EUCHINASAFE
中欧食品安全

Delivering an Effective, Resilient and Sustainable

EU-China Food Safety Partnership

CALL FOR TRAINEES

for participation in the EU-China-Safe TRAINING PROGRAM

www.euchinasafe.eu

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 727864 and the Chinese Ministry of Science and Technology (MOST) for the National Key R&D Program of China under 2017YFE0110800.

EU-China-Safe TRAINING PROGRAM: Information

Various short-term and long-term training and education activities at different levels are planned, in order to establish a European-Chinese basis for permanent education in the field of food safety and authenticity. Several concepts will be applied, both based on commodity (A) and analytical methodology (B) and other (C) approaches, considering following threats: (i) microbiological, (ii) chemical and (iii) food fraud, and one of the food products (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula.

APPLY for participation in short-term trainings and young scientist mobility!

- ⇨ **Short-term trainings** consisting of 2 steps training approach („train the trainer“)

  Phase I: Future trainers will be trained in one of offered concepts & threats

  Phase II: Trained trainers will organize targeted training at an organisation, at national level or for European industrial/ professional organisations for scientists, academia, researchers, control labs etc. (via hands on, one-to-one, training course,…)

- ⇨ **Young scientist mobility** both within the project consortium and external participants, with the aim both to help in capacity building of young researchers and assist in the transfer of knowledge within/outside the project consortium

- ⇨ **e-learning** interactive tool(s)/webinar(s) to support worldwide knowledge dissemination to the community both involved but also not involved directly in the training network

- ⇨ **Workshops** both for the project consortium and external participants, focused on different topics related will be organised

WHO CAN APPLY?

- EU-China-Safe consortium members
- External participants (scientists and other stakeholders, such as PhD students, post-docs, scientists, academia, researchers, staff of control labs, governmental organisations, etc.,)

WHAT IS THE DEADLINE?

- **Call for applications will be open until 31 October 2020, 17:00 (CET)**

HOW TO APPLY?

- Using the form accessible from the EU-China-Safe website/Training/Training Network (http://www.euchinasafe.eu/training_network.html) or other portals or distributed by email.

Register for the project communication to be informed on the news on training program HERE!

IMPORTANT NOTE:

After submission of the application form do not forget to send us also your CV at euchinasafe@euchinasafe.eu, with the email subject: Application for training program – name and surname of applicant.

Europass format of CV is preferred, 4 pages in maximum (http://europass.cedefop.europa.eu/documents/curriculum-vitae/templates-instructions)

SELECTION PROCEDURE / CRITERIA TO BE MET:

- Application form to be completed to get appropriate information from potential trainees (any trainee can participate only in one training)
- Sustainability to be assured (please fill in respective part of the Application form)

  Trainees = future trainers. Therefore, the applicant should document the potential to organise follow/up training targeted for various stakeholders groups
- CV to be submitted (Europass format preferred)

  http://europass.cedefop.europa.eu/documents/curriculum-vitae/templates-instructions)

BUDGET FOR TRAINING:

- Short-term trainings

  max. 2 weeks, can be funded up to 1 000 € for travels in Europe, 1 500 € for travels in China
- Young scientists mobility

  1-3 months, can be funded up to 2 000 €/person

Who are the TRAINERS?

Well established experts´ institutes will act as key trainers´ centres and also contribute to preparation of other training materials:

- QUB, Belfast, UK
- UCT Prague, Prague, Czech Republic
- BfR, Berlin, Germany
- TEAGASC, Dublin, Ireland
- UCD, Dublin, Ireland
- Wageningen UR, Wageningen, The Netherlands
- JRC, Geel, Belgium
- FERA, York, UK

OFFERS for trainings in the EU-China-Safe TRAINING PROGRAM

Name of the organisation:	**Institute for Global Food Security, Biological Sciences, Queen's University Belfast (QUB)**
Address of the organisation:	19 Chlorine Gardens, Belfast, BT9 5DL, Northern Ireland
Webpage:	https://www.qub.ac.uk/Research/GRI/TheInstituteforGlobalFoodSecurity/

