

Periodical Report  
12 Months of project  
implementation

## New Curricula in Precision Agriculture Using GIS Technologies and Sensing Data

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# Internal Work plan

- Communication and dissemination of project activities inside and outside Oran1 university
- Analyze the Algerian requirements in precision agriculture and design a first questionnaire
- Development and vulgarization at a local scale of the main courses in precision agriculture
- Development of a detailed content of each course for the bachelor training in precision agriculture
- Quality assurance
- Launching PASSENSO

# Work group

Smain Balaska (Head)  
Ahmed Bahri  
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Sid-Ahmed Chawki Lamara  
Ahmed Hamou  
Yahia Lebbah  
Mejdi Kaddour  
Mohamed Sayah

Asmaa Achour  
Noureddine Aribi  
Réda Bentata  
Miloud Dahane  
Fatma Zohra Haddad  
Mohammed Amine Mami

## After the training in TU Berlin : Meeting 2019/09/23

- Courses focused on: GIS, remote sensing, machine learning, sensors, crop growing, soil physical properties, GNSS, sentinel imagery
- Importance to get training showing the PA practices in a precision agricultural farm

# After the training in TU Berlin : Seminar 2019/11/20

- Conference done by Pr. Benaïssa on Precision Agriculture (PA): GIS, sensors data, data collected remotely.
- Long discussion has followed the conference
- Conclusion: need to raise awareness on GIS and remote sensing. A workshop is planned during 2020.



[https://m.facebook.com/story.php?story\\_fbid=508804829683863&id=454383688459311](https://m.facebook.com/story.php?story_fbid=508804829683863&id=454383688459311)

# Teaching materials, the curricula update

- Oran1 participants shared Berlin training materials drive repository:

[https://drive.google.com/drive/folders/1ir1oob2\\_hAO4jSKEMqBgEGwhUIZcfltw?usp=sharing](https://drive.google.com/drive/folders/1ir1oob2_hAO4jSKEMqBgEGwhUIZcfltw?usp=sharing)

- The participants have extended this repository to additional materials:

[https://drive.google.com/open?id=1LOo47FDLqBfGE3Mx-6y\\_2jnYKxMk\\_5Kg](https://drive.google.com/open?id=1LOo47FDLqBfGE3Mx-6y_2jnYKxMk_5Kg)

# New curricula: Bachelor in precision agriculture

## Vegetable Biology

1. Plant physiology
2. Plant biodiversity
3. Ecology and environment
4. Physiology and biochemistry of symbiotic fixation of nitrogen
5. Physiology of vegetable nutrition
6. Water and water nutrition of plants
7. Pedology
8. Plant ecophysiology
9. Physiology of stress in plant
10. Vegetable production

Draft: "bachelor-draft-oran1-precision-agriculture.pdf"

11. Plant irrigation technology
12. Phytodiagnosis and phytoprotection
13. Climatic changes
14. Fertilisation, Salty soils, Agricultural mechanization technology
15. Soil and pollutions
16. Rural development

# New curricula: Bachelor in precision agriculture

## Technologies

1. Technological tools for Precision Agriculture
2. Introduction to Computer Science
3. Fundamentals of the scientific approach
4. Statistics and biostatistics
5. Programming and Algorithms in Python
6. Information systems and databases
7. Data analytics
8. Mobile and web programming
9. Image Processing and Computer Vision
10. Remote sensing
11. GIS Introduction for Precision Agriculture
12. Sensor Systems for Precision Agriculture
13. Advanced GIS Techniques for Precision Agriculture
14. Global Navigation Satellite Systems
15. Artificial intelligence, machine learning and big data

*Draft: "bachelor-draft-oran1-precision-agriculture.pdf"*

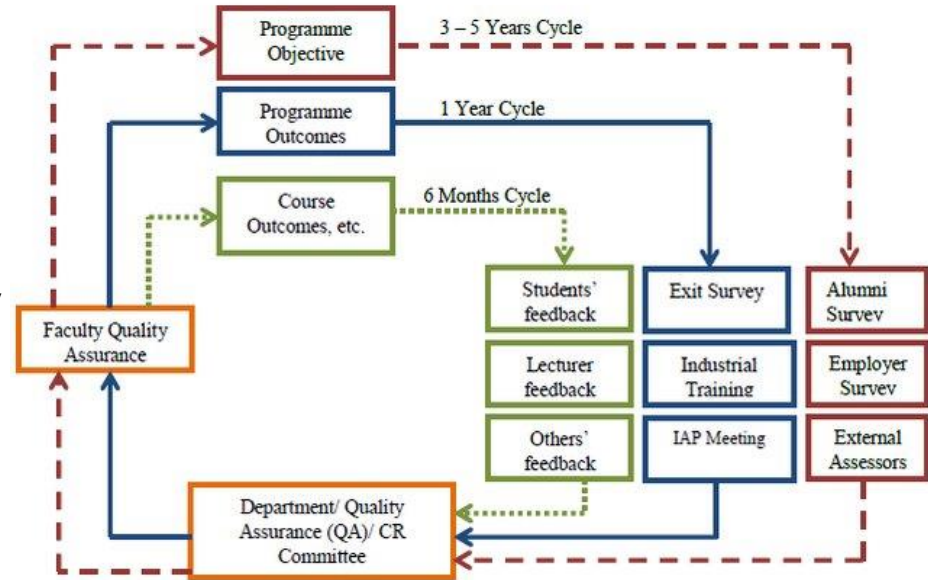


# Accreditation

- University level: The new curricula should fulfil some rules, such as teaching time, credits, etc. The new curricula documents should be submitted at most “end February”.
- National level: The deadline for submitting the new curricula is around “end March”.

