AEIC 2020 Fall Meeting Minutes

P.L. Hunst, AEIC Secretary

Virtual Meeting

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AEIC Fall 2020 Meeting Minutes

October 13-14, 2020

Virtual Meeting

P.L. Hunst (BASF), Secretary

The AEIC Fall 2020 Meeting was held virtually on October 13-14.

AEIC BUSINESS MEETING

Approval of 2019 Fall Meeting Minutes: The minutes were approved by a member vote to approve the minutes as posted on the AEIC website.

Treasurer Report (L. Muschinske): The Treasurer presented a graph of the meeting expenses vs revenue over time. The 2019 budget was presented as follows:

ITEM	PROJECTED	ACTUAL
Beginning Balance	28554	28554
2019 dues in 2019	N/A	N/A
2019 dues received	13000	14850
Mtg registration – Spring Meeting	2250	
Mtg registration – Fall Meeting	2250	
TOTAL REVENUE	**17500**	**14850**
Expenses		
Scientific paper	2000	3750
DE Franchise Tax Report	25	25
ANSI/ISO Initiative	2900	2900
Board Meeting Expenses	800	322
Spring Meeting 2020 Expenses	5000	
Website Expenses	750	240
Credit card proc	600	261
Fall Meeting 2020	5000	500
Graphic design		
Marketing (brochure)	500	
Subscriptions	100	

Miscellaneous	100	1425 (AV equipment)
TOTAL	17775	9423
BALANCE	28270	33981

A motion was made, seconded and voted positive to approve the Treasurer report.

Membership Update (L. Muschinske): The following table depicts the current membership composition of AEIC:

Category	***Number***	***Projected Dues ($)***	***Unpaid***	***Unpaid amount ($)***
Large Companies	7	7000	0	0
Medium Companies	11	5500	0	0
Small Companies	8	2000	0	0
Associate Members	3	150	0	0
Individual Members	2	100	0	0
TOTAL	**31**	**$14850**	**0**	**$0**

Matthew Von Hendy (Green Heron) joined as an individual member. Several companies have chosen not to renew memberships: Thermo Fisher, Eurofins Nutritional Analysis Center, Ricetec, SeqID, Trace Genomics.

Vice President Nominations (All): Nominations were opened for Vice President of AEIC. The VP will serve as VP the first year, President the second year and Past-President the third year. Nomination was entered for Kristen Kouba (Corteva Agriscience). Nominations will be accepted through Nov 1. Members should send to the AEIC Secretary. The election will be via email and the ballot will be distributed by the Secretary via email to member companies (1 vote/company). The election will begin November 2.

Website Updates (D. Levin): A sub-group led by D. Levin (V. Messmer, D. Houchins, C. Ament) discussed and reviewed the website for content, focusing on the "Resources" section. One suggestion is to create an infographic for the resources. David presented an outline of possible changes that the group will further discuss and then come with a proposal at a future meeting. B. Kaufman volunteered to look at some updating on NGS. He will discuss with his sub-group: S. Herrero and F. Ghavami. R. Shillito volunteered to contribute information for gene editing. It was also suggested to have a sub-group for isothermal technology, digital PCR and new protein methods.

Introduction of 2020 AEIC Vice President (L. Liu): Lucy L. introduced Matt Cheever as AEIC VP. Matt was elected to the position at the end of 2019. He will be transitioning to the President role later this year. Matt currently works at BASF in the Regulatory Science group.

Spring Meeting 2021 (M. Cheever): The Spring Meeting will be hosted by BASF and will be in the RTP area of North Carolina. This is all tentative pending the course of the covid pandemic in 2021. The group made the following topic suggestions for the meeting:

- ✓ Look at the proposed Spring 2020 speaker list and see if those topics would be of interest.
- ✓ Molecular verification for breeder's rights (topic from UPOV meeting)

Composition Working Group (M. Bedair, Bayer): The CWG has been discussing the use of the Dumas method for crude protein instead of the Kjehldahl method. The group is planning a white paper that reviews the literature in order to gain support for the Dumas method from regulators. A literature review has been done and would be summarized in the paper. EPL Labs also has written a multiplex method for fat soluble vitamins (A, E, D, K) but the status of this work is being determined. Another topic being discussed is the use of "omics" in risk assessment.

