MODULE HANDBOOK OF PROGRAM

BACHELOR OF PLANT PROTECTION

FACULTY OF AGRICULTURE

UNIVERSITY OF BENGKULU

Introduction

Thank God we pray to Allah SWT, because of his blessings and mercy, handbooks agricultural Plant Protection department has been completed. This handbook contains policies and procedures for students of the agricultural Plant Protection Deparrtment, Faculty of Agriculture, University of Bengkulu. Students should be aware of materials related to their degree program, and together with their academic advisor, ensure that the course they choose complies with all policies. Although we have attempted to include most of the regulations governing academic programs at the University of Bengkulu, some programs have their own additional requirements and regulations. Students should also become familiar with academic policies that also apply to the university as well as faculty levels. Making this guidebook is certainly still far from perfect, both in context and content, for that we are open to suggestions and criticisms for future improvements. Thank you to all those who have contributed a lot in the preparation of this guidebook.

Bengkulu, October 2022

Chair Of Department

Dr Mimi Sutrawati S.P., M.Si

History Of Plant Protection

Plant Protection Department, Faculty of Agriculture, University of Bengkulu, established on May 11, 2016 based on Surat Keputusan Menteri Riset, Teknologi, dan Pendidikan Tinggi Republik Indonesia No 197/KPT/1/2016. Plant Protection Department, Faculty of Agriculture, University of Bengkulu is the reincarnation of the Department of pests and plant diseases Faculty of Agriculture, University of Bengkulu which has been established since February 23, 1998 based on SK Direktur Jenderal Pendidikan Tinggi Depdikbud RI No 50/DIKTI/Kep/1998 which then is under the auspices of the Department of Plant Protection since March 15, 2006 based on SK Menteri Pendidikan Nasional RI No 36/D/O/2006. Furthermore, based on Surat Direktur Jenderal Pendidikan Tinggi No 294/D/T/2010 dated March 18, 2010 on the merger of agricultural courses, then since January 1, 2008 Prodi Agronomy, Soil Science, and Plant Pest science merged into Prodi Agroecotechnology. Therefore, since 2008, lecturers of the Department of Plant Protection run Tri Dharma Perguruan Tinggi for students of Agroecotechnology department interest in Plant Pests and diseases. On May 11, 2016, the Pest and Plant Disease Department was reborn with a new nomenclature (which refers to the letter Direktur Pembelajaran dan Kemahasiswaan Kementrian Pendidikan dan Kebudayaan No 0404/E3.2/2015 about clumps of Science and technology as well as a college graduate degree), namely Plant Protection Department with basic Surat Keputusan Menteri Riset, Teknologi, dan Pendidikan Tinggi Republik Indonesia No 197/KPT/1/2016.

Organization Structure

The organizational structure of the Plant Protection Department of the Faculty of Agriculture in 2020-2024 is as follows :

Chair Of Department	: Dr Mimi Sutrawati S.P. , M.Si
Secretary Of Department	: Nela Zahara, SP. M.Si
Chair Of Laboratory	: Ir. Djamilah M.P
Quality Control Group	:

Values

Guidelines for achieving the goals of the study program and the University of Bengkulu based on national education goals; rules, norms and ethics of science; community interests; and personal interests, abilities, and initiatives. Of course, the achievement of this goal does not leave the values that include input values, process values, and external values. Input values, namely the values needed in every UNIB employee in achieving excellence, which include: (a) Amanah and civilized: having integrity, being honest, and able to carry out trust and civilized; (b) professional: have adequate knowledge and ability and understand how to implement it; (c) enthusiastic and highly motivated: show curiosity, dedicated spirit and results-oriented; (d) responsible: understand the risks of work and are committed to account for their work; (e) creative: have a mindset, perspective, and varied approaches to each problem; (f) discipline:

obey the rules and regulations that exist and are able to invite others to; and (g) caring: being aware and willing to understand and pay attention to the needs and interests of others.Process values are values that must be considered in working at UNIB in order to achieve and maintain the desired conditions, which include: (a) visionary and insightful: work based on extensive knowledge and information as well as far-sighted insights; (b) being an example: take the initiative to start from yourself to do good things so that it becomes an example for other parties; (c) motivate: provide encouragement and encouragement for others to strive to achieve common goals; (d) inspire: provide inspiration and provide encouragement so that others are moved to produce their best work; (e) empower: provide opportunities and optimize the efforts of others according to their abilities; (f) cultivate: become a motor and driver in community development towards a more cultured condition; (g) obey the principles: comply with; (h) coordinating and synergizing within the framework of teamwork: working together based on commitment, trust, openness, mutual respect, and active participation for the benefit of UNIB; and (i) accountable: working in a measured manner with standard principles and providing accountable work results.

Output values are values that are considered by stakeholders, which include: (a) productive (effective and efficient): provide good work in optimal quantities through the implementation of effective and efficient work; (b). Love high quality: produce and deliver only the best; (c). Trustworthy(reliable): able to carry out the trust and provide evidence in the form of work in achieving the vision and mission of UNIB; (d) responsive and aspirational: sensitive and able to immediately follow up on the ever-changing demands; (e) anticipatory and innovative: able to predict and respond to changes that will occur and generate new ideas and developments; (f) Democratic, fair, and inclusive: open to criticism and input and able to be fair and equitable; (g) Lifelong Learning: willing and trying to always add and expand horizons, knowledge, and experience; and (h) moral and virtuous: able to provide excellent service by prioritizing smiles, greetings,courtesy, and greetings.

Vision Of Plant Protection Department

To become an institution of higher learning of international repute by 2025 in the field of tropical plant protection and coastal ecosystems that prioritizes the exploration of biodiversity and the development of pest and Plant Disease Control Technologies based on Natural Resources.

Mission Of Plant Protection Department

1. Organizing bachelor (Strata 1) education in the field of plant protection to produce S1 graduates who are able to explore biodiversity and develop pest and Disease Control technology based on Natural Resources;
2. Conducting research and community service to support the development of Bengkulu province and National;
3. Establish mutually beneficial cooperation with other institutions, both local, national, and international
4. Develop a good, clean and accountable department management system.
5. Encourage and motivate students to develop entrepreneurial skills based on the knowledge gained during college.

Purpose of Plant Protection Department FP UNIB

1. Realizing the agricultural education system in the field of plant protection that is able to encourage students and academic staff to carry out the process of absorption and development of Agricultural Science and technology related to the management of pests and plant diseases.
2. Plan and support the implementation of S1 level education programs in the field of plant protection through academic channels based on applicable legislation.
3. Discover, develop, apply, and disseminate knowledge related to the management of pests and plant diseases, leading to the utilization of natural and human resources available and the needs of the community in support of sustainable agricultural development and environmentally sound
4. Produce Bachelor of Agriculture with character and in accordance with the demands of the international job market.
5. Provide excellent service.
6. Produce internationally reputable science and technology in the field of tropical plant protection and coastal ecosystems that are able to benefit the welfare of the community.
7. Expand the gait of the study program to the scope of local, national and international.

Lecturer Profile

The Staff of the Department of Plant Protection totaled 14 people. Lecturers of PS Plant Protection either individually or institutionally= involved in various forms of cooperation at the level of study programs, FP, and Unib with local government, central government and private sector as researchers and experts. Related to the cooperation, the chairman of PS always provides support directly and indirectly. The support is provided in the form of permits, monitoring, and facilities owned by prodi. Furthermore, many lecturers in the Department of Plant Protection are involved in public leadership at the local and regional levels.

LECTURER PROFILE

Ir. DJAMILAH, M.P

NAME:
DJAMILAH

Position:
Assist.Prof

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Phone: +62 085273291767

Education:
Master in Plant Protection (Nematology)

Working experience:
Head of Plant Protection Laboratory

Teaching:
Plant Nematology
Plant Pest Science
Post-Harvest Pests
Pesticide application
Integrated Pest Control
Basic of Pests Control
Weed Management
Research Interest:
Plant Nematology
Pesticides (Plant Pesticides)

Research Project:

- Diversity and population density of nematodes in Melon platations in Bengkulu city.
- Incidence of Important Pests and Natural Enemies in Kalamansi Oranges in the Coastal Areas of Bengkulu City and Their Effect on Decrease in Production
- Characterization of Planococcus bendovi Williams (Hemiptera: Coccomorpha : Pseudococcidae)

Publication:
(2019 – 2022)
Effect of Noni Fruit Extract (*Morinda citrifolia* L.) And Application Time To Control *Crocidolomia binotalis* Zell. On Cabbage Plant https://ejournal.unib.ac.id/Agrosia/article/view/4561

EFEKTIVITAS NEMATISIDA DAUN JARAK PAGAR (*Jatropha curcas* L.) DALAM MENGHAMBAT SERANGAN NEMATODA PURU AKAR (*Meloidogyne* spp.) PADA TANAMAN TOMAT https://ejournal.unib.ac.id/JIPI/article/view/6113

