PORTFOLIO OF PEST IDENTIFICATION COURSE (PPT 47315)

ODD SEMESTER OF 2022

Lecturer:

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STUDY PROGRAM OF PLANT PROTECTION

DEPARTMENT OF PLANT PEST AND DISEASE

FACULTY OF AGRICULTURE

UNIVERSITAS SRIWIJAYA

2022

I. INTRODUCTION

Course of Pest Identification is an elective course in the 2015 Curriculum but had been changed to be compulsory course in the 2021 curriculum of Plant Protection Study Program. The course is offered to second year students or semester V, from 20 Agustus 2019 to 30 Nopember 2019. The course has no specific requirement and every student of semester V can attend the course. The course is delivered in the form of face-to- face lecturing and some topics are given in the form of practicum and case study. Assignments are given in the form of quiz, paper writing, project reports, and midterm and final examination. Both midterm and final examinations were in the form of answering question in short essays. For the last semester (even semester of 2022), the number of students attended the course was 81 students divided into 2 classes (A and B). All of the participants were the students of Plant Protection Study Program, Faculty of Agriculture, Universitas Sriwijaya.

This portfolio is an evaluation document of planning, implementing and evaluating the teaching and learning process of the course of Pest Identification, and also the follow up of the evaluation results with required improvement. For the stated purposes, this portfolio consists of the followings point of interests:

1. Course description
2. Course implementation
3. Course evaluation
4. Reflection
5. Course improvement
6. Appendix

II. COURSE DESCRIOTION

Thiscourse is focused on the understanding of the plant pest identification. The materials given in the course include history and background of plant pest identification, symptom on crops and life cyrcle oninsect, structurer morphology of egg, larval, nymph, pupa and imago of insect. Morphology of acarina, molusca, bird, and rat. The way how to searching in internet looking for name species whice indentified.

III. COURSE IMPLEMENTATION

Teaching Methods

Teaching and earning process of the course include face-to-face lecturing, either in the classroom or online via internet using Universitas Sriwijaya LMS, practical work in the laboratory, greenhouse and in the field, group discussion and project asignment. Assesment is conducted

in several ways includiung quis, practical reports, mid term axamination, presentation and final examination.

Learning outcomes asigned to the course (Course Learning / CLO) and weekly competence (Sub-CLO) to be achived by students are systematically arranged in the semester learningplan(RPS) of the course (Appendix 1). The intended learning outcomes assigned to the course are as follow:

CLO-1: Students are able to mastertheoretical concept of pest identification in general, and more detail in the relationship between pest and symptom of pest on crops.

The achievement of the CLO-1 is divided and distributed to 3 Sub-CLOs which are driven by weekly learning materials. The Sub-CLOs are as follow:

Sub-CLO 1: Students are able to explain the history and background of Plant pest identification.

Sub-CLO 2: Students are able to explain the taxonomy and nomenclature, symptom and life cyrcle of insect pest.

Sub-CLO 3: Student are able to explain the way for looking for name of spesies of insect or pest were indentified by internet.

CLO-2. Student are able to master theoretical concepts of the principles of pest identification base on morphology of egg, larval, nymph, pupa and imago insect.

The achievement of the **CLO-2** is divided and distributed to 5 Sub-CLOs which are driven by weekly learning materials. The Sub-CLOs are as follow:

Sub-CLO4: Student are able explain the importance character, structure, size, colour, and morphology egg of insects.

Sub-CLO 5: Student are able explain the importance character, structure, size, colour, and morphology larval of insects

Sub-CLO6: Student are able explain the importance character, structure, size, colour, and morphology nymph of insects.

Sub-CLO 7: Student are able explain the importance character, structure, size, colour, and morphology pupa of insects.

Sub-CLO 8: Student are able explain the importance character, structure, size, colour, wing, antenal, and morphology imago of insects.

CLO3: Student are able to quickly make conclusion in the context of problem solution related to their discipline based on insect morphology of information and data analyses

The achievement of the **CLO-3** is divided and distributed to 2 Sub-CLOs which are driven by weekly learning moor how to implementation the of pest identification. The Sub-CLOs are as follow:

Sub-CLO 9: Student are able to explain the importance character are folowing the spesies and able to identified the insect species base on morphology character.

Sub-CLO 10: Students are able to explain the different character between morphology of insect as a natural enemies and insect as a pest.

CLO 4. Student are able to master theoretical concepts of the principles of pest identification base on morphology of acarina, molusca, bird, rat and other vertebrate pest.

The achievement of the **CLO-4** is divided and distributed to 4 Sub-CLOs which are driven by weekly learning materials. The Sub-CLOs are as follow:

Sub-CLO 11. Student are able explain the importance life cyrcle, character morphology, structure, size, colour of acarina.

Sub-CLO 12. Student are able explain the importance life cyrcle, character morphology, structure, size, colour of molusca.

Sub-CLO 13. Student are able explain the importance life cyrcle, character morphology, structure, size, colour of bird.

Sub-CLO 14: Students are able to explain the importance life cyrcle, character morphology, structure, size, colour of rat and other vertebrate pest.

Course Delivery

Teaching and learning process of the course of pest identification was conducted in accordance to Indonesian National Standard of Higher Education which every credit of lecture should be delivered inface-to-face lecture delivery for 50 minutes, structured assignment for 60 minutes, and personal learning assignment for 60 minutes. Lecture was given in two ways of lecturing, face-to-face in the classroom and online lecturing via internet. Course delivery in the classroom was made as effective as possible and students were encouraged to be active during learning process. Group discussion was also arranged to give students more opportunity to participate in the learning process. Structured assignment was frequently given in the form of paper assignment. Students were given certain topics related to the learning materials and given time to complete the assignment. Personal learning commonly given in the form of reading recommended material to broaden their knowledge and insight related to pest identification.

Two lecturers assigned as the teaching team of the course (Chandra Irsan, and Yulia Pujiastuti) took part in the lecturing process according to the topics determined in the Semester Lecturing Plan using the most suitable method to the materials delivered.

Assessment Method

During and after teaching and learning process, evaluations were made as parameters of the achievement made by students in relation to intended learning outcome (CLO) and sub-CLOs. Various methods of assessment were conducted in order to precisely measured the knowledge

and skill gained by students after attending the source or weekly learning process. The assessment conducted included: paper assignment, quiz. practical report, midterm examination and final examination.

The relationship between assessment method and the measurement of achievement of each CLO of the course of pest identification are presented in the following matrix.

	Course Learning Outcomes (CLO)			
	CLO-1 (K-2)	CLO-2 (K-3)	CLO-3 (GS-4)	CLO-4 (SS-2)
CLO-1: Students are able to master theoretical concept of pest identification in general, especially the relationship between pest on plant agricultural	Paper assignment 1, write a short essay on the history of pest identification and symphtom of pest on crops (Lectures 1, 2 and 3; weight 8%)			
CLO-2: Student are able to master theoretical concepts of the principles of pest identification base on morphology of egg, larval, nymph, pupa and imago insect		Paper assignment 2 the explanation some egg and larval morphology of pest on crop. (Lecture 4 and 5 weight 5%)		
	Midtermexamination on history and development of back round pest identification dan morfologi of egg, larval, nymph, pupal and imago of insect (Lecture1, 2, 3, 4, 5, 6, 7 and 8; weight 30%)			
CLO-3: Student are able to quickly make conclusion in the context of problem solution related to insect morphology			Paper assignment , write an essay on insect morphology as pest and insect as natural enemias (Lecture 9 and 10, weight 10%)	

CLO-4. Student are able identified other pest as vertebrate and other avertebrate except insect				Quis, short essay on some vertebrate pest except insect (Lectures 11 to 14, weight 7%)
CLO 4. Students are able to arrange, implement and identified pest procedures together with multi discipline team mates.		Final exam on pest identiification (Lecture 9,10, 11, 12,13 and 14; 40%)		

Figure 1. Matrix showing the relationship between assessment method and the measurement of each CLO achievement

The teaching team leader coordinated the evaluation process and determined the scoring system (Apendix 2). Grading of evaluation scores had been determined by the Rector of Universitas Sriwijaya for years and was used to converse numerical grade to letter grade as shown in Table 1.

Table 1. Universitas Sriwijaya grading system

No	Numerical grade	Letter grade	Grade point
1	86-100	A	4
2	71-85	B	3
3	56-70	C	2
4	40-55	D	1
5	<40	E	0

As presented in the above matrix, assessments were conducted 7 times to assess the CLO achievement. Each assessment was designed to assess the achievement of certain CLO or combination of two or more CLO, and the samples of students worksheet of each assessment are attached in the last appendices. The details of each assessment are as follow:

1. Assignment 1
   Student were assigned to write essay on the history and background of pest identification, and also the sympthom of pest attaced. The essay should explain the close relation between pest identification and the sympthom of pest attaced. The students were given one week time to complete the essay. This assignment was aimed at evaluating the achievement of **CLO1**, sub-CLO 1, 2 and 3. (Example of student work sheets are attached in Appendix

2. Assignment 2
   Student were assigned to write essay with ficture some eggs and larval or insect. The essay should explain the close relation between morphology of eggs and larval on pest identification and the sympthom of pest attaced. The students were given one week time to complete the essay. This assignment was aimed at evaluating the achievement of **CLO2**, sub-CLO 4 and 8. (Example of student work sheets are attached in Appendix

3. Midterm examination
   Midterm examination was conducted in the ninth week covering lectures 4,5,6,7,8. Since the Sub-CLO 4 and 5 had been assessed using Assignment 2, the weight of these 2 lectures in the midterm exam was only 5%, the same as the weight of lectures 7 and 8 which had been used to assess the Sub-CLO 7 ad 8 through practical works reports. Only the achievement of Sub-CLO 6 was fully assessed through midterm examination.

