



Dear friends,

We had a fantastic Symposium this year, celebrating our 30th annual event. This meeting has grown not only in size, but also in importance, becoming not just an event for the feed industry but indeed for the whole food industry.

Thank you to all who joined us in Kentucky. We are delighted you gathered to talk about "what If" scenarios and what the future holds for our industry.

For those of you who could not attend, we missed you at this years Symposium. Please find attached highlights of the event and don't forget to watch our video highlights.

Next year we will have a full week long event. A Mega Gathering which will include the Global Dairy and Beef, President's Club, Health and Wellness Seminar, Craft Brewing and Food Fair and of course, our Symposium. Mark your calendar for May 17-20, 2015 We hope to see you there in Lexington, Kentucky!





# OPENING PLENARY WHAT IF...

ore than 2,000 delegates from 59 countries gathered in Lexington, Kentucky, USA to ask "What If?" at the 30th Annual Alltech International Symposium, May 19 - 21. The Symposium explored the possibilities in areas such as Crop Science, Life Sciences, Africa, Business and Technology, Farming of Tomorrow and the Algae Opportunity. Video highlights of select presentations, blog posts and photos are available at Alltech.com/symposium







Dr. Pearse Lyons, founder of Alltech, posed several "What If?" scenarios in the opening plenary session of the Alltech Symposium including asking delegates what type of legacy they will leave behind for future generations.

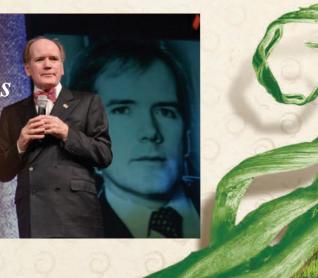
"It is hard to believe that I hosted Alltech's inaugural Symposium 30 years ago," said Dr. Lyons. "Since then, my company has become a scientific leader in the field of agribusiness and we are now in our fourth decade

of improving the health and performance of people, animals and plants through our ground-breaking scientific innovations."

Dr. Lyons shared Alltech's passionate commitment to scientific innovation and told the audience it was about "TIP" – Transformation, Inspiration and Passion. "With passion you can move mountains and bring people with you," said Dr. Lyons.

With passion you can move mountains and bring people with you"

**Dr. Pearse Lyons** 





**Dr. Karl Dawson**, vice president and chief scientific office of research, presented on the six big visions that promise to radically change the global supply chain. He discussed the following factors:

- 1. The face of agriculture is changing towards urban and vertical production
- 2. Big data will provide new opportunities such as new analytical tools
- 3. New predictive models will drive precision agricultural systems
- 4. New nutritional approaches will change the way we eat
- 5. New standards will be used for nutritional management
- 6. Traceability will drive the food chain and control waste

Dr. Dawson stressed that the most significant challenge will be feeding the world in 2050 when the global population is set to reach nine billion. "Science and technology will continue to change the way we produce food," said Dawson. "We can now better understand our livestock with the aid of molecular tools, which provide us with billions of observations while big data presents us with new opportunities."



## FATHER OF GREEN REVOLUTION DR. NORMAN E. BORLAUG, WITH 2014 MEDAL OF EXCELLENCE

The Alltech Medal of Excellence is awarded each year during the opening session of Alltech's International Symposium to individuals whose remarkable business acumen has changed the global food industry.

The Father of the Green Revolution, the late Dr. Norman E. Borlaug, was awarded this year with the 23rd annual Alltech 2014 Medal of Excellence for saving more than one billion people from starvation and paving the path to feeding more than 9 billion by 2050. Borlaug's granddaughter, Dr. Julie Borlaug Larson, accepted the award on his behalf during the opening session at Alltech's 30th Annual Alltech International Symposium.

Borlaug Larson, who is the associate director for external relations at the Borlaug Institute for International Agriculture at Texas A&M University is continuing her grandfather's legacy by developing agricultural partnerships between public, private and philanthropic groups to raise funds and further efforts to support agricultural sustainability.