Specification of the SHORT-TERM training offer related to 'ANALYTICAL METHODOLOGY CONCEPT'	
Title of the training:	**Spectroscopy**
Brief description of a training content:	QUB have developed excellent laboratory based and handheld based methods to detect the adulteration of many food ingredients and commodities. These are based on different forms of molecular spectroscopy (RAMAN, NIR, FT-IR). An important part of the work is the ability to develop robust and reliable chemometric models. During the training how to achieve this will be demonstrated.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Spices
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Food fraud
Specific expertise/competence of the organisation relevant to the training topic:	The feasibility of applying NIR and FT-IR fingerprinting to detect adulteration in black pepper. Wilde, A. S., Haughey, S. A., Galvin-King, P. & Elliott, C. T., 01 Jun 2019, In : Food Control. 100, p. 1-7 7 p. The Rapid Detection of Sage Adulteration Using Fourier Transform Infra-Red (FTIR) Spectroscopy and Chemometrics. Galvin-King, P., Haughey, S. A., Montgomery, H. & Elliott, C. T., 16 Nov 2018, In : Journal of AOAC International. 102, 9 p. Herb and spice fraud; the drivers, challenges and detection. Galvin-King, P., Haughey, S. A. & Elliott, C. T., Jun 2018, In : Food Control. 88, p. 85-97 13 p. Development of a comprehensive analytical platform for the detection and quantitation of food fraud using a biomarker approach. The oregano adulteration case study. Wielogorska, E., Chevallier, O., Black, C., Galvin-King, P., Delêtre, M., Kelleher, C. T., Haughey, S. A. & Elliott, C. T., 15 Jan 2018, In : Food Chemistry. 239, p. 32-39 A comprehensive strategy to detect the fraudulent adulteration of herbs: The oregano approach Black, C., Haughey, S. A., Chevallier, O. P., Galvin-King, P. & Elliott, C. T., 03 May 2016, In : Food Chemistry. 210, p. 551-557 7 p.
Duration (days):	2 weeks
Starting date:	Year 2021, date of training will be specified at the beginning of 2021

Capacity (no. of trainees):	Up to 3
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate Some knowledge/experience of screening tests
Venue of the training:	Institute for Global Food Security, Queen's University Belfast

Specification of the YOUNG SCIENTISTS mobility offer for both concepts	
Title of the training:	**Advance Mass Spectrometry**
Brief description of a training content:	An intensive training programme on the use of ambient mass spectrometry (DESI, DART, REIMS coupled to mass spec) to detect the adulteration of food ingredients and commodities will be given. This will include training on how to build chemometric models.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Spices Dairy infant formula
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Food fraud
Specific expertise/competence of the organisation relevant to the training topic:	Black, C., Haughey, S. A., Chevallier, O. P., Galvin-King, P. & Elliott, C. T. A comprehensive strategy to detect the fraudulent adulteration of herbs: Te oregano approach. Food Chem. 210, 551–557 (2016) Black, C. et al. A real time metabolomic profiling approach to detecting fish fraud using rapid evaporative ionisation mass spectrometry. Metabolomics 13, 1 (2017) Kosek, V. et al. Ambient mass spectrometry based on REIMS for the rapid detection of adulteration of minced meats by the use of a range of additives. Food Control 104, 5-56 (2019) Chaterjee, N.S., Chevallier, O.P., Wielogorska, E., Black, C., Elliott, C.T. Simultaneous authentication of species identity and geographical origin of shrimps: Untargeted metabolomics to recurrent biomarker ions. Journal of Chromatography A 1599, 75-84 (2019) Black, C. et al. Rapid detection and specific identification of offals within minced beef samples utilising ambient mass spectrometry. Scientific Reports 9, 6295 (2019)
Duration (days):	3 months
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Advanced Very good working knowledge of mass spectrometry required
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Venue of the mobility:	Institute for Global Food Security, Queen's University Belfast

Name of the organisation:	**University of Chemistry and Technology, Prague (UCT Prague)**
Address of the organisation:	Technicka 5, 166 28 Prague 6, Czechia
Webpage:	www.vscht.cz; http://uapv.vscht.cz/