Protein Working Group (K, Kouba, Corteva): The Protein WG has several ongoing workstreams. Allergen Analysis workstream is actively discussing soy endogenous allergens. EFSA is requesting 10 soy allergens be assessed in registrations. Companies are using MS for these 10 allergens. The workstream for Mass Spectroscopy for protein quantitation concluded MS is a viable protein technique and have outlined a paper to compare with ELISA and show options for quantitating proteins. Not every lab would have MS capability so do not want to eliminate all possibilities. The Multiplex Validation workstream plans to publish a paper which would review and summarize evidence supporting antibody-based methods as well as acceptance criteria for singleplex and multiplex protein analysis. The Extraction Efficiency group is discussing the EFSA explanatory rule for use of westerns. The plan is to publish a paper to describe harmonized extraction efficiency method and how this would affect/impact present and future registrations. The Intractable Protein group will be looking at protein characterization methods and is in the process of defining mission and goals.

The Business Meeting was adjourned.

INVITED TALKS

The Existential Challenge to Agricultual Innovation (V. Giddings): Agricultural innovation is under a multi-frontal assault. The media conveys the assault every day. The opposition is very good at stomping on emotional buttons of public. The opposition has also aligned with the anti-vaccine movement. The disinformation is widespread and insidious. The major funders of the assault are marketing agents for the organic food industry and have launced a long-term, strategic assault on GM foods. This extends to

the newest tool of gene editing. There are no new hazards associated with gene editing but governments are moving to regulate. The positive posture of the US towards gene editing is not enough. The ability to develop new seed technology is being eroded as well as the ability to use the current technology. Governments are ambivalent. US FDA just released "Feed Your Mind" material (funded by US Congress) but the information is off base concerning gene editing. USDA's stance on gene editing is positive but timid. Agriculture innovators have a story to tell but have allowed others to "occupy the high ground". Technology providers are hobbled and are not effective advocators. To be effective requires the use of multiple allies and sustained engagement. NGOs use moral outrage because it inspires the passions much more than reason and facts. It is difficult to bring zealots to playing field. The ag industry hunkered down in the 1990s and just listen to their internal communication managers. The ag industry is freeloading off the goodwill of independent advocates. The ag industry needs to reclaim the high ground by advocating for regulatory reform. Governments will not do the right thing unless pushed to do so. Industry has a good safety record to talk about and should advocate the FDA to crack down on the misleading food labels. Agriculture influencers on Twitter should be used. These include Alex Avery, Academics Review, We Love GMOs & Vaccines, Science Moms, Cornell Alliance for Science, ISAAA, Genetic Literacy Project, ITIF. These allies need to be supported monetarily and nurtured.

Delegitimizing Modern Agriculture (J. Gilder): There is concern that the agriculture industry will not survive the 'perfect storm', i.e., the real threat that is coming. It is not someone else's fight. The attacks are about politics, ideology and money. US activist organizations have $850 million of funding which has dramatically surged between 2012-16. Donations have dramatically increased and these organizations have sister organizations globally. In the EU, these organizations are supported by the government. There is constant scare mongering about agriculture occurring. One billion dollars is being used for propaganda against the agriculture industry. The ag industry is being compared with the Nazi holocaust by the NRDC. NRDC donors include the Walton Family Foundation, Bloomberg Foundation, MacArthur Foundation, Rockefeller Foundation, Ford Foundation, Schmidt Foundation and the John Merck Foundation. Silicon Valley loves all technology except agriculture technology. Most attacks are on modern agriculture and not a particular technology. The Green Revolution is considered a failure in these attacks. 39% of global GMO content is now conflated with chemical pesticides, i.e., enabling the increased use of chemicals. Big food companies are betting on regenerative agriculture. Companies are bringing in activists to run their programs (such as General Mills campaign). There are no logical scientific standards underlying the advice being given to farmers. Basically farmers are being pushed to organic pesticides since recommended pesticides must be on the organic use list. These programs are all about consumers and science is disregarded. Food companies are at the top of the supply chain and call the shots. The Non-GMO Project labels are a clear violation of FDA guidelines for label claims. FDA refuses to do anything about them—a political decision because FDA does not want to engage the organic industry. The Non-GMO Project is an alternative regulatory system founded by John Fagan (formerly Genetic ID) who is a member of the Maharishi cult and deciding what we eat.