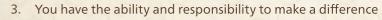


Also in the opening session, Alltech recognized the tenacity and philanthropy of Lopez Lomong, one of the Lost Boys of Sudan turned two-time Olympian runner, inspirational speaker and author of The New York Times best-selling autobiography Running for My Life, with the 2014 Alltech Humanitarian Award. Dr. Pearse Lyons of Alltech presented the award and said, "The purpose of life is a life of purpose. This award goes to a man who never let regrets take the place of his dreams. Today, we award his endeavor, his passion and his incredible accomplishments."

Lopez Lomong shared his incredible life story with the audience. From the time he was kidnapped at age six by soldiers during a Sunday morning mass in his native country, to escaping from the children's prison three weeks later where he took refuge in Kenya before moving to the United States at 16. The rest, as they say, is history. As a two-time Olympian in track and field, Lomong went on to setup the 4 South Sudan team, a partnership between the Lopez Lomong Foundation and World Vision that focuses on four main pillars for the country: education, clean water, nutrition and health care.

His three key take home messages to the audience were:

- 1. Don't be afraid to make mistakes
- 2. You are not given opportunities... you make them





# AFRICA UNPARALLELED AGRIBUSINESS OPPORTUNITIES



Africa is home to five of the ten fastest growing economies in the world. By 2050, it will be home to a quarter of the world's population. With a land mass more than three times larger than that of China, it contains roughly 60 percent of the world's uncultivated arable land. The Africa session examined the risks and opportunities that Africa can offer to the world's food production and agribusiness investors, addressing such questions as "how will farmers gain access to the technologies they need, and markets in which to sell?", "how can Africa exploit its land, sun and rainfall to produce milk, meat and eggs?" and "what if Africa harnessed the power of its oceans for aquaculture?"

Dr. Damien McLoughlin encouraged participants to seriously consider business development opportunities in Africa. He shared four important lessons for success:

- 1. Learn from the success stories such as VP Group in Kenya, Zambeef in Zambia, the agricultural giant Olam and the world's largest premium spirits company, Diageo.
- 2. Build your knowledgebase before investing.
- 3. Tailor innovation to meet the needs and desires of the African consumer.
- 4. Develop local talent to build management teams while engaging with key stakeholders.

As part of the session, Dr. Julie Borlaug Larsen, Norman Borlaug Institute for International Agriculture, commented "The private sector can bring in the infrastructure. They can bring in the development, the training, the insurance". She believes it is not the government but the private sector that has the power to bring about the Green Revolution started by her grandfather in Africa.







Aidan Connolly, Alltech vice president, Session Chair



Julie Borlaug Larson,
Norman E. Borlaug Institute
for International Agriculture,
Teyns A&M



Jandré Prinsloo, sales manager, Alltech Crop Science



Fu Wenge, Chinese Ministry of Agriculture



Mark Lyons,
vice president, Alltech Inc.,



Charles Moore consulting nutritionist, Charles Moore Consulting



Evans Darko breeder manager, Wilmar Poultry Company/Ag Forte



Dr. Christél Coetzee, technical director, ADVIT Animal Nutrition



Damien McLoughlin, Dean of the Michael Smurfi Graduate Business School, University College Dublin



## EROP SETENEE

**EXPLORING A FARMING REVOLUTION, FROM DRONES TO GPS** 



Maximizing productivity will be the key approach to agriculture for the future. Alltech Crop Science, one of six sessions during the Symposium explored questions such as "what if farmers were more familiar with drones than tractors?" and "what if plants could naturally resist disease?"

"A key innovation for modern farming today is the potential use of the "eye-in-the-sky" - the drone," said Patrick Charlton, Alltech european vice president and chairperson for the Crop Science session. "Drone technology can aid farmers and maximize 100 percent of their arable land, ensuring zero waste. The opportunity for pinpointing microbial populations in the soil and linking them to drone technology is vast, promising accurate yield predictions and improved yield influence."

Robert Walker, Alltech crop science general manager, delved into how science can promote crop production and examined how plants could naturally resist disease in the future. "To meet this target, farmers must not think of themselves as producers, but agricultural entrepreneurs utilizing all the available technology and scientific breakthroughs to meet the future challenges."

Often considered the "silent killer." Nick Adams, from Alltech's mycotoxin management team, examined how farmers can mitigate exposure of mycotoxins on their farms through crop science technology, therefore reducing and eliminating this agricultural threat.