4. Assignment 3
   Students were assigned to write assay on the pest identification based on imago morphology and identified the insect as pest and insect as natural enemies. In this assignment, students had to be able to explain several species of insect. This assignment was to evaluate the achievement of **CLO3** Sub-CLO 9 and 10.

5. Quis4
   short essay on some vertebrate pest except insect. Students were assigned to write essay of vertebrate and avertebrate pest. Students were instructed to focus on Vertebrate. This assignment was to evaluate the achievement of **CLO4**, Sub-CLO 11 and 14.

6. Final examination
   Final examination was conducted at the end of the semester covering lectures 9, 10, 11, 12, 13 and 14. Since the Sub-CLO 11 and 12 had been assessed using Assignment 3, the weight of these 2 lectures in the final exam was only 4%. The weight of other lectures just as written in the RPS. In the final exam, students were order to write essay to answer several questions proportionally related to learning material given in the lectures 9 to 14.

Total weight of final exam was 38%. This assignment was to evaluate the achievement of CLO 2, **CLO 3**, and **CLO 4**; Sub-CLO 9 to 14.

Lecturing Evaluation

1. **Attendance evaluation**

   Lecturers and students' attendance were evaluated and the result are presented in the following table.

   Table 2. Lecturer and students' attendance in the course of Plant Virology, Even Semester 2022.

Class	Lecturer attendance	Student attendance
A and B	Chandra Irsan : 8 times	Number of students: 81
	Yulia Pujiastuti : 8 times	Student with ≥85% attendance: 80
		Student with <85% attendance: 2

2. **Teaching evaluation**

   Teaching and learning process evaluation was conducted by delivering questionnaire to students at the end of the semester. The questionnaire to evaluate learning process was attached in Appendix 3.In general, the students' opinion about the learning process can be summarized as follow:

   a. Most, but not all, learning materials delivered in the course were in accordance to the subject detailed in the RPS.
   b. Students could easily find learning resources in the library and internet
   c. The way the lecturer teaching in the classroom was very good and could lead the class comfortably.
   d. Lecturers were not always arrived in the class room on time and sometimes left the classroom before the time was over. Some times the lecturer came to the classroom about 10-minute late.
   e. The way lecturer communicated with students was excellent and very satisfying.
   f. Questions given in the quiz and exams were expectable as outlined in the RPS
   g. The difficulty of midterm and final exams was acceptable because most questions were in line with the material delivered in the course.
   h. The score of every exam was predictable and students were given opportunity to take remedial exam when necessary. However, students were less satisfied with the transparence of the marks they got, since not all exam work sheet or answer sheet were given back to students after being marked.
   i. Most, but not all, of learning materials were uploaded in the E-learning system
   j. All structured assignment were in accordance with those declared in RPS
   k. All examination were conducted according to schedule in the RPS
   l. Lectures were delivered 15 times including examination, not exactly the same as written in the RPS, 16 meetings.

Based on the summary of the lecturing process evaluation, lecturers of pest identification need to adjust their arrival time in the class room to avoid being late, or at least let the students know in case the lecturer should arrive late for certain reason. Other correction also required in relation to uploading learning material in e-learning system. Not all lecturers aware about this matter, so more serious effort should be taken to tidy up the mess.

3. Result Evaluation

a. Student grade achievement

Final score and grade achieved by students at the end of semester derived from proportional accumulation of various assessment method conducted to evaluate the achievement of learning outcome of the lecture and also of each learning subject. Methods of assessment and contribution weight of each method are presented in Table 3 and the score grading follow the Universitas Sriwijayaregulation as presented in Table 1.

Table 3. Method of assessment and contribution weight to the final score

No	Assessment method	Weight (%)
1	Paper assignment 1	8
2	Paper assignment 2	5
3	Midterm examination	30
4	Paper assignment 3	10
5	Quis	7
6	Final exam	40

The distribution of grades attained by students in the class of pest identification 2022 are presented in the following Table 4, where we can see the most students (87.65%) could achieve the highest grade (A), and 7 student (8.64%) achieved grade B, one student (1.23%) achieved grade c and unfortunately there were 2 students could not completely attend the class and retreated from the course.

Table 4. Distribution of grades achievement of the students attending Pest Identification 2022

No	Letter grade	Numerical students (%)
1	A	71 (87.65)
2	B	7 (8.64)
3	C	1 (1.23)
4	D	0
5	E	2 (2.46)

b. CLO achievement

In the evaluation of CLO achievement, each student was evaluated for his/her achievement on the intended learning outcome(CLO) consisted of CLO1, CLO2, CLO3, and CLO4 (Appendix 3). The CLO achievement was calculated and evaluated individually for each student and achievement of the class (Appendix 4). Similar to the fact that most of student (87.65%) gained grade A, the CLO achievement also showed the same results, that most students 87.65%) could achieve all CLO (1 to 4) and only few students fail to achieve the CLOs. The percentage of students got grade B and lower was the same as the percentage of students fail to pass all CLOs, but the names of the students were different. The achievement of **CLO** was generally very good. Only two students totally failed to achieve all **CLOs** due to their failure in attending the course seriously, failed to meet the class attendance requirements. However, there were also students failed in certain **CLOs** but succeed in achieving other CLO. Five students failed to achieve **CLO1**, 6 students failed to achieve **CLO2**, 4 students failed to achieve **CLO3** and 6 students failed to achieve **CLO4**. In the calculation of the classroom achievement, surprisingly, the average score of the class was **84.7652** at grade **B** and the achievement of **CLO** was not as expected, because the class could only achieve **CLO1, CLO2** and **CLO3** but failed to achieve **CLO4**. This was certainly caused by the presence of two students in the attendant list, but the students did not perform et al. If these two students were removed from the attendant list, the average score of the class was 90.15 (A) and all **CLOs** could be achieved**.**

IV. REFLECTION

Based on the evaluation results, the grade achieved by Students attending Plant Virology course in even semester of 2022 was quite satisfying, even though there were 2 students failed to complete the course due to inevitable reasons. The **CLO** achievement also satisfying and the failure of some students to achieve some **CLOs** was understandable because the passing grade for **CLO** achievement was set high, 85 or higher.However, based on learning process, grade, and **CLO** evaluation, it is clear that there is something did not work as expected and needs correction that all lecturers should aware of.

V. FOLLOW UP ACTION

Based on the evaluation results, some improvements are required in relation to the preparation, delivery and evaluation of the course of Plant Virology. The correction is necessary to avoid the similar situation occur again in the future, and to reduce the failure of **CLO** achievement. Lecturers should improve their course material and closely follow the RPS. The lecturers also have to pay more attention to theirpunctuality, since some students protested about the late coming of lecturer to the classroom. Learning materials should be uploaded in e-learning system as early as possible to give students more time to read before attending the lecture. Furthermore, students wanted the lecturers to given back exam answer sheet despite the lecture have announced the marks of the

exams. Above all, every one involved in the learning process of Plant Virology has to update and upgrade material and method of the lecturing to guarantee that good grade and high **CLO** achievement are relevant to the latest condition of the knowledge and technology around Pest Identification.

Appendix 1. RPS/Semester Learning Plan of Pest Identification

UNIVERSITAS SRIWIJAYA
FAKULTAS PERTANIAN
JURUSAN HAMA DAN PENYAKIT TUMBUHAN
PROGRAM STUDI PROTEKSI TANAMAN

RENCANA PEMBELAJARAN SEMESTER

A. IDENTITAS MATA KULIAH

Mata kuliah	: Identifikasi Hama Tanaman	Kode: PPT 47315	Semester : 5	sks :2 (1-1)
Bahankajian	: OganismePengganggu Tumbuhan			
Deskripsimatakuliah	: Mempelajari latar belakang munculnya idnetifikasi hama tanaman dan kegiatan yang berhubungan dengan gejala hama tanaman sebagai bagian dalam mendukung identifikasi. Identifikasi hama menggunakan mesin pencari (google). Morfologi telur, larva, nimpa, pupa dan imago. Mengunakan ciri morfologi untuk menentukan spesies hama dan mengenal morfologi serangga hama dan serangga sebagai musuh alami. Mengenal morfologi avertebrata, tungau dan moluska serta vertebrata,burung, tikus dan vertebrata hama lainnya			
CPMK	CPMK-1: Menguasai konsep identifikasi hama tanaman. Memahami gejala serangan hama yang terjadi dan penyebabnya secara umum. Memahami cara mengunakan mesin pencari dalam menentukan spesies hama tanaman. (P-2) CPMK-2: Mengenali berbagai morfologi telur, larva, nimfa, pupa dan imago dari berbagai jenis serangga. (P-3) CPMK-3: Mampu melakukan identifikasi spesies serangga berdasarkan ciri-ciri morfologi yang spesifik yang dimiliki spesies. Mampu menentukan serangga hama dan musuh alami dengan benar melalui ciri-ciri morfologinya. (KU-5) CPMK-4: Mampu menentukan spesies tungau, moluska, burung, tikus dan beberapa vertebrata hama tanaman berdasarkan ciri-ciri morfologinya. (KK-2)			