PENGARUH EFIKASI EKSTRAK BIJI PINANG DALAM MENGENDALIKAN ULAT DAUN KUBIS PADA PAKCOY https://ejournal.unib.ac.id/JIPI/article/view/8946

Bioaktivitas Ekstrak Biji Bintaro Terhadap Kutu Daun *Aphis gossypii* GLOVER Dan Pengaruhnya Terhadap Tanaman Cabai
https://journal.uinsgd.ac.id/index.php/ja/article/view/8380

Spodoptera frugiperda J.E Smith
https://ejournal.unib.ac.id/jagritropica/article/view/13560

PATHOGENICITY OF ENTOMOPATHOGENIC FUNGI *Lecanicillium lecanii* AND *Beauveria bassiana* AGAINST *Pseudococcus jackbeardsleyi* (PSEUDOCOCCIDAE) INFECTING RAMBUTAN https://ejournal.ukm.my/serangga/article/view/40691

FIRST RECORD OF THE MEALYBUG, *Rastrococcus tropicasiaticus* WILLIAMS (HEMIPTERA: PSEUDOCOCCIDAE) IN INDONESIA
https://ejournal.ukm.my/serangga/article/view/46502

SHORT COMMUNICATION: A FIRST RECORD OF MEALYBUG, *Planococcus bendovi* WILLIAMS (HEMIPTERA: COCCOMORPHA: PSEUDOCOCCIDAE) IN SOUTHEAST ASIA https://ejournal.ukm.my/serangga/article/view/521

Mata kuliah yang diampu:

- Plant Nematology Plant Pest Science
- Post Harvest Pests Pesticideapplication
- Integrated Pest Control Basic of Pests Control Weed Management

Prof. Dr. Ir. Dwinardi Apriyanto, M.Sc

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Education: S1 degree UGM,
Master & Doctorate degrees: Univ. of Kentucky.

Working experience: 1984 - present

Teaching: Entomology, Insect and Pathogen Plant Interaction

Research Interest:
Biological control with insect pathogen,
Insect-plant interaction,
pest management

Research Project:
Eksploration and uses of local isolates of *Beauveria bassiana* to control coffee bean borer.

Publication:

Zarkani, A., Nadrawati, Djamilah, Tri Sunardi, Priyatiningsih, Apriyanto, D., Ercan, E., & Kaydan, M.B. 2022. A first record of mealybug, Planococcus bendovi Williams (Hemiptera: Coccomorpha: Pseudococcidae) in Southeast Asia. Serangga, 27 (1), 88-98.

Zarkani, A., Apriyanto D., Turanli, T., Ercan, C., & Kaidan, M.B. 2021. A checklist of Indonesian scale insects (Hemiptera: Coccomorpha). Zootaxa, 5016 (2), 151-195.

Apriyanto, D., Nadrawati, Bustamam, B. & Zarkan, A. 2921. Effect of Beauveria bassiana Against Coffee Bean Borer, Hyphothenemus hampei (Ferrari) in Small Scale Field Trials. Serangga, 26 (3), 69-88.

Zarkani, A., Apriyanto, D., Turanli, F., & Kayda, M.B. 2020. New Record of Ferrisa dasylirii (Cockerell) (Hemiptera: Coccomorpha: Pseudococcidae) in Indonesia. Serangga, 25 (3), 100-107.

Obel, Apriyanto D., & Pamekas, T. 2020. Kemampuan Ekstrak Kulit Buah Kabau (Archidendron microcarpum) dalam Mengendalikan Crocidolomia pavonana (Lepidoptera: Crambidae). Jurnal Proteksi Tanaman, 4 (1), 21 – 28.

Apriyanto, D. & Nadrawati. 2019. Laboratory Evaluation of Local Isolates of Beauveria bassiana and Metarhizium anisopliae against Coffee Berry Borer, Hyphotenemus hampei, using spraying method. J. HPT Tropika 19 (2), 93-100.

Cahyoko, I., Apriyanto, D., Hindarto, K.S. 2018. Insidensi penggerek batang padi kuning, Schirpophaga incertulas Walker, pada tiga varietas padi : kasus di Desa Kemumu Bengkulu Utara. JIPI, 20 (2), 40-46.

Apriyanto, D., Nadrawati, Sunardi, T., Suryati, D. 1916. Field Efficacy of Steinernema carpocapsae Against Lima Bean Pod Borer, Etiella zynckenella Treitschke, Attacking Groundnut. IJASIED, 6 (3), 370-373.

Ir. **Nadrawati, M.P**

NAME: Nadrawati

Position: Assosiate Profesor

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Education: S1 degree UNAND, Master degrees: UGM

Working Experience: 1986 - present

Teaching: Entomologi, Ilmu Hama Tumbuhan, Hama Tanaman Semusim, HamaTanaman Tahunan, Dasar-dasar Pengelolaan OPT, Pengendalian hayati

Research Interest:
Biological control with insect pathogen,
Insect-plant interaction,
Pest management.

Research Project:

1. Eksploration and uses of local isolates of Beauveria bassiana to control coffee bean borer.
2. Potency of entomopathogen Beauveria bassiana Vuill. local isolates as endophytic fungi and its effects on *Spodoptera litura*

Publication:

Zarkani, A., Nadrawati, Djamilah, T. Sunardi, Priyatiningsih, D. Apriyanto, , E. Ercan, & M.B. Kaydan. 2022. A first record of mealybug, Planococcus bendovi Williams (Hemiptera: Coccomorpha: Pseudococcidae) in Southeast Asia. Serangga, 27 (1), 88-98. Apriyanto, D., Nadrawati, H. Bustamam. & A. Zarkan. 2021. Effect of Beauveria bassiana Against Coffee Bean Borer, Hyphothenemus hampei (Ferrari) in Small Scale Field Trials. Serangga, 26 (3), 69-88.

Ginting, S., Nadrawati, A. Zarkani, & T. Sumarni. 2020. Natural Incidence Of Entomopathogenic Fungus Nomuraea Rileyi on Spodoptera frugiperda infesting Corn In Bengkulu . J. HPT Tropika 20 (2), 85-91.

Apriyanto, D. & Nadrawati. 2019. Laboratory Evaluation of Local Isolates of Beauveria bassiana and Metarhizium anisopliae against Coffee Berry Borer, Hyphotenemus hampei, Using Spraying Method. J. HPT Tropika 19 (2), 93- 100.

Riningrum, R.A.F., Nadrawati, & E. Turmudi. 2020. Uji Konsentrasi Cendawan Beauveria bassiana (Bals.) Vuill Terhadap Mortalitas Kepik Polong (Riptortus linearis F.) Pada Tanaman Kedelai. JIPI. 22(1), 9-15

Ginting, S., E. K. Depari, Nadrawati, & A. Zarkani. 2020. The Attack of Rastrococcus sp. (Hemiptera: Pseudococcidae) on Dysoxylum mollissimum Blume In Campus Forest of Bengkulu University. Jurnal HPT Tropika 20(1), 54–60

Faizin, M., Nadrawati, E. Turmudi. 2019. Penggerek Polong Maruca testulalis pada Delapan Varietas Kacang Hijau dan Pengaruhnya Terhadap Hasil.JIPI. 21(1), 55-61

Apriyanto, D. & Nadrawati. 2019. Laboratory Evaluation of Local Isolates of Beauveria bassiana and Metarhizium anisopliae against Coffee Berry Borer, Hyphotenemus hampei, using spraying method. J. HPT Tropika 19 (2), 93-100.

Apriyanto, D., Nadrawati, Sunardi, T., Suryati, D. 1916. Field Efficacy of Steinernema carpocapsae Against Lima Bean Pod Borer, Etiella zynckenella Treitschke, Attacking Groundnut. IJASIED, 6 (3), 370-373.

Ir. Hartal, M.P.

NAME : **HARTAL**

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Education:

1. Jurusan Hama dan Penyakit Tumbuhan, Universitas Sriwijaya- UNSRI (**1987-1994**)
2. Fitopatologi, Universitas Gadjah Mada, Yogyakarta (**1995-1997**)

Working experience:

1. 1986- present: Associate Professor

Teaching:

1. Penyakit Penting Tanaman Utama
2. Pengendalian Terpadu Hama & Penyakit Tanaman.
3. Basics of Plant Protection
4. Bakteriologi
5. Penyakit Tumbuhan
6. Mikrobiologi

Research Interest:
1. fitopatologi
2. pengendalian terhadap penyakit tanaman
3. Plant Protection

Research Project

1. Kajian Potensi Cendawan Endofit untuk Meningkatkan Pertumbuhan dan Ketahanan Tanaman Cabai Terhadap Cucumber Mosaic Virus (CMV) dan ***Cercospora*** sp.

