentation process. From there the wine is put into oak barrels to mature from 6 months to 2 years, and then ultimately into a bottle.

I enjoyed my tour of the vineyard and winery. A lot of hard work and pride goes into L & L's wines and it shows in their finished product. Thank you Dan and Ian for my tour of the vineyard and winery.

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Soil Principles; Water Movement and Salinity

Danny Klittich PhD, Redox Chemicals LLC.

With another dry fall behind us and winter rains still a ways down the calendar, water management is still on our minds. In addition to minimal leaching from rains, well water quality has been decreasing in many areas. This has led to the degradation of the soil. This can be seen in poor crop growth, surface pooling of irrigation water, salt burn on leaves and/or premature wilting from uneven soil wetting.

Soil structure is essential to maintain root health and deliver water and nutrients to the plant. As water quality decreases we can see a breakdown of soil structure. This can be due to many reasons including bicarbonate accumulation, water pH swings and salt build up from insufficient leaching to name a few. Most crops in California are deficit watered meaning that we only water enough to wet the root zone. This leads to fertilizer (salt) build up in the root zone. We generally rely on good winter and early spring rains to leach out these salts. However, due to our below average rain fall these last few years, plus the tendency of precipitation coming in small amounts, salt build up in the soils has become an issue on many farms. In addition, poor water quality can cause soil structure to break down leaving a soil that hydrates poorly and may hold excess salts.

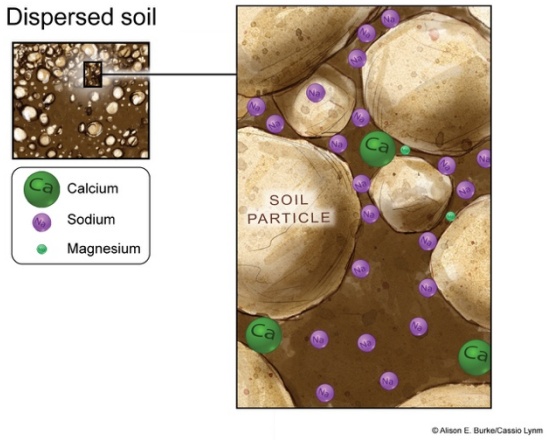

Figure 1. Sodium deflocculates soil particles creating a dispersed soil with poor water movement.

Soil salinity should be considered if crop quality is declining. Electro conductivity (EC) is a measure of total salts, both good and bad. Crop tolerance to total soil salinity varies, but in general as EC levels approach 1 (650 PPM total soluble salts) the potential for a negative impact increases. Excessive salts impede nutrient uptake and lead to imbalances in soil/water/air ratios, which in turn inhibit plant metabolism. Sodium is of particular concern as it degrades water and air movement in the soil by directly changing soil structure. Sodium has the ability in soil to deflocculate the soil colloids causing collapse of the soil pore space (Figure 1). This leads to poor water movement and limited root growth. If the base saturation sodium exceeds 4% of cations, sodium reduction may be beneficial. Increases in soil salinity lead to reduced root growth, reduced crop quality, and reduced yield. As a side note, if your water quality is poor and has a high EC, maintaining water movement through the rooting zone is essential. If irrigation water does not leach through and out of the root zone salt build up will occur and crop health will suffer. Soil salinity should be monitored using soil testing.