Dosenpengampu	: Dr. Ir. Chandra Irsan, M.Si. (CI) Prof. Dr. Ir. Yulia Pujiastuti, M.S. (YP)	Dosen Penanggungjawab : Dr. Ir. Chandra Irsan, M.Si. (CI)

B. PROGRAM PEMBELAJARAN

CPMK	Kemampuan Akhir yang diharapkan di setiap tahapan pembelajaran (Sub-CPMK)	Pokok bahasan	Referenssi	Metoda pembelajaran dan waktu	Deskripsi tugas terstruktur dan mandiri	Indikator	Bobot (%)	Dosen
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
CPMK 1	**Sub-CMK1**: Mampu menjelaskan tentang latar belakang identifikasi hama tanaman dan aktivitas yang dilakukannya	Later belakang munculnya identifikasi hama tanaman	Capinera, 2001	Kuliah TM(1x50”) Praktikum (2 x 60’)	Membentuk kelompok diskusi, membuat deskripsi pekerjaan identifikasi (2x60’)	Ketepatan dalam menjelaskan aktivitas yang dilakukan dalam mengidentifikasi hama	5	CI
	Sub-CPMK2: Mampu menjelaskan gejala-gejala khas serangan hama di tanaman	Gejala khas serangan yang berhubungan dengan tipe alat mulut serangga	Capinera, 2001	Kuliah TM (1 x 50’) Praktikum (2 x 60’)	Mencari gejala khas serangan hama di lapangan dan dibuat dalam bentuk foto dan keterangannya (2x60’)	Ketepatan dalam menunjukkan gejala khas serangan hama yang berhubungan dengan penyebabnya	7	CI
	Sub-CPMK3. Mampu menggunakan mesin pencari (Google) dalam	Mengenal ciri khas ordo, famili dan memahami ciri khas hama yang dapat	Bacaan khusus di tulis dosen	Kuliah TM (1x 50’)	Memasukkan gambar ke dalam mesin pencari dan membuat catatan	Dapat menemukan nama hama yang benar melalui	7	CI

	menemukan nama ilmiah hama	dimasukkan ke mesin pencari		Praktikum (2 x 60')	pejalanannya. (4x60")	mesin pencari (google)		
CPMK 2	**Sub-CPMK4:** Mampu menjelaskan ciri khas morfologi telur berbagai spesies serangga dari beberapa ordo, famili dan atau spesies	Mengenal berbagai morfologi telur beberapa spesies serangga	Triplehorn CA and Johnson NF. 2005	Kuliah TM (1 x 50') Praktikum (2 x 60')	Menggambar 10 bentuk telur serangga dari berbagai ordo (2x60')	Kejelasan dalam mendeskripsikan morfologi telur dari beberapa spesies serangga	6	CI
	Sub-CPMK5: Mampu menjelaskan ciri khas morfologi larva berbagai spesies serangga dari beberapa ordo, famili dan atau spesies	Mengenal berbagai morfologi larva beberapa spesies serangga	Triplehorn CA and Johnson NF. 2005	Kuliah TM(1x50') Praktikum (2 x 60')	Menggambar 5 larva ordo Diptera, Lepidoptera, Coleoptera, Hymenoptera dan Neuroptera (2x60')	Ketepatan dalam menunjukkan larva masing-masing ordo serangga hama	6	CI
	Sub-CPMK6: Mampu menjelaskan ciri khas morfologi nimfa berbagai spesies serangga dari beberapa ordo, famili dan atau spesies	Mengenal berbagai morfologi nimfa beberapa spesies serangga	Triplehorn CA and Johnson NF. 2005	Kuliah TM(1x50') Praktikum (2 x 60')	Mengambar 2 nimfa mandibulata dan 2 nimfa haustelata (2x60')	Ketepatan dalam menjelaskan nimfa dari berbagai ordo serangga houstelata dan mandibulata	6	CI
	Sub-CPMK7: Mampu menjelaskan ciri khas morfologi pupa berbagai spesies	Mengenal berbagai morfologi pupa beberapa spesies serangga	Triplehorn CA and Johnson NF. 2005	Kuliah TM(1x50') Praktikum (2 x 60')	Menggambar 10 pupa serangga dari 5 ordo (2x60')	Ketepatan dalam menjelaskan pupa beberapa spesies serangga hama	7	CI

	serangga dari beberapa ordo, famili dan atau spesies							
	Sub-CPMK8: Mampu menjelaskan ciri khas morfologi imago berbagai spesies serangga dari beberapa ordo, famili dan atau spesies	Mengenal berbagai morfologi imago beberapa spesies serangga	Kalshoven, 1981	Kuliah TM(1x50') Praktikum (2 x 60')	Membuat foto-foto serangga dan menuliskan nama spesiesnya dengan benar (4x60')	Ketepatan dalam menunjukkan spesies-spesies hama penting di tanaman budidaya	7	CI
	UJIAN TENGAH SEMESTER (90)							
CPMK 3	**Sub-CPMK9**: Mampu menentukan spesies serangga berdasarkan ciri-ciri morfologinya	Organ utama serangga yang penting dalam menentukan spesies	Kalshoven, 1981	Kuliah TM (1 x 50') Praktikum (2 x 60')	Membuat tabel yang berisi nama spesies hama dan ciri utama yang dijadikan indikator spesies (4x60')	Ketepatan dalam menunjukkan tanda penting di tubuh serangga yang menunjukkan penciri spesiesnya	8	YP
	Sub-CPMK10: Mampu menentukan spesies serangga hama dan musuh alami berdasarkan ciri-ciri morfologinya	Morfologi penting serangga-serangga musuh alami dan serangga-serangga hama	Kranz et al, 1978	Kuliah TM (1 x 50') Praktikum (2 x 60')	Menyandingkan gambar serannga hama dan serangga musuh alami (4x60')	Ketepatan dalam menunjukkan tanda di tubuh serangga sebagai musuh alami dan serangga sebagai hama	8	YP

CPMK 4	**Sub-CPMK11**: Mampu menjelaskan spesies tungau berdasarkan morfologi dan tanaman inangnya	Ciri-ciri morfologi tungau yang penting dalam menentukan spesies	Zhi-Qiang Zhang. 2003 dan Rini. 2006	Kuliah TM (2 x 50') Praktikum (2 x 60')	Tugas membuat foto tunggau dan tanaman inangnya (4x60')	Ketepatan dalam menunjukkan spesies tungau berdasarkan ciri morfologi dan tanaman inangnya	8	YP
	Sub-CPMK12: Mampu menjelaskan spesies moluska yang menjadi hama di tanaman budidaya	Ciri-ciri morfologi moluska yang penting dalam menentukan spesiesnya	Kalshoven 1981	Kuliah TM (2x50') Praktikum (2x60')	Tugas membuat foto moluska yang ada di lingkungan dan memberikan namanya. (4x60')	Ketepatan dalam menunjukkan ciri utama dari spesies moluska	8	YP
	Sub-CPMK13: Mampu menjelaskan beberapa spesies burung yang menjadi hama	Ciri-ciri morfologi beberapa spesies burung pemakan padi-padian dan burung pemakan buah-buahan	Kalshoven 1981	Kuliah TM (1 x 50') Praktikum (2 x 60')	Mencari gambar-gambar burung yang menjadi hama padi-padian dan buah-buahan (2x60')	Ketepatan dalam menjelaskan ciri utama burung pemakan biji-bijian dan burung pemakan buah-buahan	9	YP
	Sub-CPMK14: Mampu mengidentifikasi spesies tikus dan beberapa vertebrata lainnya	Ciri utama morfologi tikus yang menunjukkan spesies dan vertebrata lainnya	CERoPart 2011 dan Chaval 2011	Kuliah TM (1 x 50') Praktikum (2 x 60')	Mencari gambar tikus dan tuliskan nama spesiesnya serta beberapa vertebrata lainnya (4 x 60')	Ketepatan dalam menjelaskan ciri morfologi spesies tikus dan vertebrata lainnya	9	YP
UJIAN AKHIR SEMESTER (120 menit)								

Work load: Kuliah TM 700 menit, praktikum 1680 menit, tugas terstruktur 1680 menit, tugas mandiri 840 menit, ujian 210 menit

Total = 5110 menit = 85.16 jam = **3.41 ECTS**

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Appendix 2. Rubric of assignment

Appendix 2.1. Rubric of paper assignment

Value	Criteria	Result
90-100	Terorganisir dengan baik, lengkap, penggunaan kata-katanya baik dan benar dilengkapi dengan contoh-contoh dan gambar dengan keterangan yang lengkap	
80-89	Terorganisir dengan baik, kurang lengkap, penggunaan kata-katanya benar dilengkapi dengan contoh-contoh dan gambar dengan keterangan	
70-79	Terorganisir dengan baik, lengkap, penggunaan kata-katanya benar dilengkapi dengan contoh-contoh tidak banyak dan gambar tanpa keterangan	
60-69	Terorganisir dengan baik,kurang lengkap, penggunaan kata-katanya benar tidak dilengkapi dengan contoh sangat sedikit dan gambar tanpa keterangan	
50-59	Tidak Terorganisir dengan baik, tidak lengkap, penggunaan kata-katanya kurang benar tidak ada contoh-contoh dan tidak ada gambar	
40-49	Sangat tidak Terorganisir dengan baik, tidak lengkap, penggunaan kata-katanya salah tidak ada contoh dan tidak ada gambar	

