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# AEIC 2025 Spring Meeting Minutes

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P.L. Hunst, AEIC Secretary

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Hosted by Eurofins Food  
Chemistry Madison, April 23-  
24, 2025

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## **AEIC Spring 2025 Meeting Minutes**

**April 23-24, 2025**

**Madison, Wisconsin**

*P.L. Hunst, Secretary*

The AEIC Spring 2025 Meeting was held on April 23-24 in Madison, WI and was hosted by Eurofins Food Chemistry Madison. John Zheng, AEIC PastPresident, welcomed everyone to the meeting and presided over the attendee introductions following the antitrust reminder.

Marisa Feller, President Eurofins Botanical Testing, welcomed the group and gave an introduction on Eurofins. Eurofins is a global company which has 65,000 employees, 900 labs spread over 60 countries and providing a broad range of testing capabilities. Eurofins was started in France doing wine testing. Food Chemistry Testing Madison does work in food, feed testing, product development work, raw material supplier verification, finished products. The Food Chemistry group started from the use of the vitamin D method from UW. Covance was acquired in 2018 which expanded the group focus. There are 500 employees in Madison which allows the processing of 2000 samples per day. The group does scientific innovation, OTC-GMP product release testing, stability testing and lab testing, provides customers with leading experts that provide service. The group also does pesticide and contaminant testing.

## **AEIC BUSINESS MEETING**

**Approval of 2024 Fall Meeting Minutes (P. Hunst):** A motion was made and seconded to approve the minutes posted on the website. Motion was approved by member vote.

**Treasurer Report (L. Muschinske):** The Treasurer presented the 2024 budget as follows:

<b>AEIC 2024 Budget Summary</b>		
	<b>Planned</b>	<b>Actual</b>
<b>Beginning Balance as of January 1, 2023</b>	\$ 37,415	\$ 37,415
2024 Membership Dues Received	\$ 13,250	\$ 13,250
Meeting registration fees - Spring Meeting	\$ 5,500	\$ 6,950
Meeting registration fees - Fall Meeting	\$ 4,000	\$ 5,125
Sponsorships	\$ -	\$ 6,000
<b>Total Projected Revenue</b>	<b>\$ 22,750</b>	<b>\$ 31,325</b>
<b>Expenditures</b>		
Scientific Paper	\$ 3,000	\$ 3,750.00
DE Franchise Tax Report - Report generation fees	\$ 25	\$ 25.00
ANSI/ISO Initiative (AOCS - ISO TAG)	\$ 2,900	\$ 2,900.00
Board Meeting Expenses	\$ 700	\$ 994.81
Spring Meeting Expenses (including speaker travel allowance)	\$ 12,000	\$ 17,322
Website hosting, maintenance, security	\$ 700	\$ 810.03
Credit card processing and bank service charges	\$ 500	\$ 613.61
Fall Meeting Expenses (including speaker travel allowance)	\$ 8,000	\$ 6,945.74
Graphic design material creation	-	-
Marketing	\$ 300	
Subscriptions – conferences	-	-
Miscellaneous	-	\$ 6,542
<b>Total Projected Expenses</b>	<b>\$ 28,125</b>	<b>\$ 39,903</b>
<b>PROJECTED BALANCE</b>	<b>\$ 32,040</b>	<b>\$ 28,837</b>

A motion was made, seconded and voted positive to accept the 2024 budget.