Looking into the future, David Hunt, managing director of Comex McKinnon, suggested that farming may never be the same. "Pesticides, herbicides, and fertilizer might not even exist on farms of the future – farms empowered by drones, high-tech sensors, and computer models." He stressed that farmers will have to be bold, "I'm fully expecting to see that explosion of invitation in agriculture soon."







Patrick Charlton, session chair, Alltech Inc., Stamford, Lincs., UK



David Hunt, Comex McKinnon, Dublin, Ireland



Dr. Steven Borst, Alltech Inc., USA



Nick Adams, Alltech Inc., UK



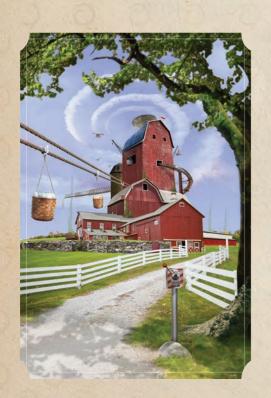
Dr. Richard Murph



Robert Walker, Alltech Inc., USA

## FARM OF TOMORROW

WILL WE BE FARMING FROM
THE 'ARMCHAIR' IN THE FUTURE?



Drones buzzed overhead throughout the mega session room, simulating how technology on a farm of the future may look in the farm of tomorrow session. The session highlighted new innovations in precision agriculture, and explored a farming revolution: from drones to GPS.

Dr. Karl Dawson and Robin Johnston, from Richie Seed and Feed Inc., Canada, presented insights regarding precision agriculture, the latest Artificial Intelligence (AI) tools which can control and manage all aspects of the food chain in the future.

Today a lot of food companies are installing monitoring systems, enabling them to accumulate information and make real-time decisions. However, big data gathering and the logistics of handling this data are still in their infancy, particularly the analysis of the data. Over the next five years more changes will be witnessed.

"What happens once you have all of this data? How do you understand it?" Robin gave a demonstration of a model he developed called "MilkMaven" which allows him to log into a piece of hardware that sits live in a Canadian dairy parlor. Describing it as a mini brain placed on every pulsator in the dairy parlor, the system reads every time the cows are milked and conducts diagnostics on issues such as blockages in the lines. If something goes wrong, Robin receives a message on his cell phone alerting him to the issue. This model allows the farmer to maximize the milking equipment and to make the cows more comfortable during the milking process.

Experts are predicting that this type of technology will revolutionize the agricultural industry and perhaps lead to what they term "Armchair farming." This is certainly an exciting space to watch!







Aidan Connolly, session chair, Alltech vice president



Karl Dawson, session chair, Alltech, Inc., Nicholasville, KY, USA



Philip Wilkinson, 2 Sisters Food Group, Harrowgate, Yorks., UK



Robin Johnston,
Fermentrics, Richie Seed and
Feed. Inc.



EU regulatory affairs mana All'ech



Dr. Defa Li,
Dean of the College of Animal
Science and Technology at China
Agricultural University



Patrick Wall, University College Dublin, Ireland



Jules Taylor-Pickard, Alltech Inc., Stamford, Lincs., UK



Paul Groenewegen, Alltech Inc., Guelph, ON, Canada

## LIFE SCIENCE

ARE WE ON THE FAST TRACK TO EXTINCTION?



"Many of the world's deadliest diseases could be detected in time to prevent a patient from suffering any pain, reducing our dependency on the emergency room and in turn remove a lot of distress in healthcare systems around the world," said Dr. Ronan Power, vice president of Alltech Life Sciences.

We are living in the midst of a paradigm. We need to produce food for the world, but we are also producing chemicals in the process that could lead to our deaths, according to Dr. Alex Yiannikouris, the "father" of Alltech's 37+ analysis program, which detects mycotoxins at low levels in feed materials. "I think we have the peculiarity of setting up our own destruction," said Dr. Yiannikouris.

Dr. Yiannikouris' talk focused on xenobiotics: hormones, growth promotants, nutrients, drugs and environmental products, which disrupt the body's endocrine system. As a result of food consumed and chemicals encountered, xenobiotics can disturb the homeostasis, causing health issues such as cancer, infertility, obesity and diabetes. According to Dr. Yiannikouris, it needs to be studied on an international level, utilizing toxic equivalency analyses, which enable the measurement of the total toxicity load of mixtures of contaminants.