2. Pengembangan Teknologi Mkiropropagasi Tanaman Jahe Gajah Bebas Penyakit Layu ***Ralastonia solanacearum***

3. Identifikasi Penyakit-Penyakit Penting pada Tanaman Jeruk Rimau Gerga Lebong Sebagai Langka Awal Dalam Pengendalian Penyakit Secara Terpadu

4. Formulasi Pengujian Keandalan ***Striptomyces sp.57*** dan ***67*** Untuk Pengendalian Hayati Penyakit Layu Bakteri Jehe

Publication:

1. Respon Pertumbuhan dan Hasil Tanaman Cabai Terhadap Aplikasi Fungi Mikoriza Arbuskular (FMA) Berbagai Media Pasir 27 (1): 1-11. https://eJournal Agroteknologi Tropika.
2. The Potensial Test of Enddophytic Fungi on the Growth of Cucumber Crops and the Pathogenicity of the Pathogen Fusarium. Proceeding International Seminar and Expo on "Promoting Local Resources for Food and Health.
3. Analisis Pertumbuhan 20 Varietas Jagung Manis yang Dibudidayakan Secara Organik di Dataran Tinggi. Akta Agrosia
4. Karakter Agronomi dan daya hasil tiga belas galur harapan kedelai (*Glycine mak*(L.)Merrill) di lahan masam

Dr. Ir. Tunjung Pamekas, M.Sc.

NAME : **TUNJUNG PAMEKAS**

Position : Lecturer/ Associate Professor

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Education:

S1 Degree :Jurusan Hama dan Penyakit Tumbuhan, Institut Pertanian Bogor (1984-1988)
Master Degree : Plant Pathology, University of Maine, USA (1991-1992)
Doctorate Degree: Fitopatologi, Universitas Gadjah Mada, Yogyakarta (2006-2012)

Working experience:

1.1986-2000: Assistant Professor
2.2001- present: Associate Professor

Teaching:

Pengelolaan Hama dan Penyakit Terpadu
Dasar-Dasar Patogen Tanaman
Basics of Plant Protection
Penyakit Pascapanen
Penyakit Tumbuhan
Mikrobiologi

Research Interest:

1. Fitopatologi
2. Pengendalian terhadap penyakit tanaman
3. Plant Protection

Research Project

1. Perakitan Kultivar Unggul Cabai (*Capsicum annum* L.) Berdaya hasil Tinggi pada Kondisi Ultisol: Seleksi F5 sampai Uji Daya Hasil Lanjutan dari Persilangan 2/5 (Talang Semut/Tit Super).

2. Pengendalian Penyakit Pascapanen Antraknosa Pada Buah Pisang Ambon Curup dengan Senyawa Alami Chitosan dari Limbah Perikanan.

3. Induksi Ketahanan Pisang Ambon Curup terhadap Penyakit Antraknos dan Penundaan Kematangan dengan Aplikasi Kitosan

4.Induksi Resistensi Tanaman Kentang Terhadap Penyakit Hawar Daun *Phytophthora infestans*

5. Variasi Genetik Isolat Hipovirulen dan Kandungan KulturFiltrat Jamur Phytophthora infestans Sebagai Elisitor Induksi Ketahanan Kentang Terhadap Penyakit Hawar Daun

6. Indentifikasi Penyakit-Penyakit Penting Pada jeruk Rimau Gerga Lebong Sebagai Langkah Awal Dalam pengendalian Penyakit Secara Terpadu

7. Daya Hasil, Ketahanan Terhadap Cekaman Kekeringan dan Penyakit Penting, dan Stabilitas Genetik Klon Mutan Harapan MV3 di Dataran Medium Bengkulu.

8. Daya Hasil, Ketahanan Terhadap Cekaman Kekeringan dan Penyakit Penting, dan Stabilitas Genetik Klon Mutan Harapan MV3 di Dataran Medium Bengkulu.

Publication:

5. Uji Antagonis 30 Isolat Cendawan Rizosfer Hutan Tanaman Acacia mangium terhadap Patogen Penyakit Busuk Akar Putih.
6. Karakteristik dan Uji Efikasi Bahan Senyawa Alami Chitosan terhadap Patogen Pasca Panen Antraknosa *Colletotrichum musae*. 2007 Vol 9 (1):58-63. J*urnal Ilmu-Ilmu Pertanian Indonesia*
7. Potensi ekstrak cangkang kepiting dalam mengendalikan penyakit pasca panen antraknosa paca cabai merah. 2007 Vol 10 (1):72-75. *Aktagrosia*

8. Ekstraksi, karakterisasi dan daya penghambatan kitosan alami terhadap *Colletotrichum musae in vitro* Septihade, 2009 Vol 2 (1):39-42. *Jurnal Perlindungan Tanaman Indonesia.*

9. Mekanisme kerja kitosan cangkang kepiting dalam penghambatan pertumbuhan jamur patogenik *Colletotrichum musae in vitro*
10. Inoculation of Hypovirulent Isolates of *Fusarium oxysporum* to Induce The Growth and Resistance of Potato to Fusarium Wilt

Ir. Priyatiningsih, M.Sc.

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Education:

1. Jurusan Hama Tumbuhan, Fakultas Pertanian, UGM (1985)
2. Department of Entomology, University of Kentucky (1990)

Working experience:

1. 1986-2000: Assistant Professor
2. 2001- present: Associate Professor

Teaching:

1. Nematology
2. Vertebrate Pests
3. Basics of Plant Protection
4. Academic English
5. Enterpreunership
6. Special Topic
7. Ecology of Insect Pest

Research Interest:
Entomology
Nematology
Plant Protection

Research Project:

1. Diversity and population density of nematodes in Melon platations in Bengkulu city.
2. Incidence of Important Pests and Natural Enemies in Kalamansi Oranges in the Coastal Areas of Bengkulu City and Their Effect on Yield Decrease.
3. Characterization of *Planococcus bendowi* Williams (Hemiptera: Coccomorpha: Pseudococcidae).
4. Potency of entomopathogen *Beauveria bassiana* Vuill. local isolates as endophytic fungi and its effects on *Spodoptera litura*.

Publication:

Zarkani, A., D. Apriyanto, Djamilah, Nadrawati, **Priyatiningsih**, T. Sunardi, E. Cansu, and M.B. Kaydan. 2022. *Planococcus bendowi* Williams (Hemiptera: Coccomorpha: Pseudococcidae), a First Record of Mealybug in Southeast Asia. Serangga 27 (1): 1-11. https://ejournal.ukm.my/serangga/article/view/52185

Ginting, S., Djamilah, T. Pamekas, H. Bustamam, **Priyatiningsih**, Sipriyadi, R.H. Wibowo. 2020. Pathogenicity of Entomopathogenic Fungi *Lecanicillium lecani* and *Beauveria bassiana* against *Pseudococcus jackbeardsleyi* (Pseudococcidae) Infecting Rambutan. Serangga 25 (3): 1-11.

https://ejournal.ukm.my/serangga/article/view/40691
Septihade, W., Djamilah, **Priyatiningsih**. 2020. Entomopatogen nematode exploration and virulency against *Spodoptera frugiperda* J.E Smith. Agritropica 3 (2): 70-81. https://ejournal.unib.ac.id/jagritropica/article/view/13560

Agustin Zarkani, S.P., M.Si., Ph.D

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Phone	: +6287776103807
E-mail	: agustinzarkani@unib.ac.id
Education	: S1 degree University of Bengkulu Master degree Bogor Agricultural University Doctorate degrees Ege University, Turkey.
Working Experience	: 2005- present
Teaching	• Biochemist • Insects Rearing • Plant-Insect Interactions and Ecology • Applied Pesticides

Suparno T., Zarkani A. 2000. The beetle caused failure fruit of mango in Bengkulu. J. Agritek 8(4): 35-39.

Zarkani A. 2006. Uses of compost tea as pesticide and natural fertilizer. J. Ilmiah Multi Science INSPIRASI 15(1): 20-25.

Zarkani A., Apriyanto D., Nadrawati. 2007. Efication of *Brucea javanica* on *Crocidolomia binotalis* Zeller. J. LP UNIB 7: 31-34.

Zarkani A., Suparno T., Sunardi T. 2007. Kinds of insect attack mango flower in Bengkulu. J. Ilmu-Ilmu Pertanian Indonesia. Faperta UNIB. 5(2):11-14.

Zarkani A., Prijono D., Pudjianto. 2009. Testing the Insecticidal Activity of *Piper retrofractum* Extract on *Crocidolomia pavonana* and *Plutella xylostella* and Its Safety to *Diadegma semiclausum* . Akta agrosia 12(1): 48-53.

Suparno T., Zarkani A. 2010. *Fundamentals of Biochemistry in Plant Protection* (text book, ISBN). BPFP Press. Bengkulu.

Zarkani A. 2011. *Specific Variety of Bengkulu Mango: Planting techniques and controlling their pests* (text book, ISBN). BPFP Press. Bengkulu.

Zarkani A. 2012. *Cultivation techniques of BSF Insect Hermetia illucens* (text book, ISBN). UNIB Press. Bengkulu.