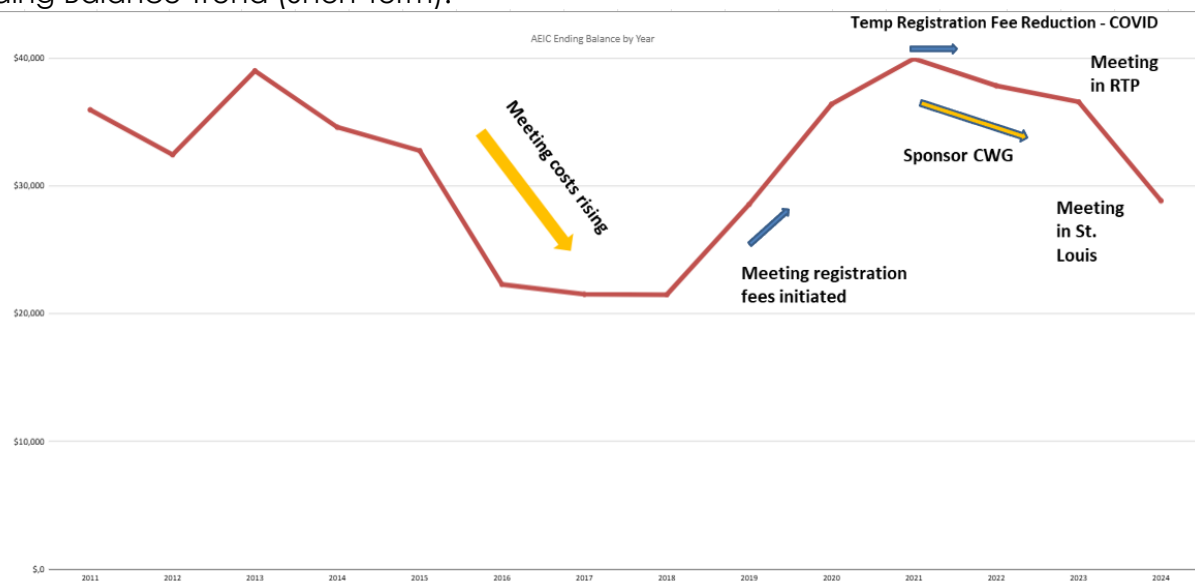


The 2025 Budget Summary was presented as follows:

<b>AEIC 2025 Budget Summary</b>		
	<b><u>Planned</u></b>	<b><u>Actual</u></b>
<b>Beginning Balance as of January 1, 2023</b>	\$ 28,837	\$ 28,837
2025 Membership Dues Received	\$ 14,000	\$ 12,150
Meeting registration fees - Spring Meeting	\$ 5,000	\$ 6,475
Meeting registration fees - Fall Meeting	\$ 5,000	\$ -
Sponsorships	\$ -	\$ -
<b>Total Projected Revenue</b>	<b>\$ 24,000</b>	<b>\$ 18,625</b>
<b>Expenditures</b>		
Scientific Paper	\$ 3,000	
DE Franchise Tax Report - Report generation fees	\$ 25	\$ 25.00
ANSI/ISO Initiative (AOCS - ISO TAG)	\$ 2,900	\$ 2,900.00
Board Meeting Expenses	\$ 1,000	
Spring Meeting Expenses (Net, including speaker travel allowance)	\$ 7,750	
Website hosting, maintenance, security	\$ 850	\$ 375.87
Credit card processing and bank service charges	\$ 650	\$ 261.35
Fall Meeting Expenses (Net, including speaker travel allowance)	\$ 7,750	
Graphic design material creation	-	-
Marketing	\$ -	
Subscriptions – conferences	-	-
Miscellaneous	-	
<b>Total Projected Expenses</b>	<b>\$ 23,925</b>	<b>\$ 3,562</b>
<b>PROJECTED BALANCE</b>	<b>\$ 28,912</b>	<b>\$ 43,900</b>

Budget will be updated with Spring Meeting costs.