The Life Sciences session, chaired by Dr. Karl Dawson, also examined queries such as:

- What if a pin-prick test could diagnose major diseases in a matter of seconds?
- What are the future applications of microRNA technology?
- What if we could control the silent killer within our body inflammation?
- What if we found the cure to Alzheimer's disease and diabetes?







Eugenia Wang, Jniversity of Louisville, Louisville, KY, USA



Alex Yiannikouris, Alltech, Inc., Nicholasville, KY, USA



Michal Toborek, University of Miami, Miami, A



Ronan Power, Itech, Inc., Nicholasville, KY, USA



Karl Dawson, session chair, Alltech, Inc Nicholasville, KY, USA

## THE ALGAE OPPORTUNTTY

ARE YOUR FEED SUPPLIES DISAPPEARING?



World food supply challenges, such as the decreasing supply of grain, adverse weather conditions and competition from an exploding human population, are causing many animal nutritionists to look for substitute sources of fatty acid. One nutrient that should not be overlooked is algae.

In this session, Alltech shared its vision in investing \$200 million to develop a heterotrophic algae production facility in Winchester, Kentucky. Using this closed-system technology, algae growth is rapid and efficient under tightly controlled conditions, ensuring an end-product that is natural, highly consistent and traceable.

Why do we need algae? Fish and fish products (fish meal, fish oil) are the primary sources of dietary DHA, which is essential for brain and eye development, cardiovascular health and immune function. Unfortunately, in response to cost and contamination issues (e.g., dioxins, mercury), fish products have been increasingly replaced with vegetable ingredients in the diets of farmed fish, leading to a 50% decline in fish DHA content since 2005.

According to Jules Taylor-Pickard of Alltech, most animals' diets are deficient in DHA. Studies have shown that, between 2005 and 2008, trout fillets have decreased nine percent in DHA and EPA levels and eight percent in omega-3 levels. Algae are not only an alternative energy source but something the industry needs to consider for improving the quality of animal diets and in turn improving production on farm.



In a recent trial with All-G-Rich™ supplementation in dairy diets, researchers reported an increase of 1.9 kg per cow per day on average from day one to day 84. The milk also had an improved fatty-acid profile, increased levels of EPA and DHA and a reduced ratio of omega 6 to omega 3. Algae will come to play an increasingly important role as a key nutrient in agriculture.



Steve Bourne, session chair, Alltech Inc., Stamford, Lincs., UK



Becky Timmons, Alltech Inc., Nicholasville, KY, USA



Jules Taylor-Pickard, Alltech Inc., Stamford, Lincs., UK



Patrick Wall, University College Dublin,



Philip Wilkinson, 2 Sisters Food Group, Harrowgate, Yorks., UK

## BUSTNESS AND TECHNOLOGY



In trying to anticipate what lies ahead for business and technology, there is one quote from renowned management consultant Peter Drucker that sums up what we can expect: "The only thing we know about the future is that it will be different."

This session examined how to remove the guesswork from the hiring process, how to excel as an entrepreneur by using the forgotten art of selling, how to properly create a succession plan and what to do when your business undergoes a crisis.

Dr. Mark Lyons, vice president Alltech, painted a fascinating picture of China – a country that other countries may choose to view as "a peril or a partner." He noted that China boasts the second largest economy in the world and is a market that highly impacts global business.

Lyons noted six "megatrends" in China driving some of the changes there today:

- 1. Urbanization: people are moving in mass amounts into cities. Young people plan to stay and enjoy the city life.
- 2. Increase in manufacturing scale
- 3. The rise of Chinese consumers an additional 200 million people will enter the Chinese middle class by 2026.
- 4. More money China has more than \$15 trillion in bank deposits, growing by \$2 trillion per year.
- 5. Brainpower behemoth education spending has doubled since 1998.
- 6. Chinese internet China boasts more users than any other country (550 million).

Despite the challenges, China is certainly "here to stay," Lyons said. "For Alltech, we see China as a major partner. Today, it's our third largest market...one day it will be our largest market."