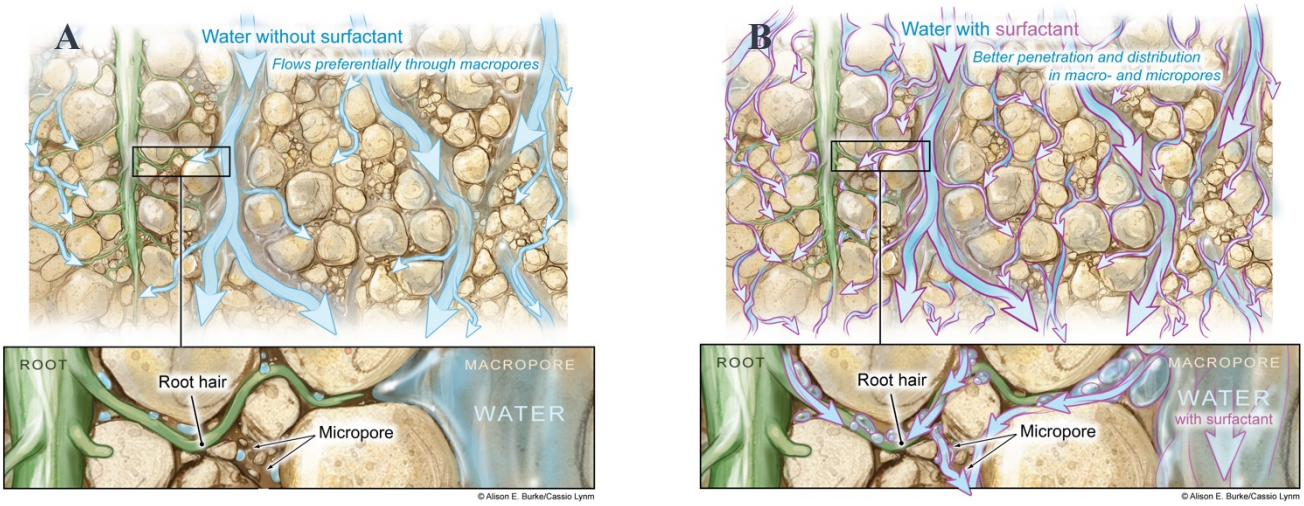

Figure 2. Water movement in the soil is greatly influenced by soil structure and soil and water chemistry. (A) Incomplete soil hydration due to poor micropore space penetration. (B) Soil hydration with the assistance of soil surfactants such as Soilex and PeneCal.

Water movement within the soil is essential to promote healthy root growth and sustain yields. Water chemistry, soil chemistry, and soil physical characteristics all contribute to the difficulty of properly hydrating the crop root zone (Figure 2). Water movement, both downward and laterally, in the root zone is essential for proper hydration. Water will move through the soil by the path of least resistance via macropore space. Proper soil structure will ensure that the water then moves laterally into micropore space to fully hydrate the soil. The micropore space is where roots live and extract nutrients from the water and soil. Without proper hydration of this space roots will inefficiently take up nutrients and in severe cases die. Proper soil calcium content and availability (Figure 3), as well as adequate soil humus, play key roles in maintaining soil structure. Microorganisms which inhabit the micropore and macropore space help to build soil structure. Promoting proper movement of water in order to hydrate the micropore space is key to irrigation efficiency. Building soil structure improves water distribution in the root zone.

There are many products on the market to help with improving soil structure and reducing salinity. Few have the proven successes and easy handling that Redox products offer. Four Redox products may be beneficial for soil moisture and salinity management:

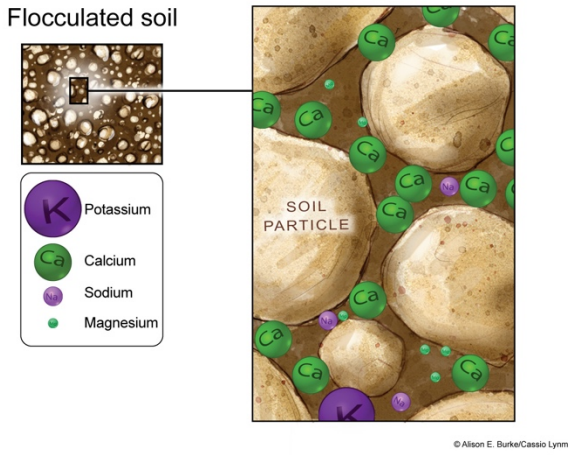

Figure 3. Calcium has two positive charges and a large size functioning to maintain soil structure and micro pore space.

PENECAL is a reacted plant nutrient product high in surfactant and calcium. PeneCal reduces water surface tension driving water and nutrients into the micropore space. The calcium component of PeneCal helps to maintain micropore space. Use PeneCal where water penetration and root zone distribution is inadequate. Apply 0.5 to 1 gallon per acre to the soil every 4 - 6 weeks or as required. Follow up application of 0.25 gallons per acre can be added if necessary.