Appendix 2.2. Rubric of midterm examination

Value	Criteria	Result
90-100	Jawaban terorganisir dengan baik, lengkap, penggunaan kata-katanya benar dilengkapi dengan contoh-contoh dan gambar dengan keterangan yang lengkap	
80-89	Jawaban terorganisir dengan baik, kurang lengkap, penggunaan kata-katanya benar dilengkapi dengan contoh-contoh dan gambar dengan keterangan	
70-79	Jawaban kurang terorganisir dengan baik, kurang lengkap, penggunaan kata-katanya ada yang kurang benar, contoh yang diberikan sedikit, gambar kurang baik dan keterangannya tidak lengkap	
60-69	Jawaban tidak terorganisir dengan baik,kurang lengkap, penggunaan kata-katanya banyak yang benar, gambar yang dibuat tidak baik dan tidak dilengkapi dengan keterangan.	
50-59	Jawaban tidak terorganisir dengan baik,kurang lengkap, penggunaan kata-katanya banyak yang tidak benar, gambar yang dibuat tidak baik dan keterangan yang diberikan sangat kurang	
40-49	Sangat tidak Terorganisir dengan baik, tidak lengkap, penggunaan kata-katanya salah tidak ada contoh gambar dan tidak ada keterangan	

Appendix 2.3. Rubric of final examination

Value	Criteria	Result
90-100	Jawaban terorganisir dengan baik, penjelasannya sangat lengkap, penggunaan kata-katanya baik dan benar dilengkapi dengan contoh-contoh yang sesuai dengan penjelasan yang diberikan	
80-89	Jawaban terorganisir dengan baik, penjelasannya lengkap, penggunaan kata-katanya baik dan benar, contoh-contoh diberikan sesuai dengan penjelasan yang dibuat	
70-79	Jawaban terorganisir dengan baik, penjelasannya kurang lengkap, penggunaan kata-katanya baik, contoh-contoh diberikan sedikit dan sesuai dengan penjelasan yang diberikan	
60-69	Jawaban kurang terorganisir dengan baik, penjelasannya tidak lengkap, penggunaan kata-katanya kurang baik contoh yang diberikan kurang sesuai dengan penjelasan yang diberikan	
50-59	Jawaban tidak terorganisir, penjelasannya tidak lengkap, penggunaan kata-katanya kurang baik contoh yang diberikan tidak sesuai dengan penjelasan yang diberikan	
40-49	Jawaban tidak terorganisir, penjelasannya tidak lengkap, penggunaan kata-katanya tidak baik contoh tidak ada.	

Appendix 3

QUESTIONNAIRE FOR THE FEEDBACK OF TEACHING PROCESS
PLANT PROTECTION STUDY PROGRAMME
FACULTY OF AGRICULTURE, UNIVERSITAS SRIWIJAYA

All students of Plant Protection Study Programme are expected to fill out this questionnaire honestly. This questionnaire is designated to appreciate and or to criticize the performance of all lecturers in Teaching Process conducted in Plant Protection Study Program, Faculty of Agriculture, Universitas Sriwijaya. No student's personal information, e.g. Name, ID Number, Mobile Number, et cetera, are requested. Students need to tick (√) the option beside the number in box of every question which is chosen.

Evaluated lecturer's name :…….

Subject taught :…….

1	Suitability of course content to those published in Semester Learning Plan	Unsuitable	Less suitable	Suitable	Very suitable
		1	2	3	4
2	Easiness of getting learning resources	Not easy	Less easy	Easy	Very easy
		1	2	3	4
3	Teaching approach	Not interesting	Less interesting	Interesting	Very interesting
		1	2	3	4
4	Classroom management	Fairly good	Good	Very good	excellent
		1	2	3	4
5	Timekeeping ability	Unpunctual	Less punctual	Punctual	Very punctual
		1	2	3	4
6	Communication skill	Ineffective	Less effective	Effective	Very effective
		1	2	3	4
7	Suitability of questions in examinations to the course content	Unsuitable	Less suitable	Suitable	Very suitable
		1	2	3	4
8	Difficulty of question in the examinations	Very easy	Easy	Less difficult	Difficult
		1	2	3	4
9	Closeness of gained mark with student's expectation	Far	Close	Very close	Precise
		1	2	3	4
10	Availability of learning materials in the e-learning system	Not uploaded	Uploaded in the same day of lecture	Uploaded within three days before lecture's day	Uploaded a week before lecture's day
		1	2	3	4
11	Suitability of assignments to course content published in Semester Learning Plan	Unsuitable	Less suitable	Suitable	Very suitable
		1	2	3	4
12	Execution of midterm and final examinations	Not done at all.	Done, but not as scheduled	Done as scheduled, but different from	Done as scheduled in Semester Learning Plan

				schedule in Semester Learning Plan	
		1	2	3	4
13	Number of lectures delivered for the entire semester.	Less than 12 times	12-13 times	14-15 times	16 times
		1	2	3	4

This part will be filled in by Study Program Administrator or Quality Assurance Task Staff

Final score = $\frac{\Sigma x_i}{Nz} \times 100$

X_i = score of each answered question

N = number of question

Z = highest score

Predicate

< 55: not good

55-70: fairly good

>70-85: good

>85: very good

Conclusion : …….

Appendix 4

Kelas A

NO	NIM	NAMA	Assignment 1	Assignment 2	Assignment 3	Assignment 4	Midterm exam	Final exam	Final score	Grade	CLO achievement			
											CLO1	CLO2	CLO3	CLO4
			5%	8%	10%	7%	30.00%	40%	100%					
1	05081181924002	RIAN ADRIAN	86	87	88	87	89	85,4	87.06	A	Yes	Yes	Yes	Yes
2	05081181924004	HERDINAWATI	84	87	85	84	90	84,7	86.63	A	Yes	Yes	Yes	Yes
3	05081181924005	LIDYA KARLINA	90	96	91	91	87	84	87.05	A	Yes	Yes	Yes	Yes
4	05081181924006	RIA LESTARI	89	95	93	91	89	84,9	88.11	A	Yes	Yes	Yes	Yes
5	05081181924009	INDAH WULAN SUCI	87	85	88	87	86	85,6	86.09	A	Yes	Yes	Yes	Yes
6	05081181924012	CINDI AZZAHRA	91	94	93	90	85	88,4	88.11	A	Yes	Yes	Yes	Yes
7	05081181924076	NURCAHAYA PURBA	86	88	89	85	90	91	89.65	A	Yes	Yes	Yes	Yes
8	05081181924078	SITI MAHANI	85	89	86	88	88	86,6	87.19	A	Yes	Yes	Yes	Yes
9	05081181924079	ANGGUN DAMAR ADELIA	98	95	97	98	98	87,2	93.43	A	Yes	Yes	Yes	Yes
10	05081181924082	MERI AGUSTIN	90	94	91	93	91	86,5	89.45	A	Yes	Yes	Yes	Yes
11	05081281924019	MEIRIZQI NURLAILATUS SHOLICHAH	86	88	89	85	86	87,1	86.69	A	Yes	Yes	Yes	Yes
12	05081281924020	SHINTA AMALIA RAHMADANI	84	90	87	89	90	81,3	86.02	A	Yes	Yes	Yes	Yes
13	05081281924021	SHAKEILLA ARETHA ZELIKA	86	89	85	88	90	89,2	88.93	A	Yes	Yes	Yes	Yes
14	05081281924029	HESTI	94	90	88	96	87	12	58.25	C	Yes	No	Yes	No
15	05081281924031	ESTER MAHARANI	85	89	88	86	86	86,4	86.41	A	Yes	Yes	Yes	Yes
16	05081281924033	FARID ALGIFANI	88	92	89	91	88	88,6	88.74	A	Yes	Yes	Yes	Yes
17	05081281924034	MUHAMMAD AL FATIH ABDURROSYID	89	85	84	90	86	87,2	86.73	A	Yes	Yes	Yes	Yes
18	05081281924037	MUTIARA RAIHANAH ALIFIA	88	86	89	85	90	86,3	87.77	A	Yes	Yes	Yes	Yes
19	05081281924040	AMARISYA SHAFA LUZIA	99	95	98	97	98	85,8	92.87	A	Yes	Yes	Yes	Yes
20	05081281924041	M BAGAS TIYANTARA	86	87	88	87	88	89,7	88.43	A	Yes	Yes	Yes	Yes
21	05081281924043	ANDES TRIANI	97	98	94	95	95	90,6	93.49	A	Yes	Yes	Yes	Yes
22	05081281924044	MUHAMMAD ASDHYSHANI	85	87	88	84	85	87,2	86.13	A	Yes	Yes	Yes	Yes
23	05081281924069	YUSI ANANDA	92	90	95	91	90	90,6	90.74	A	Yes	Yes	Yes	Yes
24	05081281924070	NYAYU FARLANIA WULANDARI	84	90	98	96	85	87	86.3	A	Yes	Yes	Yes	Yes
25	05081281924075	ZAHRATUL FAUZIAH	85	91	87	89	90	84,5	87.3	A	Yes	Yes	Yes	Yes
26	05081281924077	EGO ALPIAN	83	87	88	82	90	84,7	86.63	A	Yes	Yes	Yes	Yes

