



# PORTFOLIO

## Department of Agrotechnology

### Faculty of Agriculture

### University of Islam Malang

Subject	Plant Propagation
Module Level, if available	Undergraduate Study Program of Agrotechnology
Subject Code	MKW 60620
Type of course	Applied Science
Credits	3 credits/ 5.1 ECTS
Semester	5
Prerequisite	Agronomy Basic
Parallel Class	A and B
Module Description	Through this course, students are expected to be able to study a variety of plant propagation, analyze propagation methods, determine the appropriate steps in plant propagation, develop plant propagation to produce new types of plants that are more innovative and finally students are expected to be able to evaluate the results of plant propagation that has been developed.
Learning Outcomes	<p><b>Course Learning Outcomes (CLO)</b></p> <p>CLO 1: Comprehending theoretical concept of plant propagation</p> <p>CLO 2: Being able to conduct plant propagation</p> <p>CLO 3: Being able to create new plant variation creatively and innovatively</p> <p>CLO 4: Being able to calculate the needs of seeds for production system</p>
Learning Content	<p>After completing this subject students are able to:</p> <ol style="list-style-type: none"> <li>1. Study plant propagation techniques and their application in a sustainable crop production system</li> <li>2. Doing various kinds of plant propagation</li> <li>3. Assess the success rate of various plant propagation with applicable standard methods</li> <li>4. Make creative and innovative varieties of plants for independent businesses as well as for the industrial sector in the agricultural and plantation sectors</li> <li>5. Calculate seed requirements for plant production system</li> </ol>
Aims	Students have competence in plant propagation so that it will facilitate their role later if they become an agrotechnopreneur
Teaching Methods	Several methods applied in this course consist of lecturing, assignment, and group presentation. All these methods are applied on 2 parallel classes
Participant	<ul style="list-style-type: none"> <li>• A class: 22 students in total; 5<sup>th</sup> semester = 16 students; 7<sup>th</sup> semester = 1 student, 9<sup>th</sup> semester = 5 students;</li> <li>• B class: 32 students in total; 5<sup>th</sup> semester = 30 students, 7<sup>th</sup> semester = 1 student, and 9<sup>th</sup> semester = 1 students</li> </ul>
Teaching Attendance	<p>14 meetings were completely held (100%) by lecturer (A and B classes)</p> <p>From 22 students, 1 student were below 100% of attendance (A class)</p> <p>From 32 students, 1 student were below 100% of attendance</p>

	(B class)
Evaluation System	Component of assessment on this course consist of regular assignment, midle semester test and final semester test, presence and practice. All these component are then combined to obtain final score. Scoring matrices and question samples are available in Appendix 1 and Appendix 2
Learning Result	<ul style="list-style-type: none"> <li>• Achievement CLO in A Class CLO 1 = 80.00 (Excellent) CLO 2 = 80,50 (Excellent) CLO 3 = 80,00 (Excellent) CLO 4 = 73.50 (Excellent)</li> <li>• Achievement ILO in B Class CLO 1 = 79.50 (Excellent), CLO 2 = 82,25 (Excellent), CLO 3 = 79.00 (Excellent) CLO 4= 80.50 (Excellent)</li> </ul> <p>Complete achievement on average CLO can be seen on Appendix 3</p>
Statistical Distribution	<ul style="list-style-type: none"> <li>• A Class, score distribution: A = 7 students (31.82%), B = 11 students (50%), C = 1 student (4.55%) and Failed = 3 students (13.64%)</li> <li>• B Class, score distribution: A = 6 students (18.75%), B = 23 students (71.88%), C = 1 student (3.13) and Failed = 2 students (6.25%)</li> </ul> <p>Complete achievement on each per student can be seen on Appendix 4</p>
Teaching Observation	<p>Materials were delivered in Indonesia. The student could understand the materials well.</p> <p>In A Class: there were 4 students poor on both CLO 1, 3 students poor on both CLO 2, 4 students poor on CLO 3 and 6 students poor on CLO 4, 2 of them were from 7<sup>th</sup> semester and above</p> <p>In B Class: there were 6 students poor on CLO 1, 4 students poor on CLO 2, 4 students poor on CLO 3 and 4 students poor on CLO 4, one of them were from 9<sup>th</sup> semester.</p>
Learning Constraints	A and B Class: Lack of practice in the field makes it difficult for students to understand the process of plant propagation