## Ending Balance Trend (Short-term):



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

AEIC 2025 Member Summary				4/17 2025
		Potential Dues	Unpaid	Amount Unpaid
<b>Large Corporate Members (1,000+ employees)</b>	<b>6</b>	<b>\$ 6,000</b>	<b>1</b>	<b>\$1,000</b>
<b>Medium Corporate Members (50 to &lt;1000 employees)</b>	<b>8</b>	<b>\$ 4,000</b>	<b>0</b>	<b>\$0</b>
<b>Small Company Members (&lt; 50 employees)</b>	<b>13</b>	<b>\$ 3,250</b>	<b>1</b>	<b>\$250</b>
<b>Associate Members</b>	<b>5</b>	<b>\$ 250</b>	<b>0</b>	<b>\$0</b>
<b>Individual Members</b>	<b>4</b>	<b>\$ 400</b>	<b>0</b>	<b>\$0</b>
		<b>\$ (500)</b>		
<b>TOTAL</b>	<b>36</b>	<b>\$ 13,400</b>	<b>2</b>	<b>\$1,250</b>

91% of dues have been collected. There were 2 non-renewals—Merieux Nutrisciences and AgriPlex Genomics. Three new members were added—Rick Goodman (U. Nebraska), Daniela Avalos Ochoa (Iowa State U.) and Scott Wiegel (ROC Scientific).

**Fall Meeting 2025:** Location to be determined.

Suggested topics: Seed testing – use of AI for various parameters; ZoomAgri testing; vendors touting solutions; Biologics – Pivot Bio; New analytical techniques; Metabolomics – risk assessment and as a tool; Revevicore Co.; GM eucalyptus; Brazil organizations and companies.

**Protein Working Group Updates (C. Ament/Eurofins and M. Bednarcik/Syngenta):** The Protein Working Group (PWG) is co-chaired by Chis Ament (Eurofins) and Mark Bednarcik (Syngenta) The PWG currently has 5 active work streams (Multiplex Validation, MS for Protein quantification, Allergen Analysis, Extraction Efficiency, Intractable Proteins/Characterization). The goal of the **Protein Characterization WS**

**(formerly Intractable Protein WS)** is to review protein characterization, production and quantification methods and address technical challenges associated particularly with intractable proteins. Manuscript on the safety assessment for intractable proteins was published in Journal of Regulatory Science on Oct. 7, 2024 ([Considerations for safety assessment of intractable proteins expressed in genetically modified crops \(tdl.org\)](https://tdl.org)). New topics for the group are AI for structural analysis and glycoproteins. The **allergen analysis group** is working on a draft outline for a paper on Human Serum Screening in Allergenicity Assessment of GM Crops and use of weight of evidence approach before performing human serum screening. Group is also reviewing EFSA publication: Novel strategies for predicting allergenicity. Group is proposing allergenicity risk assessment parallel session at ISBR 2025. The **multiplex validation** is finalizing a first draft of a manuscript on guidelines. A more extensive review will be done in Q2. The **MS protein quantification group** meets monthly and is currently working on a slide deck reviewing and summarizing techniques for detecting and measuring Ag Biotech Protein Products. Teams channels are being built to work on documents. The **extraction efficiency WS** is discussing methodologies for establishing extraction efficiency. The whitepaper was published on the AEIC website. Group currently has no new projects.

**Composition Working Group (B. Fast, Corteva):** The group is working on ways to support acceptance of combustion (Dumas) vs the Kjeldahl method in the biotech industry for estimation of crude protein levels. The CWG had collected samples for corn and soybean and had them analyzed by EPL and Eurofins. There was good agreement for the crude protein values for the corn samples by both methods. There was little agreement on crude protein for the soy samples using either method. It was surmised this may have been due to not drying the soy samples prior to analyses. The soy portion was repeated with dried samples and analyses was done. The correlation was good for crude protein values from each method. The next task is data analysis and drafting of a manuscript. The group began discussions on the harmonization of compositional analytes. Soy analytes were tabulated from composition database. 61 of these were determined to not be needed. Further discussions will occur with company regulatory groups and then produce a white paper.

**Nucleic Acid Working Group (J. Haudenshield):** The NAWG has updated the slides for the AEIC website with latest technology information such as information on NGS methods, digital PCR, RT PCR, endpoint PCR, isothermal methods. The slides will be posted. Discussions on ambiguous results is on hold. Fifteen YouTube videos were selected for educational materials and need re-evaluation for final selection. A proposed outline for the tentative publication (Applications of digital PCR in agriculture) is posted for group comments.

