

EUROPEAN COMMISSION Erasmus+ Knowledge Alliance

EUFOOD-STA: EUROPEAN FOOD STUDIES & TRAINING ALLIANCE

554312-EPP-1-2014-1-AT-EPPKA2-KA

January 2015-December 2017

Deliverable **D4.6**

Evaluation of developed training activities

Prepared by: Florence Dubois-Brissonnet (AgroParisTech) and Paola Pittia (UNITE)

Contributors: all HEI and industry partners

Delivery date: M37

Dissemination Level		
PU	Public	X
PP	Restricted to other programme participants (including Commission services and projects reviewers)	
CO	Confidential, only for members of the consortium (including EACEA and Commission services and projects reviewers)	

Summary:

This document describes the results of the evaluation of **selected joint industry-university initiatives** for students and teachers/trainers from HE and industry. The initiatives can be summarized under the 2 main initiatives, the **Food Factory-4-U**s (Task 4.3.1) and **Industry-university joint practical training initiative** (Task 4.3.2).



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Project Coordinator:

GERHARD SCHLEINING | BOKU – Universitaet fuer Bodenkultur Wien | office@food-sta.eu



1 Introduction

The main aim of WP4 is to harmonise, improve and modernize Food study programmes with respect to the industry-oriented professional skills.

This implies a series of actions that include the identification, selection, setting, design and development of educational and training activities with a novel training approach in close industry-academia collaboration. WP4 activities were carried out jointly developed by representatives of the industry and universities partners of the project consortium and are targeted to students, HE teachers and industry professionals.

This deliverable is aimed to report the methods and the results of evaluation for the selected training activities. The two tasks covered by this deliverable were:

- *Food Factory-4-Us student competition (Task 4.3.1)*
- *Industry-university joint practical training initiative (Task 4.3.2)*

The reference document is:

- D4.5 where the list of selected activities was reported with the target groups, learning outcomes, methods layout and implementation plan.

2 ***Evaluation of the Food Factory-4-us student competition (Task 4.3.1.)***

The first edition of the student competition took place in 2016. The call was launched in September and the presentation of the projects was completed in January 2017. The student competition focuses on problem solving abilities. In the first edition, the choice of the topic was left to the discretion of the students.

Nine teams competed from European countries (Netherlands, 4 teams; France, 1 team; Italy, 1 team; Portugal, 1 team) and other countries outside Europe (Mexico, 1 team; Marocco, 1 team). Three of the teams were from universities involved in EuFoodSTA project (AgroParisTech, UNITE, UCP). The subjects were diverse (cf list to be put in D.4.5 updated).



The teams work was evaluated by a committee made of 5 persons from universities (out of the participating universities), food companies and food associations.

2.1 Method of evaluation

The evaluation of this competition game occurred from three points of view: the committee that has judged the students work, the participating students and the competition organisers.

- Methodology of evaluation of the teams work by the committee: The assessment criteria for each project were: the report quality (overall clarity, language, presentation, references), the presentation quality (overall presentation quality, clarity, mastery of the topic/theoretical understanding), the project quality (scientific approach, originality, potential applicability in food industry). All these criteria were graded from poor (1), weak (2), average (3), good (4) to excellent (5). The project evaluation form is given in Annex I.
- Evaluation of the competition proceeding by the students: an evaluation form was sent to all the team after the competition was over in order to evaluate the competition from the team's point of view (see Annex II).
- Swot analysis of the competition game by the organisers.

2.2 Results of evaluation for the first edition of the competition

Evaluation of the teams work: the committee has appreciated the overall quality of the teams work. The average of the marks given by the 5 members of the committee were distributed from 16 to 21 upon 30. The winner was the team from Mexico with 21 points.

Evaluation of the competition by the students: From the responses of the students, the competition organization could be improved. The student's main remark was that the topics of the competition were broad and too general, and they recommend to give students a more specific topic for next competitions. The 2nd edition of the competition will be focused on projects dealing with strategies and actions aimed to the enhancement of the shelf-life of foods.



Evaluation by the organisers with a swot analyse

Strengths: innovative pedagogic tool (team working abilities for students, working on practical innovative study cases, abilities to make a presentation in English and *on-line*).

Weakness: low student availability to make extra-work, no ECTS delivered

Opportunities: aggregate teams from different countries

Threats: obtain the budget for financing the winner (500 euros) each year

3 Evaluation of the industry-university joint practical initiatives (Task 4.3.2.)

The objective of this task was to implement series of pilot runs developed in collaboration with students, universities and industries.