27	05081281924080	LOVIGA BR BANGUN	88	85	87	88	88	90,7	88.83	A	Yes	Yes	Yes	Yes
28	05081381722045	WANDA HELMI RIANSYAH	0	0	0	0	1	0	0.6	E	No	No	Yes	No
29	05081381722046	AGUNG PRAYOGO	0	0	0	0	1	0	0.6	E	No	No	Yes	No
30	05081381722053	HUMAIROH	89	91	93	87	86	85,2	86.68	A	Yes	Yes	Yes	Yes
31	05081381924047	KHAIRUNNISA PUTRI	88	94	86	92	98	87	91.6	A	Yes	Yes	Yes	Yes
32	05081381924048	AZZAHRA NUR DWI LESTARI	84	90	88	86	88	87,3	87.47	A	Yes	Yes	Yes	Yes
33	05081381924053	ROHIMA RAHMAH	88	87	86	87	86	92,6	88.89	A	Yes	Yes	Yes	Yes
34	05081381924054	RONI SALEH ARDIANSYAH	99	96	97	95	81	84,2	86.28	A	No	No	Yes	Yes
35	05081381924055	ERDI MEFIYANTO	84	86	87	87	88	84,7	86.18	A	Yes	Yes	Yes	Yes
36	05081381924056	PUTRI GINA	85	87	89	87	88	84,6	86.39	A	Yes	Yes	Yes	Yes
37	05081381924058	RILWA WALLINGGA	87	86	89	86	88	83,7	86.03	A	Yes	Yes	Yes	Yes
38	05081381924059	RAUDHATUL FATRICIA	90	88	95	93	85	84,2	86.43	A	Yes	Yes	Yes	Yes
39	05081381924060	DWI RAHAYU PUTRI SIANIPAR	89	95	90	94	95	85,4	90.41	A	Yes	Yes	Yes	Yes
40	05081381924063	MUHAMMAD HASANUL ICHSAN	87	89	86	90	88	85	86.8	A	Yes	Yes	Yes	Yes

Kelas B

NO	NIM	NAMA	Assignment 1	Assignment 2	Assignment 3	Assignment 4	Midterm exam	Final exam	Final score	Grade	CLO achievement			
											CLO1	CLO2	CLO3	CLO4
			5%	8%	10%	7%	30.00%	40%	100%					
1	05081181924001	VIRA PUSPITASARI	84	88	87	85	98	87,2	90.68	A	Yes	Yes	Yes	Yes
2	05081181924003	DHANILLO DJULIAN	85	89	88	86	86	85,6	86.09	A	Yes	Yes	Yes	Yes
3	05081181924007	KARINA AYUNINGTIAS	88	86	84	83	86	91	87.75	A	Yes	Yes	Yes	Yes
4	05081181924010	MIFTAH AJENGTIYAS NURSYAHIDAH RAHMAN	85	88	85	86	91	88,1	88.59	A	Yes	Yes	Yes	Yes
5	05081181924011	NURUL TRIAGTIN	80	90	85	85	90	85,6	86.99	A	Yes	Yes	Yes	Yes
6	05081181924013	SEPTYA AYU DWINTHA	84	86	89	81	90	86,2	87.23	A	Yes	Yes	Yes	Yes
7	05081181924071	ELLA APRIYANA	90	91	88	87	92	91	90.85	A	Yes	Yes	Yes	Yes
8	05081281924014	DELLA APRILIA	80	90	83	87	88	89,7	87.93	A	Yes	Yes	Yes	Yes
9	05081281924015	IRFAN MOHANDIS HARAKI	88	90	88	90	82	88,1	86.19	A	No	Yes	Yes	Yes
10	05081281924017	MESSA SYAHPUTRI	80	91	88	85	88	86,9	87.06	A	Yes	Yes	Yes	Yes
11	05081281924018	RIZKI PUTRI AMELIA	86	88	80	87	87	86,4	86.26	A	Yes	Yes	Yes	Yes
12	05081281924022	KHAIRI SARDILLA	86	98	94	90	88	86,5	88.40	A	Yes	Yes	Yes	Yes
13	05081281924023	MUHARI	80	86	82	84	90	87,3	87.17	A	Yes	Yes	Yes	Yes
14	05081281924024	DEO DATUS CRISTY PUTRA SIRAIT	83	88	87	85	88	84,7	86.18	A	Yes	Yes	Yes	Yes

15	05081281924027	RANTI NUR FADILLAH	90	84	85	89	88	84,1	86.19	A	Yes	Yes	Yes	Yes
16	05081281924028	HUSAINI PURNAMA AJI	83	87	85	85	86	87,8	86.47	A	Yes	Yes	Yes	Yes
17	05081281924032	WINDA PRATIWI	80	90	82	88	87	88	86.9	A	Yes	Yes	Yes	Yes
18	05081281924035	AGUSTIAN KANDILA	79	85	80	84	85	85,2	84.33	B	Yes	Yes	Yes	Yes
19	05081281924036	HANA ELJA AZZAHRA	85	84	91	92	86	84,9	86.06	A	Yes	Yes	Yes	Yes
20	05081281924038	HELMI SYAPUTRA	80	90	86	84	88	87,2	86.93	A	Yes	Yes	Yes	Yes
21	05081281924039	ARDHANSYAH PRADANA MAULANA LATIF	80	90	88	82	90	83,3	86.07	A	Yes	Yes	Yes	Yes
22	05081281924045	SHERA MARGARETHA	80	86	85	81	87	84,2	84.88	B	Yes	Yes	Yes	Yes
23	05081281924072	TIKA RAHMAWATI	88	90	82	80	86	87,2	86.23	A	Yes	Yes	Yes	Yes
24	05081281924073	RAJA BONAR LUBIS	89	85	86	88	83	88,4	86.16	A	No	Yes	Yes	Yes
25	05081281924074	TEZZIA NOFETRA	90	80	83	87	88	87,6	87.09	A	Yes	Yes	Yes	Yes
26	05081281924081	MEINI FITRIANA	90	86	85	87	92	85,4	88.11	A	Yes	Yes	Yes	Yes
27	05081281924083	NUR AMALIA NASUTION	86	80	85	82	89	86,2	86.38	A	Yes	Yes	Yes	Yes
28	05081381621049	ENDI DARMAWAN	85	80	82	86	90	86,4	86.81	A	Yes	Yes	Yes	Yes
29	05081381924046	NANDA WAHYU SURYANA	82	86	85	80	88	83,4	84.91	B	Yes	Yes	Yes	Yes
30	05081381924049	SARAH CAHYANI AHMAD	80	90	87	83	87	82,9	84.86	B	Yes	Yes	Yes	Yes
31	05081381924050	MUHAMMAD MUIS	85	82	86	80	87	83,9	84.76	B	Yes	Yes	Yes	Yes
32	05081381924051	EDHO ARYA SAPUTRA	85	82	80	86	86	84,6	84.94	B	Yes	Yes	Yes	Yes
33	05081381924052	FAHMI NUR ILHAM FAJAR	86	88	85	89	87	84,6	86.04	A	Yes	Yes	Yes	Yes
34	05081381924057	LUTFIAH PUTRI AZZAHRA	80	80	90	90	86	87,6	86.39	A	Yes	Yes	Yes	Yes
35	05081381924061	MUHAMMAD WILDAN AL GHIFARY	87	84	90	87	88	83,8	86.07	A	Yes	Yes	Yes	Yes
36	05081381924062	NOVI ARISKA	88	86	86	84	86	86,2	86.08	A	Yes	Yes	Yes	Yes
37	05081381924064	HARLIN NASUTION	70	50	65	55	80	84,5	76.8	B	No	No	Yes	Yes
38	05081381924065	REYDO NUGRAHA	88	87	86	87	85	86,9	86.26	A	Yes	Yes	Yes	Yes
39	05081381924066	VERA FADHLIA AMY	80	88	81	83	95	84,8	87.92	A	Yes	Yes	Yes	Yes
40	05081381924067	AJENG TRI MUGHNIY	90	92	94	88	98	88,9	92.61	A	Yes	Yes	Yes	Yes
41	05081381924068	PENDI LUKITO	80	88	86	82	87	86,4	86.01	A	Yes	Yes	Yes	Yes

