

Monday, August 23, 2021				
Opening Ceremony (8:00-8:40)				
Biological Response to Fumigants - Fuji Jian				
8:40-9:20	A-1-1-1	Christos G Athanassiou	Christos G. Athanassiou, Evagelia Lampiri, Paraskevi Agrafioti	Delayed mortality, resistance and the "sweet spot": the good, the bad and the ugly in phosphine fumigations
9:20-9:40	A-1-2-2	Manoj K Nayak	Manoj K Nayak, Gregory J Daghish, Rajeswaran Jagadeesan, Hervoika Pavic, Philip R. Burrill	Phosphine fumigation strategies for effective control of bruchid pests
Engineering & Modelling of Fumigants - Digvir Jayas				
8:40-9:20	P-2-1-14	Ronald T Noyes	Ronald T Noyes	Affordable sealing of multiple grain storages – manifolded for CLF
9:20-9:40	A-2-2-15	Paraskevi Agrafioti	Paraskevi Agrafioti, Efstathios Kaloudis, Vasilis Sotiroudas, Sotiris Bantas, Christos G. Athanassiou	Predicting the concentration of phosphine and insect mortality with Computational Fluid Dynamics. Validation with field trials in cylindrical grain silos and shipping containers
9:40-10:00 Health break				
Biological Response to Fumigants - Fuji Jian (... continued)				
10:00-10:20	P-1-3-3	Leandro Cardoso	Estefanía Alvarez, Marcela Leandro Cardoso, Ricardo Bartosik, Claudia Castellari, Diego de la Torre, Ignacio Erreguerena, Bernadette Abadía	Evaluation of fungicidal action of four products on external fungal biota of grains
10:20-10:40	P-1-4-4	Ujjwal Kumar	Ujjwal Kumar	Phosphine fumigation of stored turmeric in India
10:40-11:00	A-1-5-5	Dandan Li	Li Dandan, Li Pengfei, Yan Xiaoping, Guo Daolin	Research and application progress of controlling stored-grain insect by sulfuryl fluoride
Engineering & Modelling of Fumigants - Digvir Jayas (... continued)				
10:00-10:20	P-2-3-16	Shubham Subrot Panigrahi	Shubham Subrot Panigrahi, Chandra B. Singh, John M. Fielke	Integrated CFD-based on-farm stored grain aeration model to predict the fan hours and investigate factors affecting the cooling potential
10:20-10:40	A-2-4-17	Mark E Casada	Mark E Casada, Kaliramesh Siliveru, Frank Arthur, Dan Brabec, James Campbell, Ronaldo Maghirang, Dirk Maier, Taylor Conley, Carol Jones	Phosphine distribution patterns during fumigation in temporarily-sealed steel silos
10:40-11:00	P-2-5-18	Valérie Ducom	Valérie Ducom, Franck Simioni, Daniel Mercadal, David Busson	A comparative study of phosphine distribution using two application methods with 30,000 gas concentration measurements
Tuesday, August 24, 2021				
Biological Response to Fumigants - Fuji Jian (... continued) -				
8:00-8:20	A-1-6-6	Yujie Lu	Yujie Lu, Chenguang Zhang, Zhenyan Wang, Xiaoping Yan	Rapid detection of phosphine resistance in <i>Rhizopertha dominica</i> (Coleoptera: Bostrichidae) from China using tetra-primer ARMS-PCR
8:20-8:40	A-1-7-7	Jin Wang	Jin Wang, Shuai Chen, Yuxi Gu, Li Li, Youjun Jiang, Jinying Chen	Study on the control of DON-producing fusarium by fumigation in wheat
8:40-9:00	P-1-8-8	Dianxuan Wang	Dianxuan Wang, Yilin Huang, Chunqi Bai, Jianhua LV, Fuji Jian	Exposure time prediction of N ₂ treatment based on behavior and mortality of <i>Sitophilus oryzae</i> (L.) adults monitored by camera at different temperatures
9:00-9:20	P-1-9-9	Robert Francis Ryan	Robert Francis Ryan	Phosphine Fumigation: Quo Vadis?