First, the **existing in-factory training activities** for students and trainers implemented within the duration of the project were collected using two specific forms (see D.4.5. updated), one for visits of industrial plants and one for internships (students/teachers).

Second, the **tailor-made activities** specifically developed for the project were also collected. For example, visits of industrial production sites were specifically designed for HE-teachers. Moreover, **training courses (webinars, workshops)** were implemented and they are still available *on-line* to improve industry-related skills of HE teachers (the list of webinars is listed in WP3 deliverables).

3.1 Method of evaluation

Visits:

After each visit, a form was filled by the HE-teacher who organized the visit. In the form, HE-teachers were asked to list the implemented skills of visitors (students and/or HE-teachers), strengths and weakness of the visit for the visitors. The template of this form is given in Annexe III.

Internships:

After each internship, a form was filled by the HE-teacher who is the student academic tutor. In the form, HE-teachers were asked to list the implemented skills of students, strengths and weakness of the internship for the student and for the food company. The template of this form is given in Annexe IV.

Webinars:

After each webinar and in the follow-up emails sent 4 hours after the session, a short evaluation form was distributed to all participants. In the evaluation, participants were asked to rate on a scale from 1-5 (where 5= excellent, 4= very good, 3= good, 2= satisfactory, 1= poor), the following statements:

- • Degree of interest of the topic
- • Overall quality of the presentation
- • Overall content of the presentation

Besides these questions, which are summarized below, participants were asked to give input (open ended questions) on the following:

- Please make suggestions to improve the organization
- Please make suggestions for further topic A quantitative evaluation can be done about these industry-university joint practical initiatives and can be completed by a swot analysis.

3.2 Results of evaluation

Evaluation results for the visits:

9 forms B for visits of EuFoodSTA HE-teachers in food companies were filled. Detailed reports are available in a separate pdf file.

Moreover, three visits were specifically organized for HE partners during the project: the visits of Frulact (Portugal, March 2016), Extractis (France, October 2016) and Ritter Sport (Germany, April 2017). The detailed reports of these visits are available in the Annex V.

All together and according to the visit evaluation forms, it was clear that HE-teachers obtained from these visits several practical knowledges about updated issues in food companies. For example, they learnt of lot about the management and storage of goods, the quality control system (method analysis, traceability during processing), and the whole techniques of



processing. They also discovered interesting views of successful innovative food industries. They had information about new techniques and advancements in the corresponding instrumental techniques. They were able to discuss with experts on several topics such as monitoring tools or quality assurance. Moreover, they became aware about how food companies tend to minimize the environmental impact of their process.

The potential benefits of the visit are the implemented skills for visitors listed above but also the improvement of collaboration between the universities and food companies.

Evaluation results for the internships:

22 forms C for student internships were filled. Reports are available in a separate pdf file.

According to the internship evaluation forms, student acquired new during these internships both technical and soft skills. Technical implemented skills were for example new product development, specific process technical skills in industry, application of good hygiene practices, quality control and HACCP, knowledge on quality and food safety management systems, operational monitoring of CIP, auditing skills, logistic and stock management, research in literature and scientific databases for technical improvement, risk assessment methodology and modelling. Soft implemented skills were notably the ability of team working within several size companies. Strengths of these internships for students were the different implemented skills listed above.

Evaluation results for webinars:

Many HE teachers attended to the webinars on industrial-related topics. On the 26 webinars organized by EuFoodSTA project, the average of attendees that are affiliated to universities (student and HE-teachers) or governments is 66%. The percentage of HE-attendees for all webinars is given in Figure 1 below. Four of them are over 80% and 22/31 are over 50%. The topic that bring most HE-attendees were scientific topics, such as "Symprevius for beginners", "How can we better evaluate the efficiency of food antimicrobials?" or "Biopreservation of foodstuffs: mechanisms and applications". The webinars with less HE-attendees were the ones about food regulations.

