The Winners
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Welcome to Agrow’s special supplement for the ninth Agrow Awards. The best in the crop protection industry gathered in London on September 21st to take stock of their achievements in the past year. The insightful discussions during the Crop Protection Leaders’ Forum during the afternoon was followed by the glamorous black tie awards dinner and presentation. The discussions ranged from pest resistance to lawsuits impacting the industry to the use of big data in providing cutting edge crop protection solutions.

The Awards were instituted in 2007 to provide a medium to companies around the world to showcase their expertise and creativity on a global platform. With the Agrow stamp of approval behind them, they were quickly established as a highly-coveted symbol of excellence.

As was evident from the shortlist, there was a broad diversity within the applications. Competition was especially intense in some categories, and we were forced to accommodate more than our stipulated maximum of five per category.

Read all about it in the following pages.

Sanjiv Rana
Editor in Chief, Agrow

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Dow sweeps up at Agrow Awards

Dow AgroSciences was the big winner at the ninth Agrow Awards, collecting four awards at the ceremony in London, UK. The company was honoured in the best formulation category and shared awards for best packaging innovation, best stewardship programme and best industry collaboration. The other “big six” companies among the prize winners this year were DuPont and Syngenta.

Dow’s herbicide, Resicore, was judged to exhibit the best formulation innovation. It contains three active ingredients never before combined in a single product: acetochlor is a water-immiscible liquid herbicide that inhibits seedling shoot growth of germination weeds; clopyralid is a water-soluble herbicide that works as a growth regulator to control annual and perennial broadleaf weeds; and mesotrione is an insoluble liquid herbicide that bleaches weeds by inhibiting a key enzyme in carotenoid synthesis. The judges also commended US University of Central Florida’s nanotechnology-enabled systemic bactericide/fungicide, Zinkicide.

The best packaging innovation went to Dow in collaboration with its partner, RPC-Promens-Innocan. They developed a new agrochemical packaging system that features lighter weight, square PET bottles that are auto-stackable without needing an outer cardboard box for transport.

Dow’s partnership with the Australian accreditation scheme, Agsafe, received the award for best stewardship programme. The partners created a focused online training programme for manufacturing and supply industry workers. It led to savings in cost and time, generated greater interaction between Agsafe and industry, and achieved an increase in compliance training. BASF Crop Protection North America, with agency partner PadillaCRT, received a commendation for their Living Acres initiative establishing farmland milkweed habitats to help increase endangered monarch butterfly populations.

The award for best industry collaboration went to Dow and Viannet. The partners began a collaboration to discover novel, early-stage, agricultural products. The culmination of these efforts and subsequent optimisation investigations resulted in the advancement of a fungicide into Dow’s pipeline.

DuPont took the award for best new crop protection product or trait with its fungicide, oxathiapiprolin (trade-marked as Zorvec). By expressing multiple effects on oomycete pathogens, it provides favourable and more diverse plant protection. The fungicide provides excellent disease control at exceptionally low rates, has no cross-resistance to other products and has an exceptional regulatory profile.

The best new biopesticide was judged to be Marrone Bio Innovations’ bioemcaticide, Majestene (Burkholderia rinojensis strain A396). It was launched into an area where few options for treatment are available, such as the north-west potato market and strawberry fields throughout the US.

The award for best marketing campaign went to Syngenta for the launch of its maize herbicide, Acuron (bicyclopyrone + mesotrione + atrazine + S-metolachlor). The company built strong awareness through a multi-pronged marketing approach, highlighting product performance and introducing attention-grabbing “Laughing Weeds” characters via a teaser campaign.

UK-based enabling technology provider Exosect won the award for best application technology innovation with its Entostat lean formulation technology. It is based on
natural and/or synthetic wax micro-powders to optimise pesticide delivery through the use of electrostatics to eliminate waste. The judges also commended the Brazilian agricultural research corporation, the Embrapa, for developing electrostatic application methods for pesticides to provide more precision and less waste.