Engineering & Modelling of Fumigants - Digvir Jayas (... continued)				
8:00-8:20	A-2-6-19	Chaudhry Muhammad Mudassir Arif	Chaudhry Muhammad Mudassir Arif, Nadimi Mohammad, Hervet Vincent, Paliwal Jitendra	Understanding insect movement behavior in chickpea flour using X-ray Micro-Computed Tomography
8:20-8:40	A-2-7-20	Raïña Marie E Buenavista-	Raïña Marie E Buenavista-, Mark E Casada, Kaliramesh Siliveru	Determination of phosphine sorption isotherm in hard red winter wheat
8:40-9:00	P-2-8-21	Fuji Jian	Fuji Jian, Digvir S. Jayas	Implications of dockage and foreign material distribution for fumigation and control atmosphere storage in grain bins.
9:00-9:20	A-2-9-22	Chandra B. Singh	R.P. Ramachandran, Thiruppathi Senthilkumar, Chandra B. Singh	Carbon Dioxide (CO ₂) movement monitoring in a lab-scale grain bin
9:20-9:40 Health break				

Biological Response to Fumigants - Fuji Jian (... continued)				
9:40-10:00	A-2-10-23	Qiang Zhang	Qiang Zhang	Understanding pore structures in bulk grain for fumigation
10:00-10:20	A-2-11-24	Ma Cristine Concepcion D Ignacio	Ma Cristine Concepcion D. Ignacio, Dirk E Maier	Characterizing engineering properties of hermetic storage bag technology for standards development
10:20-10:40	A-2-12-25	Manjree Agarwal	Manjree Agarwal, Yonglin Ren	A Game changer: Synthetic amorphous silica for protection of stored grain pest
10:40-11:00	P-2-13-26	Vimala S K Bharathi	Vimala S K Bharathi, Fuji Jian, Digvir S Jayas, Jason Morrison	Design of an experimental setup to evaluate movement of adult insects in stored wheat
Engineering & Modelling of Fumigants - Digvir Jayas (... continued)				
9:40-10:00	A-1-10-10	Daniel Brabec	Daniel Brabec, James Campbell, Frank Arthur, William Morrison	Potential of dosimeter tubes for monitoring phosphine fumigations
10:00-10:20	A-1-11-11	James F. Campbell	James F Campbell, Daniel Brabec, Frank H. Arthur	Evaluation of railcar fumigations during transportation
10:20-10:40	A-1-12-12	Christos G. Athanassiou	Evagelia Lampiri, Christos G. Athanassiou	Insecticidal effect of phosphine on eggs of the khapra beetle
10:40-11:00	P-1-13-13	Carolin Götze	Carolin Götze, Renate Steuerwald, Paraskevi Agrafioti, Gerhard K. Jakob, Christos G. Athanassiou	It all started with a kit - the Detia Degesch Phosphine Tolerance Test and new data in the field of phosphine fumigation
Wednesday, August 25, 2021				
Insect Resistance to Fumigants - Vincent Hervet				
8:00-8:40	A-3-1-27	Manoj K Nayak	Manoj K. Nayak, Gregory J. Daghli, Rajeswaran Jagadeesan, Hervoika Pavic, Virgin T. Singarayan, Nisa S. Nath, Brock Dembowski, Paul R. Ebert	First report of strong phosphine resistance in stored grain insects in far northern region of Australia
8:40-9:00	P-3-2-28	Edmond L Bonjour	Edmond L Bonjour, Carol L Jones	Safety education – critical for grain fumigators
9:00-9:20	A-3-3-29	Chunyu Gu	Chunyu Gu, Manjree Agarwal, YongLin Ren	Application of ethyl formate to manage phosphine susceptible and resistant strains of <i>Cryptolestes pusillus</i> , <i>Cryptolestes ferrugineus</i>
Hermetic Storage - Qiang Zhang				
8:00-8:40	P-4-1-34	Cornel ADLER	Cornel ADLER	Hermetic storage under vacuum, under ambient pressure in bags, or in metal containers - what is most suitable?