**Website Updates (D. Houchins, Romer Labs):** The NAWG slides were posted on the website. Image citations for the slides are contained in slide footnotes. Documents from R. Shillito's google drive have been transferred to the AEIC google drive. Sub-folders have been set up for the WGs and the Board. There is 15gb of space which is fine now. There is also a YouTube channel available for AEIC use. Some companies have reported that they are not allowed to access Google. It was noted that the website is

not popping up on searches. This will be discussed with webmaster to see what can be done. There was also a question again as to whether AEIC needs a LinkedIn page. A suggestion was made to hire an independent contractor to do posts.

**ISO Update (M. Sussman, USDA AMS):** Mike oversees the ISO activities at the USDA. He is the TC 34 manager and Ray Shillito is the chair. TC 34 was founded in 2008 for GMO testing and output has been incorporated by reference in countries legislation. ISO 11781:2025 is for molecular biomarker analysis and contains requirements and guidance for single lab validation for qualitative PCR methods. ISO TS 21569-8 is for DNA extraction from alfalfa seed. ISO 5254-2 details extraction of DNA in cottonseed and fiber. Standards under development include ISO 5154 for DNA from cottonseed and raw materials. ISO 2022-12 is for Atlantic salmon DNA. No longer calling salmon Aqua Bounty as company went out of business. ISO 25076 is still listed under development but is now with TC 34.

**OECD Workshop (A. Gowda, Corteva):** Workshop was organized by EFSA to bring experts together to discuss new developments and share information. Regulators from Canada shared their assessments of PUFA canola which contains 2 intractable proteins. Canada based assessment on protein in oil and found no safety issues. Australia shared assessments on BG25 potato and soy leghemoglobin which were found to have no safety issues. Academics at the meeting discussed allergenicity and digestibility. HESI discussed in silico and in vitro tools. EFSA conducted a survey on observations and next steps. Respondents indicated that in vitro studies are a NO as well as in vitro tox/allergen testing. There is a need for new tools. Majority indicated there is a need for criteria for in silico approaches. There is also a need for harmonization and gaps exist which require further discussions. International collaboration is needed for establishment of criteria.

**AOAC (D. Houchins, Romer Labs):** The Midwest section of AOAC will meet in mid-May and will cover 65 years of mycotoxin testing. The International AOAC meeting will be held August 23-28 in San Diego and will have a session on mycotoxin testing.

**HESI Protein Safety Workshop (R. Wang, Bayer):** The HESI Workshop—Safety Assessment of Newly Expressed Proteins in Foods: Need for Evolution—was held October 21-22 in Porto, Portugal and was organized by HESI PATB (sunsetting at end of 2024). The workshop was also broadcast online (175 participants). AEIC was a sponsor for the workshop as BASF, Bayer, Corteva and Syngenta contributed funds via AEIC. The objective of the workshop was to bring together research scientists from academia, industry and government agencies to review current scientific advances and address particular challenges related to the safety evaluation of proteins in GM products and novel foods/feeds. Topics included current practices and global regulatory perspectives, intractable proteins, readiness for new alternative methods, dealing with complex mixture of proteins and integrating learnings of workshop. Current practices should apply on a case-by-case basis; exposure should be part of weight of evidence;

animal studies should be done as a last resort and new methods will require further evaluation.

**Identity Preserved International Summit (J. Zheng, ICIA):** This was the second summit and had 100 attendees, 26 speakers, 24 sponsors and 8 exhibitors and was held in Hawaii. Attendees included international buyers, US suppliers, American Soybean Association, Minnesota Dept. of Agriculture and several state soy boards. Food grade soy products make up <1% of US market. The next meeting will be in 2026 in Asia.