CropLife America received the best public outreach programme award for its Green Thumb Challenge. Participants show their support for all forms of agriculture and US farmers by tweeting a picture of their green thumb with one or both hashtags #GreenThumbCLA and #ThumbsUpForAg. Commendations also went to two other applicants: CropLife International’s Progress Through Partnerships in Honduras outreach project told how small-scale farmers living in poverty can improve their lives with access to crop protection products and training in their responsible use; and DuPont’s EduFarm represented a “One Stop Education” venue in farming combining crop and pest education, product performance and value comparisons, and agricultural and personal stewardship practices.

The award for best supporting role went to Fieldfisher. It is a full-service European law firm with a dedicated pesticide team that assists clients across the globe with all aspects of EU regulatory compliance, data protection, task force formation, lobbying and litigation. A commendation went to Aegro for developing software to connect systems and allow an integrated, multi-dimensional view of farming activities.

Chinese company Jiangsu Yangnong Chemical received the award for best supplier. It is a leading supplier of pyrethroids and other pesticides, working closely with major manufacturers and developing tailor-made services for customers. The judges also commended Chinese pesticide manufacturer Hangzhou Udragon Chemical.

The best company from an emerging region was Limin Chemical. The Chinese company focuses on quality, technology, and service and management capability, and largely on fungicide R&D, production and sales. A commendation went to Chinese company Sichuan Leshan Fuhua Tongda Agro-chemical Technology.

The chief executive officer of Mitsui & Co’s agrochemical distribution company, Certis Europe, Mark Waltham, received the award for best manager with a strategic vision. He achieved one of his strategic goals with the creation of a joint venture, KNE Certis, between Certis Europe and K&N Efthymiadis and changes to internal structure to provide renewed focus on major crop groups. These will increase Certis Europe’s potential for its own business with its existing portfolio across Europe.

This year’s lifetime achievement award went to Peter Tirosh, the founder of Israeli biopesticide company Stockton. He was a pioneer in several areas of the crop protection market, spending 45 years in the industry. He began his career in 1970 at a UN FAO project in Central America and continued with a 23-year career at Makhteshim-Agan. In 1994, he founded Agrimor, which later evolved into the Stockton business.
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Winning the Agrow Award for Best Company from an Emerging Region is recognition of Limin Chemical’s efforts of R&D, product, marketing and service. Thanks to the sponsor and voting committee. As one of the biggest manufacturers of mancozeb in the world, Limin has always insisted on the core value of “contributing to society” and the operational philosophy of offering high-quality products and services and promoting the development of plant protection technology. Limin Chemical mainly engages in researching, developing, manufacturing and marketing fungicides and other pesticides.

WINNER: Limin Chemical

HIGHLY COMMENDED
- Sichuan Leshan Fuhua Tongda Agro-chemical Technology

SHORTLIST
- Deqiang Biology
- Willowood Crop Sciences
- Zhejiang Zhongshan Chemical Industry Group

This award is presented to crop protection companies headquartered outside of North America, Western Europe and Japan. It recognises the companies in these regions that have made the greatest contribution to the crop protection industry. The judges looked for excellent performance across a range of business activities since January 1st 2015. This could mean anything from growing sales and profits, to launching a new product, signing a significant new deal, or contributing to research and development in the crop protection sector.

WINNER: Limin Chemical

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Innovation for Agrochemicals

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Dow AgroSciences has been recognized at the Agrow awards, an international competition which has been called the Oscars of Agriculture, for key innovation it is advancing for farmers. Resicore herbicide is a new corn herbicide that is uniquely formulated with three proven active ingredients in a single offering. The herbicide’s multiple modes of action and residual control gives farmers more options for controlling a broad spectrum of grass and broadleaf weeds in their fields, including many herbicide-resistant weeds.”

**Best Formulation Innovation**

**WINNER:** **Dow AgroSciences (Resicore)**

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**HIGHLY COMMENDED**

- University of Central Florida (Zinkicide)

**SHORTLIST**

- Willowood Crop Sciences (Dry flowable formulation)

This award is open to all agrochemical manufacturing and formulating companies and formulation consultancies. It recognises the most significant innovation in the formulation of agrochemical or biopesticide products. In this category, the judges looked for an innovation that, for instance, could lead to improved product efficacy through enhanced delivery or targeting, improved user safety, or reduced environmental impact.
Red Sun, as the leading agrochemical manufacturer in China, is committed to green sustainable development in agro-life science!

