

COURSE GUIDE

Agrobiodiversity

SBL – 50806



Department of Soil Biology
www.sbl.wur.nl



WAGENINGEN UNIVERSITY
WAGENINGEN UR

Agrobiodiversity

SBL-50806

Language of instruction	English
Period	6
Credit points	6

Activities	Contact hours
Classroom Lectures	22
Practical Training	36
Excursion*	14
Field Work*	32

Contact person Dr. R.G.M. de Goede

Lecturers dr ir J.C.J Groot
dr. R.G.M. de Goede
dr ir W. van der Werf

Examiners dr ir J.C.J. Groot
dr R.G.M. de Goede
dr ir W. van der Werf
dr.ir. W. Geertsema

Language of instruction
English

Assumed knowledge on
2nd year level ecology or plant sciences

Continuation courses
SBL-33306, CWE-31306, BFS-30306, ENT-30306

Contents

This course deals with agrobiodiversity in support of the production of food, fibre and fuel and the conservation of non-commodity species. While species extinctions continue to be a matter of extreme concern, changes in biodiversity in the world's agricultural landscapes have largely escaped attention. Implicitly, the biodiversity in these landscapes has been traded-off against the conservation of threatened endemics in protected areas. However it is increasingly

acknowledged in science and policies that biodiversity loss in agricultural landscapes can negatively affect a range of ecosystem services, including those that are essential for agricultural production.

The course aims to reconcile biodiversity theory with the conservation of species on- and off-farm in agricultural landscapes. The course will further examine the importance of biodiversity at the scale of agricultural fields, farms and the wider landscape to capture essential ecosystem services, such as supporting water supplies, nutrient cycling, pollination and natural pest regulation. The role of agrobiodiversity for the sustainability of agricultural production and resilience against stress and disturbances emanating from global change will be discussed. Options for the management of biodiversity in different scenarios of farm and landscape management will be evaluated during a one-week* field practical in the Hoeksche Waard, in collaboration with farmers.

* *Involves a 1-week stay outside Wageningen in week 37 or 38. Students pay a contribution in the transport and living costs of approximately €130 for one week.*

Learning outcomes and assessment

Learning outcomes	Report Practical Part 1	Report Practical Part 2	Written exam
1 <i>Describe</i> agro-ecosystems in terms of crop, livestock and associated biodiversity (above- and belowground)	X	X	
2 <i>Understand</i> major concepts in biodiversity – ecosystem functions – ecosystem stability theory in the context of agricultural systems	X		X
3 <i>Explain</i> the role of major groups of organisms comprising agrobiodiversity for provisioning, regulating and supporting ecosystem services	X	X	X
4 <i>Relate</i> species life history traits and the spatial and temporal configuration of farm fields and other landscape elements to the incidence of species	X	X	X
5 <i>Calculate and interpret</i> different indices that characterize biodiversity in agricultural fields and landscapes	X	X	X
6 <i>Discuss</i> the role of biodiversity for food security and ecosystem services in a context of global change			X
7 <i>Understand</i> biodiversity management in agricultural landscapes in an economic / societal context		X	X
8 <i>Analyse</i> biodiversity and ecosystem services on farms and in surrounding landscapes		X	
9 <i>Evaluate</i> options for the management of biodiversity in different scenarios of farm and landscape management		X	

Literature A reader will be provided

Examination

Written examination (40%), practical report part 1 (20%) and part 2 (40%); all to be completed with a grade equal to or higher than 5.5.