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MAINSTAY CALCIUM is a reacted plant nutrient high in calcium. Calcium within the soil structure helps to maintain micropore space and due to Mainstay Calcium's unique formulation the calcium remains highly available for plant uptake. Use Mainstay Calcium where increased plant available calcium is required and/or soil structure needs improvement. Apply 0.25 to 1 gallon per acre to the soil along with PeneCal during periods of critical calcium requirements as needed.

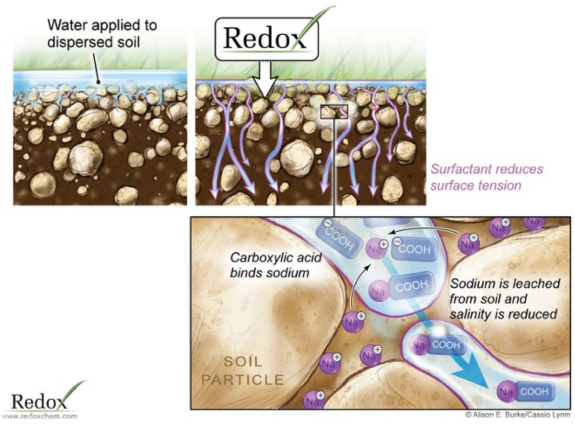

Figure 4. Soilex facilitates the leaching of salts from the root zone.

SOILEX is used to leach salts from the soil profile. It contains surfactants and sodium binding compounds (carboxylic acid). The surfactant content facilitates soil penetration of the sodium binding compounds increasing leaching of salts (Figure 4). Use Soilex where total sodium content has exceeded 4% and EC is greater than 1. Apply 0.25 to 1 gallon per acre to the soil monthly or as required.

H-85 is a reacted plant nutrient product high in potassium and soluble carbon. H-85 contains an impressive 42% Humic Acid with the added bonus of 43% Fulvic acid and long-chain carbon compounds. The difference is made up by 15% soluble potash (K_2O). This gives you an efficient product that improves soil microbial activity due to the short, medium, and long-chain soluble carbon content. Improved soil microbial activity facilitates improved soil structure and nutrient availability. Apply 3 to 5 pounds to the soil per acre per crop cycle.

As winter rains come (hopefully) maintaining/improving soil structure and promoting salt leaching is key to producing a better crop next year. This is true from citrus orchards to spinach fields. Roots grow best in soils that are evenly hydrated, easy to penetrate, and have sufficient and well-rounded nutrient availability. Maintaining water movement and keeping salts out of the rooting zone are essential for quality yields.

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RootShield® *PLUS*$^{+}$ - A Strong Start Leads to a Strong Finish

From propagation to production, RootShield® *PLUS*$^{+}$ is ready to work for you to minimize losses/shrink. The two active ingredients (*Trichoderma harzianum* strain T-22 and *Trichoderma virens* strain G-41) are used to protect newly developing roots against damping off organisms, such as *Rhizoctonia, Pythium, Fusarium, Thielaviopsis*, *Cylindrocladium, and* soilborne *Phytopthora*. One advantage of the dual active ingredients in RootShield *PLUS*$^{+}$ is that is provides improved suppression of the aggressive hot-season *Pythium*.

RootShield *PLUS*$^{+}$ (used in the field or in greenhouse environments) grows in the root zone with the developing plant and inhibits and actively attacks pathogens, preventing their establishment, ensuring uninterrupted plant growth.