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Best Application Technology Innovation

WINNER: Exosect

“…For the team at Exosect, winning an Agrow Award is like winning an Olympic Gold medal. In the race to deliver smarter, cleaner, leaner solutions for agriculture, this accolade places our technology at the head of its field.”

HIGHLY COMMENDED

- Brazilian Agricultural Research Corporation (Embrapa)

SHORTLIST

- Willowood Crop Sciences

This award applies mainly to the development of agrochemical adjuvants used to improve the precision or safety of pesticide applications. The types of technologies we have in mind are agents to reduce the off-target drift of foliar sprays or agents to reduce the amount of dust from seed treatments. The award is open to all agrochemical and adjuvant manufacturers and formulators.

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Sichuan Leshan Fuhua Tongda Agro-Chemical Technology Co. Ltd. specializes in glyphosate and glufosinate manufacturing, with current annual Glyphosate 95% Tech production capacity of 120,000MT (glycine route) and Glufosinate 95% Tech capacity of 10,000MT. It is the largest producer in China and the second largest worldwide. Fuhua is projecting 2,4-D and Atrazine in capacity of 5,000MT/a each in the next two years by fully utilizing the advantages of its integrated industrial production chain involving phosphorus, brine, glyphosate and silicone, making it to be the most competitive agro-chemical products producer in the field. The factory is located in Leshan city, Sichuan Province, an area with extensive resources for Agro-chemicals manufacturing, and the international sales offices are located in Shanghai and Singapore. Fuhua exports to America, Asia, Africa, Oceania and Europe, with over 2500 employees around the world.

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Best Public Outreach Programme

WINNER: CropLife America (Green Thumb Challenge)

“We are incredibly honoured to be recognised by the Agrow Awards for our work in public outreach. Our association works tirelessly to communicate the benefits of crop protection technology to consumers and policymakers. This award will further amplify our message and will help us to ensure that growers continue to have access to the tools they need to grow enough nutritious food for all of our families.”

– Jay Vroom, president and CEO, CropLife America.

HIGHLY COMMENDED

• CropLife International (Progress through Partnerships in Honduras)
• DuPont Crop Protection (EduFarm)

SHORTLIST

• BASF (Rice production in Brazil)
• CropLife America (New website)
• Dow AgroSciences (Science Ambassadors)
• Syngenta (The Good Growth Plan)

Agrow’s Best Public Outreach Programme Award is designed to recognise excellence in the communication of information on the benefits of agrochemical or agbiotech products. This could include campaigns aimed at the user community or to the wider public. A campaign through any type of medium, such as print, television or internet, might be eligible for this Award. Entrants must have played a central role in the development or implementation of a successful outreach programme since January 1st 2015. Potential winners could include industry associations, companies or individuals.

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Realize excellence.

DuPont is honored to have received an Agrow Award in recognition of the innovative solutions our Crop Protection team continues to deliver to help growers realize the most from every acre or hectare.

- Best New Crop Protection Product or Trait for DuPont™ Zorvec™

It feels great to be recognized by our peers. But it feels even better to recognize the common cause we share with those in our industry to advance agriculture and help feed a growing global population.
DuPont is honoured to receive this award for Best New Crop Protection Product for DuPont Zorvec disease control as it is further recognition from Agrow of the work we are doing to develop market-leading innovations to advance agriculture and help create a sustainable food supply. DuPont Zorvec disease control provides an unmatched combination of consistency and control that growers can use every season to help achieve a better crop, even under the most challenging environmental conditions. This award highlights the focus we place on our product and technology development efforts to ensure they are driven by innovation to increase productivity for growers worldwide. We are thankful that the game-changing chemistry that is DuPont Zorvec was recognized with its third Agrow Award.