8:40-9:00	P-4-2-35	Maria Otilia Carvalho	Luis Goulao, Maria Otilia Carvalho	Modified atmospheres in paddy rice hermetic storage are biogenerated according to different mechanisms in Portugal and Mozambique.
9:00-9:20	P-4-3-36	Ricardo Bartosik	Enrique Behr, Leandro Cardoso, Ricardo Bartosik, Facundo Marcos Valle, Diego de la Torre, Hernán Taher, Gisele Maciel	Evaluation of storage of sunflower pellets in silo bags
Controlled Atmospheres - Shlomo Navarro				
8:00-8:40	P-5-1-41	Ricardo, Bartosik	Ricardo Bartosik, Leandro Cardoso, Diego de la Torre, Bernadette Abadía, María Celia Tulli, Hernán Taher, Gisele Maciel	Testing of an inexpensive modified atmosphere chamber for small farmers using soaked grain as oxygen scavenger
8:40-9:00	P-5-2-42	Hagit Navarro	Hagit Navarro, Shlomo Navarro	Efficacy of controlling two stored cashew nut insects in 1% O ₂ and 99% N ₂ at 43°C
9:00-9:20	A-5-3-43	YongLin Ren	YongLin Ren, Manjree Agarwal, James Newman, Shuting Pan, Junxi Li, Yu Xiao	Delivery and adoption of nitrogen technology for the management of grain storage pests and grain quality
9:20-9:40 Health break				
Insect Resistance to Fumigants - Vincent Hervet (...continued)				
9:40-10:00	A-3-4-30	Xin Du	Xin Du, Tao Liu, Yonglin Ren	Is phosphine or its derivatives responsible for mortality of stored product insects?
10:00-10:20	A-3-5-31	Virgine T Singaryan	Virgine T Singaryan, Rajeswaran Jagadeesan, David I Schlipalius, Manoj K Nayak, Paul R Ebert, Gregory J Daghli	Does strong resistance to phosphine (PH ₃) incur biological cost in <i>Cryptolestes ferrugineus</i> (Stephens): A two-way approach in dissecting the fitness cost?
10:20-10:40	A-3-6-32	Rajeswaran Jagadeesan	Rajeswaran Jagadeesan, Manoj Kumar Nayak, Gregory John Daghli, Virgine Tenshia Singarayan, Mohankumar Subbarayalu, Subramanian Sabtharishi and Paul Richert Ebert	Managing genetic resistance to phosphine in stored grain pests: an integrated strategy ensuring grain biosecurity and market access
10:40-11:00	P-3-7-33	Sri Widayanti	Sri Widayanti, Idham Sakti Harahap, Trijanti A. Widinni Asnan, Herni Widhiastuti	Status of phosphine resistance on <i>Tribolium castaneum</i> in Indonesia

Hermetic Storage - Qiang Zhang (...continued)				
9:40-10:00	A-4-4-37	Ma Cristine Concepcion D Ignacio	Ma Cristine Concepcion D Ignacio, Dirk E Maier	Predicting oxygen depletion during grain storage using hermetic bag technology
10:00-10:20	A-4-5-38	George Obeng-Akrofi	George Obeng-Akrofi, Dirk E Maier, Wendy S White, Joseph O Akowuah, Ricardo Bartosik, Leandro Cardoso	Evaluation of hermetic bag technology to preserve shea nuts in rural Ghana
10:20-10:40	P-4-6-39	Deanna S Scheff	Deanna S Scheff, Georgia V Baliota, Michael J Domingue, Georgina V Bingham, William R Morrison, Christos G Athanassiou	Assessing the viability of new deltamethrin treated hermetic storage bags in artificially infested wheat
10:40-11:00	P-4-7-40	Brighton M Mvumi	Alex A Chigoverah, Brighton M Mvumi	Comparative survival of <i>Prostephanus truncatus</i> (Coleoptera: Bostrichidae) and <i>Sitophilus zeamais</i> (Coleoptera: Curculionidae) under large-scale hermetic grain storage conditions