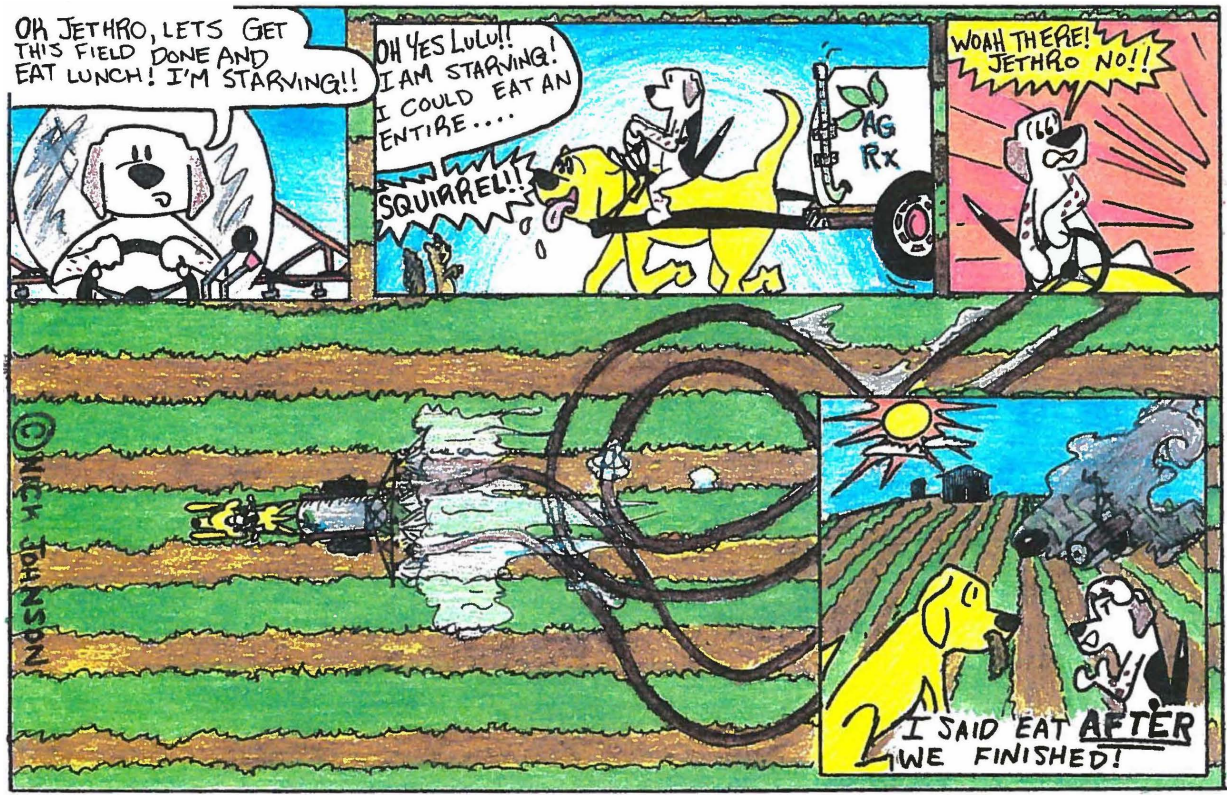
With a biological approach to disease management, prevention is key. Start in propagation and reapply when stepping up to coincide with rapid root development as the roots advance through their new space.

Available in two convenient formulations: a Wettable Powder for drenching or through drip lines and Granules for incorporation into growing mix or field soil.

- Controls for up to 12 weeks
- WP formulation has a 4-hour REI (0-hour REI when soil injected or soil incorporated
- G formulation has a 0-hour REI
- 0-day PHI (WP and G formulations)
- OMRI Listed
- WP available in 1, 3 and 30 lb bags
- Granules are available in 10 lb boxes, 40 lb bags and 500 & 1,000 lb bulk bags

RootShield *PLUS*$^{+}$ has been supporting farmers and growers for over five years. BioWorks has been supplying RootShield®, the original T-22 product, for over twenty years.

Life of Lulu



I GROW with AG RX- Steve Donovan

Steve is Production Manager with Deardorff Family Farms. He has been with Deardorff since 1992. Steve started his career in agriculture as a tractor salesman for Bob Powers. He then went to work for John Dullam as a foreman for 16 years until the operation shut down in 1985. This is when Steve first learned about vegetable production. He then went to work for Ed Pike, who was the first grower to grow for Tanimura & Antle in Ventura County. Along the way Steve worked in sod and strawberry production as well.

Steve grew up in Somis and went to Camarillo High School. He lives in Camarillo in the same house since 1972 with his wife Linda. They have a son also in Camarillo and a daughter who lives in Orcutt and 5 grandchildren, 3 boys and 2 girls.