SHORTLIST

- Adama Agricultural Solutions (Brevis)
- Dow AgroSciences (Arylex)
- Ishihara Sanyo Kaisha (Isofetamid)
- Syngenta Crop Protection (Acuron)

Open to all crop protection companies, the award recognises the most important new crop protection active ingredient or trait launched since January 1st 2015. The award is open to nominations for agrochemical, agbiotech and biopesticide products. The judges looked for a product that has demonstrated immediate commercial success, that has long term potential and that stands ahead of its competitors in terms of efficacy, environmental or user safety, and that has had a demonstrable effect on the ability of farmers and growers to protect their crops.
Best Supporting Role

WINNER: Fieldfisher

“This is a great recognition for the work that the whole team of Fieldfisher is doing for its clients. The Best Supporting Role is a very important award for us because we always try to go the extra mile for clients. We try our best to make their activity and their business a success. So for us, it’s a great recognition.”

- Claudio Mereu, Joint Managing Partner, Fieldfisher
Best Packaging Innovation

WINNER: Dow AgroSciences and RPC-Promens-Innocan (PET bottles)

“Dow AgroSciences has been recognized at the Agrow awards, an international competition which has been called the Oscars of Agriculture, for key innovation it is advancing for farmers. Dow AgroSciences collaborated with RPC-Promens-Innocan to develop auto-stackable square PET bottles, a new agrochemical packaging system. This innovative packaging design is a first of its kind in the agrochemical market. The bottles feature several elements including lightweight construction and the elimination of the carton case that reduces its environmental footprint. Plus, the large neck is compatible with closed transfer systems and bore seal caps which minimises operator exposure and allows for easier pouring.”

SHORTLIST

• Nanjing Red Sun (Paraquat gel formulation)
• Rotam CropSciences (Protect Dosage)
• Willowood Crop Sciences (Wilbond)

This category is aimed at innovations in the packaging of pesticides. It is open to companies that supply pesticides in one-way or returnable packaging, producers of pesticide packaging, or organisations involved in packaging development. The award seeks to recognise packaging improvements such as ease of handling and use, calibration, safety and environmental sustainability.
Innovative.

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At Marrone Bio Innovations we are advancing agricultural systems with effective and environmentally responsible biologics for pest management and plant health. Through our agile innovation platform and development engine, we have commercialized five new active ingredients (four for ag and one for water). In addition, we have a pipeline of new products that fit unmet market needs.

Our products meet the ever-increasing requirement for sustainability of pest management and crop production systems. Offering the potential for increased yields and quality in integrated programs, our products are broad spectrum and have novel modes of action for resistance management. They are also exempt from residue tolerances, facilitating global export. We make products for the fast growing organic production segment.

For performance and sustainability, add Marrone Bio Innovations’ products as a tank mix or rotation partner in your integrated pest management programs.

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Best New Biopesticide
WINNER: Marrone Bio Innovations (Majestene)

“We are once again honoured to receive the Best Biopesticide Agrow Award for Majestene nematicide. Majestene joins Grandevo insecticide and Regalia biofungicide as Agrow Award winners. Marrone Bio Innovations continues to innovate to bring a full range of biopesticides for sustainable pest management and crop production to meet growers’ needs for increased yields and quality, resistance and residue management and worker safety.”
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Best Marketing Campaign

WINNER: Syngenta Crop Protection (Acuron)

“The Syngenta Crop Protection AG Acuron team is very proud to have won the Agrow Award for Best Marketing Campaign. The Acuron campaign was the largest product launch in the US in Syngenta history. Despite timing and commodity price challenges, the team quickly turned retail partners and grower customers into believers and has now achieved an impressive $200 million sales to date. Acuron delivered on its promise of helping growers get the last laugh on tough weeds. Our team was delighted to attend the prestigious Agrow Awards and to have the opportunity to share our success story across the industry.”
Dow AgroSciences has been recognized at the Agrow awards, an international competition which has been called the Oscars of Agriculture, for key innovation it is advancing for farmers. A collaboration between Dow AgroSciences and Agsafe, an Australian co-regulatory stewardship programme and subsidiary of CropLife Australia resulted in a tailored, cost- and time-effective training programme for the crop protection and animal health manufacturing and supply industries. The programme promotes international stewardship throughout a product’s lifecycle.