Specification of the SHORT-TERM training offer related to 'ANALYTICAL METHODOLOGY CONCEPT'	
Title of the training:	**Analytical strategies for multi-analyte / multi-matrix screening for pesticide residues, mycotoxins and plant alkaloids**
Brief description of a training content:	A theoretical and practical training in method development and validation for pesticide residues, mycotoxins and plant alkaloids screening in various matrices using methods based on LC/GC - tandem high resolution mass spectrometry (MS/MS, HRMS/MS) is offered. Training will cover experimental design, demonstration of various instrumental applications (hands-on), data processing and interpretation, QA/QC and regulatory issues. Discussion of ISO 17025 accreditation requirements.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Fruits/vegetables
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Chemical
Specific expertise/competence of the organisation relevant to the training topic:	UCT Prague, Department of Food Analysis and Nutrition (part of which is ISO 17025 accredited lab) provides expert services to external partners and is involved in many research activities and projects related to chemical food safety. UCT regularly organizes trainings, training schools, education workshops and series of symposia on Recent Advances in Food Analysis (RAFA). More details on publications and projects can be found at https://uapv.vscht.cz/?loadall
Duration (days):	Up to 5 days
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	3
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate
Venue of the training:	UCT Prague, Department of Food Analysis and Nutrition, Prague, Czechia

Specification of the YOUNG SCIENTISTS mobility offer for both concepts	
Title of the training:	**Analytical strategies for multi-analyte / multi-matrix screening for pesticide residues, mycotoxins and plant alkaloids**
Brief description of a training content:	A theoretical and practical training in method development for pesticide residues, mycotoxins and plant alkaloids screening in various matrices using methods based on LC/GC - tandem high resolution mass spectrometry (MS/MS, HRMS/MS) is offered. Training will cover experimental design, demonstration of various instrumental applications (hands-on), data processing and interpretation, validation and QA/QC issues; approaches for discovering and identification of ´unknown´ residues will be also discussed.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Fruits/vegetables Wine
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Chemical
Specific expertise/competence of the organisation relevant to the training topic:	UCT Prague, Department of Food Analysis and Nutrition (part of which is ISO 17025 accredited lab), provides expert services to external partners and is involved in many research activities and projects related to chemical food safety. UCT regularly organizes trainings, training schools, education workshops and series of symposia on Recent Advances in Food Analysis (RAFA). More details on publications and projects can be found at https://uapv.vscht.cz/?loadall
Duration (days):	1 month
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Venue of the mobility:	UCT Prague, Department of Food Analysis and Nutrition, Prague, Czechia

Name of the organisation:	**Federal Institute for Risk Assessment (BfR)**
Address of the organisation:	Max-Dohrn-Straße 8-10, 10589 Berlin, Germany
Webpage:	https://www.bfr.bund.de

Specification of the SHORT-TERM training offer related to 'ANALYTICAL METHODOLOGY CONCEPT'	
Title of the training:	**Analytical approaches to detect wine fraud**
Brief description of a training content:	A theoretical and practical training in wine authentication analysis is offered. Topics are selected relevant chromatographic approaches and the analysis of stable isotope ratios (for the elements C, O and H) of wine. These ratios are used to determine e.g. the origin of a wine, but also to identify watering or the addition of beet or cane sugar. The training covers • Theory and technical background • Sample preparation techniques • Hands-on instrument experience • Data analysis • Validation and quality assurance
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Wine
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Food fraud
Specific expertise/competence of the organisation relevant to the training topic:	BfR hosts the German senior expert office for the import control of wine. INFORMATION HERE
Duration (days):	5 (ideally Mon-Fri)
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	5
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate
Venue of the training:	BfR, Berlin, Germany

Name of the organisation:	**Teagasc Food Research Centre, Ashtown (TEAGASC)**
Address of the organisation:	Teagasc Food Research Centre, Ashtown, Dublin 15, D15 KN3K, Ireland
Webpage:	www.teagasc.ie