Zarkani A. 2012. Black Soldier Fly *Hermetia illucens* (Diptera: Stratiomyidae): From Waste to Wealth and Prosperity. Proceeding 3rd International Seminar Regional Network On Poverty Eradication, 15-17 October, Bengkulu

Zarkani A., Miswarti. 2012. Cultivation techniques of *Hermetia illucens* larvae as protein source of feedstuff through bioconversion of loading ramp waste from CPO factory. *Indo. J. of Entomol.* 9(2): 1-9.

Zarkani A., Turanlı F., Sönmez Ç., Bayram E., Özdemir I. 2017. Incidence and economic impact of the mint aphid, *Eucarazzia elegans* (Ferrari) (Hemiptera: Aphididae) on common sage. *Turkish Journal of Entomology* 41(4) 383-392. (Scopus and IF Journal).

Zarkani A., Turanlı F. 2018. Morphological Characterizations of *Aphis passeriniana* Del Guarcio (Hemiptera: Aphididae) living on *Salvia officinalis* L. (Lamiaceae) in Turkey. *Biodiversitas* 19(4) 1319-1325. (Scopus and IF Journal).

Zarkani A., Turanlı F. 2019. Insects complex of common sage, *Salvia officinalis* L. (Lamiaceae) and their natural enemies.*YYU Journal (1): 34-42.* (Scopus and IF Journal).

Zarkani, A., Apriyanto, D., Turanli, F. & Kaydan, M.B. (2020). New record of *Ferrisa dasylirii* (Cockerell) (Hemiptera: Coccomorpha: Pseudococcidae) in Indonesia. Serangga, 25 (3), 93–100.

Zarkani A., Apriyanto D., Turanli F., Cansu E. & Kaydan M.B. (2021a). Checklist of Indonesian Scale Insect Species (Hemiptera: Coccomorpha). Zootaxa 5016(2) 151-195.

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Sutrawati M.,

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Zarkani A., Apriyanto D., Cansu E., & Kaydan M.B. (2022b). Studies on Mealybug Species (Hemiptera: Coccomorpha: Pseudococcidae) with Description of Two New Species and Three Newly Recorded Species from Indonesia. Zookeys (The 2nd *round review*).

SEMINARS AND ORAL PRESENTATIONS:

Zarkani A. Turanlı F., Sönmez Ç. 2016. Aphids (*Homoptera, Aphididae*) Attacking on Common Sage *Salvia officinalis* and *S. fructicosa*. Poster section, 6th Plant Protection Congress with International Participation, 05-08 September in Konya, Turkey.

Zarkani A. Turanlı F., Sönmez Ç., Bayram E., Özdemir I. 2017. Damage and Economic Impact of the Mint Aphid, *Eucarazzia elegans* (Ferrari) (Hemiptera: Aphididae) on Common Sage (*Salvia officinalis* L.) In Izmir, Turkey. Poster section, 1st International Congress on Medicinal and Aromatic Plants, 10-12 Mays in Konya, Turkey.

Zarkani A. Turanlı F. 2017. Impact Of Methyl Salicylate Lures On The Mint Aphid, *Eucarazzia Elegans* (Hemiptera: Aphididae) Density And Natural Enemy Abundances In Common Sage Plant's Fields. Oral presentation, 10th International Symposium On Aphidsö 04-08 September, Cappadocia, Turkey.

Zarkani A. Turanlı F., Yoldaş Z., Khan MK. 2017. Elytral Color Polymorphism in *Hippodamia variegata* Goeze (Coleoptera: Coccinellidae) in Sage Plant Fields and Laboratory Rearing Condition, Izmir-Turkey. Oral presentation, XIII. Congress of Ecology and Environment with International Participation, 12-15 September in Edirne, Turkey.

Zarkani A. Turanlı F., Yoldaş Z. 2017. Interaction of Two Ladybird Species, *Coccinella septempunctata* And *Adalia bipunctata* (Coleoptera: Coccinellidae), In Controlling The Mint Aphid *Eucarazzia elegans* (Hemiptera: Aphididae). Oral presentation, 3th. Congress of Food and Agricultural Products in Anatolian Regions with International Participation, 26-27 September in Sivas, Turkey.

Zarkani A. Turanlı F. 2018. Insect pests complex of common sage (*Salvia officinalis* L.) and their natural enemies. Oral presentation, 3th International Conference on Science and Technology, ICOSAT, 02-04 September, Kuala Lumpur, Malaysia.

Zarkani A., Apriyanto D., Nadrawati. 2019. Mealybugs complex on Robusta coffea in eastern Sumatra. Oral presentation, The 2nd International Conference on Science and Technology. ICST 2019 PTN Wilayah Barat Bidang MIPA UNIB. 26-27 July in Bengkulu, Indonesia.

Zarkani A., Kaydan MB., Apriyanto D. 2019. The first record of *Dysmicoccus* sp. (Hemiptera: Pseudococcidae) attacks on *Durio zibethinus* Murray (Malvaceae). The 2nd International Congress of Agriculture, Environment and Science, 18-19 October 2019, Adnan Menderes University Aydın-TURKEY

Zarkani A., Kaydan MB., Apriyanto D. 2019. A Suspected New Species Closed to *Dysmicoccus finitimus* Williams (Hemiptera: Pseudococcidae) Lives on Oil Palm (*Elaeis guineensis* Jacq). Mathematics and Science Education International Seminar, MaSEIS, October 5, 2019, Universitas Bengkulu, Bengkulu-INDONESIA

Zarkani A., Ginting S., Nadrawati1, Priyatiningsih, Depari EK. 2019. The first record of *Rastrococcus* sp. (Hemiptera: Pseudococcidae) attacks on *Dysoxylum molissimum* BL. (Meliaceae). South East Asia Plant Protection Conference "Plant Protection Sciences for

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Zarkani A., A NEW RECORD OF MEALYBUG, Dysmicoccus arachidis WILLIAMS (HEMIPTERA: PSEUDOCOCCIDAE) IN INDONESIAA NEW RECORD OF INSECT PEST, Seminar Nasional Pertanian Tahun 2021/28 Oktober 2021: Pelestarian dan Pemanfaatan Sumber Daya Genetik Lokal dalam mewujudkan Kemandirian Pangan Nasional. UIN Sunan Gunung Djati Bandung.

DIVERSITY of MEALYBUG In Indonesia. Seminar Nasional Perlintan-PEI-PFI 2021: Serangga Vektor Penyakit Tanaman Tropis

The 2nd International Conference on Organic Agriculture in The Tropics (ORGATROP)/online Conference/October 28th &29th, 2021): Organic agriculture as a sustainable agro-system to support agriculture production and Food safety Under the threat of Climate changes

A NEW MEALYBUG SPECIES (HEMIPTERA: COCCOIDEA: PSEUDOCOCCIDAE) COMPLEXS OF OIL PALM. The 2nd International Conference on Organic Agriculture in The Tropics (ORGATROP)/online Conference/October 28th &29th, 2021): Organic agriculture as a sustainable agro-system to support agriculture production and Food safety Under the threat of Climate changes

Yenny Sariasih, S.P, M.Sc.

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Education:

S1 Degree Universitas Bengkulu (1999-2005)
Master Degree University Of Gadjah Mada

Working experience:

2006- Sekarang: Assistant Professor

Teaching:

1. Epidemiologi
2. Biologi
3. Basics of Plant Protection
4. Pengendalian Organisme Pengganggu Tanaman
5. Penyakit Tumbuhan
6. Mikrobiologi

Research Interest:

1. fitopatologi
2. pengendalian terhadap penyakit tanaman
3. Plant Protection

Research Project

1. Pemetaan Hama, Patogen, dan Musuh Alaminya pada Sentra Tanaman Hortikultura di Kabupaten Rejang Lebong, Provinsi Bengkulu

2. Kajian Potensi Cendawan Endofit untuk Meningkatkan Pertumbuhan dan Ketahanan Tanaman Cabai terhadap Cucumber Mosaic Virus (CMV) dan *Cercospora* sp

3. Potensi Fungi Mikoriza Arbuskular(FMA) dalam Meningkatkan Pertumbuhan Tanaman Cabai dan Ketahanannya terhadap Serangan Virus CMV Penyebab Penyakit Mozaik

4. Induki Resistensi Tanaman Kentang terhadap Penyakit Hawar Daun *Phytophthora infestans*"

5. Analisis implementasi Peraturan Pemerintah No.12 tahun 2012 tentang Insentif Perlindungan Lahan Pertanian Pangan Berkelanjutan di Kawasan Dusun Besar Bengkulu

6. Identifikasi Sumber Hijauan dan Mikroorganisme Efektif Penyusun Pupuk Organik Cair untuk Produksi Jagung Manis dalam Sistem Pertanian Tertutup

7. Perakitan Varietas Unggul Tomat Unib Berdaya Hasil Tinggi Dataran Rendah : Metode Cepat dengan Seleksi Segregan Transgresif Individu F2

8. Identifikasi Sumber Hijauan dan Mikroorganisme Efektif Penyusun Pupuk Organik Cair untuk Produksi Jagung Manis dalam Sistem Pertanian Tertutup Tahun 2

Publication:

1. Pengaruh Fungi Mikoriza Arbuskular dalam Medium Zeolit terhadap Pertumbuhan dan Intensitas Penyakit Bercak Daun Pada Bibit Kakao. Jurnal Agroteknologi Tropika. Vol.1 No.1 Januari-Juni 2012. ISSN 2337-6562.
2. Pengembangan Budidaya Jamur Tiram Putih sebagai Agribisnis Prospektif bagi Gapoktan Seroja I Kandang Limun. Jurnal Agrisep. Vol.13 No.1.ISSN:1412-8837.
3. Respon Pertumbuhan dan Hasil Tanaman Cabai terhadap Aplikasi Fungi Mikoriza Arbuskular (FMA) Berbagai medium Pasir. Jurnal Agroteknologi Tropika. Vol. 3 No.1 Januari-Juli 2014. ISSN-6562.
4. Identification of nutrient contents in six potential green biomasses for developing liquid organic fertilizer in closed agricultural production system. International Journal on advanced science engineering information technology (IJASEIT). http://dx.doi.org/10.18517/ijaseit.7.2.1889. Vol. 7 No.2 (2017).