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Best Supplier
WINNER: Jiangsu Yangnong Chemical

“Agrow Awards are the Oscar awards of the world’s agricultural sector. It is great significance to the enterprises who win the awards. Yangnong Chemical overcame stiff competition to win the world’s best supplier award. It shows Yangnong’s position in the international market and brand influence. It also proved that the quality of Yangnong’s products has been recognised by the global market. Getting this honour will increase Yangnong’s motivation and focus on its goals. We have the confidence to do better.”
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Dow AgroSciences has been recognized at the Agrow awards, an international competition which has been called the Oscars of Agriculture, for key innovation it is advancing for farmers. Addressing the ever-changing demands of the crop protection marketplace, Dow AgroSciences and Viamet Pharmaceuticals began a collaboration to discover novel, early-stage, agricultural products. The success of the two teams combining their expertise led to a continued effort resulting in key advancements to Dow AgroSciences’ pipeline, targeted to address grower needs in the fungicide marketplace.

“...Dow AgroSciences has been recognized at the Agrow awards, an international competition which has been called the Oscars of Agriculture, for key innovation it is advancing for farmers. Addressing the ever-changing demands of the crop protection marketplace, Dow AgroSciences and Viamet Pharmaceuticals began a collaboration to discover novel, early-stage, agricultural products. The success of the two teams combining their expertise led to a continued effort resulting in key advancements to Dow AgroSciences’ pipeline, targeted to address grower needs in the fungicide marketplace.”
I am delighted to have won this award on behalf of Certis Europe. Our vision in Certis Europe has long been to extend our presence into a wider European market and the creation of a joint venture with K&N Efthymiadis has made this a reality for South-Eastern Europe. At the same time, we have renewed our focus on key crop sectors with dedicated portfolio teams to make best use of the existing experience and expertise. Strategic vision only means something if it is translated into actions and results - and for that I rely on an excellent team at Certis and the support of our shareholders - so this award is really in recognition of that big group of people who do the real work.
The fact that the Agrow Awards panel of judges chose my father, Peter Tirosh, for the 2016 Lifetime Achievement Award just a few months after he passed away earlier this year was a very emotional event for my family, for the people at Stockton and for the hundreds of friends that my father had in our industry around the world. He served our industry for 46 years, first building Adama’s business in Latin America successfully and later building Stockton. He was a tireless entrepreneur and he always put people first. We truly believe he deserves it. Thank you Agrow.

- Ziv Tirosh (Vice Chairman - Stockton)
Activists and uncertainty driving pesticide litigation

A panel of experts from the crop protection industry and the media discussed the proliferation of litigation challenging registrations and new uses affecting the industry. The panel discussion was part of the Leader’s Forum held in conjunction with Agrow Awards 2016 on September 21st.

J R Pegg reports.

Consumer groups and anti-pesticide activists are exploiting uncertainty in regulatory regimes in the US and the EU, a panel of experts said at Agrow’s Crop Protection Forum. That is driving increasing litigation directed at crop protection products, companies and regulators on both sides of the Atlantic.

“This is all very good news for lawyers,” said Charlotte Smith, a BBC radio presenter who moderated the discussion.

The panel honed in on challenges to EU pesticide regulation, noting recent lawsuits and rulings related to access to data and the scope of EU regulatory reviews. The discussion came on the heels of a recent EU court ruling that ordered the European Commission to reconsider a decision it issued in 2014 to deny the public access to documents on proposed criteria for identifying agrochemicals and biocides that are potential endocrine disruptors. The European Court of Justice rejected the Commission’s view that its refusal to release the documents was warranted to protect decision-makers from external pressure and interference.

The decision adds to a slew of EU rulings that have called into question “what is confidential and what is not”, said Euros Jones, director of regulatory affairs for the European Crop Protection Association.