The International Agency for Research on Cancer (IARC) is the biggest threat. It is a highly political and strategic group which is non-transparent and provides superficial reviews. They reviewed glyphosate for cancer effects. Ag industry has convinced itself that this glyphosate situation (lawsuits) is a one-off. This is a wrong assumption. The next chemicals to be reviewed by them include vinclozolin, pyrethroids, etc. The group has been highly penetrated by activists. The US House of Representatives investigated IARC and defunded them unless they changed their processes. Activists then flooded the US Senate to have the defunding reversed in conference committee. The Ag Industry did nothing. Activists are now pushing agroecology to transform the world. Agroecology is against GMOs, gene editing and advanced hybrids as well as agro-chemicals, mechanized farming, corporate control of food and free trade. Agroecology is pushing the right for peasant farming (subsistence farming). FAO is backing agroecology since it has been penetrated by activists. One of the biggest problems is the EU's Farm to Fork strategy. EU is using trade negotiations and influence in global regulatory bodies to use the precautionary principle.

The Anti-GMO Disinformation Campaign: Past, Present and Possible Future (R. Wager):
GM crops have been quickly adopted wherever they have been introduced because yield is up and pesticide usage is down. Experience and knowledge is now being trumped by internet disinformation. Big problem is that the public does not understand hazard vs risk. Modern agriculture is the crosshairs of advocacy groups, NGOs and health industry. Ag industry view is not held by the public. EU taxpayers are fighting against ag innovation for their countries. Ag industry has been tainted as trying to take over the world rather than trying to be environmentally responsible. Fear dominates advertising. Bogus results are produced and fed to the media. Organic Consumers Union and Non-GMO Project campaign to label food and scare consumers. USDA has stopped this by putting forward Bioengineered Food labeling. NGOs have now switched to glyphosate and infiltrated IARC to engineer a cancer report on glyphosate. IARC had changed conclusions of papers. IARC's deception was exposed but media did not care. Media has a big part in mis-educating the general public. The ag industry argues with facts and logic against fear stories which is not effective. The internet is now king and tells farmers how to farm. Facts do matter but there is a need for emotion to go with them to get the media's attention. The anti-vaccine movement, the anti-GMO movement and tort law are a threat to any safe compound. Tort law gives money to activists who pay scientists to create desired data. The EU Court of Justice ruling on gene editing and mutagenesis was devoid of sound science and is wiping out innovation. The neonic ban in France is wiping out 50% of the sugarbeets. Canola is similarly impacted in the UK. EU farmers are starting to protest but politicians are taking their lead from consumers who do not know agriculture. This political attitude is now coming to North America. Organic farming can only feed about 4 billion people out of 9.5 billion. This will cause civil unrest. The countries producing the least amount of food will need the most food in the future. Africa is starting to wake up and break away from the EU's attitude on GM crops. The covid pandemic has reset the food production discussion. Organic agriculture is very industrialized but it cannot produce enough food for the world. The ag industry needs to go back to basic messages, i.e., DNA of plants and animals has gone on for thousands of years to feed

world. Farmers need to be more involved in the discussion. Public needs to understand that agriculture has sustainable products. Govenments respond to emotion and industry needs to show power of technology. Industry needs departments of social media in each company to challenge inaccurate stories.