Recommendation	<p>A Class: Paying more attention for students who hardly understand the materials</p> <p>B Class: Paying more attention for students who hardly understand the materials. Number of students should be split in A class. So each class has same number of students.</p>
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### Appendix 1. Scoring Matrix

Nomenclature	Weight	Final Score	
		Letter Mark	Score average
Assignment	20%	A	80 – 100
Midle semester test	20%	B	70 - <80
Final semester test	20%	C	55 - <70
Practice	30%	D	50 - < 55
Presence	10%	E	0 - <50

### Appendix 2. Question samples

1. Plant Propagation using seeds in addition to having disadvantages also has advantages. What are the advantages of plant propagation using these seeds? (to echieve CLO 1)
2. How to propagate: 1. Sansivera 2. Rose 3. Strawberry 4. Curcuma 5. Potato 6. Pineapple 7. Casava 8. Bananas 9. Onions 10. Durian (to echieve CLO 2)
3. Explain the steps for grafting mango plants (to echieve CLO 3)
4. CV. Sidomulyo, which is engaged in the plant nursery business, received orders for superior varieties of tomato seeds. The number of seeds ordered is 1500 plants. If the tomato seeds to be used as seeds have a germination percentage of 98%. Of the 98% of seeds that successfully germinated, 95% of them became seedlings until they were ready to be planted. In 1 gram there are 178 seeds of tomatoes. How many seeds does CV Sidomulyo need to produce these tomato seedlings? (to echieve CLO 4)

### Appendix 3. Achievement of CLO

#### A Class

Meetings	CLO 1 (%)	CLO 2 (%)	CLO 3 (%)	CLO 4 (%)
1	82			
2		84		
3-4		82		
5		80		
6-7			80	
8		76		
9 -10	78			
11-12				75
13-14				72
Average	80	80.5	80	73.5
Predicate	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT

#### B Class

Meetings	CLO 1 (%)	CLO 2 (%)	CLO 3 (%)	CLO 4 (%)
1	80			
2		85		
3-4		82		
5		82		
6-7			79	
8		80		
9 -10	79			
11-12				79
13-14				82
Average	79,50	82,25	79	80,50
Predicate	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT

#### Standard

Std num-based AI		Weighted avg LO based AI	
70 <= AI	HIGH	70 <= AI	EXCELLENT
60 <= AI < 70	MEDIUM	60 <= AI < 70	SATISFACTORY
50 <= AI < 60	LOW	50 <= AI < 60	DEVELOPING
AI < 50	VERY LOW	AI < 50	UNSATISFACTORY

