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Amoove21

Output Unit 02 Livestock/ dairy Aeres Leeuwarden

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Aeres Leeuwarden

Amoove 21

AERES

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Format overview

Aeres Leeuwaren Livestock/ dairy U-2 en U-13

CONTACT INFORMATION	ACTIVITY CONTENTS
Aeres Leeuwarden	**Livestock/ dairy**
Number of Unit (I or II)	I
Title of the Unit	Dairy processing
Name of member	Liesbeth Steenbergen & Bertus Faber
Name of Team partners	Aeres Leeuwarden, The Netherlands
LEARNING OUTCOMES	**DESCRIPTION**
	KNOWLEDGE • The student knows the risks of contamination and cross-contamination • The student knows the four types of micro-organism • The student knows the (seven) conditions of life • The student knows the way of cleaning and disinfection and can apply it • The student knows the composition of milk • The student knows and performs the various operations involved in cheese making (cutting, draining, washing, etc.)
	SKILLS • The student works hygienically • The student will ensure hygienic conditions • The student works safely • The student mixes the ingredients in a correct way • The student presses the cheese in a correct way • The student brines the cheese in the right way • The student takes care of the cheese in a proper way and gives it the right storage
	COMPETENCES • The student prevents contamination in cheese • The student identifies sources of contamination • The student mixes the ingredients in a correct way • The student gives the milk the correct heat treatment • The student calculates the correct amounts of the ingredients to be added into the cheese milk

Stages and results	**Project description: Cheese processing** Target group: Second or third year (age 17-18) **Aim** The aim of this course is to let the student communicate in a foreign language, at A2 level according to the ETL. Another aim is getting to know other cultures. A third aim is getting to know how to make cheese.

EXAMPLE SCHEDULE	DESCRIPTION
DAY 1	**Welcome, introduction** • Get to know each other • Get to know the school • Introduction hygiene and safety in processing hall and labs • Explanation of the assignment • To taste dairy products: different kind of cheeses and yoghurts Activity in the evening: Cooking in the lodge, the students all together
DAY 2	**Excursion day** • Introduction to Lely Orbiter • Excursion to farm with newest Lely robot family Reijer Rotgans • Calculation breakeven point Lely Orbiter • Excursion to Klaver Koe Activity in the evening: Going to McDonald's all together.
DAY 3	**Theory and practical day** • Theory milk and cheese • Cheese processing in bucket in the processing hall; two by two Activity in the evening: Cooking in the boarding house.
DAY 4	**Practical day** • Cheese processing in curd maker in group of 4 students (Students from Food technology for adults helped the students to process the cheese). Activity in the evening: Cooking in the boarding house.

DAY 5	**Theory and practical day** • Micro-biology theory • Hygienic proof in micro-biology laboratory • Micro-biology in micro-biology laboratory Activity in the evening: Swimming
WEEKEND	Fierljep clinic in Burgum on Saturday. On Sunday visit to two dairy farms and a small trip to Amsterdam.
DAY 6	**Practical day** • Coating the self-made cheeses • Excursion to DSM (CSK) in Leeuwarden Activity in the evening: Cooking in the boarding house.
DAY 7	**Theory and practical day** • Analyses on cheese in the chemical laboratory • Excursion to cheese farm De Gelder in Tijnje Activity in the evening: Cooking in the boarding house.
DAY 8	**Theory and practical day** • Cheese coating • Results plates with micro-organism and theory about this • Trip to Groningen in the afternoon and evening.
DAY 9	**Excursion and preparation assignment** • Excursion to cheese factory • Evaluation of the visit • Theoretical test • Social activity with Equine Alkmaar: school tour, having a drink and diner at Aeres Leeuwarden.
DAY 10	**Presentation day** • Preparing presentations • Presentations • Farewell session at school • Escape room with students and docents Activity in the evening: Diner in restaurant, all together with students and teachers.
WEEKEND	Trip back home

Key Activities	• Follow classes at the college • Making cheese themselves with adult students and teachers • Excursions to farms, cheese farms and cheese factories • Amsterdam, Groningen and Escape room
EQF level	4
Duration of activity	Two weeks, 10 days at school
ICT Tools	Own laptop
Organization of the activity	The students were housed in De Herdershoeve in Burgum, Zomerweg 96. www.deherdershoeve.nl Housing and lodging.
Number of students/staff involved	8 students and 5 teachers in total (different days of the week)
Minimum knowledge that the students must know	• Basic knowledge of cows, milk and hygiene • The student followed the VA before joining the module • Writing and speaking English
Period in which the module is offered	26 September till 7 October 2022
Hereby I give my permission to be contacted by interested parties	Yes
Name / email	Liesbeth Steenbergen; l.steenbergen@mbolifesciences.nl