Biotechnology Products and Public Perception: An Unrequited Love Story (R. Medina): The world is changing due to climate change, civil unrest and areas becoming unliveable. The United Nations has put together sustainable goals to achieve by 2030. Biotechnology is needed to achieve most of these goals. Biotech in food production started in 1975 Asilomar Conference. Scientists had no data on GMOs but concluded to keep doing research since the risk was low. GM crops were then commercialized in the 1990s. To understand GMOs, the current model is the knowledge deficit model, i.e., knowledge gap can be closed via information. This does not work with the general public as more information results in bigger gaps for acceptance of the technology. In 2012, CRISPR research appeared and the media took notice and started writing stories about the technology. Regulatory authorities are now starting to write opinions. The Obama White House commissioned the National Academy of Science (NAS) to write a report on preparation for future technology. CRISPR was one of the technologies. Unfortunately, public only sees the dangers and not the benefits of new CRISPR products. The smallest kernel of truth for danger is seized on by the public. There is a considerable amount of digital tribalism on the internet which refers to people connecting with people of similar views and ignoring others with different views. There is a need to understand how biosystems work, how the public trust is built and destroyed. Community engagement is crucial. For the US regulatory framework, proposed rules have public comment periods to which the public responds. Some comments are very emotional and are archived with other more substantive comments. This is the worst wy to engage for obtaining public trust. It would be better to move to deliberative engagement since humans assess risk better in groups. This would also involve affected communities. There would also be a need for social scientists to assist in the selection of deliberative bodies. Government could be ally for community engagement. There is a project to launch a gene drive in mosquitoes for malaria control. A gene drive is the transfer of a gene in a non-Mendelian way. This work is all being carried out in a lab initially and the public reaction is being watched. NC State University did a study and found that the public is concerned about containment of the mosquitoes. It is important to deal with this concern during product development rather than after a launch of the product.

Introduction to Merieux Nutrisciences (J. Haudenshield): Merieux is a French name and was founded as the Institute of Merieux in 1897. There are 18,000 employees globally which work in Nutrisciences, Biomerieux and Transgene which are all owned by the Institute. The Institute has acquired 46 companies over the years which establishes a presence in 27 countries with 100 labs. In 1997, Silliker Labs in Chicago area was acquired. Silliker was doing food analysis and food microbiology. The facility is 71,000 sq. ft. and Nutrisciences moved in 8 years ago. One-third of the facility is the food science center and two-thirds of the facility is occupied by the analytical labs. The motto displayed in the building is "Because you care about consumers' health."

Nutrisciences deals with food safety concerns such as chemicals, bacteria, food fraud, presence of GMOs, allergens, etc. The GMO program evaluates food, beverages, ingredients, etc. The goal is transparency and not to take sides about GMOs. Their clients include farmers, exporters, finished food manufacturers, retailers, ingredient suppliers. Matrices analyzed invlude whole grains, petfood, beverages, pastries, sauces, candies, etc. The workflow is as follows:

Samples checked in → particle size reduced down to powder → subsample taken → tissue disrupter used to increase DNA yield → DNA extracted → DNA fluoremetrically measured → PCR analysis → results reported.

The mission is to give clients more than analytical results—give them practical solutions to their problems.

UPDATES

USDA GIPSA (B. Beecher): USDA GIPSA has merged with Agricultural Marketing Service (AMS). The Federal Grain Inspection Service (FGIS) is now a separate administrative unit with AMS. The Biotech Program is within FGIS' Technology & Science Division (TSD) which is located in Kansas City. The proficiency program is run by the Biotech Program. The goal of the program is to improve consistency and reliability of testing for GM traits. No methods or reference materials are specified or provided to participants. Participants may use qualitative or quantitative methods. The first round of samples has been disseminated and the second round will be sent soon. There are two corn and two soy samples which are fortified with 0 to several GM traits. Participants do not know what traits until the results are turned in to USDA. The program is voluntary and free. Participants may remain anonymous. It is an international program with 266 international labs and 58 US labs. About 120 labs participate per sample round.