The growing influence of EU courts on pesticide regulation is undermining the credibility of the overall regulatory regime, according to the panel. “You can’t take all the uncertainty out of the regulatory process but you can make people confident about the regulatory process,” said Michael Carroll, global regulatory manager of fungicides for Platform Specialty Products’ agrochemical business, Arysta LifeScience. “That is the art, but that is failing.”

Litigation is being driven by a “lack of clarity” in the regulatory process, added Michal Arlosoroff, general legal counsel and corporate social responsibility officer for ChemChina subsidiary Adama Agricultural Solutions. “Unfortunately, the industry is contributing to this situation almost as much as the NGOs.”

Anti-pesticide NGOs are playing a major role and are using social media to make their voices far louder than in the past and to generate support for litigation, according to Mr Carroll. “There is a very vocal minority of supposedly well informed consumers who can cause serious problems,” he said.

“Anxiety is driving most of the claims and anxiety is something that is very easy to spread,” Ms Arlosoroff added.

Claudio Mereu, joint managing partner of the law firm, Fieldfisher, noted that the litigation picture is more complex in the EU than the US. While in the US, the majority of actions are aimed at the EPA, there is no one target in the EU. Europe needs a clear directive on how and where pesticide regulations can be challenged, he added. “Europe is unnecessarily complex,” said Mr Mereu. “Lots of countries, lots of backgrounds ... all trying to manage regulations written by non-lawyers and the mistrust is embedded in the system.”
The use of “big data” could help usher in a new era of precision agriculture, allowing farmers to utilise detailed information to make better decisions about which seeds to use, where to apply pesticides and how to cut costs and improve production.

But for that promise to be realised, the agriculture and pesticide industries must overcome sizeable hurdles to convince farmers and the public that data sharing and new technologies are worth their while, a panel of experts said at Agrow’s Crop Protection Leadership Forum last month.

The discussion, moderated by BBC radio presenter Charlotte Smith, showcased that simply defining big data remains a difficult task.

ChemChina subsidiary Adama Agricultural Solutions’ Georgiana Francescotti warned that big data is “a lot of information that is not structured”. She suggested at the Forum last month: “It doesn’t mean anything until you turn it into knowledge.”

“Farmers have always collected data,” according to Nick von Westenholz, chief executive officer of the UK Crop Protection Association. “But the amount, the accuracy and the speed of data collection has expanded tremendously.”

Big data is “actually a marketing term”, added Derek Scuffell, R&D data strategist for Syngenta. “Things haven’t suddenly changed but we have more data, coming faster.”

Information from sensors on tractors and harvesters, along with aerial images from drones, can provide clear and real-time pictures of crop health. Collecting, aggregating, and analysing data on yields, crop health and environmental conditions from multiple farms could reap benefits for farmers and agri-businesses, helping identify pest threats and providing insights into how to improve efficiencies and boost production.

Big data goes hand-in-hand with new technologies, such as drones, that can be used to provide a clear and real-time picture of crop health. Ultimately, farmers could use such data to identify specific areas under threat from weeds or pests and deploy “precision pesticide applications”, according to Mr Scuffell.

“It is a little bit like personal healthcare,” said Mr Scuffell. “That is our Holy Grail. We have much better intelligence across the whole field to apply this personal healthcare for the individual plant.”

Companies keen to take advantage of big data, however, must convince farmers to share their information not just for their benefit, but for the aid of other growers and industry stakeholders. Big data can help “individual farmers make better, more informed decisions”, Mr Scuffell said. “That is the attraction for them to contribute their data.”

But privacy remains a major concern. Farmers may not be willing to share information about where and when they spray pesticides or other data about their crops and growing practices, Ms Francescotti said. “If there is nothing in it for him, he’s never going to use it, never going to pay for it,” she added.

“We shouldn’t paint this as an issue that is easy to sort out,” Mr Scuffell said. “We need to understand the farmer’s perspective.”

The technologies required to collect a wealth of data are expensive, Mr von Westenholz said, and farmers have been slow to adopt technologies to aid with yield and nutrient mapping. “The uptake of that is still relatively patchy,” he said, adding that larger farms appear more likely to pursue the promises of big data.

