



Subject Module
 Department of Agrotechnology
 Faculty of Agriculture
 University of Islam Malang

Module Handbook

Module Title	Mushroom Breeding and Cultivation Technology
Module Level, if available	Undergraduate Study Program of Agrotechnology
Course Code	MKB 40513
Headings, if available	-
Course (MK)	Mushroom Breeding and Cultivation Technology
Semester	6
Course Coordinator	Prof. Dr. Ir. Agus Sugianto, ST., MP.
Teaching Team	-
Language of instruction	Indonesian language/English
Linkages with the Curriculum	Study Program : Agrotechnology Specialization: Agrotechnology Type: Compulsory /elective
Learning Methods and Duration	<ol style="list-style-type: none"> 1. Lecture: 100 minutes/meeting (9 meetings) 2. Practicum 170 minutes/meeting (5 meetings) 3. Structured Assignments/individual and group Assignments presentation
Student Study Load	<ol style="list-style-type: none"> 1. Lecture: 100 minutes/meeting (9 meetings) 2. Practicum: 170 minutes/meeting (5 meetings) 3. Structured Assignments/quiz/group presentation 4. Attendance: 75% of total attendance
Credit Weight	2 credits or 5.1 ECTS
Requirements for Passing the Course	<ul style="list-style-type: none"> • Attendance > 75% • The final score of all the components of the learning evaluation > 44 <p>The final score component:</p> <ul style="list-style-type: none"> • 25% Midterm Exam • 25% Final Exam • 20% Practicum • 20% Structured Assignments (individual and group) • 10% Presence
Prerequisite Courses	Microbiology
Learning Outcomes	<p>The expected learning outcomes are:</p> <ol style="list-style-type: none"> 1. Have a good and deep knowledge in the field of basic agricultural science that supports Agrotechnology (ILO 3) 2. Able to solve problems that arise in the field of agrotechnology and related fields of science (ILO 5) 3. Able to use tools, methods, and processes to solve various field problems in agriculture (ILO 6) 4. Able to manage plant production system (ILO 9). 5. Able to design enterprise opportunity in the field of plant production (ILO 10)

<p>LearningContent</p>	<p>After completing this course students are able to:</p> <ol style="list-style-type: none"> 1. understand the theoretical concepts of the Mushroom Spawning and Cultivation Technology 2. able to understand and practice Spawning Technology and mushroom cultivation for small and medium scale <p>The topics include:</p> <p>I. PRELIMINARY</p> <ol style="list-style-type: none"> 1. History of Mushrooms in Indonesia 2. Edible Wild Mushrooms 3. Wild Mushrooms for Medicine 4. Tech Development. Cultivation 5. Mushroom Nutrition and Benefits <p>II. PROSPECTIVE TYPES OF WOOD MUSHROOMS AS ALTERNATIVE FOOD</p> <ol style="list-style-type: none"> 1. Shitake Mushroom 2. Ear Mushroom 3. Oyster Mushroom <p>III. WOOD MUSHROOM CYTOLOGY</p> <ol style="list-style-type: none"> 1. Fungi As Heterotrophic Organisms 2. Fungal Reproduction 3. Fungal Cytology <p>IV. ECOLOGY OF WOOD MUSHROOM (Oyster Mushroom Group)</p> <ol style="list-style-type: none"> 1. Growing Media 2. Growing Conditions 3. Nutritional Needs <p>V. ECOLOGY OF WOOD MUSHROOMS (Class Ear Mushrooms and Shiitake))</p> <ol style="list-style-type: none"> 1. Growing Media 2. Growing Conditions 3. Nutritional Needs <p>VI. DETERMINING FACTORS FOR THE SUCCESSFUL PRODUCTION OF WOOD MUSHROOM</p> <ol style="list-style-type: none"> 1. Seeds (Inoculum) 2. Value of Biological Efficiency (EB) 3. Contamination Percentage 4. Substrate Raw Material 5. Supplementary Nutrients <p>VII. THE SUCCESSFUL FACTORS OF WOOD MUSHROOM PRODUCTION (CONTINUED)</p> <ol style="list-style-type: none"> 1. Water 2. Substrate Acidity (pH) 3. Temperature 4. Aeration 5. Light 6. Humidity <p>VIII. INDICATORS FOR MEASURING THE SUCCESS OF MUSHROOMS CULTIVATION</p> <ol style="list-style-type: none"> 1. Bioconversion Indicator 2. Mycellium Growth Indicator 3. Production Indicator 4. Nutrient Content Indicator 5. Farming Indicators <p>IX. WOOD MUSHROOM PROCESSING AS FOOD AND MEDICINE</p> <ol style="list-style-type: none"> 1. Use of Wood Mushrooms for Health 2. Extends Freshness 3. Mushroom Processing as Culinary
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	<p>X. TECHNOLOGY DEVELOPMENT OF WOOD MUSHROOM CULTIVATION</p> <ol style="list-style-type: none"> 1. The Importance of Technological Innovation 2. Making dry TEL spawn 3. Making Planting Substrate 4. Packaging 5. Sterilization <p>XI. DEVELOPMENT OF WOOD MUSHROOM CULTIVATION TECHNOLOGY (continued)</p> <ol style="list-style-type: none"> 1. Inoculation of Dried Seeds 2. Substrate incubation 3. Maintenance 4. Pests and Diseases 5. Harvesting 6. Sorting Planting Substrate <p>XII. MUSHROOMS SPAWNING METHOD BMM</p> <ol style="list-style-type: none"> 1. Spawn Meaning 2. Fruiting Body Parts 3. Fitting Model 4. Reproductive Structure 5. Reproduction <p>XIII. TEL SPAWNING METHOD</p> <ol style="list-style-type: none"> 1. The problem of mushroom cultivation 2. TEL . method 3. TEL . method instrument 4. TEL method seed technique 5. Production of derivative TEL Spawning 6. Comparison of TEL and BMM 7. Mycelium Color and Branche
Test Terms and Forms	<p>Examination requirements: A minimum of 75 % attendance to attend the final exam</p> <p>Forms of examination: Essay</p>
LearningMedia	Projector and screen, Zoom application, Google Classroom, WA Group
References	<p>Main References: Sugianto, A., 2017. Jamur Kayu Sebagai Pangan Alternatif. Intimedia, Malang.</p> <p>Supporting References:</p> <ol style="list-style-type: none"> 1. Sugianto, A. 2005. Pengujian Model Injeksi Nutrisi Cair AGS+ Pada Jamur Tiram Putih (<i>Pleurotus ostreatus</i>). J. Agritek. (43) : 18-24 2. Sugianto, A. 2005. Pemanfaatan Sampah Organik sebagai Substrat Jamur Kayu. J. Agritek. XXXIV : (5824- 5837) 3. Sugianto, A. 2013. Pengujian Fisiologi Sampai Generasi Ke Tiga Bibit yang Dibuak dengan Metode Tanaman Eksplan Langsung (TEL). J. Agonisma. I : (5-12) 4. Suhardjono, H., I. Radianto, Purwadi, dan W. Mindari, 2006. Pengomposan Sampah Dengan Metode 3 : 1. Makalah Lokakarya Pengelolaan Sampah Secara Terpadu, Lelit UNIBRAW. Tgl. 04 Maret. 2006. 5. Sunawan dan Sugianto, A. 2002. Pengembangan Pertanian Lahan Sempit di Daerah Kurang subur dengan Budidaya Jamur Sistem Semi Modern yang Memanfaatkan Berbagai Limbah Pertanian. J. Al-Buhot XIII ; (12-18)