**Cereals and Grains Association (R. Shillito, Shillito Associates):** C&G offers a wide range of samples for proficiency such as tests for e.g. bread making quality (e.g. farinograph, falling number, Alveograph, + moisture, protein, sugars, gluten, ash, dietary and other fiber tests, fat, fatty acids, minerals, vitamins, pH, microbiologicals, mycotoxins. An idea was developed by the Proficiency Advisory Committee with the goal to introduce participants to the LPRP program. A 25g sample of flour was taken by 22 attendees and tested for moisture, protein, ash, falling number. 9 data sets were returned. Statistics were done and a report like we do for the proficiency program was provided. QA program for companies with multiple analysts consisted of each analyst being tracked and data on their performance compiled in one spreadsheet per company. This will save QA managers having to look at multiple reports over the time period for multiple analysts. They will see all their pertinent data in one spreadsheet/report. C & G has hundreds of official methods. Upcoming webinars: Webinar from Closer to Zero session which will feature the 2024 conference speakers and an opportunity for Q&A; GMO Wheat series under development to look forward to consequences of GMO wheat being introduced. The 2025 Chemistry, Quality, and Technology Conference will be held November 12-13, 2025, in St. Paul, MN. Membership in C&G is free. Methods can be found at

<https://www.cerealsgrains.org/resources/Methods/Pages/default.aspx>. Proficiency information can be found at:

<https://www.cerealsgrains.org/resources/LPRP/Pages/default.aspx>

**AEIC Group Discussion: USDA FGIS discontinuing the biotechnology proficiency test program:** The program sent GM samples to companies for testing. Results were compiled by USDA. More than 200 entities participated in the free program. Program has now been closed down by DOGE. Some labs are looking at other programs to supply samples but these programs all charge fees. Question whether AOAC or AOCS could provide samples and administrate proficiency program. Everyone agreed that there would be a charge. The AOCS program is expanding but is primarily for oilseeds. A suggestion was made to send a response to the Secretary of Agriculture (Brooke Rollins) indicating the value of the program to the industry. Letters could also go to Ed Gee, Jennifer Porter and Bruce Summers. Suggestion was made that a letter from AEIC should go to suggested people. Suggested also that the NAWG should draft.

The AEIC Business Meeting was adjourned.

## INVITED TALKS

### **Can GMO wheat save the American wheat industry (P. Laudeman, US Wheat**

**Associates):** US Wheat Associates represents wheat farmers and is export focused. US Wheat does not buy/sell wheat. It conducts promotion in competition with other wheat exporting countries. Work is driven by farmers. US Wheat has 120 employees globally who concentrate on fighting for market access. Wheat is grown on a substantial number of acres in US but is still way behind corn and soy acres. Wheat breeding programs do not use GM technology. There has been a steady growth in consumption of wheat. The US is falling behind other exporting countries. Bioceres (Argentina) has developed the GM drought tolerant/glufosinate tolerant HB4 wheat. Bioceres was established in 2001 and works on wheat, soy and biologicals. The company has an entrepreneurial structure and is highly focused on climate/environmental benefits of its products. HB4 wheat drought tolerance seems to work but need trials in US wheat varieties. There is no yield drag in Argentina varieties. HB4 is approved in various countries for cultivation or import including the US (2023). The company is focused on selling the product from Argentina so not worried about US exports. HB4 wheat has not been grown in US commercially. Collaborations are occurring with certain states. Further export approvals are needed as well as introgression in US lines and then seed multiplication. Estimated launch would be 5-7 years. Australia is in tandem with the US launch timeline and working on a path to market. The EU has a testing method for HB4 (event specific PCR). Since HB4 not approved in EU, could be a problem for other crops if detected there. US Wheat has been tracking Bioceres since 2021 via calls and meetings. US Wheat principles recognize the value and benefits of GM technology; support the ability of customers to make purchases based on their preferences; and will support commercialization of GM products.