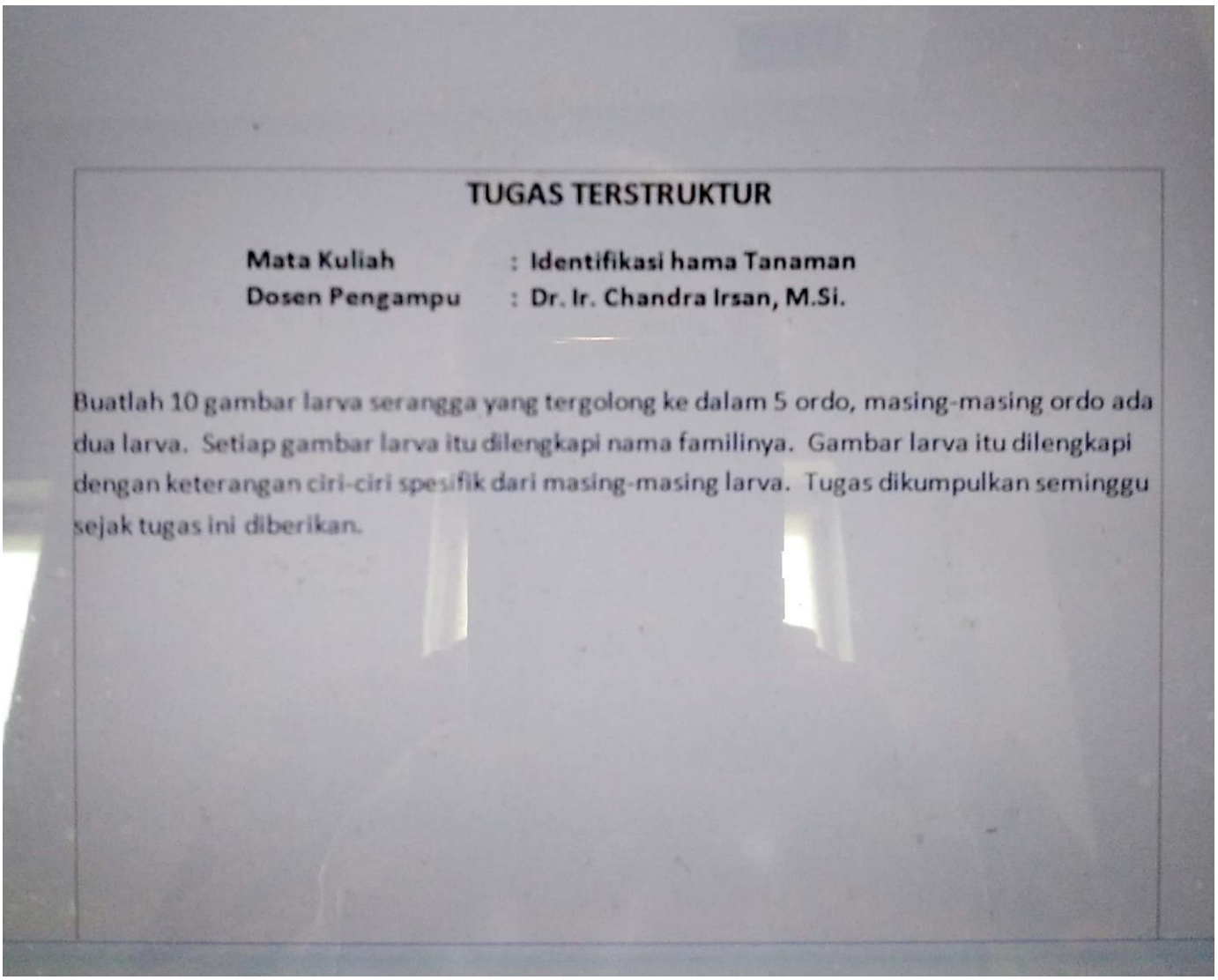
CLO Calculation for the class of Pest Identification

Assessment	Course material	Weight	Score	W.S	Score of each CLO			
					CLO-1	CLO 2	CLO 3	CLO4
Assignment 1	Lecture 1-3	0.05	83.98	4.199	86			
Assignment 2	Lecture 4-5	0.08	85.79	6.8632		87		
Assignment 3	Lecture 6-8	0.1	85.25	8.525			88	
Assignment 4	Lecture 9-10	0.07	84.8	5.936			87	87
Midterm exam	Lecture 1-8	0.3	86.26	25.878	43.13	43.13		
Final exam	Lecture 9-14	0.4	83.41	33.364		25.023	25.023	33.364
Final score				84.7652	129.13	155.153	200.023	120.364
Maximum score				100	150	180	130	140
CLO achievement				84.7652	86.08667	86.19611	153.8638	85.97429
Grade, Yes for CLO achievement >85 and No for CLO achievement <85)				FALSE	OK	OK	OK	OK

CLO Calculation for individual student in the class Plant Pest Identification (VIRA PUSPITASARI)

Assessment	Course material	Weight	Score	W.S	Score of each CLO			
					CLO-1	CLO 2	CLO 3	CLO4
Assignment 1	Lecture 1-3	0.05	84	4.2	86			
Assignment 2	Lecture 4-5	0.08	88	7.04		87		
Assignment 3	Lecture 6-8	0.1	87	8.7			88	
Assignment 4	Lecture 9-10	0.07	85	5.95			87	87
Midterm exam	Lecture 1-8	0.3	98	29.4	49	49		
Final exam	Lecture 9-14	0.4	87.2	34.88		26.16	26.16	34.88
Final score				90.17	135	162.16	201.16	121.88
Maximum score				100	150	180	130	140
CLO achievement				90.17	90	90.08889	154.7385	87.05714
Grade, Yes for CLO achievement >85 and No for CLO achievement <85)				A	OK	OK	OK	OK

Appendix 5. sample of student worksheet (Clo2)



TUGAS TERSTRUKTUR

Mata Kuliah : **Identifikasi hama Tanaman**
Dosen Pengampu : **Dr. Ir. Chandra Irsan, M.Si.**

Buatlah 10 gambar larva serangga yang tergolong ke dalam 5 ordo, masing-masing ordo ada dua larva. Setiap gambar larva itu dilengkapi nama familinya. Gambar larva itu dilengkapi dengan keterangan ciri-ciri spesifik dari masing-masing larva. Tugas dikumpulkan seminggu sejak tugas ini diberikan.

Nama : Bella Annisa Febrianti
NIM : 0508118202S003
Prodi : Proteksi Tanaman
Matkul : Identifikasi Hama Tanaman

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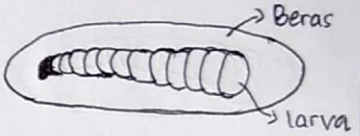
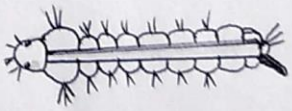
Ordo : Famili	Nama Umum	Tungkai	Ciri Khas	Gambar
Coleoptera : Scarabaeidae	Kumbang badak atau uret	Terlihat jelas	Tinggal dalam tanah dan pohon. Berwarna putih - kream.	
Coleoptera : Curculionidae	Kutu beras	Tidak terlihat	Diam di dalam beras	
Lepidoptera : Saturniidae	Ngengat gajah	Asli dan palsu terlihat jelas	Larva berbulu keras dan tinggal dibagian luar daun	
Lepidoptera : Noctuidae	Ulat grayak jagung	Asli dan palsu terlihat jelas	Kepala terdapat garis menyerupai huruf Y terbalik, abdomen segmen 8 terdapat 4 bintik besar.	
Diptera : Muscidae	Lalat rumah atau belatung	Asli dan palsu tidak ada	Tinggal di tempat kotor. Contohnya: tempat sampah, bangkai binatang, dan lainnya.	
Diptera : Culicidae	Nyamuk atau jentik	Asli dan palsu tidak ada	Tinggal di kolam, genangan air, rawa, parit, sungai tempat penampung air.	
Diptera : Stratiomyidae	Lalat tentara hitam atau maggot	Asli dan palsu tidak ada	Terdapat di bahan organik dan sering diternak sebagai pakan unggas dan ikan. Bergerak	

Hymenoptera: Apidae	Lebah madu	Asli dan palsu tidak ada	Tidak memiliki mata dan diberi makan oleh lebah pekerja.	
Hymenoptera: Formicidae	Semut	Asli dan palsu tidak ada	Berwarna putih kekuningan dan transparan. Larva akan makan berupa padat maupun cair dari semut pekerja.	
Neuroptera: Myrmeleontidae	Undur-Undur	Tungkai asli terlihat jelas	Aktif di bagian tanaman, berjalan mundur, ada yang tinggal dalam tanah dan hidup di koloni mangsa, ada yang soliter, dan membuat sarang.	

No.