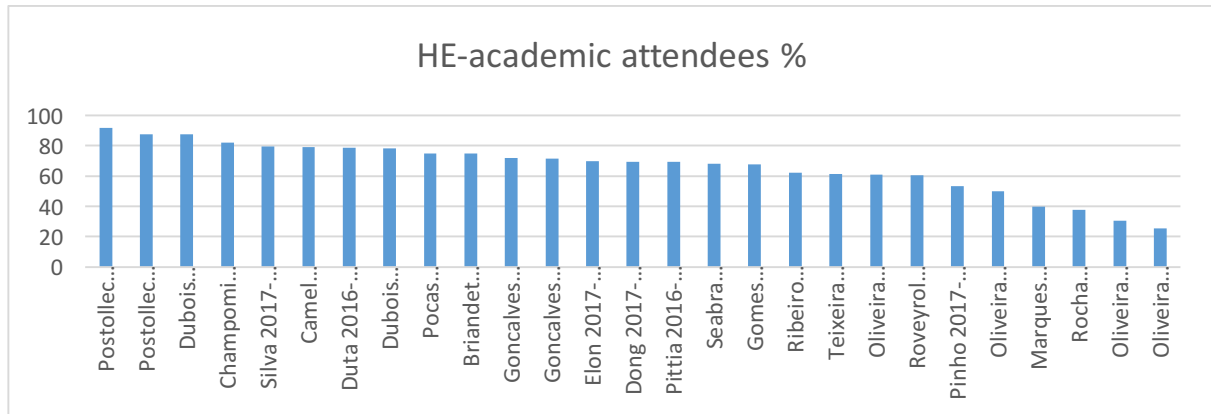


Figure 1: Percentage of HE-attendees for all the 31 webinars

Global evaluation of the training activities with a swot analyse:

- Strength: visits specifically dedicated to HE teachers, implementation of student practical skills.
- Weakness: time to write a form for each internship or visit when there are too many per year in a single university (UCP or AgroParisTech for example) => the number of forms is not representative of the reality of internships, visits or collaborations between university and industry.
- Opportunities: collaboration that could be developed with the industry after the visit
- Threats: -



ANNEX I: Student FoodFactory4us competition - Project evaluation form



FoodFactory-4-Us - International students competition game

PROJECT Evaluation Form

Team:

Project Title:

Referee:

Assessment criteria	Excellent (5)	Good (4)	Average (3)	Weak (2)	Poor (1)
Report Quality (clarity, language, presentation, references – if any)					
Presentation Quality (overall presentation quality, clarity, mastery of the topic/theoretical understanding)					
Project Quality					
Scientific approach and quality					
Originality					
Potential applicability in food industry					
.....					
Final report quality					

Overall comments and notes

ANNEX II: Evaluation form for the 1st edition of the food factory-4-us student competition



1st International Students competition FoodFactory-4-Us

Evaluation Form

Was you member of a team that

- A. Registered, but withdrew during the competition time
- B. Registered, and actively participated up to the final evaluation and awarding event

If you SELECTED (A) answer

1. **Based on your experience, could you indicate which are the reasons that led you/your team to withdraw (multi-answers are possible)?**
 - No/scarce interest for the aims of the competition
 - No/scarce interest for the topics of the competition
 - No time
 - Interested but no time according to the time schedule of the competition
 - No sufficient information on the competition
 - Other (please specify):

2. **Based on your experience, could you indicate which could be the aspects we have to improve to allow more teams to participate?**
 - Change the topics of the competition
 - Change the time schedule
 - Improve/change awards/awarding tools
 - Improve dissemination
 - Organise more intermediate virtual meetings
 - Organise intermediate dedicated training events (e.g. webinars)
 - Other (please specify): [Click here to enter text.](#)

If you SELECTED (B) answer

1. How do you rate

	HIGH	Discrete	Sufficient	Scarce	LOW
The quality of the overall competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks Click here to enter text.					
The definition and description of the topic of competition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks Click here to enter text.					
The quality and usefulness of the information provided you at the time of registration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks Click here to enter text.					
The quality of the organisation of the competition (virtual meetings, reports and final virtual workshop)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks Click here to enter text.					



The quality and usefulness of the intermediate virtual meeting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks Click here to enter text.					
The quality of the final virtual workshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks Click here to enter text.					
The impact of your experience in the competition for your current career as student	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks Click here to enter text.					
The impact of your experience in the competition for your future professional career as food technologist?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Remarks (too short / ok / too long) Click here to enter text.					

2. Based on your experience, could you indicate which could be the aspects we have to improve to allow more teams to participate?

- Change the topics of the competition
- Change the time schedule
- Improve/change awards/awarding tools
- Improve dissemination
- Organise more intermediate virtual meetings
- Organise intermediate dedicated training events (e.g. webinars)
- Other (please specify): [Click here to enter text.](#)

Other comments? (for both A and B)

Thank you for your feedback!

Please return this sheet to the ppittia@unite.it or to line.lindner@boku.ac.at



Annexe III: Form “B”: Tailored (one-, more days) visits of students and teachers in industries and of industry practitioners/technicians in HE/University labs

Partner institution/ name of the participant (if a single participant) or group	
Participant category*	
Tutor (for students)	
Visiting company/institution (name and place)	
Sector of activity**	
Planned duration of the visit	
Agenda of the visit (eg. plant visit, meeting with director, discussion....) if any	
Workload in h	
Pre-knowledge	
Learning outcomes	After successful completion of the activity, the participants are able to
Assessment of the students LO (exam method and evaluation) (if any)	

* student, teacher, industry practitioner

** : HE, industry



Form “B”_REPORT: Tailored (one-, more days) visits of students and teachers in industries and of industry practitioners/technicians in HE/University labs

Participant name:.....