### **Maximizing the value of genome editing in product development (C. Shyu, Bayer):**

Plant breeding is a tool that utilizes variation for yield and other characteristics. Genome editing (GE) can accelerate the path to new adaptive peaks in new agricultural landscapes, i.e., can help overcome the dip in performance seen with new challenges. Many types of molecular changes occur naturally to enable trait differences and breeding advancements. These happen without knowledge of the underlying genetic change. GE can impact all elements of the breeding equation;

Accuracy x selection x diversity

Speed

GE can be implemented in a breeding program via native trait introgression, pre-commercial field testing and then testing to assure absence of vector sequences used in the editing process. Differences in policy lead to a complex global regulatory landscape. All are based on edit-by-edit evaluations and the regulatory question is whether the edits are GM or not. Exemption/exclusion evaluations are conducted considering each edit as an independent regulatory units. Obtain status at scale for edited material entering the breeding cycle. Conventional breeding goes through none of this. There is a lot of policy movement occurring. Even the EU may change to science-based and away from everything being considered GMO. Harmonized evaluation of edited material at scale will be key to enabling plant breeding



innovation. There should be a regulator certified system to enable flexible implementation of editing for germplasm improvement scale. Checkpoint: novel foods and site-directed integration out of scope. Checkpoint: molecular confirmation of absence of foreign DNA. Checkpoint: additional points along breeding process. In summary, editing is a tool for variation. Plant breeding is science of generating variation. Science-based fit for purpose harmonized evaluation of edited material scale will be key to enable to enable plant breeding innovation.

**Commercializing the bioengineered purple tomato (N. Pumplin, Norfolk Healthy Produce):** The purple tomato is now on the market and available at some grocery stores. The company is based in Davis, CA and is considered a specialty vegetable seed company. The company has found that people are open to GM food as long as they can see benefits. The Calgene tomato was the first GM food sold and it opened the door for other food. Purple tomato seeds are sold to home gardeners. Seedlings are sold through distributors and fruit is sold to food service companies. The Empress brand is sold in the mid-Atlantic groceries. The first publication on the purple tomatoes occurred in 2008. The gene is from snapdragon and works in any tomato background to give the purple flesh. The purple tomato was developed using Agrobacterium-mediated transformation. The tomatoes have a longer shelf life than red tomatoes including less cracking and less mold. The anthocyanins in the tomatoes are anti-oxidants for heart health and anti-cancer effects. The purple tomatoes were the first to be deregulated under the USDA SECURE rule in 2022 and received a FDA BNF in 2023. The pilot launch was in 2023. Germplasm and breeding were key so worked with small growers initially. 2024 was the retail launch—13000 seed packets sold. Now working with growers such as Red Sun Farms. The tomatoes are sold in Lidl Markets, Food Lion and Food City markets in Virginia. Restaurants in the RTP, NC have also used them in dishes. The company is focused on revenue currently and scaling the business in the US. Also In the process of expanding to Canada and then Australia. Funding is currently provided by the company founders.

**CRISPR and cisgenic strategies for soybean improvement using efficient WCIC meristem-based transformation (A. Bent, UW Madison):** The Wisconsin Crop Innovation Center (WCIC) can handle thousands of constructs in a year. Dicots are transformed via the direct meristem approach which is genotype independent and requires no tissue culture. The transformation efficiency with gene edited (GE) constructs is low and they generally fail. WCIC used ECp-Cas9 to obtain stable, efficient edited Cas9 soybean lines that receive other gRNA. Compared the editing efficiencies with EC promoters. Zygosity analysis was performed of edits in T1 generation. Two-thirds of T0 gave 100% edited progeny. Germline mutants can be generated in one generation. GAENTRY/A. rhizogens improves transformation efficiency 5X with GE constructs. This system is a single integrative system vs the traditional binary Agrobacterium system. The Rhg1 locus is the primary control measure against soybean cyst nematode (SCN). Some SCN now have partial resistance. SCN resistance is a quantitative trait. Goal was to identify a novel QTL to improve Rhg1. Rhg1 has 4 genes with a 31 kb block containing 3 genes for SCN resistance. Over-expressing LC or HC alpha-SNAP in a



Peking background incrementally improved SCN resistance. There were lower titers of SCN eggs, no yield loss. This is a future cisgenic approach.