Specification of the SHORT-TERM training offer related to 'ANALYTICAL METHODOLOGY CONCEPT'	
Title of the training:	**Rapid, microwave-assisted analysis of eight bound nitrofuran residues in meat**
Brief description of a training content:	This training will involve the transfer of a confirmatory LC-MS/MS method for the rapid, microwave-assisted analysis of eight bound nitrofuran residues in meat. This method was developed in Teagasc, and will be transferred to the Chinese partners, on-site in Belfast, which will require the trainees to travel to Ireland. The training will cover all steps of the protocol, including tissue washing, microwave-assisted derivatisation, neutralisation, a QuEChERS-based extraction and LC-MS/MS determination.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Processed meat
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Chemical
Specific expertise/competence of the organisation relevant to the training topic:	This method was developed and validated in Teagasc Food Research Centre, Ashtown, by a PhD student, Gemma Regan, on the EU-China Safe project titled "Development of multi-residue methodology for the analysis of veterinary drug residues in food, using mass spectrometry based detection", under the supervision of Dr Martin Danaher, who specialises in chemical residue analysis in food.
Duration (days):	4-5 days
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	4
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate
Venue of the training:	Agri-Food and Biosciences Institute (AFBI), Belfast

Name of the organisation:	**University College Dublin (UCD)**
Address of the organisation:	UCD-Centre for Food Safety, University College Dublin, Belfield, Dublin D04 N2E5, Ireland
Webpage:	www.ucd.ie/cfs

Specification of the SHORT-TERM training offer related to 'ANALYTICAL METHODOLOGY CONCEPT'	
Title of the training:	**Training in whole genome sequencing (WGS) and analysis of genomic data**
Brief description of a training content:	In this practical training offering, participants, will gain conceptual and practical knowledge in a fast-developing area of research, namely bacterial whole genome sequencing (WGS). The programme will cover all the aspects of learning, specifically tailored to improve laboratory skills and will include lecture-presentations, practical laboratory exercises and bioinformatics mentoring. Completion of this training programme, will provide participants with an excellent introduction to the application of WGS-based strategies to support bacterial hazard characterisation.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	All supply chains
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Microbiological
Specific expertise/competence of the organisation relevant to the training topic:	Li, W., Bai, L., Ma., X., Zhang, X., Li, X., Huang, J.Y., Fanning, S. and Guo, Y. Sentinel listeriosis surveillance in selected hospitals, China, 2013-2017. *Emerging Infectious Diseases* (2019) 25: 2274-2277. doi: 10.3201/eid2512.180892 Hurley, D., Luque-Sastre, L., Parker, C.T., Huynh, S., Eshwar, A.K., Nguyen, S.V., Andrews, N., Moura, A., Fox, E.M., Jordan, K., Lehner, A., Stephan, R. and Fanning, S. Whole genome sequence-based characterisation of 100 *Listeria monocytogenes* isolates collected from food processing environments over a 4-year period. *mSphere* (2019) 7;(4). pii: e00252: doi: 10.2807/1560-7917.ES.2019.24.25.1900340
Duration (days):	14 days
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	5
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate
Venue of the training:	University College Dublin

Name of the organisation:	**Wageningen University & Research (WUR)**
Address of the organisation:	Akkermaalsbos 2, 6708 WB Wageningen, the Netherlands
Webpage:	https://www.wur.nl/en/Research-Results/Research-Institutes/food-safety-research/Food-fraud-and-Composition.htm

Specification of the SHORT-TERM training offer related to 'COMMODITY / OTHER CONCEPT'	
Title of the training:	**Food fraud vulnerability assessments**
Brief description of a training content:	The one day course consists of the following components: • The theoretical concept of food fraud; • Relevant fraud indicators; • Fraud vulnerability assessment strategies and interpretation of fraud vulnerability assessment results; • Development of control plans • Conclusions drawn from vulnerability assessments so far
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	All supply chains
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Food fraud
Specific expertise/competence of the organisation relevant to the training topic:	INFORMATION HERE
Duration (days):	1 day
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	Minimum of 8 trainees required, max 15
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Beginner (just some basic knowledge of food fraud)
Venue of the training:	Wageningen campus, the Netherlands

