Adjuvants Continue Upward Trend

A dizzying array of developments in crop protection technologies promise to make specialty adjuvants a crucial piece of the puzzle going forward.

SIMPLY put, there’s a whole lot going on within the adjuvant industry these days. From the ongoing process that is the Council of Producers & Distributors of Agrotechnology (CPDA) Getting Adjuvant Certified program, to transitioning away from the days of one-off products to more complete, multi-functional adjuvant solutions, to figuring out what’s going to go into the tank with Dow’s Enlist Duo and the still-awaiting-approval dicamba herbicides, the industry is in the midst of one of its most eventful periods in recent memory.

“Well, there are a lot of them,” says Terry Nash, brand manager, adjuvants, Helena Chemical Company, when asked what macro trends he’s seeing in the adjuvant market. “One of them is, with the new technology being introduced from Monsanto, Dow and BASF, there are certain regulations and restrictions — at least with the Dow Enlist system — that has been mandated by EPA. Everything that goes into that tank with Enlist Duo has to be approved by Dow and go through EPA’s approved process, so we are working on that with Dow.”

“We’ve noticed a lot of trends towards multi-functional adjuvants — meaning that if you can condition the water and at the same time provide a surfactant or a deposition/drift mitigation agent, there’s some value to that,” adds GarrCo Founder and President John Garr. “However, you also need to recognize that effectiveness and convenience don’t always
go hand-in-hand, so the user needs to be sure he has a high-quality combination product that will fit his needs."

Deposition Agents, Tank Cleaners Front And Center

Minimizing off-target spray drift and spray volatilization is one of an applicator’s most important — many would argue THE most important — aspects of their day-to-day. Therefore, adjuvants that assist in that crucial battle are increasing in usage, according to Dr. Eric Spandl, marketing specialist, WinField Solutions.

“Drift reduction and spray deposition agents often employ different modes of action, some thicken the spray solution and others — such as our InterLock product — change the droplet spectrum so that there are less fine, driftable droplets,” he says.

Spandl points out that EPA’s Drift Reduction Technology (DRT) program has driven much of the growth in drift control adjuvants, and the Shoreview, MN-based manufacturer has formulated MasterLock, as well as InterLock, to help keep active ingredients on target.

“Those are two very important products in the WinField adjuvant portfolio,” says Spandl. “MasterLock is a product that we are currently doing R&D with the new dicamba herbicides, and InterLock is an oil emulsion product that changes the droplet spectrum away from fine, driftable droplets. Oftentimes droplet size is driven by what product you are applying, and there tends to be a trade-off between optimizing efficacy while managing drift. These products can be of great help in that situation.”

GarrCo Product’s (Converse, IN) Garr, for one, agrees. “The way we look at the issue of deposition and drift, we believe 95% of the equation is droplet size. Most of today’s crop protection products are systemic based, so if you can get the product to the target then you have a better chance at efficacy. Basically, you need to get the AI [active ingredients] in the plant now, not just on it.”

CONTROL is GarrCo’s flagship drift-reducing polymer blend. According to Garr, it “pretty much sets the standard for drift mitigation” in the industry and is also labeled for aerial application.

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- Dr. Eric Spandl, WinField Solutions

PRECISION LABS’ JIM REISS ON ENLIST, DICAMBA

Everybody in the industry is talking about the new Enlist Weed Control System (2,4-D choline) from Dow AgroSciences, as well as the coming reformulated dicamba technologies expected to hit the market in 2016. Precision Labs’ President Jim Reiss is among them.

“The new herbicide offerings built around dicamba from BASF and Monsanto as well as 2,4-D from Dow AgroSciences are largely based on innovative formulation technology,” Reiss said in a recent e-mail exchange. “Those advancements in formulation technology will drive massive changes in the adjuvant industry. Many of the adjuvant technologies commonly used today, like water conditioners, pH adjusters, certain types of drift control agents, surfactants and even ammonium sulfate, may not be approved for use with some or all of the new dicamba or 2,4-D formulations.

“…In some cases these older adjuvant technologies may be physically incompatible with the ‘built-in’ features of the new formulations or interfere with key advantages the new herbicides offer. So get ready for big changes in the adjuvant industry. We [Precision Labs] have been very busy the past couple of years developing new adjuvant technologies specifically designed for each of the new herbicide formulations so that we can continue to deliver on the ‘total spray droplet management’ promise.”
REMOVE tank cleaner is another "standard setter" in the industry, according to Garr. "REMOVE sets a standard for tank mix residue clean out by solubilizing leftover residues. Sometimes tank clean out is something that applicators may not think or know that much about, but it's extremely important during the busy season."

Meanwhile, adjuvant formulation of all kinds is in full swing over at Wilbur-Ellis.

"We are now launching the Eco Advantage (EA) Platform, which has been in development over the past eight years," says John Frieden, director R&D. As part of a voluntary move away from Nonylphenol Ethoxylates (NPE), all products formulated with the Wilbur-Ellis Eco Advantage Platform are NPE free. EA products are also approved for application directly to, or near aquatic sites including natural lakes, rivers and ag potholes, and have low toxicity ratings for improved handling.

"EA formulated products will also provide improved biological performance when compared to the same product not formulated with Eco Advantage (EA)," says Frieden. The first round of EA products includes HASTEN-EA, RENEGADE-EA, RAINIER-EA and SYL-TAC-EA.

"With the introduction of Enlist herbicide technology from Dow AgroSciences, and other products pending registration, we will also be continuing our focus on Drift Reduction Technologies, or DRT," adds Frieden.

Herbicide Resistance Driving Adjuvant Use

GROWMARK's Jeff Bunting reports that the CropLife 100 retailer continues to see increased demand for adjuvants as applicators deploy myriad tank mixes in the battle against resistant weeds.