Dr Mimi Sutrawati, S.P., M.Si

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Education :
S1 Degree Bogor Agricultural University
Master Degree Bogor Agricultural University
Doctorate Bogor Agricultural University

Working experience:
Lecture at University of Bengkulu since 2005

Teaching:
Introduction to the Plant Virology
Introduction to the Biotechnology on Plant Protectin
Integrated Pest Management
Introduction to the Epidemiology of Plant Diseases
The Ecology of Plant Pest and Disease
Microbiology
Ornamental Plant Pest and Disease

Research Interest:
Plant Disease, Plant Virology

Research Project:
1. Cowpea Mild Mottle Virus: Biological Characterization and Potential of Seed Transmission (2016)
2. Distribution and Molecular Characterization of Important Rice Viruses in Bengkulu (2019)
3. Identification of Papaya Vector Insects and Viruses Causing Yellow Mosaic (2019)
4. Test of Excellence in Mixed Planting Model of Chili Varieties from UNIB Assembled through Participatory Breeding (2019-2020)
5. Yellow Mosaic Disease by Begomovirus Infection in Papaya: Disease Epidemiology and Analysis of the Risk for Lost Profits (2020)
6. Morphological, Anatomical and Molecular Studies for Identification of Drought Tolerant Soybean (2020)
7. Pengendalian Begomovirus pada Pepaya dengan Seed-Treatment dan Aplikasi Biopestisida yang Ramah Lingkungan (2021)
8. SELECTION AND TESTING OF ELDERLY IN ASSEMBLY OF COASTAL Adaptive Cayenne Pepper(2021)
9. Selection of Begomovirus Isolates that Cause Yellow Curly Disease and Genotype Resistance Test with Selected Isolates (2021)
10. Chaetomium spp Application Into Sweet Corn Infected Leaf-Blight: Immune Signals on Phenotypic Performances and Secondary Plant Metabolites (2021)

11. STUDY OF GENETIC CONNECTIONS AND SALINITY TOLERANCE IN THE ASSEMBLY OF Adaptive Chili Peppers in Coastal Areas (2021)
12. Detection and Molecular Characterization of Main Viruses and Nematodes in Chili for Chili Genotype Resistance Screening (2022)
13. Identification and Genetic Diversity of Virus and Insect Vectors in Cucurbitaceae in Bengkulu (2022)

Publication :

Tomato Leaf Curl New Delhi Virus Associated with Yellow Mosaic Disease of Cucumber (Cucumis sativus) in Bengkulu, Indonesia. Advances in Biological Sciences Research, volume 22. 7th International Conference on Biological Science (ICBS 2021)

Distribution and molecular characterization of Squash mosaic virus on cucumber in Gianyar, Bali. J. Trop. Plant Pests Dis. ISSN: 1411-7525 Vol. 22, No. 1, March 2022

Disease incidence and molecular diversity of Tungro Virus on Rice (Oryza sativa) in Bengkulu, Indonesia. International Journal of Agricultural Technology 2021Vol. 17(5):1973-1984. Available online http://www.ijat-aatsea.com ISSN 2630-0192 (Online)

Seed-transmission of Cowpea mild mottle virus on several varieties ofsoybean in Indonesia. BIODIVERSITAS Volume 22, Number 10, October 2021 Pages: 4182-4185

Response of Cucumber (Cucumis sativus L.) Varieties Against TMV (Tobacco mosaic virus) Infection. Agritropica; Desember 2021

NATURAL INFECTION OF Tobacco mosaic virus ON BUTTERNUT SQUASH IN BALI, Indonesia. J. HPT Tropika Vol. 21, No. 2, 2021: 116–122.ISSN: 1411-7525.E-ISSN: 2461-0399. DOI : 10.23960/j.hptt.221116-122

Effect of Initial Inoculum Level of Cowpea mild mottle Carlavirus on Mottle7Disease Development and Yield of Soybean. Proceedings of the International Seminar on Promoting Local Resources for Sustainable Agriculture and Development (ISPLRSAD 2020)

Analysis of the Risk of Profit Loss in Papaya Farming Affected by Yellow Mosaic Disease. JOURNAL LA LIFESCI VOL. 02, ISSUE 03 (001-007), 2021

PENYAKIT TUNGRO PADA TANAMAN PADI (Oryza sativa) DI KECAMATAN TABA PENANJUNG : INSIDENSI PENYAKIT DAN DETEKSI VIRUS SECARA MOLEKULER. JIPI 23(1), 37-45 (2021)

Identification of drought tolerant markers, DREB2A and BADH2 genes,and yield potential from single-crossing varieties of rice in Bengkulu, Indonesia. J Biodiversitas. Volume 22, Number 2, February 2021. Pages: 785-793

FIRST REPORT OF Begomovirus INFECTION ON PAPAYA IN BENGKULU, Indonesia. J Hama dan Penyakit Tropika. Vol. 21, No. 1, March 2021 Pages: 49– 55

First report of banana bunchy top disease on banana in Bengkulu. J Agritropica. Desember 2020.

Growth and Yield of Lettuce (Lactuca sativa L.) on Peat Soil Supplemented with Cow Manures and Palm Oil Bunches Fertilizer. Akta Agrosia. . 2020. 23(2):39- 46

Penyakit Mosaik Kuning Pada Kedelai. Jurnal Fitopatologi Indonesia. Volume 16, Nomor 1, Januari 2020

Superiority test of mixed-cropping models for chili pepper hybrid varieties through participatory plant breeding. International Journal of Agricultural Technology. 2019 Vol. 15(6):879-890

Genetic Diversity of Cowpea Mild Mottle Vrus on Soybean in Several Region in Indonesia. ICRI 2018 - International Conference Recent Innovation

Kisaran Inang Cowpea mild mottle virus Isolat CR 16. Jurnal Fitopatologi Indonesia, 13(6) November 2017

Host Range of Cowpea mild mottle virus and Response of Soybean Varieties. Jurnal Fitopatologi Indonesia. 13(6) November 2017

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Education:

1. Doctoral Program Institution: Entomology from Department of Plant Protection, Faculty of Agriculture of Bogor Agricultural Institute
2. Area of Study and Year : Bogor, Indonesia, 2018.
3. Master ProgramIns titution : Entomology from Department of Plant Protection, Faculty of Agriculture of Bogor Agricultural Institute

Area of Study and Year: Bogor, Indonesia, 2008.
Bachelor Program Institution :Pests and Plant Diseases, from Department of Plant Protection, Faculty of Agriculture of University of Jambi.
Area of Study and Year : Jambi, Indonesia, 2005.