Partner institution/organization/company:.....

Summarise in a text of max 500 characters the main activities of the visit

New skills implemented:

Strengths and weaknesses of the visited institution/organization/food factory

Potential benefits of the visits for the future study/working activities



ANNEX IV: Form “C”: Tailored internships of students and teachers in industries/HE and of industry practitioners/technicians in HE/university labs

Partner	
Student, study programme and tutor	
Participant category*	
Tutor (for students)	
Food industry/institution (name and place) where the internship will be carried out (name and place)	
Sector of activity**	
Planned duration of the internship	
General training/project activities description	
Workload (months)	
Pre-knowledge	
Learning outcomes	After successful completion of the activity, the participants are able to
Assessment of the students LO (exam method and evaluation) (if any)	
Financial support type (if any, eg. Erasmus + grant,)	



Form “C-REPORT”: Tailored internships of students and teachers in industries/HE and of industry practitioners/technicians in HE/university labs

Participant name:.....

Partner institution/organization/company:.....

Summarise in a text of max 500 characters the main activities of the internship

New skills implemented:

Strengths and weaknesses of the internship in the institution/organization/food factory

Potential benefits of the internship for the future study/working activities

Annexe V: Form “B” for the three visits specifically organized for EuFoodSTA partners

FRULACT Form “B”

Partner institution/ name of the participant (if a single participant) or group	EuFoodSTA partners coordinated by the project coordinator, Gerhard Schleining, including: Paola Pittia (UniTE), Cristina L. Silva (UCP), Rui Costa (IPC), Peter Ho and Joanne Maycock (ULeeds), Florence Dubois-Brissonnet (AgroParisTEch)
Participant category*	HE teachers
Tutor (for students)	Coordinated by Gerhard Schleining
Visiting company/institution (name and place)	Frulact
Sector of activity**	Fruit-based half-products for dairy and bakery products
Planned duration of the visit	1.5 h 1 st April 2016
Agenda of the visit (eg. plant visit, meeting with director, discussion....) if any	The visit of the laboratories led by Maria Ana Marquez, will be complemented by a presentation that describes the R&D strategies and actions of industry-university collaborations.
Workload in h	2.5
Pre-knowledge	Food processing, food chemistry
Learning outcomes	After successful completion of the activity, the participants are able to improvement of technical skills related to the processing of fruits to obtain half-products to be used in formulated products of high quality in terms of flavor and aroma and stability. Case studies of university-industry joint projects. R&D strategies in food product development
Assessment of the visitors LO (exam method and evaluation) (if any)	Overall discussion

* student, teacher, industry practitioner

** : HE, industry



Form “B” REPORT: Tailored (one-, more days) visits of students and teachers in industries and of industry practitioners/technicians in HE/University labs

Participant name: EuFoodSTA institution HE partners

Partner institution/organization/company: FRULACT (Porto, PT)

Summarise in a text of max 500 characters the main activities of the visit

The visit took place on 1st April and included: visit of the AQ and R&D laboratories and facilities with a description of the running projects on R&D. A description of the procedures of the processes of the raw materials was also carried out

The visit was followed by a presentation of 30 min on R&D strategies of the company and the Frulact initiatives on education and training of HE students of Food studies.

New skills implemented: food product development, R&D strategies

Strengths and weaknesses of the visited institution/organization/food factory

Strengths:

- clear description of the R&D strategies aimed to improve quality of the fruit-made half products

Weaknesses:

- the visit was limited to the AQ and R&D labs.

Potential benefits of the visits for the future study/working activities:

- Good examples and case studies on industry-HE institution interaction aimed to favour HE students creativity on the development of innovative fruit based products



EXTRACTIS Form “B”