"We continue to see a shift towards glyphosate pre-mix products that require an ammonium sulfate (AMS)-based
"The concern going into this year is the commodity prices and the threat of input cuts and growers looking at ways to shave their input costs."

- JEFF BUNTING, GROWMARK

in addition to an activator adjuvant that will enhance the other herbicide active in the pre-mix," says Bunting, crop protection marketing manager. "The concern going into this year is the commodity prices and the threat of input cuts and growers looking at ways to shave their input costs. Straight AMS is still very economical and effective when used at the right rate depending on water hardness, but the temptation to just use AMS is a threat. We all have done a good job in managing and/or mitigating herbicide resistant weeds and now is not a time to make cuts in weed control programs, because the weeds don’t know the price of corn and soybeans."

Another Puzzle Piece
 Conditioning tank mix water is another aspect in solving the weed resistance puzzle, according to NutriAg’s Dr. Kelly Tanaka, director of research and innovation. "When we're talking unconditioned water, even with a small droplet the spray can really bounce off the leaf," he says. "The active ingredient's ability to spread is much better than with unconditioned water. Anytime you can get better adsorption into the plant and surface spreading on the leaf, you're going to help that herbicide be more effective against resistance."

NutriAg's (Toronto, ON, CAN) flagship adjuvant, BB5, is described by Tanaka as the "Cadillacs of adjuvants" and is an all-around water conditioner (spray tank mixture changes to pink when pH hits 5) that decreases pH,
water hardness and surface tension. The primarily foliar micronutrient-focused company’s latest version of BB5, BB5 Xtra, is a certified organic use adjuvant approved in California. BB5 Platinum is yet another derivate, which Tanaka says has a “little bit better efficiency” on water hardness and is launching in Canada this season. U.S. growers could possibly see Platinum on retail shelves by 2016.

Like its NutriAg brethren to the North, BRANDT (currently No. 20 on the CropLife 100) also offers an all-in-one adjuvant package: BRANDT Super 7. Super 7 has several functions that it performs as a surfactant, penetrant, deposition aid and acidifying agent. The multi-function properties help control droplet uniformity, reduce off-target sprays and get pH to a more favorable level for improved uptake and efficacy, according to David Bower, specialty products manager.

“BRANDT Super 7 has been a proven winner since its introduction,” he says. “Our end users appreciate having a multi-function product because it reduces the number of SKUs [stock keeping units] they need to carry and brings a tremendous amount of value in terms of application efficiency. We have also seen more interest in products such as BRANDT Super 7 for spray drift management as environmental concerns and regulations intensify.

Torpedo, a methylated vegetable oil and lecithin blend adjuvant that can be used with pesticides that recommend either a non-ionic surfactant or crop oil concentrate, is another BRANDT adjuvant seeing increased uptake in the ag retail market.

“With its unique penetration properties, pH neutral Torpedo is suited well for systemic chemistries such as Quadris, Zampro, and abemectin,” says Bower. “Torpedo is used as a spray adjuvant to improve deposition of spray droplets, improve spreading, and reduce the production of fine droplets which are susceptible to off-target movement — important considerations in choosing the proper tank mix partner when acidification is not desired.

Helena Offerings
Helena Chemical Co. (No. 2 on the CropLife 100) also is wary about the impact on adjuvant labeling from the looming implementation of the Globally Harmonized System (GHS).

“GHS could prove challenging for all adjuvant manufacturers,” says Nash. “Unless there are legislative changes, it will be tough for all adjuvant manufacturers to add what GHS is
Adjuvants

requiring for adjuvant labels.”

But before that happens, Helena is touting a few of its adjuvant products for ’16, chiefly among them Justified.

“Justified is a patent-pending, oil-based drift control product that features low use rates and superior drift control,” says Nash. “It increases droplet size and reduces driftable fines without being affected by pump shearing. Justified works extremely well and we look forward to watching how well the market adopts it.”

Retention, a new water-management tool that reduces leaching of nutrients and pesticides, was in limited testing last season and is ready for full commercial deployment in 2015. “With many government agencies recommending cutting back on the amount of N growers can apply per season, and the issues with run-off of nutrients into our watersheds, we believe Retention will help in those situations,” says Nash. “University testing on runoff of sediment shows this product fixes N to the soil by holding the soil in place.”

FireZone (launched in 2012) is another product with which Helena is seeing good market uptake. “It’s a burn-down application only product that’s seen steady growth recently as growers demand clean fields at the start of planting. We don’t see that product slowing down anytime soon.”

As for new stuff, Nash says Helena is looking at “three very unique, different possibilities” for adjuvant products. “We’re looking at a lot of different materials that are in the testing phase currently,” he says. “The small plot and lab work from last year looks quite promising, and this year we’re going to take those concepts out to larger plot, commercial type conditions to see how they perform.”

Finding Solutions

Precision Labs’ Terry Culp, senior VP, says the Waukegan, IL-headquartered formulation company is focused on finding solutions that fit with several of the emerging trends in the industry today.

“Our portfolio of adjuvants specifically developed for the new dicamba and 2,4-D formulation technologies is intriguing and will continue to expand under the patents that we have pending on our new innovations. Additionally, we have water management tools in the product development pipeline that are unique in their ability to maximize water retention, availability and utilization. These should be great tools for reducing water consumption and expense while enhancing crop quality, yield and profitability,” Culp says.

From the sound of it, BRANDT’s ongoing strategy for releasing new adjuvant formulations is a 24/7, 365 days a year effort.

“BRANDT’s strengths and capabilities in manufacturing also give us the opportunity to develop new custom formulations for specific customers on an ongoing basis, which means new products are continually in the pipeline,” says Bower. “We plan to release new adjuvants under the BRANDT label soon, but they are still in development trials right now.”