## Appendix 4. Achievement on each per student A Class

No.	Nomer Induk Mahasiswa	Nama Mahasiswa	SUB-CPMK/BOBOT (NILAI HARIAN)																		NILAI HARIAN (Assignment) (20%)		Middle Test (20%)	Final Test (20%)	Presence	Practise	NILAI AKHIR **	
			1		2		3		4		5		6		7		8		9		Skala 4	Skala 100					ANGKA	HURUF
			5%	15%	5%	15%	5%	20%	5%	10%	5%	20%	5%	10%	5%	20%												
1	21501031005	NOVA ARDIANSAH	1,00	0,05	1,00	0,15	1,00	0,15	1,00	0,05	1,20	0,24	1,00	0,05	2,00	0,10	1,00	0,10	1,00	0,20	1,29	32,25	0	0	100	0	6,45	E
2	21501031064	BIMBI DANAR PUDYANING	3,00	0,15	3,50	0,53	4,00	0,60	3,00	0,15	4,00	0,80	2,50	0,13	3,00	0,15	3,00	0,30	3,00	0,60	3,48	86,88	60	75	100	80	78,38	B
3	21601031030	FARIDH ADE MAIZAKUSUMA	3,50	0,18	4,00	0,60	3,00	0,45	3,34	0,17	2,00	0,40	3,00	0,15	3,00	0,15	3,75	0,38	3,00	0,60	2,99	74,80	80	75	100	75	78,46	B
4	21601031055	RIZAL HABIBI	2,00	0,10	4,00	0,60	3,67	0,55	3,00	0,15	3,00	0,60	3,00	0,15	2,50	0,13	3,00	0,30	3,00	0,60	3,08	76,89	80	65	100	80	78,38	B
5	21601031057	MOHAMMAD PENDI	2,00	0,10	2,00	0,30	3,00	0,45	2,00	0,10	3,00	0,60	2,00	0,10	3,00	0,15	2,00	0,20	3,00	0,60	2,70	67,50	75	70	100	75	75,00	B
6	21601031061	ABDUL FATTAH	3,00	0,15	2,50	0,38	3,00	0,45	3,34	0,17	3,00	0,60	3,00	0,15	3,00	0,15	3,00	0,30	3,00	0,60	2,94	73,55	70	70	100	75	75,21	B
7	21701031046	MUHAMMAD ZAHIR ALWITRI	4,00	0,20	4,00	0,60	3,00	0,45	3,00	0,15	3,00	0,60	3,50	0,18	3,50	0,18	3,00	0,30	1,00	0,20	2,85	71,25	55	70	100	0	49,25	D
8	21801031019	FAKHRURRAZI	2,00	0,10	2,00	0,30	2,67	0,40	2,00	0,10	2,67	0,53	3,00	0,15	2,50	0,13	3,00	0,30	3,00	0,60	2,41	60,24	70	70	100	75	72,55	B
9	21801031072	ARDENANSA DAMARIO	4,00	0,20	3,50	0,53	4,00	0,60	2,00	0,10	1,00	0,20	1,00	0,05	1,00	0,05	1,00	0,10	1,00	0,20	2,28	56,88	50	50	100	0	41,38	E
10	21801031077	AJENG WISTIKA DEWI	3,50	0,18	4,00	0,60	3,67	0,55	4,00	0,20	4,00	0,80	3,50	0,18	4,00	0,20	3,50	0,35	3,50	0,70	3,80	95,01	70	70	100	85	82,50	A
11	21801031085	SAHIDA REZA WARDANA	4,00	0,20	3,50	0,53	4,00	0,60	4,00	0,20	3,67	0,73	4,00	0,20	3,75	0,19	4,00	0,40	4,00	0,80	3,75	93,66	70	70	100	75	79,23	B
12	21801031086	MUHIIBATUL LUBABAH	3,00	0,15	3,00	0,45	2,67	0,40	2,67	0,13	3,00	0,60	3,00	0,15	3,00	0,15	3,00	0,30	3,00	0,60	3,01	75,23	70	80	100	75	77,55	B
13	21801031089	NUR IFFATUS SAHIYAH	4,00	0,20	4,00	0,60	4,00	0,60	4,00	0,20	4,00	0,80	4,00	0,20	3,50	0,18	3,75	0,38	4,00	0,80	3,98	99,38	75	70	100	80	82,88	A
14	21801031090	PUI RAHAYU LESTARI	3,50	0,18	4,00	0,60	4,00	0,60	3,67	0,18	4,00	0,80	4,00	0,20	4,00	0,20	4,00	0,40	4,00	0,80	3,98	96,46	75	90	100	80	86,23	A
15	21801031091	FLORYANT ABBY NOAHFAREL	3,00	0,15	3,00	0,45	3,00	0,45	4,00	0,20	3,00	0,60	2,50	0,13	3,00	0,15	3,00	0,30	2,50	0,50	2,93	73,13	75	90	100	80	81,63	A
16	21801031094	ARIS	4,00	0,20	4,00	0,60	4,00	0,60	3,00	0,15	3,67	0,73	3,00	0,15	3,50	0,18	3,00	0,30	3,00	0,60	3,58	89,60	70	75	100	75	79,42	B
17	21801031096	JUPRIYADI	4,00	0,20	4,00	0,60	3,67	0,55	3,67	0,18	4,00	0,80	4,00	0,20	4,00	0,20	3,75	0,38	4,00	0,80	3,63	90,85	70	70	100	75	78,67	B
18	21801031102	ALFIAN NASRUDIN	2,00	0,10	1,00	0,15	1,00	0,15	2,00	0,10	1,00	0,20	1,00	0,05	1,00	0,05	1,00	0,10	1,00	0,20	1,40	35,00	60	75	93	70	64,30	C
19	21801031103	WANDI	4,00	0,20	4,00	0,60	4,00	0,60	4,00	0,20	4,00	0,80	4,00	0,20	4,00	0,20	4,00	0,40	3,00	0,60	3,75	93,75	70	80	100	75	81,25	A
20	21801031104	HIDAYATUL FIRDA	4,00	0,20	3,50	0,53	3,40	0,51	4,00	0,20	4,00	0,80	3,50	0,18	4,00	0,20	3,50	0,35	3,50	0,70	3,61	90,25	75	80	100	85	84,55	A
21	21801031105	AISYAH IZZA VIRAHANA	3,00	0,15	3,00	0,45	3,00	0,45	3,34	0,17	3,00	0,60	3,00	0,15	3,00	0,15	3,00	0,30	3,00	0,60	3,07	76,68	80	80	100	75	79,84	B
22	21801031106	DWI RADITA INDAYANI	4,00	0,20	4,00	0,60	4,00	0,60	4,00	0,20	3,67	0,73	4,00	0,20	4,00	0,20	3,50	0,35	4,00	0,80	3,83	95,82	80	70	100	85	84,66	A
Rata-rata			3,20	0,16	3,25	0,49	3,26	0,49	3,14	0,16	3,09	0,62	2,98	0,16	3,10	0,16	2,99	0,30	2,89	0,58	3,10	77,60						
Konversi Skala 100			=====	4,01	=====	12,19	81,53	12,23	=====	3,92	77,14	15,43	74,43	3,72	=====	3,88	=====	7,47	72,16	=====								
% Mahasiswa tidak lulus 14% % Mahasiswa nilai A 32% % Mahasiswa nilai B 50% % Mahasiswa nilai C 4%																												