Controlled Atmospheres - Shlomo Navarro (...continued)				
9:40-10:00	P-5-4-44	Guiyao Wang	Song Song, Guiyao Wang, Jian Du, Bo Hu, Fenyu Yang, Jizhen Song	Low oxygen concentration hinders the occurrence of cigarette beetle, <i>Lasioderma serricorne</i> , under nitrogen-controlled atmosphere storage system
10:00-10:20	P-5-5-45	Himanshu Kumar	Himanshu Kumar, VK Vijay, PMV Subbarao	Efficacy of Bio-CO ₂ as a non-chemical fumigant on pest control in wheat storage
10:20-10:40	A-5-6-46	Tianyu Shi	Yu Jie, Tianyu Shi, Dong Yang, Junyi Jiang, Qianqian Li, Wenya Bi	Changing of volatile compounds in grain before and after stored in nitrogen
10:40-11:00	A-5-7-47	Jordi Riudavets1	Jordi Riudavets, Rey D Iturralde-García, Cristina Castañé, Raquel Bourne, Francisco J., Wong-Corral	Effect of carbon dioxide sorption in packaged chickpeas on the susceptibility to modified atmospheres of <i>Rhyzopertha dominica</i> and <i>Callosobruchus chinensis</i>
Thursday, August 26, 2021				
Quarantine and Alternatives to Methyl Bromide - Blaine Timlick				
8:00-8:40	A-6-1-48	Raj Hulasare	Raj Hulasare	Heat treatment: an effective, viable alternative to methyl bromide for controlling stored product insects in food processing facilities
8:40-9:00	P-6-2-49	Sumitra Arora	Sumitra Arora, J Stanley, Naveenkumar Patil, Totan Adak, Chitra Srivastava, JP Singh, Mayabini Jena, RS Ramya, Omprakash Navik, PP Asher, Falguni Patel, Montu Patel	Phosphine as methyl bromide alternative for QPS treatment of food grains in India
9:00-9:20	A-6-3-50	Manjree Agarwal	Manjree Agarwal, Thamer Al-Shuwaili, Kevin Wong, Yonglin Ren	New diagnostic tool for <i>Trogoderma</i> species: Visible Near Infrared Hyperspectral (VNIR) technique coupled with machine learning
Alternate Fumigants - Jordi Riudavets				
8:00-8:40	P-7-1-55	Shlomo Navarro	Shlomo Navarro, Hagit Navarro, Nadav Inbari	Potential of monitoring carbon dioxide to detect insect infestation in a wheat bulk
8:40-9:00	A-7-2-56	Xin Du	Xin Du, Yonglin Ren	Study on using synthetic amorphous silica (SAS) as phosphine resistance breaker
9:00-9:20	A-7-3-57	Yi Wu	Weiwei Sun, Liyuan Xia, Miao Cui, Qing Yu, Yang Cao, Yi Wu	Age-stage, two-sex life tables and predation analyses of the predatory mite <i>Cheyletus malaccensis</i> (Oudemans) at different temperatures
Bio-fumigants - Pushpak Asher				
8:00-8:40	A-8-1-62	YongLin Ren	YongLin Ren, E. Marco Coetzee, Bob Du, Melissa Thomas, Johann van der Merwe, Simon J McKirdy	In-transit fumigation of shipping containers with ethyl formate + nitrogen during full travel on road and on sea
8:40-9:00	P-8-2-63	Yanzhen Zhao	Yanzhen Zhao, Jiaqin Xi, Yu-e Li, Hongxu Dong, Jizhen Song	Attractiveness of <i>Matthiola incana</i> (L.) and its volatile compounds on <i>Lasioderma serricorne</i>
9:00-9:20	P-8-3-64	Samuel Adelani Babarinde	Samuel Adelani Babarinde, Adebukola Taofikat Ottun, Oladele Abiodun Olaniran, Timothy Abiodun Adebayo, Abosede Elizabeth Oderinde, Adeola Foluke Odewole, Fatai Olaitan Alao	Acute toxicity of two bio-fumigants against larger grain beetle, <i>Prostephanus truncatus</i> (Horn) (Coleoptera: Bostrichidae)
9:20-9:40	Health break			