But consolidation is in many ways “in direct contrast to the current debate around what people want the future of UK agriculture to be,” Mr von Westenholz said. “It is very easy to get very enthusiastic about some of these new technologies ... but they may not be quite so exciting to broader society,” he concluded.

A panel of experts from the crop protection industry and the media discussed big data, precision agriculture and new technologies that are likely to make an impact on the industry. The panel discussion was part of the Leader’s Forum held in conjunction with Agrow Awards 2016 on September 21st. J R Pegg reports.

www.agrowawards.com
Agchem industry chain tackles resistance to agchems from pests, weeds and regulators

Pesticide industry panellists debate roles of growers and industry to combat the increasing threat from resistance to pesticides at Agrow Awards Forum, Robert Birkett reports

Charlotte Smith: I am spending more time talking to farmers telling me that things are not working quite like they used to.

Thomas Lyall: We are seeing a prominent example of increasing resistance in the UK where many farmers will talk about black rust resistance. It is becoming more of a problem. We see more of an issue with herbicides, with a key issue being a reduction in the toolbox for farmers. And this is particularly the case for protecting minor crops. It is getting to the point where farmers are putting in a screw with a hammer.

Russell Slater: Resistance is more accumulative than growing in frequency.

Katie Barrett: We are talking about weeds, but especially for fungi and insects, that have short generation times so can quickly adapt and build defence mechanisms against compounds we use and if there’s over-exposure, they quickly develop resistance strategies.

CS: What about the issue in the US?

Swadeshmukul Santra: I will explain by taking the case of copper pesticides. We have been using copper fungicides and bactericides. If you keep on using the same active ingredient over an extended period of time, irrespective of whether it’s a fungus or bacterium, it will grow resistance, unless you use other chemicals in rotation. That will minimise resistance development. If you want to overcome resistance problems, you need to develop more potent chemicals, but that development cannot just be completely new chemicals that take companies 15-20 years to develop because the growers need them now. The scientific community has to consider how to make existing products perform better, such as a new type of copper pesticide or one that exists in another market. We need varied modes of action (MoAs), so the pathogen does not have the opportunity to develop resistance through the overuse of one mode of action.

Euros Jones: To a certain extent, yes you can improve on a mode of action. There are two important issues: We need more farmers talking to journalists, explaining what is happening in the field. And we have to try to protect the toolbox against the political belief that the precautionary principle makes things safer. No, it does not. It makes things less safe because you are not using the right tools.

And let us consider new chemistry. For companies bringing a new product to market, it is not the competition that...
causes them a problem but the lack of competition, as overuse of the one MoA from their product will lead to quicker development of resistance and less potency. We have the perverse situation in which companies want the competition to remain on the market.

KB: We are losing products. A lot of Japan-based companies see Europe and the US as too challenging to develop products to replace withdrawn chemicals. And so we are not encouraging new chemistries as we lose older ones; we are not keeping that breadth of different chemicals for farmers. And that is what we need; different product crop types in combination with IPM along with chemicals – another important factor.

CS: Chemicals are perhaps not the only answer? I hear traditional farmers comparing notes with organic crop growers on strategies.

KB: Organic crop production alone is not the answer as it wouldn’t produce enough. One of the reasons organics do so well is they are like icebergs, surrounded by a sea of crop protection industry input; and that helps to keep pest pressure down. So, going totally organic is not feasible in meeting food needs.

You need a balance of different tools together.

RS: IPM is a key measure in resistance management.

Resistance is based on exposure. So if you have a new product with excellent efficacy and delivering improving yields, farmers will increasingly use it. But we need them to diversify and not depend on such a great product. Over time we need to use several products along with good practice.

CS: Is that an easy message to sell to the farmer?

RS: I am afraid not. You cannot blame them when they see a good product working that they then depend upon it.

But we need to spell out the benefits for the long term, not just the short term of better practice.

CS: Does the increasing resistance to glyphosate undermine the case for use of this new and lauded technology of GM crops?