No	Nomer Induk Mahasiswa	Nama Mahasiswa	CLO 1	CLO 2	CLO 3	CLO 4
			Score	Score	Score	Score
1	21501031005	NOVA ARDIANSAH	37,50	25,00	30,00	25,00
2	21501031064	BIMBI DANAR	75,00	81,25	100,00	75,00
3	21601031030	FARIDH ADE	81,25	83,38	50,00	84,38
4	21601031055	RIZAL HABIBI	56,25	85,44	75,00	75,00
5	21601031057	MOHAMMAD PENDI	75,00	60,94	75,00	62,50
6	21601031061	ABDUL FATTAH	75,00	74,00	75,00	75,00
7	21701031046	MUHAMMAD ZAHIR	93,75	84,38	75,00	50,00
8	21801031019	FAKHRURRAZI	62,50	68,25	66,75	75,00
9	21801031072	ARDENANSA DAMARIO	62,50	70,31	87,50	25,00
10	21801031077	AJENG WISTIKA DEWI	93,75	94,81	100,00	87,50
11	21801031085	SAHIDA REZA WARDANA	96,88	96,88	91,75	100,00
12	21801031086	MUHIIBATUL LUBABAH	75,00	70,88	75,00	75,00
13	21801031089	NUR IFFATUS SAHIYAH	93,75	100,00	100,00	96,88
14	21801031090	PUI RAHAYU LESTARI	93,75	97,94	100,00	100,00
15	21801031091	FLORYANT ABBY NOAHFAREL	75,00	84,38	75,00	68,75
16	21801031094	ARIS	93,75	87,50	91,75	75,00
17	21801031096	JUPRIYADI	100,00	95,88	100,00	96,88
18	21801031102	ALFIAN NASRUDIN	37,50	31,25	25,00	25,00
19	21801031103	WANDI	100,00	100,00	100,00	87,50
20	21801031104	HIDAYATUL FIRDA	100,00	90,00	100,00	87,50
21	21801031105	AISYAH IZZA VIRAHANA	75,00	77,13	75,00	75,00
22	21801031106	DWI RADITA INDAYANI	100,00	100,00	91,75	93,75