Date

Nama = Tessia Masnitu Sinaga
Nim = 0500121202505 1
Kelas = HPT A
Mk = Identifikasi Hama Tanaman

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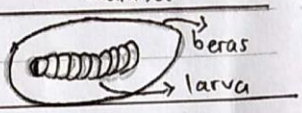
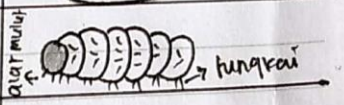
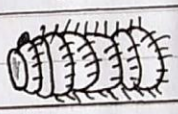
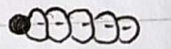
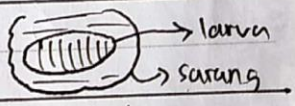
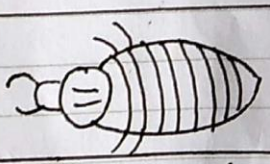
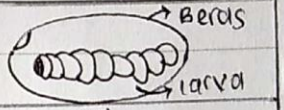
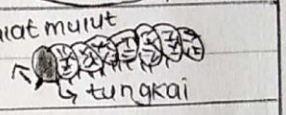
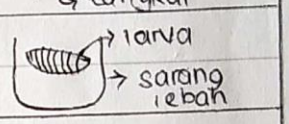
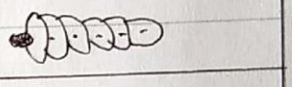
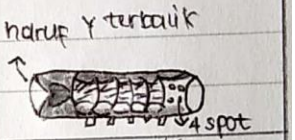
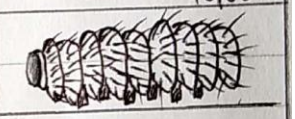
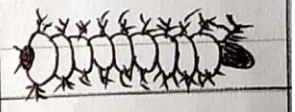
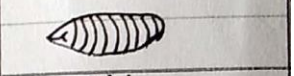
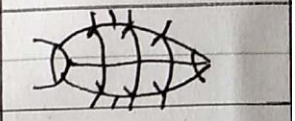
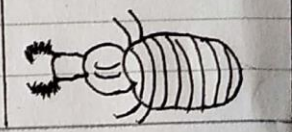
Ordo Famili	Nama Umum	Tungkai	Ciri khas	Gambar
Coleoptera Curculionidae	kutu beras	Tidak terlihat	Diam di dalam beras	
Coleoptera Scarabaeidae	kumbang tanduk	asli dan palsu terlihat jelas	terdapat rambut-rambut pendek di permukaan tubuh	
Lepidoptera Nochuidae	ulat grayak	asli dan palsu terlihat jelas	terdapat garis Y terbalik pada abdomen dan 4 spot di abdomen	
Lepidoptera Saturnidae	ulat ngengat gayah	asli dan palsu terlihat jelas	larva berbulu keras	
Hymenoptera Formicidae	semut	Tidak terlihat	Berwarna transparan	
Hymenoptera Apoidae	lebah madu	Tidak terlihat	tidak memiliki mata dan berdiam di dalam sarang	
Neuroptera Chrysopidae	lalat jala hijau	terlihat jelas	berwarna pucat	
Neuroptera myrmeleontidae	undur - undur	asli terlihat jelas	membenamkan diri di dalam tanah untuk menunggu mangsa terperangkap	
Diptera Culicidae	Nyamuk	Tidak terlihat	berukuran kecil, memanjang dalam air	
Diptera Phopsilidae	lalat buah	tidak terlihat	hidup di dalam buah	

No.

Date

90

Nama : Nabila Febriyanti
NIM : 0508118202501O
Kelas : HPT A
MK : Identifikasi Hama Tumbuhan

Ordo Famili	Nama umum	Tungkai	Ciri khas	Gambar
Coleoptera Curculianidae	Kutu beras	Tidak terlihat	Diam di dalam beras	
Coleoptera Scarabaeidae	Kumbang tanduk	Asli dan palsu terlihat jelas	terdapat rambut-rambut pendek di permukaan tubuh	
Hymenoptera Apoidae	Lebah madu	Tidak terlihat	tidak memiliki mata dan diam di dalam sarang	
Hymenoptera Formicidae	Semut	Tidak terlihat	Berwarna transparan	
Lepidoptera Noctuidae	Ulat Grayak	Asli dan palsu terlihat jelas	pada bagian caput terdapat garis seperti Y terbalik 4 spot di abdomen	
Lepidoptera saturnidae	Ulat Ngegat Gajah	Asli dan palsu terlihat jelas	Larva berbulu keras	
Diptera Culicidae	Nyamuk	Tidak terlihat	Berukuran kecil memanjang hidup didalam air	
Diptera Dropshilidae	Lalat Buah	Tidak terlihat	Hidup didalam buah dan memakan daging buah	
Neuroptera Chrysopidae	Lalat Jala Hijau	Terlihat Jelas	Berperan sebagai Predator dan berwarna pucat	
Neuroptera myrmeleoihidae	Undur-undur	Asli terlihat Jelas	membenamkan diri di dalam tanah untuk menunggu mangsa terperangkap	

Appendix 5. sample of student worksheet

Nama : Khairunnisa

Putri Nim :

05081381924047

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Imago	 Sumber : *(Wikipedia)*	Ordo : Lepidoptera Famili : Saturniidae Genus : Attacus Spesies :*Attacus atlas* Nama Umum : Kupu-kupu gajah

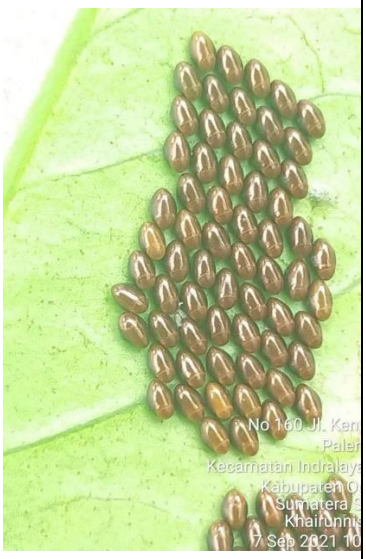
Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Imago	 Sumber : (*Wikipedia*)	Ordo : Hemiptera Famili : Flatidae Genus : Siphanta Spesies : *Siphanta acuta* Nama Umum : wereng hijau

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Imago	 Sumber : (Sugiarto, 2019)	Ordo : Mantodea Famili : Mantidae Genus : Hierodula Spesies : *Hierodula patellifera* Nama umum : Belalang Sembah (mantis)

Dokumentasi Pribadi	Dokumentasi Internet	
 Imago	 Sumber : (https://www.growingproduce.com/vegetables/field-scouting-guide-squash-bug/)	Ordo : Hemiptera Famili : Coreidae Genus : Anasa Spesies : *Anasa tristis* Nama umum : Kepik

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Imago	 Sumber : (https://steemkr.com/life/@rezack/the-leaf-beetle-aulocophora-similis-oliver-or-kumbang-daun-aulocophora-similis-oliver-bilingual-1db5dc95d7088)	Ordo : Coleoptera Famili : Chrysomelidae Genus : Aulocophora Spesies *: Aulocophora similis Oliver* Nama Umum : Oteng-oteng

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Telur	 Sumber : (https://steemit.com/egg/@siswadi/telur-serangga-di-daun-pisang-a7a1285bc537)	Ordo : Lepidoptera Famili : Hesperiidae Genus : Erionata Spesies : *Erionata thrax* Nama umum : Telur ulat daun pisang

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Telur	 Sumber : (https://www.eurekalert.org/news-releases/909269)	Ordo :Hemiptera Famili : Coreidae Genus : Spesies : Nama umum :
Dokumentasi Pribadi	**Dokumentasi Internet**	**Klasifikasi**
 Larva	 Sumber : (http://cybex.pertanian.go.id/mobile/artikel/68647/MENGENAL-FALL-ARMYWORM-Spodoptera-Frugiperda-HAMA-BARU-PADA-TANAMAN-JAGUNG-DI-INDONESIA/)	Ordo : Lepidoptera Famili : Noctuidae Genus : Spodoptera Spesies : *Spodptera frugiperda* Nama umum : Ulat grayak

Dokumetasi Pribadi	Dokumentasi Internet	Klasifikasi
 Larva	 Sumber : (https://www.re-tawon.com/2019/08/ngengat-atlas-serangga-raksasa-bersayap.html)	Ordo : Lepidoptera Famili : Saturniidae Genus : Attacus Spesies : *Attacus atlas* Nama umum : Ulat keket

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Larva	 Sumber : (*Wikipedia*)	Ordo : Lepidoptera Famili : Nymphalidae Genus : Acraea Spesies : *Acraea terpsicore* Nama Umum : Ulat

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Larva	 Sumber : (https://mplk.politanikoe.ac.id/index.php/program-studi/38-manajemen-pertanian-lahan-kering/topik-kuliah-praktek/perlindungan-tanaman/30-tipe-tipe-larva-serangga)	Ordo : Coleoptera Famili: Coccinellidae Genus : Epilachna Spesies : *Epilachna admirabilis* Nama Umum : Larva kumbang koksi

Dokumentasi Pribadi	**Dokumentasi Internet**	**Klasifikasi**
 Nimfa	 Sumber : (https://www.pixoto.com/images-photography/animals/insects-and-spiders/tectocoris-diophthalmus-6132158360322048)	Ordo : Hemiptera Famili : Scutelleridae Genus : Tectocoris Spesies : *Tectocoris diophthalmus* Nama umum : Kepik pohon jarak

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Nimfa	 Sumber : *(Wikipedia*)	Ordo : Orthoptera Famili : Acrididae Genus : Oxya Spesies : *Oxya serville* Nama umum : Belalang daun

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Pupa	 Sumber : (*Wikipedia*)	Ordo : Lepidoptera Famili : Acrolophidae Genus : Mahasena Spesies : *Mahasena corbetti* Nama umum : Pupa ulat kantong

Dokumentasi Pribadi	Dokumentasi Internet	Klasifikasi
 Pupa		

Dokumentasi Pribadi	**Dokumentasi Internet**	**Klasifikasi**
 Pupa	 Sumber : (https://www.google.co.id/search?q=pupa+kupu-kupu+gajah&tbm=isch&ved=2ahUKEwjZj7_SrfPyAhXwE7cAHWimCoEQ2-cCegQIABAA&oq=pupa+kupu-kupu+gajah&gs_lcp=CgNpbWcQAzoHCC)	Ordo : Lepidoptera Famili : Saturniidae Genus : Attacus Spesies : *Attacus atlas* Nama umum : kokon kupu-kupu gajah

Appendix 5. sample of student worksheet Midterm Examination

Jurusan Hama dan Penyakit Tumbuhan
Program Studi Proteksi Tanaman

UJIAN TENGAH SEMESTER

Mata kuliah : Identifikasi Hama Tanaman
Hari/tanggal : selasa/ 12 Oktober 2021
Dosen penguji : Dr. Ir. Chandra Irsan, M.Si.