List of possible excursions

Made excursions which connects to the unit:

Name of the company	Kind	Address	Contacts	Excursion / Masterclass/ Workshop
Excursion to Lely Orbiter at Farm Reijer Rotgans	Farm with cows and milk processing	Hippolitus-hoef, The Netherlands	Boer Reijer (mijnmelk.nl)	Excursion
Excursion to DSM (CSK)	Ingredients and culture to add to cheese	Pallasweg 1, Leeuwarden The Netherlands	Karin de Ruiter DSM (cskfood.com)	Excursion
Excursion to cheese farm De Gelder	Cheese- and yoghurt processing	Heawei 42, Tijnje, The Netherlands	Kaasboerderij De Gelder - De Friese boerenkaasmakers van Tynjetaler Phone: +31 513 571236	Excursion
Excursion to cheese factory Henri Willig	Cheese factory processing cheese automatically	Venus 18. HeerenveenThe Netherlands Phone: +31 513 484360	https://henriwillig.com/	Excursion
Klaver Koe	Goat- and cow farm with cheese processing factory	Langereis 6, Winkel, The Netherlands Phone: +31 224 541345	Home - Klaver Kaas	Excursion

Possible excursions which is related to bonding and culture

Name of the activity	Address	Contacts / special days
Fierljep clinic	Ypeylaan 8, 9257 MR Noord-burgum	Mr. Scherjon
Agricultural museum	Felling 6, 8912 GC Leeuwarden	
Walk on the beach		
Kanoen Duke Luk	De Wal 13, 9269 FA Veenwoudsterwal	
Escape room	Emmakade 59, 8397 LC Leeuwarden	
Escape the city	Noordvliet 261, 8921GG Leeuwarden	
Bowlen Leeuwarden	Victorie Plaza Bowlen & Kegelen Terborchlaan 327 1816 MH Leeuwarden	
Amsterdam		

Information about selecting criteria

- Students must participate in the virtual assignment
- Students must have basic knowledge about dairy cows
- Students must have basic knowledge about milk and a bit about hygiene
- Students can write and speak English

Student invitation

Invitation letter Pilot 4 : Milk processing Aeres Leeuwarden

Dear participant,
Most welcome on the course! We look forward to get acquainted, sharing ideas and experiences and at the same time develop our 21st century skills. In other words: having a great time together in the Netherlands.

With this letter we will inform you about the course and your stay. In the annexes you'll find forms and additional information.

The course
In this course you will learn how to process milk into cheese. Self-evident is that hygiene and micro-biology is part of the lesson programme. Theoretical lessons will be exchanged with practical lessons and excursions e.g. https://youtu.be/f7kiaZw9nOw.

Social activities are another important issue. Prepare yourself on the “Fierljep clinic” : https://youtu.be/bN6xSa_HQGY 😊 that will take place in the weekend.

Main learning objectives

-21st century skills: communication, collaboration, critical thinking, creativity-
Producing cheese
Ensure and apply hygienic conditions
Identify sources of contamination
Calculation the quantity of raw materials and ingredients
Knowledge of micro-organisms, cleaning and disinfection.

Programme in headlines

Sunday 25-9-2022	Arrivals and accommodate
Monday	Getting acquainted, learning objectives and introduction, tasting of dairy products
Tuesday	Excursion to dairy farm and Lely Orbiter farm.
Wednesday	Theory milk and cheese, processing practical
Thursday	Cheese processing practical’s
Friday	Micro-biology in lab
Saturday	Social activity
Sunday 2-10-2022	To be discussed
Monday	Coating and sampling of cheese, excursion to DSM (cskfood.com)
Tuesday	Chemical lab, excursion to milk processing farm
Wednesday	Cheese coating + result of micro biology test, tasting cheese
Thursday	Excursion cheese processing factory, interchange with participants of pilot 3
Friday	Wrap up and presentations, social activity, evaluation, certificates
Saturday 8-10-2022	Leaves

Time
The course will be organized from September 26 – October 7. Lessons will be from 8.30 – 16:00 and in consultation, depending on the program.

Place
Theoretical as well as practical lesson take place at Aeres College, Jansoniusstraat 2a, 8934 BM Leeuwarden, The Netherlands.

Accommodation and meals
During your stay you will be accommodated at De Herdershoeve (Zomerweg 96, 9257MG Noardburgum) There will be 5 bedrooms available. Bed linen will be provided but you need to bring your own towels. We will find a laundry facility if necessary because it is not available at the accommodation.