Tim Arthur, Alltech global director of MIS, gave insight into how innovations of today are a direct result of the inventions of the past. Our future will continue to improve as the inventions of the past become affordable today.

The "auto response" feature on emails is a good example of how things will change in the future. It is easy now to create an automatic response for our email that will notify the sender of our being away for vacation or other events. In the future, we will have a virtual assistant that will be able to process the incoming emails and make decisions such as: should you be alerted? Is this an emergency or junk mail? Can I perform the task or answer the question in the email?

With the use of all of this technology, data, and analytics – will we become smarter or just more efficient? Will we become more or less distracted? More or less stressed?

One thing is certain, technology will continue to become more powerful and the price will continue to decrease. As the price decreases, new technologies will become more affordable and become part of our daily lives. It will be up to us to make the best use of this technology and to improve the quality of our lives.

#### **SPEAKERS:**



Mark Lyons, vice president, Alltech Inc., Beijing, China



Tim Arthur, Alltech Inc., Nicholasville, KY IISA



Aoife Lyons, Licensed clinical psychologist



Damien McLoughlin, University College Dublin, Dublin, Ireland



Marc Larousse vice president, Alltech Europe

#### FUTURE STARS AT SYMPOSTUM

CONGRATULATIONS TO THE FINALISTS AND WINNERS OF THE 2014 ALLTECH YOUNG SCIENTIST COMPETITION!



"The future is in the hands of the young generation," said Dr. Pearse Lyons. Dedicated to education for over 34 years, Alltech inspires and fosters young students and scientists. Among Alltech's initiatives, one of the most nerveracking, though exciting of all was the Alltech Young Scientist final competition. From a pool of more than 8,500 research papers submitted, eight regional winners were selected from Asia, Europe, Latin America and North America. They were awarded an all-paid for trip to attend Symposium, where they presented their research in front of a panel of international judges for the graduate grand prize of \$10,000 (USD) and the undergraduate grand prize of \$5,000 (USD).

Gillian Johnson from Ireland, who was named the global undergraduate winner, burst into tears when she walked off the stage during the award ceremony that was held in the closing plenary session in front of 2000 delegates. "My dream has come true! It is such a privilege to present my research and be awarded at global level," she said.

Lei Wang from China who studied in the USA, was the global graduate division winner. "Thank you so much, Alltech, for having this awesome program. I have learned so much throughout the past five days. The prize is encouraging and inspiring for me to pursue a career in science in the future."

## CLOSTNG PLENARY

#### THE FUTURE OF THE FOOD CHAIN

From antibiotic-free meats to healthy bees, anticipating the future of the food chain is one of the keys to successfully feeding a rapidly growing world population, delegates learned during the closing session.

Speaking to more than 2,000 delegates from 59 countries, Dr. Mark Lyons discussed global consumer trends and scientific innovations that will shape the future of the food chain. Lyons examined a host of factors, including climate change, the shortening of food supply chains, increased awareness of the agricultural global footprint, as well as increasing consumer demand for natural meat production as fears of antibiotic resistance grow. "This lower risk of antibiotic resistance will appeal to the masses," Lyons said. "It doesn't have to cost more. This is where the market is going. Let's grab it. Let's lead it."

Becky Timmons, Alltech global director of applications research and quality, gave a fascinating look at "overlooked agricultural workers" – bees and microbes. Bees, with their ability to pollinate ecosystems, create an estimated \$15 billion in agricultural crop value each year in the United States alone. "One out of every three bites of food Americans eat is affected by bees".



"Unfortunately, since 2006, beekeepers are losing about one third of their colonies per year – likely due to the overuse of pesticides, as well as the

rise of monocropping and urbanization, which have changed and limited bees' environments and food sources," Timmons said. "Is the best way to increase our yields to spread chemicals, or should we be looking at the things that are already in the plants or the soil that are playing a role?" Timmons asked. "We really need to be looking at natural solutions in the soil, in the form of microbes."

Dr. Pearse Lyons wrapped up the 30th Annual Symposium, asking delegates "What did you learn? Will it transform you? There are so many ideas and yet so little time." As Dr. Lyons stood with his children Dr. Mark Lyons and Dr. Aoife Lyons on stage, he called them "his two dreamers," and noted, "You need to associate yourself with people who can make things happen...Think of your dream and what we can do."