<i>Partner institution/ name of the participant (if a single participant) or group</i>	EuFoodSTA partners namely: Gerhard Schleining, Line Friis Lindner and Rainer Svacinka (BOKU), Cristina L. Silva (UCP), Cristine Graber (LVA), Florence Dubois-Brissonnet and Charlène Leneveu-Jenvrin (AgroParisTech).
<i>Participant category*</i>	HE teachers
<i>Tutor (for students)</i>	Coordinated by Christophe Cotillon (ACTIA) and Florence Dubois-Brissonnet (AgroParisTech)
<i>Visiting company/institution (name and place)</i>	EXTRACTIS (ACTIA centre) F-80480 Dury.
<i>Sector of activity**</i>	Agro-Industrial technical centre specialized in the field of extraction, fractionation and chemistry of plant biomass for the development of new innovating processes or products.
<i>Planned duration of the visit</i>	2h
<i>Agenda of the visit (eg. plant visit, meeting with director, discussion....) if any</i>	Meeting with the director of Extractis: - Presentation of the technical centre: the activities, the processes and the products of Extractis. - Discussion about the clients of Extractis which can be diversified in terms of business sectors or company sizes. - Visit of the different parts of the technical centre with the director.
<i>Workload in h</i>	
<i>Pre-knowledge</i>	
<i>Learning outcomes</i>	Specific constraints of the activities of a technical centre which can highly vary according to the clients.
<i>Assessment of the visitors LO (exam method and evaluation) (if any)</i>	none

*student, teacher, industry practitioner

** : HE, industry

Form “B” REPORT: Tailored (one-, more days) visits of students and teachers in industries and of industry practitioners/technicians in HE/University labs

Participant name: HE teachers of EuFoodSTA project

Partner institution/organization/company: EXTRACTIS (ACTIA center)

Summarise in a text of max 500 characters the main activities of the visit:

Being service provider, Extractis guides their clients in the design and realization of new products by transformation of vegetable biomass. This technical centre works in different business sectors: cosmetic or food ingredients... The main activities of the visit were: discussion with the director about their activities, visit of the laboratory (chromatographic techniques and physical analyses), and visit of the



following platforms: extraction and purification of plants; cooking-extrusion; reactive extrusion; subcritical engine water; membrane pilots of electro dialysis; physicochemical characterizations and analyses.

New skills implemented:

The visit of Extractis implemented HE teachers skills about the working methods of a technical center. Besides, we learned some details about techniques of fractionation and purification, extraction, separation techniques, and methods for up-scaling processes.



Strengths and weaknesses of the visited institution/organization/food factory:

The strength of EXTRACTIS visit was the discussion about the working method of the centre with the director, in particular about their way of combining innovative ideas, product development, and scaling-up.

No weakness was identified.

Potential benefits of the visits for the future study/working activities:

Not identified.

RITTER SPORT Form “B”

Partner institution/ name of the participant (if a single participant) or group	EuFoodSTA partners including: Javier Casado and Susanne Braun (Honhenheim), Gerhard Schleining, Line Friis Lindner and Rainer Svacinka (BOKU), Paola Pittia (UniTE), Florence Dubois-Brissonnet (AgroParisTech), Cristina L. Silva (UCP), Rui Costa (IPC), Peter Ho (ULeeds), Christophe Cotillon (ACTIA)
Participant category*	
Tutor (for students)	Coordinated by Javier Casado and Susanne Braun (Honhenheim University)
Visiting company/institution (name and place)	Ritter Sport Alfred Ritter strasse 27 71111 Waldenbuch, germany
Sector of activity**	Chocolate bars
Planned duration of the visit	3h 6 th April 2017
Agenda of the visit (eg. plant visit, meeting with director, discussion....) if any	- Presentation of the Ritter Sport history and activities. - Visit of the production plant and discussion. - Visit of the Ritter Chocolate museum.
Workload in h	
Pre-knowledge	
Learning outcomes	Techniques of chocolate transformation
Assessment of the visitors LO (exam method and evaluation) (if any)	Overall discussion



*student, teacher, industry practitioner

** : HE, industry

Form “B” REPORT: Tailored (one-, more days) visits of students and teachers in industries and of industry practitioners/technicians in HE/University labs

Participant name: HE teachers of EuFoodSTA project

Partner institution/organization/company: Honhenheim University

Summarise in a text of max 500 characters the main activities of the visit:

The visit took place on 6th April 2017. It included the presentation of the history of the company and of the different products, the visit of the production plant with the different steps (grinding, mixing, pressing and refining, conching, tempering and packaging) and a final visit to the Ritter Chocolate museum



New skills implemented:

The visit of Ritter Sport implemented HE teachers skills about the history of chocolate, about the cultivation and preparation, and about nutrition and health issues.

Strengths and weaknesses of the visited institution/organization/food factory:

The strength of Ritter Sport visit was the presentation of how was born the idea of the format of this chocolate bar and new innovations in chocolate bars (e.g. bio chocolate, vegan chocolate, lactose-free chocolate). No weakness was identified.

Potential benefits of the visits for the future study/working activities:

None