Specification of the YOUNG SCIENTISTS mobility offer for both concepts	
Title of the training:	**Hyperspectral imaging**
Brief description of a training content:	This training focuses on hyperspectral imaging and includes considerations for analysis conditions, recording, data acquisition as well as data processing (chemometrics). The applications deal with the discrimination of foods with a fine particle structure in order to distinguish between product-foreign material and the product, or particular features of the food product group due to e.g. processing. The candidate will get an introduction on hyperspectral imaging and work along PhD students on a product of choice (to be agreed between candidate and host) to familiarise him/herself

	with the technique.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Spices or dairy infant formula
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Food fraud
Specific expertise/competence of the organisation relevant to the training topic:	INFORMATION HERE
Duration (days):	2-3 months
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate (some expertise with vibrational spectroscopy and chemometrics)
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Venue of the mobility:	Wageningen campus, the Netherlands

Name of the organisation:	**European Commission Joint Research Centre (JRC)**
Address of the organisation:	European Commission, Joint Research Centre Directorate F - Health, Consumers and Reference Materials Retieseweg 111, 2440 Geel, Belgium
Webpage:	https://ec.europa.eu/jrc/en

Specification of the SHORT-TERM training offer related to 'ANALYTICAL METHODOLOGY CONCEPT'	
Title of the training:	**Use of reference materials and the estimation of measurement uncertainty**
Brief description of a training content:	• This course provides participants with the theoretical basis for the estimation of measurement uncertainty and establishment of traceability. Measurement uncertainty and traceability are essential for the evaluation of measurement results. • Reference materials are key tools for achieving traceability of measurements, proving the accuracy of methods and demonstrating the proficiency of laboratories. This knowledge is applied to the proper selection and use of reference materials.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	All supply chains
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Chemical Food fraud
Specific expertise/competence of the organisation relevant to the training topic:	As the science and knowledge service of the European Commission, the Joint Research Centre's mission is to support EU policies with independent evidence throughout the whole policy cycle.
Duration (days):	2 days
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	5
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Intermediate (a postgraduate level in chemistry and knowledge of concepts such as uncertainty, traceability, error propagation and general analytical measurements is needed)
Venue of the training:	European Commission, Joint Research Centre Retieseweg 111, 2440 Geel, Belgium

Name of the organisation:	**Fera Science Ltd (FERA)**
Address of the organisation:	NAFIC, Sand Hutton, York, North Yorkshire, UK YO41 1LZ, UK
Webpage:	https://www.fera.co.uk

Specification of the SHORT-TERM training offer related to 'ANALYTICAL METHODOLOGY CONCEPT'	
Title of the training:	**Analysis of POPs in food by GC-MS/MS for regulatory compliance**
Brief description of a training content:	GC-HRMS has been the go-to tool for trace analysis of POPs in foods. HRMS instruments require highly trained analysts to operate and are expensive. Development of validated methods for analysis of POPs in foods based on MS/MS technology would allow more laboratories to routinely look for POPs in food at lower cost. Emphasis would be on regulated compounds (dioxins, PCBs, PAHs) and non-regulated compounds of concern such as BFRs. Extraction methods will be assessed. Quality assurance criteria (LOD/ LOQ calculation) with reference to EU regulations, uncertainty calculation methods and use of reference materials will be included.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Processed meats, spices, dairy products, infant formula
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Chemical
Specific expertise/competence of the organisation relevant to the training topic:	Fera are the UK NRL for halogenated contaminants in food and feed, food processing contaminants https://www.fera.co.uk/about-us/national-reference-laboratory/dioxins-pcbs
Duration (days):	5 days
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	5
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Beginner/ Intermediate
Venue of the training:	Fera Science Ltd, UK