CropLife International (CLI) Upates (P. Hunst): CLI has 3 project teams for GM crops: a) Food Feed Project Team, b) Stacked Trait Project Team and c) Environmental Risk Assessment Team. Cooperating with these teams are Expert Teams (dietary assessment, allergenicity, molecular characterization, toxicology, protein, composition). About 3 years ago, the Food Feed Project Team embarked on a data harmonization project for food feed assessments. The expert teams were engaged to determine what data endpoints are currently generated and which of these are really required for safety assessments. Each expert team prepared a paper for their area. The Food Feed Project Team authored a compendium and incorporated the information from the expert teams papers. Along with compendium paper, the Environmental Risk Assessment Project team prepared 2 papers and the Stacked Trait Project Team prepared a paper on conventionally-bred stacked products. All the papers will be published in a special edition of the Journal of Regulatory Science in early 2021. They can then be used by CLI area teams for advocacy with their regulatory bodies.

NAICC Update (C. Ament): NAICC is the National Alliance of Crop Consultants. Crop Consultants are qualified by education or expertise. Education requirement is a

bachelor's degree with 4 years of experience. The 2020 Meeting was held in San Antonio, TX where 741 attendees gathered. The meeting consisted of workshops (CRISPR, efficacy, etc), training sessions for consultants, contract researchers, QA, and the AgPro Expo. The next meeting will be in 2022 in Orlando, FL. NAICC is involved in Pesticide Policy Coalition, the NEGUSE/UDALL FIFRA Reform bill (replace science-based risk assessment with hazard-based) and engaging with American Soybean Association to deal with issues of the USMCA.

AFSI Crop Composition Database (N. Gillikin): The Crop Composition Database (CCDB) contains compositional data on conventionally-bred crops and its first version, 1.0 was released in 2003. The database is owned and managed by the Agriculture & Food Systems Institute (formerly the ILSI Research Foundation). Version 8.0 of the CCDB was released on Oct 14, 2020 with a web redesign, faster searches and improved data visualization with data on 10 crops; over 1.24 million data points and over 212 analytes. In the future, compositional data from new crops such as cassava, cowpea, strawberry and sugarcane may be added.

USDA Labeling (L. Ramamoorthi): Bioengineered (BE) food is food that contains genetic material that has been modified and not found in nature. A food may not be considered genetically modified if records are available that verify food is made from a non-GM source or records verify that the food has been refined using process validation. There are 8 steps to validate a refinement process. Records must be maintained for as long as process is in use or food is distributed for sale (two years beyond sale). Final guidance was published on 7 July 2020. More information is available at https://www.ams.usda.gov/rules-regulations/national-bioengineered-food-disclosure-standard.

ISO TC 34/SC 16 (R. Shillito): The TC 34/SC 16 subcommittee was established in 2008. It is a horizontal committee within TC 34 so the scope is quite broad, i.e., standardization of biomolecular testing methods applied to food, feed, seed and other propagules of food/feed crops. The scope does not include food microbiological methods as these are covered by TC 34/SC 9. SC 15 is administered by the USA with R. Shillito as the Chair and M. Sussman (USDA) as the committee manager. Meeting usually occur every 18 months. The most recent meeting was in 2019 in Japan. Virtual meetings have been occurring in 2020 due to the pandemic. SC 16 is responsible for 29 published ISP molecular biomarker standards including methods, requirements and guidelines. Nine standards are also under review. The subcommittee has 24 participating members and 19 observing members. The members come from a diverse group of countries with the northern hemisphere predominating. Working groups are established for each standardization project. The working group disbands when a project is completed. Standard have a systematic review every 5 years. SC 16 standard have been adopted by governments, and are used in labs analyzing food and feed globally. AEIC members should consider getting involved. In summary, global standards are needed and ISO is a key contributor. SC 16 is an active subcommittee with a broad scope and portfolio of standards and it is a fun committee to work in.

Detection of Genome Edited Products (R. Shillito): This is a chapter in the book "Sampling and Detection for Agricultural Biotechnology Products", edited by R. Shillito and G. Shan. A subcommittee from AEIC wrote the chapter. Members on the subcommittee included S. Herrero (Syngenta), S. Whitt (BASF), F. Ghavami (Eurofins BDI), M. Ross (Corteva), D. Houchins (Romer Labs) and R. Shillito (BASF). The first meeting was held 5 Aug 2020 and then meetings were held every 1-2 weeks (6 total). The final draft has been prepared and is in the approval process at contributing companies. The other book chapters are essentially complete and ready for submission to publishing company. The book should be published in 2021.