Working experience: Insect Pathology, **Entomopathogen Fungi, Virus entomopathogen**

Teaching:
1. Basic Crop Protection
2. Perennial Plant Pests
3. Seasonal Plant Pests
4. Ornamental Plant Pests
5. Plant Clinic
6. Capita Selekta

Research Interest: Insect Pathology

Research Project: Insect Pathology

Publikasi

Pathogenicity of *Helicoverpa armigera* Nucleopolyhedro virus (HearNPV) and *Lecanicillium* sp. against *Helicoverpa armigera:* J.Biopest 11(2): 128-135 (2018). http://www.jbiopest.com/users/LW8/efiles/vol_11_2_128-135.pdf

Patogenisitas cendawan *Lecanicillium* sp. PTN01 terhadap penggerek tongkol jagung *Helicoverpa armigera* (HUBNER) (Lepidoptera: Noctuidae): Jurnal Ilmu-ilmu hayati Berita Biologi LIPI. 18(1): 13-24, April 2019. https://doi.org/10.14203/beritabiologi.v18i1.3378

Efficacy and residual activity of *Lecanicillium kalimantanense* and *Helicoverpa armigera* Nucleopolyhedrovirus (HearNPV) against corn earworm *Helicoverpa armigera* (Hubner) (Lepidoptera: Noctuidae) under field conditions: J. ISSAAS. 25(2): 95-103 (2019).

http://issaasphil.org/wp-content/uploads/2019/11/Journal-of-ISSAAS-Volume-25-Number-2-December-2019.pdf#page=99

New invasive pest *Spodoptera frugiperda* (J. E. Smith) (Lepidoptera: Noctuidae) attack on varieties of corn in Bengkulu: Serangga 2020, 25(1):105-117. http://journalarticle.ukm.my/15609/

The attack of *Rastrococcus* sp. (Hemiptera: Pseudococcidae) on *Dysoxylum mollissimum* Blume in campus forest of Bengkulu University: J. HPT Tropika UNILA. 20(1): 54–60, Maret 2020. http://jhpttropika.fp.unila.ac.id/index.php/jhpttropika/article/view/542

Natural incidence of entomopathogenic fungus *Nomuraea rileyi* on *Spodoptera frugiperda* infesting corn in Bengkulu. J. HPT Tropika UNILA. 20 (2): 85–91 September 2020. http://jhpttropika.fp.unila.ac.id/index.php/jhpttropika/article/view/571

Evaluation of various natural diets for mass rearing of *Spodoptera frugiperda* J.E. Smith (Lepidoptera: Noctuidae). J. HPT Tropika UNILA. 21(1):43-48, March 2021. http://jhpttropika.fp.unila.ac.id/index.php/jhpttropika/article/view/582

Effects of N and P dosages on crop growth, yield, and attack of pod borrer (Etiela zinchenella) of soybean c.v. Detam-1 grown at swampy land: International Journal of Agricultural Technology 2021. 17(5):1887-1894:

First report of banana bunchy top disease on Banana in Bengkulu: Agritropica: Journal of Agricultural Science. 3(2): 82-87. https://ejournal.unib.ac.id/index.php/jagritropica/article/view/12779

Pathogenicity Of Entomopathogenic Fungi *Lecanicillium lecanii* and *Beauveria bassiana* against *Pseudococcus jackbeardsleyi* (Pseudococcidae) Infecting Rambutan. Serangga 2020, 25(3): 1-11

Potential of entomopathogenic fungal culture filtrate Nomuraea rileyi (farlow) samson (Hypocreales: Clavicipitaceae) in Bengkulu, Indonesia against corn pest *Spodoptera frugiperda* (J. E. SMITH) (Lepidoptera: Noctuidae): Serangga 2021, 26(4): 60-71

Nela Zahara S.P. M.Si

NAME : **NELA ZAHARA**

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Education : S1 degree UNRI, Master IPB.

Working experience: 2019 - present

Teaching : Fitopatologi, Insect and Pathogen Plant Interaction

Research Interest:
Biological control with plant pathogen.

Research Project:
Characteristic Of Rice Paddy Seedborne Pathogens From Bengkulu

Publication:

N Zahara, M Ali, F Puspita . 2020. Test the Ability of Leaf Extracts of Several Types of Betel (Piper sp.) To Control Peanut Seed Transmitted Pathogenic Fungus and Its Effect on Seed Germination. Konservasi Hayati 16 (1), 30-38.

N Zahara dan Lisbet S. 2022. Study of Pathogens Causing Disease in Melon Plants (Cucumis melo L.) in Bengkulu. Konservasi Hayati 18 (1), 22-25.

N Zahara, T Pamekas. 2022. Characteristics Of Rice Seed Brought Futures Origin In Bengkulu City. CERMIN: Jurnal Penelitian 6 (1), 78-85.

N Zahara, BPW Soekarno, A Munif. 2021. Test Concentration of Endophytic Fungus Metabolites from Peanut Plants as Growth Inhibitor of *Aspergillus flavus. PENDIPA Journal of Science Education 5 (1), 63-69.*

N Zahara, BPW Soekarno, A Munif. 2018. Metabolites of Endophytic Bacteria from Peanut Plants as Growth Inhibitors of *Aspergillus flavus*. Jurnal Fitopatologi Indonesia 14 (1), 15-15

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Working experience:
2015-2016 Agrotea Bukit Daun
2017-2018 Litbang PTPN X, Klaten
2020-2021 Agrimakmur Pertiwi

Research Interest: Ecology, mites and molecular

Publikasi:

Statistik demografi Dolichotetranychus floridanus Banks pada dua kultivar nanas (Ananas comosus (L.) Merr.). DOI : 10.29244/jpsl.10.4.660-667

CURRICULUM

The implementation of universities in Indonesia, including the Plant Protection Department, Faculty of Agriculture, University of Bengkulu, has always experienced dynamics in line with the needs and demands of the world of work and sometimes even influenced by changes in regulations tailored to the demands of users. For 5 years, the concept of Competency-Based Curriculum has been part of the learning process in universities according to Kepmen No. 232/U/2000. In 2012, the concept of higher education curriculum development began to introduce a new system known as the Indonesian National Qualification Framework (KKNI) concept through Presidential Regulation 8 of 2012 and Kepmendiknas RI number: 323/U/2000 and number: 045/O/2002 which provide opportunities for higher education (vocational) to nationally obtain equal recognition of graduates by the world of work with graduates of academic universities. So through this kkni nationally every similar study program should produce graduates with competency or standard learning outcomes even though they are produced through different ways and learning activities (different pathways-standardized output/outcomes).

The development of Science and technology, the growing needs of the community, as well as government policies are the driving factors for the importance of changing and developing curricula, including in the Plant Protection Department. The main legal basis underlying the change and development of the curriculum in the Plant Protection department is Presidential Regulation No. 8 of 2012 on the Kerangka Kualifikasi Nasional Indonesia (KKNI). The Kerangka Kualifikasi Nasional Indonesia (KKNI) is a framework for leveling competency qualifications that can juxtapose, equalize, and integrate between the fields of education and the field of job training and work experience in order to provide recognition of work competencies in accordance with the structure of work in various sectors (Presidential Regulation No. 8 of 2012). KKNI is the embodiment of the quality and identity of the Indonesian nation related to the National Education and training system owned by Indonesia.

Preparation of courses into semesters. The pattern of course composition needs to pay attention to 3 (three) of the following: (a) the average credit load in each semester is 18-20 credits, (b) the accuracy of the location of the courses adjusted to the demands of the ability level and integration between courses, and (c) the planned learning strategy in an effort to meet the learning achievements of graduates. The number of compulsory courses is 53 courses (134 credits) plus 2 Integrated Practice (4 credits). There are 4 credits for the internship component of Kuliah Kerja Nyata (KKN). As for the components of the final project, the overall to be achieved is 5 credits component of the final project which includes a thesis report and seminar proposals and results.

Daftar sebaran mata kuliah tiap semester

SEMESTER I

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	MKU-101	Pendidikan Agama	3(1-2)	
2	MKU-102	Pancasila	2(1-1)	
3	MKU-103	Bahasa Indonesia	3(1-2)	
4	MKU-105	Bahasa Inggris	2(1-1)	
5	MFE-104	Biologi	3(2-1)	
6	MFE-101	Matematika	3(3-0)	
7	MFE-103	Kimia	3(2-1)	
8	MFE-106	Pengantar Ilmu Pertanian	2 (2-0)	
Jumlah SKS Semester I			21 (13-8)	

SEMESTER II

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	MKU-104	Pendidikan Kewarganegaraan	2(1-1)	
2	MKU-106	Komputer dan Pemrograman (*Coding*)	3(1-2)	
3	MFE-105	Pengantar Sumberdaya Alam dan Lingkungan	2(2-0)	
4	AGB-104	Dasar-Dasar Manajemen	2(2-0)	
5	AGT-102	Dasar-Dasar Agronomi	3(2-1)	MFE-104
6	ITN-101	Dasar-Dasar Ilmu Tanah	3(2-1)	
7	PTN-101	Statistika	3(3-0)	
8	PTN-102	Mikrobiologi Pertanian	3(2-1)	
Jumlah SKS Semester II			21(15-6)	

SEMESTER III

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	AGT-201	Fisiologi Tanaman	3 (2-1)	MFE-104
2	AGB-106	Dasar-Dasar Penyuluhan pertanian	3 (2-1)	
3	PTN-201	Ilmu Penyakit Tumbuhan	3 (2-1)	
4	PTN-202	Ilmu Hama Tumbuhan	3 (2-1)	
5	PTN-203	Dasar-dasar Pemuliaan Tanaman Tahan Hama dan Penyakit	3(2-1)	
6	ITN-102	Klimatologi	3 (2-1)	
7	PTN-204	Biokimia	2 (2-0)	
Jumlah SKS Semester III			20(14-6)	