Quarantine and Alternatives to Methyl Bromide - Blaine Timlick (...continued)				
9:40-10:00	A-6-4-51	Paraskevi Agrafioti	Marina Gourgouta, Paraskevi Agrafioti, Christos G Athanassiou	Insecticidal effect of phosphine in different life stages of the khapra beetle, <i>Trogoderma granarium</i>
10:00-10:20	P-6-5-52	Sonia Duarte	Sonia Duarte, Graça Barros, Luísa Carvalho, Orlando Guerreiro, Miguel Mourato, Maria Otilia Carvalho	Early-warning detection protocol of khapra beetle (<i>Trogoderma granarium</i> Everts) and other insect pests associated with stored grains in Portugal - Preliminary results
10:20-10:40	P-6-6-53	Sandipa G Gautam	Sandipa G Gautam, David Obenl, Spencer Walse, Elizabeth E. Grafton-Cardwell	Propylene oxide as a postharvest fumigant for fresh citrus pest disinfestation and its impact on citrus fruit quality
10:40-11:00	P-6-7-54	Spencer S Walse	Spencer S Walse	Recent advances in methyl bromide alternatives for fresh fruit
Alternate Fumigants - Jordi Riudavests (...continued)				
9:40-10:00	A-7-4-58	Yi Wu	Miao Cui, Weiwei Sun, Liyuan Xia, Zhongming Wang, Yang Cao, Yi Wu	Killing stored grain pests by radio frequency and its effect on grain quality
10:00-10:20	P-7-5-59	Zachary A. Kawagoe	Zachary A Kawagoe, Spencer S Walse	Characterization and measurement of semiochemicals for management of stored product pests
10:20-10:40	P-7-6-60	Umesh Chandra Sharma	Umesh Chandra Sharma, Santosh Satya, P Hariprasad	Effect of <i>Callosobruchus maculatus</i> infestation on nutritional parameters of Urad (<i>Vigna mungo</i>) beans
10:40-11:00	P-7-7-61	Xingjun Li	Xingjun Li, Song Zheng, Huifa Zhao, Lisi Tao, Cunzhan Fan, Wenya Bi, Tianyu Shi	Changes in RH and wet bulb temperature of indica paddy bulk layers in a large warehouse in southeast region of China
Bio-fumigants - Pushpak Asher (...continued)				
9:40-10:00	P-8-4-65	Ranjeet Kumar	Ranjeet Kumar, P S Pandey, S N Tiwari	Chemical constituents and insecticidal activity of essential oils against three stored product beetles in stored wheat
10:00-10:20	A-8-5-66	Yu Xiao	Yu Xiao, Manjree Agarwal, Yonglin Ren	Evaluation of effect of ozone on two species of stored grain insects <i>Tribolium castaneum</i> and <i>Rhyzopertha dominica</i> and grain quality
10:20-10:40	P-8-6-67	Urvashi Sahu	Urvashi Sahu, Sivakumar Sreevathsan, Sandeep N. Mudliar, S. Ezhil Vendan	Fumigant toxicity of garlic essential oil with the combined effect of ozone gas and determination of phytochemical residues from the treated rice weevil <i>Sitophilus oryzae</i> and wheat grains
10:40-11:00	P-8-7-68	Robert Francis Ryan	Robert Francis Ryan, Bernard C Dominiak	Ethyl formate: Review of a rapid-acting fumigant
Friday, August 27, 2021				
Alternative Approaches - Paul Fields				
8:00-8:40	A-9-1-69	Kimberly D Hamilton	Kimberly D Hamilton, Paul G Fields, Vincent AD Hervet, Jitendra Paliwal, Mohammad Nadimi	Low temperature as an alternative to fumigation: An example using <i>Acanthoscelides obtectus</i>
8:40-9:00	P-9-2-70	Kelsey Jones	Kelsey Jones, Whitney Morse, Noel White, Paul Fields	Effectiveness of Cryonite system in treatment of stored product insects