At agreed times, meals will be provided but **participants mainly need to prepare their own**. The accommodation has a kitchen and the food budget will be agreed upon. A recommendation is to shop online and have your groceries delivered. Communication, collaboration and creativity is a must at this part of your stay!

Travelling
- After arriving at Schiphol Airport, participants need to take the train to Leeuwarden. You can buy the ticket from a ticket machine. With NS travel planner you can plan your trip. PLEASE NOTE: call the coordinator 1 hour before arrival at Leeuwarden station and you will be picked up from the railway station
- Participants from Vonk and Aeres can travel by bus or car. Please let me know your arrival time. I can pick you up from Leeuwarden or meet you at the accommodation.

- As the accommodation is 17 km from the school, students need to travel by bus. Day tickets will be provided. I assume the Dutch having a Studenten OV. If not please let me know.

Instruction for application
Please fill in the Europass[1] to finalize your participation. Please also return the confirmation[2] on pictures and / or videos. Deadline for application is September 14 at 4:00 pm. To be send to : r.fokkema@aeres.nl

Teams meeting
On Friday 16 of September from 16:00 – 16:45 CEST there will be a Teams meeting to exchange last details: Click here to participate. Please don't hesitate to ask any questions in advance. Communication is key to realize a succesful program!

On behalf of the team,
Rinze Fokkema (coordinator and contact person: + 31 (0)6 138 08 242
r.fokkema@aeres.nl

Assessment: Besides following lessons and doing practical work, your assignment for the two weeks will be a theoretical test and a presentation about the two weeks you have been at Aeres Leeuwarden in The Netherlands.

Packing list:
- Passport
- If necessary Covid-QR code
- 'Everyday' clothes for all days.
- Bring clothes to be outside in all weathers.
- Toiletries
- Working clothes for the practical lessons.
- Laptop for schoolwork
- Charges
- A small backpack for daytrips.
- Swimming suit.

Participant list

Name	School	Country

In addition to this list, there are more students from our school who also participate parts of this course.

Overview of unit material

Teacher manual

1. Introduction

This is the manual of the Livestock dairy learning Unit 2 and 13 of Aeres Leeuwarden. In this project there was Skjetlein in Norway involved. The students run along their own program with lessons and projects in a third year, level four class. The students have their own subjects and lessons where Dutch students from the same third year level four class are involved. The subjects of this unit are developed by Aeres Leeuwarden. The subjects of this unit are:

- Hygiene rules prior and during the preparation of cheese
- Processing his/ her own cheese with the ingredients which are necessary
- Calculation being made to add the correct amount of raw materials needed to process the cheese
- Taking care of the cheese being processed
- Microbiological tests on hygiene aspects
- Chemical analyses on cheese
- Various excursions to farm and cheese processing factories
- Speaking English whole day to other students and teachers.

In this manual you can find the program of the Learning Unit from day to day and from every lesson a lesson format describing within the content and purpose of every lesson.

2. Program

Program Aeres College Leeuwarden September- Oktober		
Sunday	Arriving in the Netherlands	
	First week	**evening**
Monday	**School day: Welcome, introduction** • Get to know each other • Get to know the school • Introduction hygiene and safety in processing hall and labs • Explanation of the assignment • To taste dairy products: different kind of cheeses and yoghurts.	Activity: cooking in the lodge, the students all together.
Tuesday	**Excursion day** • Introduction to Lely Orbiter • Excursion to farm with newest Lely robot family Reijer Rotgans • Calculation breakeven point Lely Orbiter • Excursion to Klave Koe	

Wednesday	**Theory and practical day** • Theory milk and cheese • Cheese processing in bucket in the processing hall; two by two	
Thursday	**Practical day** • Cheese processing in curd maker in group of 4 students. The adult students which following the Food technology education, helped and explained the students which followed the Amoove-21 program.	
Friday	**Theory and practical day** • Micro-biology theory • Hygienic proof in micro-biology laboratory • Micro-biology in micro-biology laboratory	
Weekend	Fierljep clinic in Burgum on Saturday On Sunday visit to two dairy farms and a small trip to Amsterdam.	
	Second Week	**Evening**
Monday	**Practical day** • Coating the self-made cheeses • Excursion to DSM (CSK) in Leeuwarden	
Tuesday	**Theory and practical day** • Analyses on cheese in the chemical laboratory • Excursion to cheese farm De Gelder in Tijnje	
Wednesday	**Theory and practical day** • Cheese coating • Results plates with micro-organism and theory about this • Trip to Groningen	
Thursday	**Excursion and preparation assignment** • Excursion to cheese factory, the excursion was lead by the adult students which following the adult education Food technology. To this excursion were also students which	Social activity with Vonk Alkmaar, Equine pilot: school tour, having a drink and dinner. All together with all the students and

	doing the day school for Food technology • Evaluation of the visit • Theoretical test	the teachers from Vonk Alkmaar, Skjetlein Norway, Munkagard Sweden and Axxell Finland.
Friday	**Presentation day** • Preparing presentations • Presentations • Farewell session at school	Escape room with students and teachers. Dinner in restaurant.
Saturday	Trip home.	

