

R E V I E W

from Prof. Yordanka Stancheva DSc, retiree
Faculty of Agronomy, University of Forestry, Sofia

on the curriculum of the study course: Ecological engineering for soil and water
resources protection; Module 2. Degradation and protection of soil resource;

Subject/module: Agroforestry systems;
Professors: Lukic S. Sara; Beloica R. Jelena
Belgrade University, Faculty of Forestry

The primary objective of this program is to provide the students of the master's course of study, with contemporary knowledge and comprehensive information about agroforestry as an integrated approach to land use, that combines forestry, agriculture and animal husbandry, all within the same system, and with a specific spatial and temporal arrangement of the individual elements. The program places particular emphasis on understanding the ecological and economic interaction between the components involved in the system.

The authors hope that the acquired knowledge will be sufficient for direct application in practice, as well as for continuing studies at a higher educational level.

The educational content is divided into two parts - theoretical and practical.

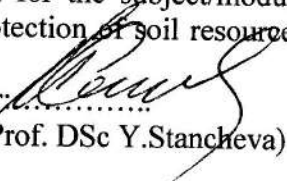
The theoretical part examines the role of agroforestry as a means of sustainably managing land resources. Different combinations of agricultural and forestry components, which make up the individual types of agroforestry systems, are indicated. Emphasis is placed on the spatial and temporal location of individual agroforestry components. The ecological foundations of agroforestry, as well as its social and economic aspects, are examined. The natural degradation processes are indicated in relation to the type of selected and created agroforestry systems. Preliminary modelling of agroforestry systems is planned, as well as consideration of international, regional and national agroforestry strategies.

Practical training will be conducted with small groups of students, and is based on the virtual creation of agroforestry systems under predefined conditions, along with discussion of the projects that are created.

When examining the proposed program, it appears that there is a shift away from the topic, as indicated in Module 2 "Degradation and conservation of soil resources" in the direction of degradation of land resources, which is a much broader concept. I recommend the authors to concentrate only on soil resources as indicated in the title of the module itself. In this connection, let's consider the mechanisms by which different types of agroforestry systems affect the preservation of soil fertility - for example, by withdrawing nutrients from the deeper soil horizons and returning them through fallout to the upper ones, etc.

I also have a question for the authors related to the topic of modelling and determining the ecological and economic benefits of agroforestry systems. Is there a large enough database in this regard, as agroforestry is still a new activity, to enable the intended analysis to be carried out?

Conclusion: The changes made in the updated curriculum for the subject/module „Agroforestry systems" included in module 2 „Degradation and protection of soil resource" are relevant and improve its quality.

Reviewer: 
(Prof. DSc Y. Stancheva)

REVIEW

from Prof. Yordanka Stancheva DSc, retiree
Faculty of Agronomy, University of Forestry, Sofia

on the curriculum of the subject/module "Forest amelioration 2" included in study course "Ecological engineering for soil and water resources protection";

Professors: Lukic S. Sara.

Belgrade University, Faculty of Forestry

The aim of this module is to introduce students to ameliorative methods for controlling wind erosion and other degradation processes in disturbed habitats with specific soil conditions, such as bare karst terrains, areas with a high content of limestone, serpentinite, peridotite, stones, sand, etc.

Upon completing the course, students are expected to be capable of independently assessing the potential of biological means to control degradation processes in habitats with different degrees of disturbance.

The study material will be presented in the form of lectures and practical training.

The lecture material covers wind erosion and drought as the dominant degradation factors. It includes the evaluation of soil losses both in the absence and presence of different types of protective belts. The protective belts with specific protection objectives are characterized, such as field shelterbelts, living snow fences, riparian forest belts, small water body control zones, protective forest belts for noise control, and biomass production plantations. A general assessment is provided regarding the potential of agroforestry to improve disturbed terrain.

In the practical classes, using a digital database, an analysis is made of the main types of protective belts and their parameters - selection of plant species, structure, spatial arrangement, etc. in order to increase and optimize their effectiveness against the corresponding degrading factors.

I would like to recommend to the author to include among the main degrading factors, besides wind erosion and drought, water erosion and the risk of flooding, especially since the lecture material includes consideration of riparian protection belts, silting or sediment belts and control belts on small bodies of water.

Conclusion: The changes made in the updated curriculum for the subject/module „Forest amelioration 2" included in study course „Ecological engineering for soil and water protection" are relevant and improve its quality.

