Modultitel	**Modulcode**
Plant Nutrition in the Tropics and Subtropics	agrarAEF873-01a
Modulverantwortliche(r)	
Prof. Dr. Karl-Hermann Mühling	
Veranstalter	
Institut für Pflanzenernährung und Bodenkunde - Pflanzenernährung	
Fakultät	
Agrar- und Ernährungswissenschaftliche Fakultät	
Prüfungsamt	
Prüfungsamt Agrar- und Ernährungswissenschaftliche Fakultät	

Leistungspunkte	6
Bewertung	Benotet
Dauer	1 Semester
Angebotshäufigkeit	Findet nur im Sommersemester statt
Arbeitsaufwand pro Leistungspunkt	30 hours
Arbeitsaufwand insgesamt	180 hours
Präsenzstudium	60 hours
Selbststudium	120 hours
Lehrsprache	Englisch

Modulveranstaltung(en)			
Veranstaltungsart	**Lehrveranstaltungstitel**	**Pflicht/Wahl**	**SWS**
Vorlesung	Plant Nutrition in the Tropics and Subtropics	Pflicht	2
Seminar	Nutrient dynamics and nutritional plant physiology in the sub-tropics and tropics	Pflicht	1
Geländeübung	Ecophysiological aspects of tropical plant nutrition	Pflicht	1

Prüfung(en)				
Prüfungstitel	**Prüfungsform**	**Bewertung**	**Pflicht/Wahl**	**Gewicht**
Mündliche Prüfung: Plant Nutrition in the Tropics and Subtropics	Mündlich	Benotet	Pflicht	100
Weitere Bemerkungen zu der/den Prüfung(en)				
1.+2. period in summersemester 1. period in wintersemester examiner: Prof. Dr. Mühling, Prof. Dr. Sulieman QIS 70400 with number of Examination 70410				

Lehrinhalte
This module provides an extensive overview and analyses the most important nutritional aspects of plants grown under tropical and subtropical conditions. The lectures give the students insight into the basic principles of soil fertility, nutrient availability and dynamics in numerous soils dominated under tropical and subtropical regions. This knowledge is demonstrated using examples of soil such as calcareous/alkaline, acidic, saline/sodic, highly weathered, submerged paddy soils. Students get acquainted with crop responses to different environmental constraints (e.g., drought, waterlogging, salinity, alkalinity, heat, acidification, nutrient deficiency) in the (sub) tropics. The module also discusses the different respective acclimation/adaptation strategies adopted by plants from a nutritional point of view. The topics are provided within the context of current and future expected global climatic changes. A special focus is given on the plant nutritional disorders (e.g., nutrient deficiency and toxicity) and their relationship to environmental conditions. The lectures cover in-depth the performance of crop plants in association with mutualistic root symbioses such as, rhizobial-induced nodulation and mycorrhizae that are used to improve the sustainable productivity in tropical cropping systems. Organic and mineral fertilization for sustainable land use is also given credence in this module. Finally, a particular view on nutrient cycling in diverse existing production systems in tropical regions (e.g., agroforestry, intercropping, alley cropping, shifting cultivation, lowland rice, submerged paddy rice) is presented and discussed. In the accompanying seminars, the content of the lectures is expanded by presenting and discussing some recent documented reports
Lernziele
After successfully completing the module and with the aid of lectures and reading of scientific materials the students are able to understand the basic principles of nutrient dynamics and nutritional physiology and get a concise and up-to-date knowledge on the state-of-the-art overview on plant production in the subtropics and tropics. They can interpret complex situations with respect to the metabolic consequences of plants. The seminar presented will enable the participants to promote their scientific articulateness and the skills of oral communication. Finally, the participants acquire the know-how and are able to find solutions for specific research problems connecting to crop plant nutrition in different environments of the (sub)tropics.
Literatur
To be announced at the beginning of the lecture

Verwendung	**Pflicht/Wahl**	**Fachsemester**
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Agrarökonomie, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Agribusiness, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Nutzpflanzenwissenschaften, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Nutztierwissenschaften, (Version 2017)	Wahl	-
Master, 1-Fach, Agrarwissenschaften, Fachrichtung Umweltwissenschaften, (Version 2017)	Wahl	-
Master, 1-Fach, Dairy Science, (Version 2017)	Wahl	-
Master, 1-Fach, Ernährungs- und Lebensmittelwissenschaften, (Version 2013)	Wahl	-
Master, 1-Fach, Ernährungs- und Verbraucherökonomie, (Version 2017)	Wahl	-