3. Theory about milk, cheese processing, hygiene, micro-biology, chemical analyses

There are 5 days of theoretical lessons about processing cheese from raw milk in The Netherlands . Below you can read the purpose and subjects about these lessons.

First lesson about hygiene and safety rules in the processing hall and laboratories		
Time/duration: 100 minutes		
Purpose	Subjects and performance	Teaching materials
- Explanation of the assignment	- The students know what they have to deliver at the end of the project	- Classroom - Student assignment explanation
- Working hygienically to avoid cross-contamination	- The students learn about the safety rules in the processing hall - The students learn about the hygiene protocols that employees and all people entering the processing hall should follow	- Classroom - Document in word with hygiene and safety rules
- Working safely in the laboratory	The students learn about the safety rules in the chemical laboratory	- Classroom - Document in word with hygiene and safety rules

Second lesson about milk and cheese processing		
Time/duration: 60 minutes		
Purpose	Subjects and performance	Teaching materials
- Explanation about different kind of milk - Content of raw milk	- The students learn about different kind of milks and their content	- Classroom - PowerPoint about different kind of milks and their content

- Explanation of cheese processing	- The students learn the theory about cheese processing	PowerPoint about cheese processing

Third lesson about micro-biology		
Time/duration: 60 minutes		
Purpose	Subjects and performance	Teaching materials
- Explanation about the hygiene rules in the micro-biology laboratory	- The students learn about the 4 different kind of micro-organism - The students learn about the 7 living conditions needed for the micro-organism	- Classroom - PowerPoint about the 4 kind of micro-organism including the forms, reproduction, specific qualities. - PowerPoint about the 7 living conditions needed for the micro-organism with an explanation

Fourth lesson about chemical analyses of cheese		
Time/duration: 30 minutes		
Purpose	Subjects and performance	Teaching materials
- pH measuring	- The students learn how to measure the pH of different kind of cheeses	Classroom in laboratory
- Analyse the moisture content	- The students learn how to analyse the moisture content (the method) of different cheeses	Classroom in laboratory
- Analyse the salt content	- The students learn how to analyse the salt content	Classroom in laboratory

Fifth lesson about hygiene and micro-organism		
Time/duration: 90 minutes		
Purpose	Subjects and performance	Teaching materials
- To see what micro-organism grow on different plates	- The students learn about which micro-organism are growing there where the plate was placed	- Classroom - PowerPoint with different kind of micro-organism - PCA plates for bacteria - MEA plates for yeast and moulds
- To see what micro-organism grow on Stiri-kiri plates	- The students learn which and how many micro-organism are growing on their mobile phone - The students learn which and how many micro-organism are	- Classroom - PowerPoint with different kind of micro-organism - Stiri-kiri plates

	growing on different places they choose for analysing	
- ATP test - NAD determination	- The students learn how a quick hygienic test will work	- Classroom - Information sheet - Sample swab - Test strip

4. Presentations

Presentations should be given on the last Friday in groups of two persons about the two weeks of experience you had in milk and cheese processing. Also explain the other topics in analysing the cheeses (moisture content, salt content and pH) and the hygiene and micro-biology analysis you did. Next to this you can add in your presentations the culture things you did in The Netherlands all together or alone what you liked.

5. Theoretical assignments

Assignment one:
During the theoretical lesson and in the Virtual Assignment you have learnt about milk and different kind of dairy products like cheese, yoghurt, quark, buttermilk and butter.
You also learnt that each country has different kind of dairy products.
Furthermore you learnt about the hygienic and safety rules in the processing hall, in the micro-biology laboratory and at the chemical lab.
In the first part of this assignment you looked into these safety and hygienic rules.

Assignment two:
In the second part you will look into content of milk and the way of processing cheese. In a theoretical test you have to give answers to several questions related to this topic. Make notes during the lesson and make sure you use this information in your theoretical assignment.

Assignment three:
In the third part you will have some theoretical questions about the micro-organism and their 7 living conditions.

End.