9:00-9:20	A-9-3-71	Kangxu Wang	Kangxu Wang, Manwen Liu, Yazhou Wang, Wei Song, Peian Tang	Identification and functional analysis of a novel cytochrome P450 CYP346 gene family associated with phosphine resistance in <i>Tribolium castaneum</i>
Alternative Fumigants - Noel White				
8:00-8:40	P-10-1-75	Yong-Biao Liu	Yong-Biao Liu, Sookyung Oh, Xiangbing Yang	Nitric oxide fumigation for postharvest control of pests and pathogens
8:40-9:00	A-10-2-76	Pushpaksen P Asher	Pushpaksen P Asher, Falguni R Patel	Results of fumigation of fresh flowers – QuickPHlo – R phosphine generator
9:00-9:20	P-10-3-77	Jiaqin Xi	Jiaqin Xi, Yanzhen Zhao, Yu-e Li, Hongxu Dong, Jianqiang Wang, Xican Gu, Jizhen Song	The mixed fumigation using sulfuryl fluoride and carbon dioxide in tobacco lamina storage
Fumigation Overview - Jitendra Paliwal				
8:00-8:40	P-11-1-81	Digvir S Jayas	Divir S Jayas, Fuji Jian, Blaine Timlick	Management of insects in Canada – Status update
8:40-9:00	A-11-2-82	William Jonfia-Essien	Charles Adarkwah Edna Baffoe-Bonnie, Doris Brese, Lambert Amewu Kwakudua, Collins Tay, Prudence Attipoe, Henry Ofosuhene Sintim, William Jonfia-Essien	Alternatives to the use of phosphine fumigation in Ghana
9:00-9:20	A-11-3-83	Alex, Abraham Chigoverah	Alex Abraham Chigoverah, Philippe Villers	Capacity building of smallholder farmers on postharvest management of grain crops using SuperGrainBags in Malawi
9:20-9:40 Health break				

Alternative Approaches - Paul Fields (...continued)				
9:40-10:00	A-9-4-72	Yanyu Li	Pengfei Xiang, Guohua Li, Xiuxin Jin, Weizhong Zhang, Minghan Ye, Wenbo Xu, Yanyu Li	The comprehensive evaluation of direct combined with closed internal circular ventilation system in squat silos
10:00-10:20	A-9-5-73	Yanyu Li	Huiyi Zhao, Hongqing Zhang, Yang Cao, Yanyu Li	Efficacy of food grade synthetic amorphous silica in the small farm scale trials
10:20-10:40	A-9-6-74	Guanghai Wu	Guanghai Wu, Yanzhen Zhao, Junxiang Zheng, Jiaqin Xi	Study on fumigation of tobacco lamina with sulfuryl fluoride at low temperature
Alternative Fumigants - Noel White (...continued)				
9:40-10:00	A-10-4-78	Hamish L McKirdy	Hamish L McKirdy, Simon J McKirdy, YongLin Ren	The application of ethyl formate for the treatment of stored grain insect pests
10:00-10:20	A-10-5-79	Swaminathan Thalavaisundaram	Swaminathan Thalavaisundaram	Ethanedinitrile (EDN)– a new broad-spectrum fumigant for biosecurity applications
10:20-10:40	P-10-6-80	Rizana M. Mahroof	Rizana M Mahroof, Sunil Paudel	Dose-response of selected stored product insects to ozone treated on various surface materials
Fumigation Overview - Jitendra Paliwal (...continued)				
9:40-10:00	P-11-4-84	Navnath Indore	Navnath S. Indore, P N Guru, Dhritiman Saha, Digvir S. Jayas	Grain storage systems and insect management in Punjab (north India)
10:00-10:20	A-11-5-85	Vincent AD Hervet	Vincent AD Hervet; Paul G Fields, Kelsey L Jones, Fuji Jian	Survival of 10 stored product insects on canola
10:20-10:40	A-11-6-86	Chyngyz Erkinbaev	Kanishk Paliwal, Mohammad Nadimi, Chyngyz Erkinbaev	Three-dimensional movement detection of <i>Tribolium castaneum</i> and <i>Sitophilus zeamais</i> in wheat flour using X-ray Micro-Computed Tomography
10:40-11:00	Closing Ceremony			