**Bioconversion of whey permeate to value-added chemicals (V. Ujor, UW Madison):**

Global cheese production is 25.3 MT which produces a lot of whey. This whey cannot be distributed to land since by-products get into water supplies. Whey permeate produces high value chemicals such as butanol. Bio-based butanol has high costs for feedstock. *Clostridium beijerinckii* is the obligate anaerobe used in the lactose feedstock. Whey seems to affect the organism. Amber-lite resin was used to remove lactic acid at a loading rate of 7.5g/50ml. This was scaled up to 80g/L which increased butanol above the glucose level. When supplemented with calcium carbonate, this resulted in butanol at 15g/L. To increase the *Clostridium* uptake of lactose, now looking at genes during fermentation. Have found one gene for lactose utilization. For the future, will look at metabolic engineering, fed batch fermentation, in situ recovery. 2,3 butanediol is a fuel, used in resins and paints as well as deicer. There is a need to separate the 3 racemic mixture. *Enterobacter hormaechei* is used on whey to produce butanediol. The organism was gene edited to inactivate antibiotic resistance genes. Now exploring metabolic engineering to increase butanediol production with whey.

**Exploring collaborative opportunities: Promega technologies to advance agricultural innovation (M. Rosenblatt, Promega):**

Promega is a global company with a presence in 100 countries. The company works with labs in the government, medical, agricultural and crime. For ag biotech, the company has multiple tools for DNA extraction which are flexible and scaleable. Maxwell is a bench top extraction unit which is reliable and efficient. It is a magnetic bead processor. PCR is a big part of portfolio which is based on GoTaq system. Proteomics is done via quantitative mass spectrometry. The workflow is sample→desalting→proteolysis→MS. Workflow is not ideal so magnetic beads for immunoprecipitation have been put to use: sample→lysis→soluble protein→add magnetic beads→add organic solvent→binding to beads→magnetize→wash→MS ready. Beads magnetize quickly and are good for automation. Luminescence is done with NanoLuc luciferase which is 100X brighter. It is 19kDa, monomeric, no modifications and no disulfide bonds. The split luciferase system is a high affinity interaction using Hi/Bit which produces a bright signal. The system is used in many applications. Anti-Hi/Bit has been developed for immunoprecipitation of beads to assess expression levels. This system can pull down various proteins such as membrane proteins. The Lumit immunoassays use NanoBit. SmBit allows the analysis of low affinity proteins. Promega has a team to help with custom and collaborative solutions such as customer assays, OEM solutions and collaborative R&D support. For more information, contact [mikerosenblatt@promega.com](mailto:mikerosenblatt@promega.com).

**Vitamin analysis: Past, present and future (D. Hengst, Eurofins):** Vitamins are vitally important. Since 1993, vitamin D content has been analyzed via rat bioassay which takes forever. Fortunately, there are quicker tests now. Vitamins are micronutrients which are essential for metabolic function. Over consumption may have negative effects. Vitamins are derived from the food diet. Lack of vitamins can cause issues such as scurvy, night blindness, beriberi, rickets, skin disorders, fatigue, disorders of the