SEMESTER IV

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	PTN-205	Nematologi Tumbuhan	3 (2-1)	
2	PTN-206	Mikologi	3 (2-1)	
3	PTN-207	Pengantar Prokariot Patogen Tumbuhan	2 (1-1)	
4	PTN-208	Pengantar Virologi Tumbuhan	2 (1-1)	
5	PTN-209	Entomologi	3 (2-1)	
6	PTN-210	Vertebrata Hama	2 (1-1)	
7	PTN-211	Rancangan Percobaan	3 (2-1)	
8	PTN-212	Kebijakan Perlindungan Tanaman dan Karantina	2(2-0)	
Jumlah SKS Semester IV			20 (13-7)	

SEMESTER V

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	PTN-301	Pengantar Epidemiologi Penyakit Tumbuhan	2 (2-0)	
2	PTN-302	Bioteknologi Proteksi Tanaman	2 (2-0)	
3	PTN-303	Penyakit Penting Tanaman Utama	3 (2-1)	PTN-201
4	PTN-304	Hama PentingTanaman Utama	3 (2-1)	PTN-202
5	PTN-305	Ekologi Serangga	2 (2-0)	
6	MFE-200	Karya Tulis Ilmiah	2 (2-0)	
7	MFE-300	Bahasa Inggris Akademik	2 (2-0)	
Jumlah SKS Semester V			16 (14-2)	

SEMESTER VI

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	PTN-306	Hama dan Penyakit Pasca Panen	3 (2-1)	
2	PTN-307	Pengendalian Hama dan Penyakit Terpadu	3 (2-1)	
3	PTN-308	Pengendalian Hayati Hama-Penyakit Tanaman	3 (2-1)	
4	PTN-309	Klinik Tanaman	2 (1-1)	PTN-201 PTN-202
5	PTN-310	Pestisida dan Aplikasinya	3 (2-1)	
6	MKU-300	Kewirausahaan	2 (1-1)	
7		Mata Kuliah Pilihan	5	
Jumlah SKS Semester VI			21	

SEMESTER VII

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	PTN-401	Magang	2 (0-2)	
2		MK Pilihan	14	
Jumlah SKS Semester VII			**16**	

Mata Kuliah PTN-401 adalah magang reguler bagi mahasiswa yang mengambil mata kuliah di dalam UNIB. Mahasiswa Prodi Proteksi Tanaman dapat melaksanakan kegiatan MBKM luar kampus berupa 8 (delapan) kegiatan MBKM KEMENDIKBUD, terutama kegiatan magang dan pertukaran mahasiswa (transfer kredit), sampai sejumlah 21 SKS dengan penyetaraan mata kuliah yang relevan serta dengan pengakuan SKS kegiatan MBKM mengacu ke KEPMENDIKBUD Nomor: 74/P/2021 Tanggal 21 April 2021 Tentang Pengakuan SKS Pembelajaran Kampus Merdeka.

SEMESTER VIII

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	MKU-400	KKN	4(0-4)	
2	MFE-400	SKRIPSI	5(0-5)	
Jumlah SKS Semester VIII			**9(0-9)**	

MATA KULIAH PILIHAN

No	Kode	Nama Mata Kuliah	Bobot SKS	Prasyarat
1	ITN-208	Kesuburan Tanah dan Pemupukan	3(2-1)	
2	PTN-311	Dasar-Dasar Perlindungan Tanaman	3(2-1)	
3	PTN-312	Kapita Selekta	1(1-0)	
4	PTN-313	Pemeliharaan Serangga Komersial	1(0-1)	
5	PTN-314	Hama-Penyakit Tanaman Hias	2(2-0)	
6	PTN-315	Pengelolaan Tumbuhan Pengganggu	2(2-0)	
7	PTN-316	Mikroorganisme Pertanian Bermanfaat	2(1-1)	
8	PTN-401	Interaksi Serangga, Patogen dan Tanaman	2(2-0)	
9	PTN-402	Widyawisata	1(0-1)	
10	PTN-403	Preparasi dan Identifikasi patogen	2(2-0)	
11	PTN-404	Smart Plant Control	2(1-0)	
12	AGT-305	Smart Farming	2(1-1)	
13	AGT-306	Pertanian Organik	2(1-1)	
14	AGT-212	Sistem Pertanian Berkelanjutan	2(2-0)	

A. LEARNING SYSTEM

The learning process is a process where lecturers provide a variety of learning strategies and methods and understand the learning approach of their students to be able to develop their potential. The difference between lecturer-centered learning (TCL) and student-centered learning (SCL) approaches can be detailed below. With this changing approach, the learning implementation model also changes. Learning models that are often used in Plant Protection department include the following:

a. Small Group Discussion

Discussion is one element of active learning and is part of many other SCL learning models, such as cooperative learning (CL), collaborative learning (CbL), project-based learning (PBL), and others. Students participating in the lecture are asked to create small groups (5 to 10 people) to discuss materials provided by the lecturer or materials obtained by the members of the group themselves. With small group activities, students will learn: (a) to be a good listener; (b) collaborate on a common task; (c) give and receive constructive feedback; (d) respect differences of opinion; (e) support opinions with evidence; and (f) respect diverse viewpoints (gender, culture, etc.). The small group discussion activities can be: (a) generating ideas; (b) concluding important points; (c) accessing skill and knowledge levels; (d) reviewing topics in previous classes; (e) reviewing exercises, quizzes, writing assignments; (f) processing learning outcomes at the end of class; (g) comment on the course of the Class; (h) compare theories, issues, and interpretations; (i) solve problems; and (j) brainstroming.

b. Simulation / Demonstration

Simulasi adalah model yang membawa situasi yang mirip dengan sesungguhnya ke Simulasi dalam perlindungan tanaman dapat berupa melatih mahasiswa untuk dpat identifikasi hama dan penyakit di lapang .

c. Discovery Learning (DL)

DL is a learning method focused on utilizing available information, both given by lecturers and sought after by students, to build knowledge by self-learning.

d. Self – Directed Learning (SDL)

SDL is a learning process that is carried out on the individual initiative of the student himself. In this case, the planning, implementation, and assessment of the learning experience that has been lived, is carried out all by the individual concerned. While lecturers only act as facilitators, who provide direction, guidance, and confirmation of the learning progress that has been done by individual students. This learning method is useful to realize and empower students, that learning is their own responsibility. In other words, the individual student is encouraged to take responsibility for all the thoughts and actions he performs. The SDL learning method can be applied if the following assumptions are met, namely that as adults, students ' abilities should shift from people who depend on others to individuals who are able to learn independently. The principles used in SDL are: (a) Experience is a very useful learning resource; (b) readiness to learn is the initial stage of becoming an independent learner; and (c) adults are more interested in learning from problems than from course content

recognition, appreciation, and support for the adult learning process needs to be created in a learning environment. In this case, lecturers and students must have a complementary spirit in conducting the search for knowledge.

Learning Evaluation System

The assessment system used in the implementation of Plant Protection department at the Faculty of Agriculture, University of Bengkulu refers to Rector Regulation No.: 2946/J30/HK / 2007 on organizing the activities of the Academy of Diploma and Undergraduate Education program, University of Bengkulu. In this academic regulation, it is regulated about the assessment system for the final semester grades of courses and undergraduate exam assessments (articles 30 – 32, and 41) a. The final assessment of the student study Success test for each course taken is carried out through the evaluation of the final semester examination (UAS) of a course either including course material before and or after the midterm exam (UTS). For practical courses, the assessment is carried out by considering proportionally between preparation, implementation and reporting. The final score of the test is determined by considering: (a) the value of the task and or quiz, (b) the value of practicum for Yan practicum, (c) the midterm exam, and (d) the value of the final semester test. The contribution of each source of this value depends on the number of credits, proportional credits between lectures and practicum, and the presence or absence of paraktikum. Evaluation of the results of the final exam subjects expressed by letters A, B, C,

D, and E which have the following meanings:

Quality value	Bobot	Qualification
A	4	Excellent
B	3	Good
C	2	Enough
D	1	Less
E	0	Fail

Furthermore, the above values and weights are entered into the calculation of IP (Achievement Index).

Evaluation Of Graduation Predicate

At the end of the College period, students are evaluated to determine the predicate of graduation or yudisium. Determination of graduation predicate or yudisium value is done on the basis of calculation of cumulative Achievement Index (IPK). The yudisium value is the final value of the undergraduate program calculated from the value of all semesters taken during the study including undergraduate exam scores and expressed in the cumulative Achievement Index (IPK) using the following formula:

$$IPK = \frac{\sum_{i=1}^{l}(NM_i)}{\sum_{i=1}^{l} K_i} = \frac{\sum_{i=1}^{l} Am_i K_i}{\sum_{i=1}^{l} K_i}$$

dimana NMi adalah Nilai mutu mata kuliah termasuk skripsi, Ami adalah Angka mutu bagi setiap huruf mutu mata kuliah dan Skripsi. Ki adalah besar sks mata kuliah dan Skripsi, serta i adalah matakuliah ke 1 sampai ke L.