How did you get started in this business?

My father grew oat hay on the side and that is where my interest in agriculture started. I participated in 4-H and raised 4 steers. I went to Ventura College and Cal Poly San Luis Obispo and majored in Mechanized Agriculture.

What are some of your greatest challenges?

Growing a quality crop on a budget. Biggest expense is labor, how do you use labor efficiently to stay under budget.

What concerns you most?

Regulations. When and where will it stop? Water pumping, discharge, leafy greens. All the paperwork and it keeps increasing. Added cost of having to do things we never had to do.

What agricultural groups are you a part of?

CAPCA, Ventura County Farm Bureau, Chairman of California Celery Research Advisory Board, California Leafy Greens Research Board, Ventura County Ag Museum.

What hobbies/activities do you like to do with your spare time?

Collect antique guns, varmint hunting, spend time with grand kids, would like to collect antique cars, car shows, watching football.

What does AG RX do well?

Professional personnel. Deal with 4-5 people on a regular basis and all extremely professional. Strong knowledge of fertilizers, blends and chemicals. Not regimented, able to accommodate.

Where does AG RX need to improve?

Better communication on the application side.

What book are you currently reading?

Nothing at the moment. Do like books about hunting and Teddy Roosevelt.

If you were not in farming what would you be doing?

Ag is a lifestyle not sure what I would be doing, probably in some kind of equipment design.

Changes to EPA's Farm Worker Protection Standard

Johnny Morse, AG RX Regulatory Compliance & Safety

AG RX would like you to know that the Environmental Protection Agency has revised the 1992 Agricultural Worker Protection Standard regulation to increase protection from pesticide exposure for agricultural workers and their families.

The regulation seeks to protect and reduce the risks of injury or illness resulting from agricultural workers' (those who perform hand-labor tasks in pesticide-treated crops, such as harvesting, thinning, pruning) and pesticide handlers' (those who mix, load and apply pesticides) use and contact with pesticides on farms, forests, nurseries and greenhouses. The regulation does not cover persons working with livestock.

Here are some of the major changes to the regulation which could affect you:

- Annual mandatory training to inform farmworkers on the required protections. This increases the likelihood that protections will be followed. Currently, training is only once every 5 years.
- Expanded training includes instructions to reduce take-home exposure from pesticides on work clothing and other safety topics.
- First-time ever minimum age requirement: Children under 18 are prohibited from handling pesticides.
- Expanded mandatory posting of no-entry signs for the most hazardous pesticides. The signs prohibit entry into pesticide-treated fields until residues decline to a safe level.
- New no-entry application-exclusion zones up to 100 feet surrounding pesticide application equipment will protect workers and others from exposure to pesticide overspray.
- Requirement to provide more than one way for farmworkers and their representatives to gain access to pesticide application information and safety data sheets – centrally-posted, or by requesting records.
- Mandatory record-keeping to improve states' ability to follow up on pesticide violations and enforce compliance. Records of application-specific pesticide information, as well as farmworker training, must be kept for two years.
- Anti-retaliation provisions are comparable to Department of Labor's (DOL's).
- Changes in personal protective equipment will be consistent with the DOL's Occupational Safety & Health Administration standards for ensuring respirators are effective, including fit test, medical evaluation and training.
- Specific amounts of water to be used for routine washing, emergency eye flushing and other decontamination, including eye wash systems for handlers at pesticide mixing/loading sites. (ex. Provide 1gallon for each worker and 3 gallons for each handler and each early entry worker as measured at beginning of work period) and Specific amounts of water to be used for routine washing, emergency eye flushing and other decontamination, including eye wash systems for handlers at pesticide mixing/loading sites. (ex. Provide 1gallon for each worker and 3 gallons for each handler and each early entry worker as measured at beginning of work period). Eyewash specifically you must provide a system capable of delivering 0.4 gallons/minute for 15 minutes, or 6 gallons of water able to flow gently for about 15 minutes at a mix/load site if handlers use products requiring eye protection or use a pressurized closed system.
- Continue the exemption for farm owners and their immediate family with an expanded definition of immediate family.