nervous system and disorders of circulation. Vitamins A,D,E,K are fat soluble so are retained in the body. B vitamins and C vitamin are water soluble so excesses are removed from the body by the production of urine. Vitamin A contains carotenoids and is an essential nutrient especially for vision. Vitamin D is needed for increasing intestinal absorption of calcium, magnesium. Vitamin E is tocopherols which are antioxidants. Vitamin K is important for blood coagulation. The B vitamin group includes B1 (thiamin), B2 (riboflavin), B3 (niacin), B5 (pantothenic acid), B6 (pyridoxal phosphate), B12 (cobalamin). Vitamins are analyzed via bioassays (rats), microbiological tests, chemical tests, and chromatography (preferred but not for natural samples). B12 can be analyzed by a microbiological test (extract sample→add to medium→add bacteria→incubate). The challenges are bacterial specificity, narrow calibration range, inhibition of growth, and labor intensive. The benefits are that the test is sensitive, biological activity measured and it is accepted methodology. HPLC (size exclusion and reverse phase) has been used. HPLC requires frequent maintenance, individual cobalamins cannot be resolved. Ultra HPLC tandem MS requires cyanide conversion and has a high instrument cost and potential interference. UHPLC is used for vitamin D analysis and is much better than alternative methods. Robotics has eliminated manual labor. The analysis is accepted methodology. Coupled super critical fluid extraction chromatograph tandem MS has a cycle time of 16.5 min and uses a limited amount of sample. It is fast, safe and can analyze all fat soluble vitamins. HPLC inductively coupled plasma-tandem MS is a reverse phase method. Cobalamins are difficult to analyze with method. The future of vitamin analysis is high resolution MS, direct ionization MS, isomer resolution (super critical fluid or ion mobility) and robotics.

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Attendees:



Name	Organization
Ament, Christopher	Eurofins Food Testing
Avalos Ochoa, Daniela	Iowa State University
Balvin, Kevin	SGS Brookings
Batth, Bhupinder Singh	SoDak Labs
Bednarcik, Mark	Syngenta
Chamberlain, John	EnviroLogix
Cheever, Matt	BASF
Collum, Rich	Corteva
Deege, Lora	Corteva
Dharmasri, Cecil	Gates Ag Innovations
Engbrecht, John	Corteva
Fast, Brandon	Corteva
Fendley, Ann	BASF
Gabriel, Adam	Eurofins Food Testing
Gadola, Mary	Neogen
Garrison, Simon	Romer Labs

Geng, Tao	Corteva
Ghavami, Farhad	Eurofins
Gillikin, Jeff	BioDiagnostics
Gillikin, Nancy	NCSU
Goodman, Richard	BASF
Haudenshield, James	UNE-Lincoln
Houchins, Donna	Individual
Hunst, Penny	Romer Labs
Islam, Shofi	Ag Consultant
	IN Crop Imp Assn
	Eurofins
Johnson, Brenda	BioDiagnostics
Kenward, Kimberly	20/20 SeedLabs
Kervran, Claire	Non-GMO Project
Kouba, Kristen	Corteva
Larue, Dustin	Eurofins Food Testing
Makani, Mildred	Syngenta
Mitchell, Carter	Kemp Proteins
Morales, Chris	Liphatech
Mullen, Lindsay	Non-GMO Project
Muschinske, Luke	Eurofins Microbiology
Poe, Martha	BASF
Prudhome, Nicholas	Eurofins Food Testing
Raychaudhuri, Aniruddha	Bayer
Reddy, Srinu	Nuseed
Rosenbaum, Eric	Syngenta
Ross, Kristopher	Eurofins Food Testing
Sandmann, Matthew	Corteva
Savithri, Purayannur	Syngenta
Scaife, Ann	Eurofins Food Testing
Schafer, Barry	Schafer Scientific
Serelis, Zoe	AOCS
Serrano, Hector	BASF
Shillito, Ray	Shillito Associates
Shippar, Jeff	Eurofins Food Testing
Smith, Dan	FoodChain ID
Sondeno, Rachel	OMIC USA
Spiegelhalter, Frank	Eurofins Genescan
Sussman, Mike	USDA AMS

Tanguay, Keith	EnviroLogix
Tweedie, Eric	EnviroLogix
Umthun, Angela	Stine Biotechnology
Wang, Rong	Bayer
Wang, Yanfei	Bayer
Wang, Yongcheng	Bayer
Weigel, Scott	ROC Scientific
West, Tiffanie	AOCS
Whitt, Sherry	BASF
Wu, Pei-Ying	BASF
Wu, Xin	AOCS
Yang, Julie	Promega Corp.
Zhang, John	Corteva
Zheng, John	IN Crop Imp Assn