Graduation predicate is divided into 3 (three) graduation categories as follows:

Number	Graduation Predicate	IPK
1	Satisfy	2,00 – 2,75
2	Very Satisfying	2,76 – 3,50
3	Cumlaude	3,51 – 4,00

The predicate with praise is given to bachelor graduates who complete their studies (i) for a maximum of 5 (five) years, (ii) have a C grade of at most 4(four) courses, (iii) do not have D and E grades, and (iv) never repeat courses.

General Regulation

The rules and regulations governing the academic behavior of students have been established by the Rector of University of Bengkulu. Students are expected to be familiar with the regulations that apply to them as briefly covered in this handbook. The rules in this handbook are guidelines that provide protection and welfare for each individual student in their education in the Plant Protection Study Program. Whenever a violation of the rules occurs, the College will treat it as a serious problem because it interferes with the student's individual life and the life together according in the University of Bengkulu. This expectation for mature and responsible behavior also includes accountability for one's own well-being, including responsible decision-making regarding physical and mental health.

Student Code Of Ethics

The Student Code of Conduct sets the standards of conduct expected of students. This code of ethics holds individuals and groups accountable for the consequences of their actions. Failure to fulfill this responsibility may result in the withdrawal of its privileges or the imposition of sanctions. The university is a community of students, faculty and staff engaged in learning, teaching, research and other activities. All members of this community are expected to behave in a way that contributes positively to an environment where respect, civility, diversity, opportunity and inclusiveness are valued, to ensure the success of both. individual and society. The Student Code of ethics reflects concern for these values and tries to ensure that members of the University and the general public can take advantage of and enjoy the activities, facilities, and benefits of the University of Bengkulu's existence. The Student Code of ethics is regulated in the University of

Bengkulu Rector Regulation No. 13 of 2016. In this rector regulation, the code of student ethics is intended, first, as a commitment with the University of Bengkulu students to realize the vision, mission and goals of the University of Bengkulu; as well as the formation of students who are pious, knowledgeable and virtuous; creating an orderly and orderly educational process in a conducive academic climate; and forming students who are disciplined, ethical, and obey the norms of hukurn and other norms that live in the community. Second, the Student Code of ethics is prepared with the aim to provide guidelines for all students of the University of Bengkulu to behave well in carrying out activities within the University of Bengkulu and in the community at large. This code of ethics is generally about the obligations and prohibitions imposed on students of the University of Bengkulu, in addition to standards of conduct. Briefly described as follows: standards of student behavior set forth in Chapter IV Article 4 consists of:

(1) Fear of God Almighty;
(2) Obey the norms of law and other norms of social life;
(3) Uphold science, technology, culture, literature, and art;
(4) Maintaining the reputation of the University;
(5) Maintain facilities and infrastructure and maintain cleanliness, order and security of the campus;
(6) Maintaining personal integrity as a university citizen;
(7) Comply with applicable rules and regulations;
(8) Respect for others regardless of ethnicity, religion, race, class, and social status; and
(9) Respect the opinions of others.

Student obligations stipulated in Chapter V Article 5 Rector Regulation No. 13 of 2016 consist of:

(1) Students must behave and behave politely, maintain dignity as members of akadernika Civitas and community members;
(2) Students must dress modestly, cleanly, appropriately in accordance with applicable norms, neat and shod if entering the campus environment during working hours and / or during academic activities;
(3) Students are required to maintain cleanliness, beauty, comfort, order, security and cleanliness to create a conducive atmosphere in the campus environment;
(4) Students must behave as intellectuals who prioritize sportsmanship, truth and academic honesty

Retor Regulation No. 13 of 2016 also regulates the prohibition against students as stipulated in Chapter VI. This prohibition consists of :

(1) Article 6, Reprehensible Acts
(2) Article 7, acts of violence and provocation
(3) Article 8, orderliness, E: cleanliness, and environmental sustainability
(4) Article 9, Academic Fraud
(5) Article 10, prohibited drugs and liquor
(6) Article 11, gambling and weapons

(7) Article 12, Immoral Acts
(8) Article 13, Forbidden Ideology
(9) Article 14, Practical Politics

Violation of this prohibition will be sanctioned. These sanctions can be in the form of light sanctions medium sanctions and severe sanctions, as provided for in Article 17. Meanwhile, the official who is authorized to impose sanctions on violations of the Student Code of ethics is the Rector. In imposing sanctions against violations of the Student Code of ethics, the Rector is obliged to implement the recommendations of the University Senate: and stipulate the imposition of sanctions against violations of the Student Code of ethics at least 3 (three) months from the receipt of the University Senate recommendation.

B. FILLING COURSE SELECTION SHEET (KRS)

Course Selection Sheet is a card that usually must be filled by students at the beginning of the semester. This Course Selection Sheet contains a list of course plans that will be taken by students in the current semester. Students are required to fill out course selection sheet if they want to attend lectures in the semester that will take place. Otherwise, the student will not be recorded in the campus database for the semester so it is considered academic leave and the student may not participate in lecture activities. In summary, the KRS charging procedure is as follows:

- Students with their previous Achievement Index (IPS) obtained fill out the semester courses planned on the study plan card in the academic portal on the web page https://pak.unib.ac.id according to the academic calendar.
- For new students (First semester), the course load and credits have been determined, which is 22 credits. As for the students second semeter and so on the amount of credit load is determined by previous Achievement Index (IPS) obtained by the students concerned in the previous semester.
- Students print the study Result Sheet (LHS) and course selection sheet (KRS) that have been filled out and then consult with the academic supervisor to get consideration and approval.
- The academic advisor validates the approved course selection sheet by providing a signature on the printed course selection sheet and on the academic portal on the Web page https://pak.unib.ac.id.
- Students whose course selection sheet has received approval from the academic supervisor, ask for validation to the vice dean for academic affairs.
- The number of course selection sheet signed and validated by the academic supervisor is at least 2 (two) sheets, 1 (one) sheet for the PA lecturer to be archived and one for the student concerned. Students must be able to show KRS that has been approved by the PA lecturer if at any time needed, for example during the exam or submission of thesis proposals

C. LECTURING

Lectures are teaching and learning activities involving lecturers and students conducted with two-way communication, where student participation is expected to arise in these activities. Students fill KPRS on academic Portal. Lectures are delivered face-to-face between lecturers and students who are scheduled, with the volume of learning in accordance with the syllabus/unit of teaching events (SAP). The form of lectures can be done by lectures, discussions, dialogues and so on.a student is entitled to attend Lecture activities when the semester in question has done Herregistras (re-registration) and register by filling out the course selection sheet (KRS). The Lecture activities are held in accordance with the academic calendar arranged for each academic year and organized by each faculty and study program the Lecture activities of a course are managed by a team of lecturers appointed based on the dean'S decree. Institutional lecture terdiriatas: (a) the person in charge (coordinator) courses : is a lecturer based on the requirements of education, expertise and academic positions assigned to be in charge and coordinate the implementation of a course, and (b) lecturer courses: is a person who based on the requirements of education and expertise assigned to teach a course. The lecture requirement is that lecturers are required to enter to give lectures with the proper number of lectures. If conditions do not allow it can be justified at least 80% of the number of incoming lectures are supposed, where for each week: (a) Courses 2 credits = 100 minutes, the number of face-to-face Min. 14 times, Max 16, (b) courses 3 credits = 150 minutes, the number of face-to-face Min. 14 times, Max 16, and (c) courses 4 credits = 200 minutes, the number of face-to-face Min. 14 times, Max 16. In addition, lecturers are required to provide lectures at least 75% of the length of face-to-face time that should be, and students are required to attend lectures of a course at least 80% of the number of lectures that should be. If the number of student attendance is less than the minimum number, the student is not allowed to take the final semester exam for the relevant subject.

E. ACADEMIC ADVISOR

Academic Advisor lecturer (PA lecturer), is a permanent lecturer of Plant Protection Department, Faculty of Agriculture, University of Bengkulu, appointed based on the Rector's decision and entrusted with the task of guiding students with the aim to help students complete their studies as quickly and efficiently as possible, in accordance with the conditions and potential of individual students. This makes the academic supervisor has a very important role in the continuity of student lectures. Academic guidance in question is the provision of explanations, instructions, advice, and direction in academic activities to students so that their studies run well and smoothly. Academic activities carried out by students include: filling, changing, and canceling course selection sheet (KRS), and learning activities that can include learning difficulties, adaptation, and study fees, College leave, extension of study period, and extra-curricular activities. The requirements to become an academic supervisor in accordance with the Rector's regulation of the University of Bengkulu number 25 of 2020 are: (1) academic supervisor (PA) who is appointed at least a lecturer with the functional position of expert Assistant; (2) PA guides students until they complete their studies, unless under certain conditions PA can be exempted from their guidance duties; and (3) PA disappointed and dismissed by the Rector on the proposal of the head of Department/Head of Section/Coordinator of department.