Reviewer:

(Prof. DSc Y. Stancheva)

REVIEW

from Prof. Yordanka Stancheva DSc, retiree
Faculty of Agronomy, University of Forestry, Sofia

on the curriculum of the discipline: Trade and marketing of forest products
Teacher: Ljiliana M. Keca

The aim of the program is to familiarize students with the peculiarities of trading and marketing of wood and non-wood products, enabling them to effectively plan and implement practical activities related to these fields. In addition, students will be introduced to the concept of bioeconomy and circular economy as contemporary frameworks within the forestry trade and marketing. Students will learn to use the official database in conducting their seminar classes so that they can analyze the market status of various forest products.

The educational material will be presented in the form of theoretical lectures and seminars.

Included in the theoretical training is the examination of the various forms of timber trade - auctions, trade according to forest tax, trade based on long-term contracts, etc. Internal trade will be considered - concept and participants, creation of an internal trade network for trade in wood and wood products. The features of foreign trade in wood such as structure and forms, history of foreign trade, foreign trade regimes and restrictive measures, liberalization and export promotion measures, relations with foreign trade organizations and institutions, features of re-export, etc. will be studied. Customs activity such as customs tariffs, customs union and control will be considered. Concept, functions and role of forwarding activity. Commercial documents, customs documents, insurance documents, certificates and attestations. Banks and banking operations. Application of standards in the timber trade, trade policy and official regulation. Marketing of wood and non-wood products - branding, certification and their function. Status and potential for trade in wood products with Serbia.

As can be seen, the program includes a very large volume and variety of educational material. Therefore, I am not sure whether my proposal to single out an additional topic examining the specifics of trade and marketing in agricultural products will be accepted, insofar as they are a specific product in agroforestry production.

Conclusion: The changes made in the updated curriculum for the discipline "Trade and marketing of forest products" are relevant and improve its quality.

Reviewer: 
(Prof. DSc Y. Stancheva)

REVIEW

from Prof. Yordanka Stancheva DSc, retiree
Faculty of Agronomy, University of Forestry, Sofia

on the curriculum of the discipline "Agroforestry systems", included in curricula plan of the speciality "Forestry"; author: Krasimira Petkova, University of Forestry, Sofia

The "Agroforestry systems" discipline is designed to build upon foundational knowledge acquired in the "Basics of agroforestry" course, which is taught to students in the "Bachelor" degree in the speciality "Forestry". Its purpose is to advance students' theoretical knowledge and practical skills, for a more efficient and ecological way of land use, through the joint cultivation of forest plantations, agricultural plants and domestic animals.

The proposed lecture course comprises 7 topics covering the main types of agroforestry systems, along with 6 specific topics tailored to the foundational knowledge of Forestry students. With these topics, the aim is to expand the students' information in some, to a large extent, extraneous branches for them, such as general plant breeding and animal breeding, beekeeping, silk culture, etc.

The exercises are organized into 11 topics, the majority of which are conducted at Vrazhdebna Training and Experimental Field Centre, providing students with the opportunity to observe and engage in practical application of the educational topics scheduled for discussion.

The curriculum includes the requirement to create and present a conceptual project of a hypothetical agroforestry system. This gives students a basis for analyzing a specific existing situation and potentially formulating a business plan at a later stage.

Student assessment is conducted through two main components: a written theoretical examination and the development and presentation of a course project.

The curriculum is enriched with an extensive bibliography to support students in their preparation. The particularly positive thing in this case is that the teachers in the discipline are highly competent specialists, authors, or co-authors of the referenced literary sources.

I have the following recommendation for this curriculum:

To the topic of forest farming to be included some very innovative and currently emerging forms of mixed production, such as *Food forest gardening* and *Forest gardening*

Conclusion: The changes made in the updated curriculum for the discipline "Agroforestry Systems" are relevant and improve its quality.

Reviewer: 
(Prof. DSc Y. Stancheva)

R E V I E W

from Prof. Yordanka Stancheva DSc, retiree
Faculty of Agronomy, University of Forestry, Sofia

on the curriculum of the discipline/module: Mediterranean ornamental plants included
in study course Mediterranean fruit growing

University of Montenegro Biotechnical faculty, Montenegro

The aim of the course is to introduce students with the methods of cultivating Mediterranean ornamental plants, producing reproductive material, and establishing and maintaining hedges and grassed areas.

After completing the course, students will have the ability to recognize and propagate the most significant Mediterranean ornamental plants. They will appreciate the importance of agroforestry as an integrated land use approach, along with the potential of incorporating ornamental plants into agroforestry systems. They will be able to create and maintain ornamental gardens.

The study material will be presented in the form of lectures and practical training.