EJ: You are not providing one solution, but one more solution. Just because a seed has tolerance to glyphosate, does not mean you cannot use other herbicides anymore. We need to turn the argument around. Use different solutions, the wide toolbox. It is not a case of not using glyphosate, you will use it at some point, but the question is how often. Glyphosate then becomes one other tool, but used in rotation to deter resistance.

TL: We are still in the Stone Age of GMOs. New traits are coming to regulators and into the fields. Conventional chemistries used with GM crops are suffering from resistance. New modes of action are coming in, and more development will come.

KB: Consumers want to see competitive prices on food shelves. Through resistance and bans on products, we could get to a food security issue for consumers. The consumer would be concerned about that. Industry has not done enough to lobby public opinion on the effectiveness about products, and that we are concerned about health and the environment.

RS: Consumers will care when it hits them in the pocket or through a lack of food. Until then, we get closer to the edge each time we lose a chemical from the portfolio, and in Europe registrants do not attempt to get a new MoA approved because of the difficulties in registrations. We are getting close to that edge when consumers may become concerned.

EJ: We need to get journos out there to see farmers in the field to find out the concerns for themselves instead of our telling them about resistance issues. In France last year, black cherries rose 35% in price as national authorities banned products. If that happens to something more important than black cherries, then public opinion will be piqued.

An Adama delegate explained that in a lot of countries, it is not the farmers but advisers/distributors who decide on what chemicals to use and GAP etc. “So is not our role to talk with advisers rather than growers?” And it is they who can give unbiased advice.

TL: That is a very important point. It is a dialogue we have with advisers. You need to emphasise resistance management. The [EU] Sustainable Use Directive [2008/129] brings additional components to force this discussion. We already have made good efforts in this direction. There is more concentration of supply with distributors; with fewer and fewer agronomists available giving this advice, that is an extra problem.

SS: In developing countries such as India where you typically have small[holder] farmers having land holdings as small as half an acre, the farmers do not have much idea about which products to use and they depend upon the advice of the distributors and retailers. Farmers are unable to use their own judgement as they do not understand the products. If the industry and their distributors could act in a responsible manner and suggest the usage of different modes of action in successive years, that could go a long way towards solving the problem.

RS: There are a lot of influences down the food chain: ultimately there are the growers themselves who end up choosing what is sprayed, but then there is the farm manager, retailer, distributor, adviser, university student who become advisers or growers. Influencing and advising is not something the industry has been good at, but is trying to improve, for example with IRAC. We are developing different media to reach university students and advisers about GAP and resistance management.
EJ: We need to work with government in “those” countries, get farmers and independent advisers, and use the “big data”. We need the farmers to be informed enough to be asking the questions not blindly following the advisers.

CS: What about opportunities from resistance?

KB: Obviously, developing novel products, but then there is the problem of getting them through to market. Those are problems in the EU and North America. A lot of those are going outside the mainstream to India and China. They may show the way forward on evaluations and regulations.

TL: We seek other innovations; we use baits, just apply to a small strip, cutting the amount of active and reduce the resistance. We can look beyond just developing new chemicals, even if new ais are the new zenith. Ultimately, we still do very good business here [in Europe], new chemistries are getting through. We are looking to innovate new formulation methods with existing chemistries.

RS: often the first response to resistance is to increase the dose. If that does not work, you apply again. Problems arise with more resistance. Companies can try to bring competition with products. But the situation would not be altered if growers used the same strategy that caused resistance in the first place. So you would get it again. We need to change mind-sets to get sustainability. And industry wants to work together to get that.

CS to SS: With companies seeking more and more products due to resistance, are you flooded with grants?

SS: I am a chemist, but it’s not as if I start developing a chemical on a blackboard. I talk to growers, understand their needs and then I talk to my students identifying what we need from a chemical. That way, the time to develop a new product is not as long as the 15 years that it takes on average in a company. I agree it has to be a comprehensive effort, and not just depending on new products.

CS: So, it is not just about developing something new, but a more comprehensive approach, not just about the chemistry but how you communicate that chemistry?

EJ: In a word: yes. It is about education. It’s about farming having an integrated system, and our employing it in a better way especially in a developing country.
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