

ERASMUS+

HIGHER EDUCATION – INTERNATIONAL CAPACITY BUILDING
PROGRAM

Participatory and Integrative Support for Agricultural Initiative

Module 2 Environmental/Ecosystem for Sustainable Agriculture



Module 2 –Production Environment

1. Scope Environmental/Ecosystem for Sustainable Agriculture
2. Team Leader: Khon Kean University
Members: 1. IRD (Agrinatura)/SupAgro
2. Helsinki University
3. Period: 12 November – 1 December 2018
4. General Learning Objectives
 - 1) To understand the effect of agriculture practice on environment
 - 2) To identify the various of cropping systems for the sustainable agriculture

Date	Time	Topics	Resource persons
Sunday (11/11/18)	All day	Arrival date of students	KKU staff

*Session 1 (week 1): Nov 12 – 17, 2018

Session 1 Ecosystems service for sustainable agriculture in a challenging environment (week 1)

Learning Objective(s):

- 1) To understand the common farming systems in northeast Thailand
- 2) To develop capacity for building a farming systems appraisal
 - 3) To be able to identify and characterize a farming system at the farm scale, i.e; a set of agricultural activities combined and interrelated with each other (cropping systems and animal rearing systems), guided by coherent decision taking)
 - 4) To be able to identify farming properties of each farming type (productivity, profitability, autonomy and resilience)

Keywords: plant production, animal production, farming system, cropping system, animal husbandry system, environment, farmer's survey, Participatory Rural Appraisal, farm typology

(Department of Agricultural extension and Agricultural systems, Department of Agricultural Economics)

Date	Time	Topics	Resource persons
Monday	8:30-9:00	Opening ceremony	Dean of Agriculture, KKU
	9:00-12:00	Introduction on sustainability in North-East Thailand: Challenge issues on sustainable agriculture (<u>Lecture</u>)	Assoc. Prof. Dr. Suchint Simaraks, Program on System approaches in Agriculture for Sustainable Development,

			KKU
	13:00-16:00	Concept and methodology of farmers' survey, Participatory Rural Appraisal and System analysis (<u>Lecture</u>)	Assist. Prof. Dr. Satit Adaito (Department of Agricultural Economics, KKU), Dr. Benedicte Chambon (CIRAD) Dr. Sukanlaya Cheunkwan and Dr. Arunee Promkhambut, Department of Agricultural Extension and Agricultural Systems, KKU) and Dr. Didier Pillot (SupAgro, France)
Tuesday	9:00-12:00	Student prepare simple questionnaire for farming system identification of farmers	Assist. Prof. Dr. Satit Adito (Department of Agricultural Economics, KKU) and Dr. Didier Pillot (SupAgro, France)
	13:00-16:00	Students prepare interview guide and tools for farming system identification	Dr. Benedicte Chambon (CIRAD) Dr. Sukanlaya Cheunkwan and Dr. Arunee Promkhambut, Department of Agricultural Extension and Agricultural Systems, KKU) and Dr. Didier Pillot (SupAgro, France)
Wednesday	9:00-12:00	Farming systems identification survey 6 groups of 3 to 4 students: 3 work in zone 1 (Undulating area), 3 work in zone 2 (Lowland area).	KKU/IRD/SupAgro
	13:00-16:00		KKU/IRD/SupAgro
Thursday	9:00-12:00	In two days, each group surveys 2 households, both "integrated" and "conventional"	KKU/IRD/SupAgro
	13:00-16:00		KKU/IRD/SupAgro
Friday	9:00-12:00	Discussion on cases studies (organic/integrated vs conventional farming systems)	KKU/IRD/SupAgro
	13:00-16:00	Discussion on cases studies (organic/integrated vs conventional farming systems)	KKU/IRD/SupAgro
Saturday	9.00-16.00	Analyses data and group discussion	KKU/IRD/SupAgro

*Session 2 (week 2): Nov 19st-24th, 2018

Session 2 Ecosystems service for sustainable agriculture in a challenging of environments (week 2)

Learning Objective (s):

- 1) To learn on the tools for evaluate of environment conditions
- 2) To analyze the sustainable agriculture systems

Keywords: plant production, soil quality, biodiversity, macro and micro fauna

(Department of Soil Science and Environment, Department of Entomology, Department of Horticulture, Department of Plant Pathology)