Specification of the SHORT-TERM training offer related to 'COMMODITY / OTHER CONCEPT'	
Title of the training:	**Introduction to the socio-economics of food fraud and food safety**
Brief description of a training content:	The objective of this short course is to provide non-economists with an understanding of the underlying theory used to assess food fraud and food safety incidents in order to engage more fully in interdisciplinary working. Topics covered will include: 1) Basic economic concepts 2) Theory of the firm 3) Behavioural economics 4) Cost benefit analysis 5) The inclusion of non-market impacts 6) The role of policy The outcome for delegates will be a better understanding of how economic assessments of impact are conducted and how the estimates are derived. This will extend to beyond a simple analysis of business-based costs to include non-market impacts (e.g. human health) as well as indirect impacts caused by mitigating behaviours. Over the last four decades, many food related scandals (both through disease and fraud) have contributed to the global concern around food safety. The global integration of the food system increases supply chain complexity inevitably increases the risks associated with food safety (Ellefson et al., 2012) and the need for compliance with international quality standards (Lemanzyk et al., 2015). The human cost related to foodborne outbreaks is extremely high: The World Health Organization estimates 600 million – almost 1 in 10 people in the world – fall ill after eating contaminated food and 420000 die every year [1]. Nevertheless, the impact of food system failures is much higher than medical costs and lost productivity. The inability to meet food safety requirements may cause a vicious cycle generated by lower incomes and reduced access to food which, in turn, can lead to increased medical costs and decreased worker productivity (Devleesschauwer et al., 2018, p. 84). The potential impact of food safety/fraud incidents on a business can be devastating; a single event can bring significant economic losses due to direct costs (disruption to operations while managing the recall, direct cost of recalling stock, analytical laboratory testing etc) and indirect ones such as the brand damage and loss of consumer confidence/change in consumption preferences (Kennedy et al., 2009; Hussain and Dawson, 2013).

[1] https://www.who.int/en/news-room/fact-sheets/detail/food-safety

	References Devleesschauwer, B., Scharff, R.L., Kowalcyk, B.B. and Havelaar, A.H., 2018. Burden and Risk Assessment of Foodborne Disease. In Food Safety Economics (pp. 83-106). Springer, Cham. Ellefson, W., Zach, L. and Sullivan, D. eds., 2012. Improving import food safety (Vol. 85). John Wiley & Sons. Hussain, M.A. and Dawson, C.O., 2013. Economic impact of food safety outbreaks on food businesses. Foods, 2(4), pp.585-589. Kennedy, J., Delaney, L., McGloin, A. and Wall, P.G., 2009. Public perceptions of the dioxin crisis in Irish pork. Lemanzyk, T., Anding, K., Linss, G., Hernández, J.R. and Theska, R., 2015. Food Safety by Using Machine Learning for Automatic Classification of Seeds of the South-American Incanut Plant. In Journal of Physics: Conference Series (Vol. 588, No. 1, p. 012036). IOP Publishing.
Training related to one of the food products: (i) processed meat, (ii) wine, (iii) fruits/vegetables, (iv) spices, (v) dairy infant formula	Processed meat and dairy infant formula, as case studies
Training related to one of the threats: (i) microbiological, (ii) chemical, (iii) food fraud	Food fraud and food safety
Specific expertise/competence of the organisation relevant to the training topic:	FERA Science delivers technology-driven food transparency and raise the bar on standards and regulations in place to mitigate the risk of food fraud. The aim is to give the food industry protection based upon sound regulations and inspection methods, as well as help to give consumers confidence around the food that they eat. Globalised food supply chains give consumers access to a huge variety of foods, though buyers are becoming increasingly aware of, and considerate of the sourcing and authenticity of the products they choose to buy. Economically motivated food fraud is now a major concern for both the food industry and regulators across the globe. Food safety specialists at FERA Science are continually investigating new ways to provide early warnings of emerging risks and mitigate the risk of food fraud occurring at any point through the food chain. Much of this innovative work is based on non-targeted chemical and biochemical profiling of components in food samples. We use advanced techniques such as NMR spectroscopy, high resolution Mass Spectrometry and Next Generation Sequencing coupled with advanced 'big data' analysis.

	FERA Science has developed an Early Warning System (EWS) prototype, a tool demonstrating how technology is bringing to the market cost-effective proactive methods to detecting fraud. This will look to alert you to developing issues from across the world – giving you a chance to introduce mitigation procedures before a crisis develops. Link to website: https://www.fera.co.uk/our-science/active-r-and-d/eu-and-defra-projects
Duration (days):	2 days
Starting date:	Year 2021, date of training will be specified at the beginning of 2021
Capacity (no. of trainees):	Max. 20
Knowledge of trainees required for offered training: (i) beginner, (ii) intermediate, (iii) advanced	Beginner, Intermediate
Venue of the training:	Fera Science Ltd, UK