More than 160 people from across the Asia Pacific region gathered to discuss "What if?" at the Alltech Symposium. The group, representing twelve countries, celebrated memorable experiences together throughout the week in Kentucky. From plenary sessions to the Fun Run to Kentucky Night, the attendees enjoyed the many opportunities to network with local and international colleagues.

































"It was my second time to attend Alltech Symposium. After six years, I found that Symposium this year is very excellent and much larger."

-Mr. Zhang Xin, Huaren Feedmil

"It is a very high level meeting, no matter the conference organization or the attendees, it is a very good platform."

-Mr. She Weiming, Weiye Company









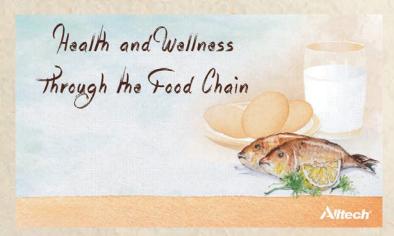




## PRE SYMPOSTUM ÉVENTS

This year's Symposium included two programs that ran prior to our 30th Symposium. The first was a Health and Wellness session. There were several excellent speakers that spoke about the impact our food has on our mental and physical health, advances in areas of Life Science, and how the food and health industries will merge into a wellness industry in the future. We also held a Craft Brewing Festival, which showcased 41 top U.S. breweries and 1,000 unique brews.

## "HEALTH AND WELLNESS THROUGH THE FOOD CHAIN" - FOOD AS PREVENTATIVE MEDICINE





What if diet proves to be the strongest defense against a variety of human illnesses and diseases? What if we really focused on nutrition as the base of wellness?

The Health and Wellness session included dietitians, nutritionists, journalists, retailers and community leaders from around the world speaking on the health benefits associated with dietary DHA through natural food enrichment.

According to Dr. Aoife Lyons, licensed clinical psychologist, DHA supplementation could hold promise for prevention and treatment of ADHD and other cognitive health challenges. She outlined the development of the brain in her presentation. "The job of childhood is to develop the brain," said Dr. Aoife Lyons.



Dr. Patrick Wall, associate professor of public health at University College Dublin's School of Public Health and Population Science, discussed the increased focus on human health and wellness in regards to animal production, compared with a past focus on animal performance alone.

Becky Timmons, Technical Director, Alltech Algae, spoke about DHA and natural food enrichment. "In the past decade, dietary DHA has provided many new findings that have completely changed the way we think about human nutrition in terms of health and wellness," said Timmons. "As we look toward the future of nutrition, we must be forward-thinking and create this modern path to longevity and wellness."

#### **CRAFT BREWS & FOOD FEST**

## CRAFT CRAFT BREVIS BREVIS & FOOD & FEST

Following the Health and Wellness Seminar, more than 30 countries, 41 top U.S. breweries and 1,000 unique brews were represented at the inaugural Alltech Craft Brews and Food Fair in Lexington.



Following the success of the second annual international Dublin Craft Beer Cup in Ireland in February, Alltech brought the excitement and passion of craft brewing back home to the Bluegrass. The room buzzed with enthusiasm as over 4,500 enthusiasts lined up to taste-test over 1,000 different craft beers from across the globe.

The festival also featured the first professional beer competition in Kentucky: the Alltech Commonwealth Craft Beer Cup. Hungarian brewery, Zip's Brewhouse, took home the Cup for their brew "The Zips Christmas 2013 Brew." Levente Gati, Managing Director, Alltech Hungary, accepted the award on behalf of the brewery.





#### WHAT'S NEXT

In 2015, our Symposium will be the longest event we have ever had, spanning over a week. It will essentially be many different conferences pulled into one. Our Global Dairy and Beef, which is now in its 7th year will be held at the Alltech FEI World Equestrian Games™ 2014 in Normandy and will be part of next year's Symposium. Likewise, our Presidents Club is in 6th year will also make the shift from Normandy to Lexington in 2015. The Health and Wellness Session will be expanded and the Craft Brewing aspect will run throughout the duration of Symposium. 2015 will really be a Symposium not to miss.

We look forward to seeing you next year - May 17-22, 2015.



