

2.00 credits

22.5 h

Q1

Teacher(s)	Agnan Yannick ;Declerck Stephan ;Draye Xavier ;Lobet Guillaume ;
Language :	French > English-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	Mandatory skills in plant biology, plant physiology and genetics acquired during the Bachelor of bioengineer or equivalent
Main themes	General principles of ecophysiology of major crops Biomass production and resources capture Passage from the isolated plant to the plant population Plant growth and development, yield components Morphology, phenology, physiological factors, biotic and abiotic stresses Application to several temperate, tropical and ubiquitous crops
Learning outcomes	
Evaluation methods	Written examination
Teaching methods	Oral teaching with case studies Field visits In silicomodelling
Content	1. The plant in terms of supply and demand Generic scheme of a plant. Development, morpho-genetic sequences. Approach in terms of supply and demand. Principles of yield constitution 2. light interception, photosynthesis and allocation From the leaf to the canopy. Photosynthesis efficiency. Dry biomass distribution 3. Limiting factors and sustainable yields. Water-driven limitation. Nitrogen-driven limitations. Resources capture and yields 4. Modellingof biomass production Exercise on genotype-environment interactions 5. Temperate and ubiquitous major crops: maize, wheat, sugar beet, potato Morphology. Growth and development. Yield parameters 6. Tropical major crop: rice Morphology. Growth and development. Yield parameters. Ecology: soil, climate, abiotic stresses. Crop management
Inline resources	Moodle
Bibliography	Blume H.-P., Brümmer G.W., Fleige H., Horn R., Kandeler E., Kögel-Knabner I., Kretzschmar R., Stahr K., Wilke B.-M. (2016). Scheffer/Schachtschabel soil science. Springer, Berlin. 618 p. Weil R.R., Brady N.C. (2017). The nature and properties of soils. Pearson, Harlow. 1104 p. Calvet R., Chenu C., Houot S. (2015). Les matières organiques des sols. France Agricole, Paris. 304 p.
Other infos	This course can be given in English
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Agricultural Bioengineering	BIRA2M	2		