AEIC Fall Meeting Attendees:

Ament, Chris	Eurofins FII
Bedair, Mohamed	Bayer
Bednarcik, Mark	Syngenta
Beecher, Brian	USDA AMS FGIS TSD
Bell, Tandace	USDA AMS FGIS
Benatti, Matheus	IN Crop Improvement Assn
Bhargava, Apurva	BASF
Bloomer, Scott	AOCS
Bohnker, Laura	Eurofins BDI
Brix, Kalyn	SoDak Labs
Brune, Phil	Syngenta
Campbell, Meghan	Bayer
Cheever, Matt	BASF
Cummings, Simone	Syngenta
Daher, Mariana	BASF
D'Ambrosio, Damon	Syngenta
Dharmasri, Cecil	BASF
Doornink, Anna	Eurofins BDI
Fendley, Ann	BASF
Fisher, Ashley	Simplot Plant Sciences
Fuquay, Leslie	Syngenta
Gadola, Mary	Neogen
Geng, Tao	Bayer
Ghavami, Farhad	Eurofins BDI
Ghoshal, Durba	BASF
Gilder, Josh	WH Writers Group
Gillikin, Nancy	BASF
Goddard, Terry	EnviroLogix
Haas, Chuck	BASF
Hall, Nathaniel	BASF
Haudenshield, James	Meerieux NutriSciences
Helm, Jennifer	Eurofins
Herrero, Sonia	Syngenta
Houchins, Donna	Romer Labs
Houston, Norma	Corteva
Huang, Mingya	Bayer
Hunst, Penny	BASF
Islamovic, Emir	BASF
Jiang, Xiaoxu	BASF

Johnson, Brenda	Eurofins BDI
Kahn, Peter	OMIC USA
Kaufman, Beni	AgriPlex Genomics
Klusmeyer, Tim	Bayer
Komorek, Jessica	Bayer
Kouba, Kristen	Corteva Agriscience
Levin, David	Eurofins
Lipscomb, Elizabeth	BASF
Liu, Zhenjiu	Bayer
Liu, Zi Lucy	Bayer
Mackie, Sandra	BASF
Makani, Mildred	Syngenta
Makkena, Srilakshmi	IN Crop Improvement
Mani, Ramaswamy	USDA
Matthews, Candice	BASF
Maxwell, Carol	Corteva
Medina, Raul (speaker)	Texas A&M
Muschinske, Luke	Eurofins Microbiology Laboratories
O'Grady, John	Corteva
Patricio, Matthew	EPL
Poe, Martha	BASF
Privalle, Laura	BASF
Ramamoorthi, Lakshmanan	USDA
Raengpradub, Sarita	Merieux Nutrisciences
Rambow, Dave	Agdia
Robinson, Tonya	BASF
Scaife, Ann	Eurofins FII
Schafer, Barry	Schafer Scientic So'Ins
Serrano, Hector	BASF
Shillito, Ray	BASF
Shippar, Jeffrey	Eurofins FII
Singsit, Chong	OMIC USA
Spiegelhalter, Frank	Eurofins GS
Soetaert, Piet	BASF
Syme, David	BASF
Taylor, Mary	Bayer
Tetteh, Afua	BASF
Tieming, Lang	Bayer
Umthun, Angela	Stine Biotechnology
Wang, Cunxi	Bayer

Wang, Rong	Bayer
Wang, Yanfei	Bayer
Wang, Yongchen	Bayer
Warnick, Joe	EPL
Watkins, Crystal	EPL
Wei, Yue	Bayer
Weigel, Scott	AgriPlex Genomics
Whitt, Sherry	BASF
Worden, Sarah	Corteva
Wu, Xin	AOCS
Xia, Min	BASF
Zhang, John	Corteva