Date	Time	Topics	Resource persons
Monday	9:00-12:00	Integrative soil quality assessment & Functional biodiversity (<u>Lecture</u>)	KKU/IRD/SupAgro (Dr. Chuleemas/ Dr. Phruaksa/Dr. Alain)
	13:00-16:00	Biofunctools(<u>Lecture</u>)	KKU/IRD/SupAgro (Dr. Phruaksa/Dr. Alain)
Tuesday	9:00-12:00	Practice the tools in the field (Biofunctools): Soil properties analysis [2 selected farms (same farm as session 1-1)] - Split students into two groups - Each group will take responsibility for each farm - Using Biofunctool for monitoring carbon transformation (litter decomposition, in situ respiration), soil nutrient, soil moisture and pH analyses, soil structure analysis, macro-fauna population etc.	KKU/IRD (Dr. Phruaksa/Dr. Alain)
	13:00-16:00	Practice the tools in the field (Biofunctools): Soil properties analysis [2 selected farms (same farm as session 1-1)]	KKU/IRD (Dr. Phruaksa/Dr. Alain)
Wednesday	9:00-12:00	- Practice the tools in the field (Biofunctools): Soil properties analysis - Insect and micro-organism indicators for environment [2 selected farms (same farm as session 1-1)]	KKU/IRD (Dr. Phruaksa/Dr. Alain/ Dr. Anan W./ Dr. Chutinan)
	13:00-16:00	- Practice the tools in the field (Biofunctools): Soil properties analysis - Insect and micro-organism indicators for environment [2 selected farms (same farm as session 1-1)]	KKU/IRD (Dr. Phruaksa/Dr. Alain/ Dr. Anan W./ Dr. Chutinan)
Thursday	9:00-12:00	Crops effect on water cycling (<u>Lecture</u>)	KKU/IRD (Dr. Supat/Dr. Mallika)
	13:00-16:00	Analyses data and preparing the presentation on agricultural effect on environments	KKU/IRD/SupAgro/ All team
Friday	9:00-16:00	Analyses data and preparing the presentation on agricultural effect on environments	KKU/IRD/SupAgro/ All team
Saturday	9.00-16.00	Group or individual presentation and	KKU/IRD/SupAgro/

	discussion	All team
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*Session 3 (week 3): Nov 26 th -1 st , 2018			
Session 3 Utilizing genetic resources for sustainable agriculture (week 3)			
Learning Objective(s):			
1) To understand on the animal production in term of sustainable agriculture			
2) To understand of the importance of the genetic resources for sustainable agriculture			
Keywords: Genetic resource, animal production, fishery production			
(Department of Animal Science, Department of Fishery)			
Date	Time	Topics	Resource persons
Monday	9:00-11:00	Integrated Pest management and case study (<u>Lecture</u>)	KKU/Helsinki U. (Prof. Heikki and Prof. Ingeborg)
	11:00-12:00	Genetic resource for animal production in sustainable agriculture (<u>Lecture</u>)	KKU/IRD (Dr. Theerachai/Dean)
	13.00-14.00	Genetic resource for animal production in sustainable agriculture (<u>Lecture</u>)(Cont.)	KKU/IRD (Dr. Theerachai/Dean)
	14:00-16:00	Genetic resource for crop production in sustainable agriculture (<u>Lecture</u>)	KKU/IRD (Dr. Jirawat)
Tuesday	9:00-12:00	Animal and fishery productions in northeast Thailand (<u>Lecture</u>)	KKU/IRD/SupAgro (Dr. Penpan/Dr. Theerachai)
	13:00-16:00	Visit the integrated animal/fishery farm in KKU (Livestock unit/fishery farm unit)	KKU/IRD/SupAgro (Dr. Penpan/Dr. Theerachai)
Wednesday	9:00-12:00	Visit the animal production in the small farmer scale (Farm 1)	KKU/IRD/SubAgro (Dr. Theerachai)
	13:00-16:00	Visit the animal production in the commercial scale (Farm 2)	KKU/IRD/SupAgro (Dr. Theerachai)
Thursday	9:00-12:00	Visit the fishery production in the farmer scale (Farm 3)	KKU/IRD/SupAgro (Dr. Penpan)
	13:00-16:00	Visit the fishery production in the commercial scale (Farm 4)	KKU/IRD/SupAgro (Dr. Penpan)
Friday	9:00-12:00	Life cycle assessment (<u>Lecture</u>)	KKU/IRD/SupAgro
	13:00-16:00	Discussion and conclusion in whole Module 2	KKU/IRD/SupAgro/ Helsinki U./ All team
Saturday	9:00-12:00	Individual assessment of student	Dr. Didier and team

* Remark: number of session depends on each module design