# Quality assurance

- Principles of a quality assurance approach
- The **expected quality** by the customer is built around the needs and past experiences of the end user.
- The **experienced quality** by the customer is the one he experiences; it depends on the quality expected and the quality actually delivered.
- Quality Assurance Plan and Quality Group
- **Project workflow:**  
We have used the **Trello platform**, which makes available Tasks scheduling, Receiving notification, **Todo panel**, **Doing panel**, **Check Q-A panel**, **Done panel**, ...



# Oran1 CUPAGIS questionnaire

- We have designed a simple questionnaire “**quest V1 cupagis.pdf**”
- 231 students have filled the questionnaire.
- A bundle “**questionnaires-oran1-cupagis.zip**” of all of the students answers are attached.  
<https://drive.google.com/open?id=1k6j1C2t8HAO7wE8j-tEaOgrcGw2Sktg0>
- We are analysing them ...

# Dissemination: Non-consortium organizations

IHFR (Hydrometeorological Institute of Training and Research)  
CFPA Misserghin (Agricultural Training Center)  
CFPA Hassi-Bounif (Agricultural Training Center)  
ASAL (Algerian Space Agency)  
ITCM Hassi-Bounif (Technical Institute of Vegetable Crops)  
Chambre d'Agriculture d'Oran (Oran Agriculture Center)  
DSA Oran (Agricultural Services Management of the District of Oran)  
DSA Ain-Témouchent (Agricultural Services Management of the District of Ait-Témouchent)  
INPV (National Plant Protection Institute = Regional Plant Protection Station)  
ITGC (Institute of Field Crops of Sidi Bel Abbès)  
INRA de Sidi Bel Abbès (National Institute of Agronomic Research)  
SRPV (Regional Plant Protection Services)  
I.T.M.A.S (The institute of specialized agricultural middle technology)  
CDTA (Center for Advanced Technology Development)  
CNA (National Agricultural Center)  
INCT (National Institute of Cartography & Remote Sensing)  
CRAAG (Research Center in Astronomy, Astrophysics and Geophysics)

# Dissemination: meetings and seminars

- Local meeting 2019/09/23, 14:00: Oran1 working group had a meeting Monday 2019/09/23 at 14:00 to hear from the participants of TU Berlin training the content of the seminars.
- Seminar 2019/11/20, 10:00: The seminar has been organized at the main amphitheatre of the nature and life sciences faculty. It started 10:00 and finished at 12:00. The number of participants is 135 students and 12 teachers and some administratives.

# Dissemination of the information about the project

- Facebook page

<https://www.facebook.com/Cupagis-Oran1-University-454383688459311>

Oran1 Cupagis members Belkhodja Moulay and Dahane Miloud have been at **Radio station “EL BAHIA”** largely known in Oran town, Thursday 11 July 2019.

- Oran1 Cupagis members Dr Sayah Mohamed and Dr Dahane Miloud have been at DSA “Oran Agricultural Services Direction”
- Oran1 Cupagis member Pr Kaddour Mejdi has been at the Cluster Meeting of CBHE projects at Mostaganem.

# Future dissemination activities until May 2020

- Seminar on Precision Agriculture at the Faculty of exact and applied sciences, in the beginning of 2020.
- Workshop on “GIS and remote sensing” around May 2020.

# Brochures/leaflets of the project outputs

- See attached file  
“3 BROCHURE CUPAGIS 2019.pdf”



Key points of Pasenso issues:

Institutional side :

1. Thinking on the development of the agricultural market in Algeria.
2. Coordination and cooperation between Algerian and European agricultural professionals.
3. Data collection office for precision agriculture.

Coaching side :

1. Bring Algerian higher education institutions closer to the agriculture labour market (employability).
2. Use of the new innovative teaching tools for the precision agriculture and their integration in the agriculture labour.
3. A new laboratory equipped for the precision agriculture labour.
4. A virtual classroom (VCR) for precision agriculture consulting.

Market side :

1. Status of existing agriculture institutions.
2. Identify the techniques, tools and methods used in agriculture labour.
3. How about the integration of the precision in the agriculture labour.

# Communication process

- Email
- Telephone

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- Email
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## Additional information

Even if the training at TU Berlin was very successful, since it surveyed the main topics of precision agriculture, Oran1 participants pointed out the importance to get training showing the PA practices in a precision agricultural farm, to see practically how all of the technologies are contributing to a better management of agricultural farms.



Thank you for you attention!

University Oran1, Algeria



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