In the theoretical part, the importance and possibilities of application of decorative plants in life will be considered. The main types of Mediterranean ornamental plants, shrubs and trees will be studied. Particular attention is paid to the study of a number of trees and shrubs specific to the Adriatic coast, such as palms, roses, hedge bushes, etc.

The theoretical part of the course also includes lectures, that explore the distinctive aspects of agroforestry as a land-use method, as well as the possibilities of integrating ornamental and especially honey-bearing plants in the various types of protective belts.

Practical training will encompass the study of the morphological and biological characteristics of ornamental species from the Mediterranean region.

The bibliography provides an extensive list of sources to aid students in their preparation.

I have the following recommendations for this curriculum:

It is important to give special attention to those ornamental species that are suitable for integration into various types of protective belts created for urban conditions and for populated areas - such as noise isolation belts; belts separating individual urban areas – residential from industrial; roadside belts etc.

A number of specific agroforestry systems such as *Food forest gardening* or *Forest gardening* are currently taking shape. I think that this program gives grounds for the development of another specific direction, called for example *Ornamental forest gardening*.

Conclusion: The changes made in the updated curriculum the discipline/module: "Mediterranean ornamental plants" included in the study course "Mediterranean fruit growing" are relevant and improve its quality.

Reviewer: 
(Prof. DSc Y. Stancheva)

REVIEW

from Prof. Yordanka Stancheva DSc, retiree
Faculty of Agronomy, University of Forestry, Sofia

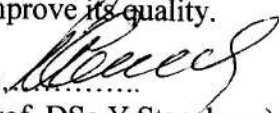
On curriculum of the discipline/module: Forestry in rural areas
University of Montenegro, Biotechnical faculty from Podgorica, Montenegro.
Teacher: dr. Milic Curovic

The objective of this course is to provide students with knowledge about the complex nature of forest ecosystems, the functions of forests, and the principles of sustainable forest management through the use of silvicultural and agroforestry practices.

The lecture course encompasses topics related to forest types, their composition, their origin, their management, etc. The function and importance of forests is analyzed, emphasizing the state of these indicators in Montenegro. Dendrology and phytocenology, establishment, protection and management of forests are studied. The quality of the wood and its primary processing, along with the cultivation of fast-growing plantations for biomass production as an energy source, are considered. The possibilities for extracting additional products from forests, apart from timber, including hunting, are analyzed.

There is one lecture in the curriculum that is devoted to agroforestry practices. I think it will be interesting if the practical possibilities provided by agricultural products both in purely economic terms and for the general development of rural areas to also be specifically considered.

Conclusion: The changes made in the updated curriculum the discipline/module: "Forestry in rural areas" are relevant and improve its quality.

Reviewer: 
(Prof. DSc Y. Stancheva)

REVIEW

from Prof. Yordanka Stancheva DSc, retiree
Faculty of Agronomy, University of Forestry, Sofia

On curriculum of the discipline/module "Agroforestry"
included in study program: Plant Production
Coordinator: Assoc. Prof. Vladimir Ivezic

The aim of the course is to examine agroforestry systems and their importance for diversifying crop production and environmental protection. Emphasis is placed on the functions of tree species planted in agricultural areas /wind protection, soil purification, soil fertility stabilization, impact on biodiversity, their role as producers of bioenergy and to reduce carbon emissions/. The course also analyzes the socioeconomic potential of agroforestry for rural areas development.

Upon successful completion of the course, students will have the ability to classify various types of agroforestry systems and elucidate their economic significance for crop production and environmental protection. They will be able of selecting the most appropriate tree species and methods for their cultivation and maintenance. They will integrate the new knowledge with the information gained from the study of forestry. They will appreciate the importance of agroforestry for the environment - as an opportunity to improve soil fertility, to mitigate greenhouse gases, the so-called carbon footprint as well as for overall rural development.

The training course includes conducting a seminar, the objective of which will be to analyze various agroforestry practices. Students have the opportunity to express their own attitude to agroforestry, which have been shaped throughout the entire course of study.

In the old curriculum, in the second cycle of lectures, entitled "Crops and trees used in agroforestry", only the alley agroforestry system is considered as an example of species selection, establishment and maintenance of the system. The new program does not specify which agroforestry system will be used as a model. All agroforestry systems are characterized by a high degree of specificity, so I recommend to the author that the other types be considered, emphasizing their characteristics.

Conclusion: The changes made in the updated curriculum the discipline/module: "Agroforestry" are relevant and improve its quality.

Reviewer: 
(Prof. DSc Y. Stancheva)