Petunjuk: Kerjakan semua soal dibawah ini dengan sebaik-baiknya
Soal dikerjakan dengan sistem tutup buku.
Hindari perbuatan curang, mencontek atau melihat catatan

Soal:

1. Apa yang dimaksud dengan identifikasi hama tanaman, Jelaskan
2. Mengapa kita perlu mengetahui nama suatu hama dengan benar, sebelum menentukan upaya pengendalian, jelaskan
3. Jelaskan melalui gambar beda telur Lepidoptera (ngengat dan kupu-kupu), Mantodea dengan Hemiptera.
4. Jelaskan melalui gambar larva Lepidoptera, Coleoptera, Diptera dan Neuroptera.
5. Jelaskan pengertian antara klasifikasi dengan taksonomi.
6. Jelaskan perbedaan (tentukan 2 spesies) *Bactrocera* berdasarkan ciri morfologinya.

Selamat ujian semoga sukses
---ooo000ooo---

NAMA : ANDES TRIANI
NIP : 0508128192404 3

$8+10+10+10+9+ = \frac{57}{6} = 95,0$ ✓

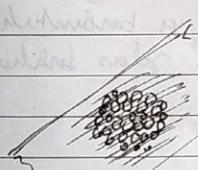
Ujian Tengah Semester

MK : Identifikasi Hama Tanaman.
H/T : Selasa / 12 oktober 2021
DP : Dr. Ir. Chandra Irsan, MSi

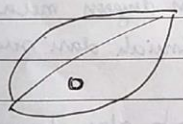
① Yang dimaksud dengan identifikasi hama tanaman ialah upaya menemukan nama ilmiah suatu hama yg menggangga tanaman. Penemuan nama itu diperoleh dengan memperhatikan ciri-ciri hama yg ditemukan dengan yg terdapat di literatur. dengan ciri-ciri yg sama persis atau identik itu maka dapat ditetapkan organisme itu adalah yg dicari atau diidentifikasi

② Kita perlu mengetahui nama hama itu dengan benar sebelum melakukan pengendalian ialah. dengan menemukan atau mengetahui nama hama itu dengan benar maka kita dapat mengetahui Biologi dan perilaku hama itu. Dengan diketahuinya Biologi dan perilaku hama itu kita dapat menentukan cara-cara pengendalian dengan benar yg dikaitkan dengan Biologinya maupun dengan perilakunya. Dengan demikian upaya pengendalian yg dilakukan akan benar tepat sasaran untuk hama yg akan dikendalikan

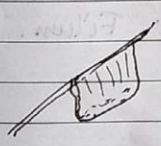
③ Berikut ini adalah telur ngengat, kupu-kupu. mantodea dan Blattodea



Telur ngengat · diletakkan bertumpuk dengan jumlah puluhan sampai ratusan dan ditutupi oleh sisik yg berasal dari rontokan sayap imagonya



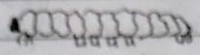
Telur kupu-kupa - diletakkan satu-satu di atas permukaan daun. telurnya tidak ditutupi oleh sisik-sisik.



Telur mantodea - diletakkan atau melekat pada ranting kecil, telurnya bangak dan dibungkus ~~kamp~~ dalam ketin yg berfungsi melindungi telur.

Telur Blatodea → berada di tempat tersembunyi disela kayu atau dinding. telur dalam kelompok yg padat dilapisi ketin yg keras. dan warnaya

(4) Berikut ini adalah Gambar Umum dari larva Lepidoptera, Coleoptera, Diptera dan Neuroptera.

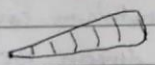


larva Lepidoptera

Larva Lepidoptera mudah dikenali dengan adanya tunghai asli di dekat kepala dan tunghai palsu di tengah-tengah abdomen larva dan hadang di ujung abdomen

larva Coleoptera.

Larva Coleoptera dapat dikenali dengan adanya tunghai asli di dekat kepala dan di bagian abdomennya tidak ada tunghai palsu. larva Coleoptera hanya memiliki tunghai asli.



larva Diptera.

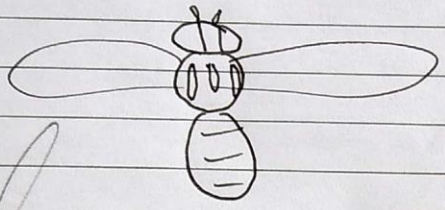
Larva Diptera dapat dikenali dengan tidak adanya tunghai asli maupun palsu. Larva berpendah tempat dengan melenting, beberapa ada yg merayap tanpa tunghai

Larva Neuroptera bentuknya seperti tabung, di depan kepala terlihat jelas alat mulutnya yg berbentuk capit, tunghainya jelas terlihat.

(5) yang dimaksud dengan klasifikasi dan taksonomi ialah. Klasifikasi ialah kegiatan yg berhubungan dengan melakukan identifikasi untuk menemukan nama ilmiah dari suatu makhluk yg akan di pelajari

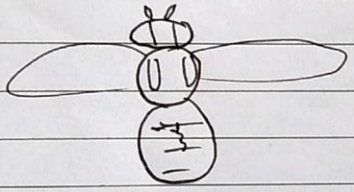
Taxonomi ialah tingkatan atau strata atau taxon-taxon suatu makhluk yg terdiri dari Filum, kelas ordo, Famili, Genus dan spesies.

Bactrocera yg dipilih ialah Bactrocera cucurbitae dan Bactrocera dorsalis.



Bactrocera cucurbitae

Bactrocera cucurbitae dapat di ketahui dengan memperhatikan warna kuning di bagian toraknya ada 3 buah



Bactrocera dorsalis

Bactrocera dorsalis dapat di kenali dengan memperhatikan warna kuning di bagian toraknya ada 2 buah. ada bagian lain yg dapat dilihat di ~~bagian~~ abdomennya ada spot seperti lumpur T

$8+8+9+9+8+10 = \frac{52}{6} = 86.6$

Nama: Husaini Purnama Aji
NIM : 05081281924028

Ujian Tengah Semester

Mata kuliah : Identifikasi Hama Tanaman

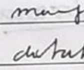
Hari / Tanggal : 12 oktober 2021

Dosen Penguji : Dr. Ir. Chandra Irsan., MS.

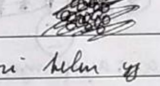
1) Identifikasi hama ialah kegiatan mencari atau menemukan nama latin / nama ilmiah suatu hama berdasarkan ciri
8 ciri morfologi hama itu secara nyata dengan ciri yg terdapat di literatur.

2) Mengetahui nama hama itu sangat penting dalam melakukan pengendalian karena dengan mendapatkan nama hama yg benar maka kita akan dapat mengenali informasi
8 tentang biologi dan perilaku hama itu berdasarkan biologi dan perilaku itulah kita melakukan pengendalian dengan demikian maka pengendalian akan efektif dan efisient

3) Telur ngengat dapat dikenali dari morfologi yg ada. Telur diletakkan berkelompok-kelompok dan ditutupi dengan sisik yg berasal dari sayapnya.

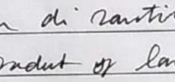


Telur kupu-kupu dapat dikenali dari telur yg bulat dan diletakkan tersebar dengan salah satu di bagian tanaman

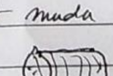


9

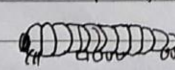
Telur Mantodea dapat ditemukan di ranting yg kecil yang bentuknya segi empat dengan sudut yg lancip dan sayapnya mengembang



Telur Blattodea dapat diketahui melalui bentuknya yg relatif besar dengan warna coklat muda sampai coklat tua

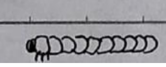


4) larva Lepidoptera di kenali dengan adanya tungkai palsu di bagian tengah abdomennya



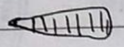
9

larva Koleoptera dikenali dengan tidak adanya tungkai palsu di larvanya hanya ada tungkai asli



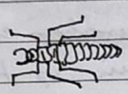
4) lanjutan

Larva Diptera di cirikan dengan tubuh yg tidak ada tungkai



baik tungkai asli maupun tungkai palsu

Larva Neuroptera : di cirikan dengan tubuh yg seperti tabung dgn



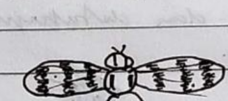
alat mulut yg jelas di bagian depan kepalanya dan tungkai yg jelas.

5) Klasifikasi ialah kegiatan atau praktik yg berhubungan dengan penemuan nama ilmiah dari suatu organisme yg berguna bagi aplikasi ilmu pengetahuan

8 Taxonomi ialah penggolongan tentang harta atau tahsonomi atau strata dari organisme taxon terdiri dari Filum, Kelas. Ordo. Famili. genus. dan spesies.

6) Bactrocera yg akan di jelaskan ialah Bactrocera umbrosa dan Bactrocera dorsalis.

10



pada sayapnya terdapat warna yg berbentuk seperti band

pada abdoment terdapat buah yg berbentuk seperti huruf T.