If you have any questions regarding the update please contact your AG RX representative for assistance. Or for more information regarding the changes you can visit the California Department of Pesticide Regulations website at http://www.cdpr.ca.gov/docs/whs/worker_protection.htm.

Or you can visit the Environmental Protection Agencies website at https://www.epa.gov/pesticide-worker-safety/revisions-worker-protection-standard

Did you Know AG RX Sells- Pruning Shears

AG RX carries a full line of pruning shears and saws in all our Customer Service centers.

I AM AG RX- Matt Olexiewicz

Matt is our IT Manager at AG RX. Matt does an outstanding job keeping all of AG RX's computers and any smart device we have running smoothly. Phones, copiers, laptops, and tablets you name it. Not just in our Oxnard location, but at all of our locations. Matt always reaches out to employees to see if they need help. One of the many things he does daily is to walk the facility and ask if everything is operating correctly. Matt has a teaching background as well and it shows as he is able to easily teach those of us who need a little extra computer help. AG RX is fortunate to have Matt as an employee, thank you Matt for your contribution to making AG RX a great organization. Matt also knows where you can get just about the best tri tip sandwich on the coast, ask him and I'm sure he will share the spot.- Chris Oliva

What is my background and how did I get started in this business?

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My professional life began in the Navy serving onboard the USS Nebraska as a nuclear electrician. After an honorable discharge, I spent a few years working in the movie studios doing sound and video. A desire to pursue my education and find a more stable industry led me to Ventura, Ca, where I coached water polo/swimming and tutored for The Princeton Review while studying at Ventura College and CSU Channel Islands. Challenging positions at Ojai Valley School and an IT Consulting Firm in Ventura drew together my diverse background and prepared me for my current position as AG RX IT Manager. Such a diverse career has provided me with an expansive set of skills that enables me to keep the IT core of AG RX running smoothly and to help employees use and understand the IT resources needed to thrive at their positions.

What are some of the greatest challenges you face in your field?

Every part of AG RX's IT infrastructure is interconnected and dependent on another internal system or external service. This interconnectedness means that many different programs, companies, and devices are involved in seemingly everything I do from setting up a new employee to deploying a new service or feature. When all the pieces work well, it is awesome to see a system become more than the sum of its parts. When a piece malfunctions, it can mean long nights and weekends of troubleshooting to find and fix the specific server, device, system, or service that is acting up.

What are your favorite aspects of your job?

Getting to support and contribute to nearly every department at AG RX is the absolute best part of IT. I absolutely love the challenge of designing and providing tools and systems to every part of the company from Sales to Procurement to Ops. Right now AG RX is the process of deploying Tableau (a visual data-analysis tool) to the Accounting and Sales departments. Tableau enables once static databases to come to life in interactive graphics and will help ensure that AG RX operates with cutting edge insights and self-awareness not possible from staring at a spreadsheet.

What are some of your interests?

Camping and backpacking, especially with friends and family, is always a great time and a nice escape. I love surfing some of the world class breaks of the gold coast and grabbing a Corales burrito afterwards. When feeling lazier, I'll sneak in some video games, Sci-Fi, or try to actually finish reading Game of Thrones.

Visit Us at any of Our Locations

OXNARD- Main Office

751 South Rose Ave Oxnard, CA 93030
(805)487-0696 Fax (805)240-1737
Hours: M-F 7am-5pm Sat: 7am-12pm

FILLMORE-

186 East Telegraph Road Fillmore, CA 93015
(805)524-2687 Fax (805)524-1412
Hours: M-F 7am-4pm Sat: CLOSED

SOMIS

3250 Somis Road Somis, CA 93066
(805)386-2674 Fax (805)386-1234
Hours: M-F 7am-4:30pm Sat: 7am-12pm

GOLETA

6150 Francis Botello Road Goleta, CA 93117
(805)681-1686 Fax (805)681-1689
Hours: M-F 7:30 am-4:00pm Sat: CLOSED

SANTA MARIA

609 South Depot Santa Maria, CA 93456
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Hours: M-F 7am-5pm Sat: 7am-12pm

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