

Modul Pelatihan Tim Iklim

Pelatihan Prediksi Produktivitas Tanaman Padi Menggunakan Perangkat Lunak DSSAT



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PENDAHULUAN

DSSAT (*Decision Support System for Agrotechnology Transfer*) merupakan model simulasi tanaman yang semula dikembangkan oleh jaringan internasional ilmuwan yang bekerjasama dengan *International Benchmark Sites Network for Agrotechnology Transfer* (IBSNAT 1993; Tsuji *et al.* 1998) untuk menduga produktivitas tanaman pertanian berdasarkan kondisi tanah, iklim, dan pengelolaan lahan pertanian.

TUJUAN

Mengestimasi hasil panen tanaman padi di Subang yang dapat dihasilkan pada suatu wilayah dengan kondisi iklim, tanah, dan pengelolaan lahan tertentu.

JENIS TANAMAN DAN WILAYAH SIMULASI

Jenis tanaman yang akan disimulasikan di DSSAT yaitu tanaman padi varietas IR42. Simulasi dilakukan pada wilayah demplot Cijambe yang berlokasi pada 6⁰50'20" LS dan 107⁰28'37" BT yang terletak pada ketinggian 678 mdpl.

DATA IKLIM

Data iklim yang digunakan berasal dari data observasi Cijambe selama kurang lebih 4 bulan (Februari – Mei) yang dikombinasikan dengan data *nasapower* yang telah dikoreksi dengan data observasi Pusakanagara sebelumnya. Data iklim yang digunakan yaitu data curah hujan, suhu udara maksimum, suhu udara minimum, dan radiasi matahari harian dengan periode 1 Januari 2018 – 24 Mei 2019. Tahun pada data diubah sehingga menjadi 1 Januari 1998 – 24 Mei 1999 untuk menyesuaikan pengaturan DSSAT.

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DATA TANAMAN

Data tanaman yang digunakan merupakan data tanaman padi yang berasal dari observasi di Kecamatan Cijambe. Berikut merupakan parameter-parameter tanaman padi dan nilainya yang dijadikan input data pada menu *planting* di model DSSAT.

Parameter	Cijambe
Planting date	9 Januari 2019
Planting method	Dry seed
Planting distribution	Rows
Plant population at	100
seeding/m ²	
Row spacing	30 cm
Planting depth	10 cm
Row direction, Degree from	0
North	
Irrigation	90 mm pada 9 HSS
	90 mm pada 17 HSS
	150 mm pada 27 HSS
Fertilizer	
Urea	350kg/ha pada 17 HSS
	120 kg/ha pada 41 HSS
	120 kg/ha pada 47 HSS

DATA TANAH

Sampel tanah diambil dari demplot Cijambe dan diuji pada Laboratorium Bioteknologi Lingkungan pada ICBB (*Indonesian Center for Biodiversity and Biotechnology* dan dikalibrasikan dengan data tanah pada wilayah Pusakanagara. Pengisian sifat fisika dan kimia tanah demplot Cijambe pada model DSSAT terlampir pada tabel berikut.

Depth (bottom), cm	Master horizon	Clay, %	Silt, %	Stones, %	Organic carbon, %	pH in water	Cation exchange capacity, cmol/kg	Total nitrogen, %
5	-99	42	12	0	1.74	6.5	39.6	0.17
15	-99	51	15	0	1.58	6.6	37.6	0.17
30	-99	53	17	0	1.57	6.3	38.6	0.17
35	-99	54	18	0	-99	-99	-99	-99
40	-99	55	19	0	-99	-99	-99	-99

Lower limit	Drained Upper limit	Saturated Water Content	Bulk density, g/cm3	Sat. hydraulic conduct, cm/h	Root growth factor, 0.0 to 1.0
0.228	0.385	0.463	1.35	0.09	1
0.35	0.537	0.633	1.35	0.09	0.533
0.341	0.538	0.629	1.34	0.09	0.395
0.32	0.475	0.49	1.42	0.09	0.522
0.326	0.481	0.499	1.42	0.09	0.472

IRIGASI

Metode irigasi yang digunakan yaitu tipe *flood*. Berikut merupakan input data irigasi yang diisi sesuai dengan jadwal pemberian irigasi di demplot pengamatan Cijambe.

	Date (MM/dd/yyyy)	Amount of wa ter, mm	Operation
•	01/18/1999	90	Flood, mm
	01/26/1999	90	Flood, mm
	02/05/1999	150	Flood, mm

PUPUK

Manajemen pemupukan dilakukan sesuai tanggal pada laporan pencatatan (*as reported date*). Jadwal pencatatan dan detail pupuk yang diberikan dilampirkan pada tabel di bawah ini.

Date (MM/dd/yyyy)	Fertilizer material	Fertilizer applications	Depth, cm	N, kg ha-1	P, kg ha-1	K, kg ha-1
01/26/1999	Urea	Banded beneath surfac	5	150	100	100
02/19/1999	Urea	Banded beneath surfac	5	40	40	40
02/26/1999	Urea	Banded beneath surface	5	40	40	40

TAHAPAN SIMULASI

- 1. Menyiapkan data iklim harian sesuai wilayah yang akan disimulasi.
- 2. Memasukkan data iklim pada tools Weather Data.
- 3. Memasukkan data tanah pada tools Soil Data.
- 4. Memasukkan data tanaman pada tools Crop Management Data
- 5. Me-running model.

INPUT DATA IKLIM

1. Membuka model DSSAT => pilih menu *weather data* untuk memasukkan data iklim



2. Setelah memilih menu *Weather Data*, maka akan dialihkan menuju *software Weatherman* seperti gambar di sebelah kiri => untuk memasukkan data iklim, klik *import raw data* seperti di sebelah kanan.



3. Lalu akan muncul jendela seperti di bawah => pilih *open file* untuk memilih dan memasukkan data iklim yang akan disimulasi



4. Data iklim yang akan disimulasikan disimpan dalam bentuk excel seperti gambar di bawah ini. Data iklim yang akan disimulasikan yaitu dari tanggal 1 Januari 2018 – 24 Mei

2019, namun disimpan menjadi 1 Januari 1998 – 24 Mei 1999 untuk menyesuaikan DSSAT.

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01/22/1998	1.860044	29.86968	19.47591	16.86388															
01/23/1998	1.93794	29.82327	19,50203	16,52714															

5. Pilih *file* data iklim yang akan disimulasikan, lalu klik *open* => lalu akan muncul jendela seperti di bawah ini.

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6. Klik kanan pada kolom pertama, lalu ubah variabel menjadi **Date** dan satuan/unit menjadi format tanggal yang digunakan yaitu **dd/mm/yyyy**, lalu klik OK.

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7. Klik kanan pada kolom kedua, lalu ubah variabel menjadi **Rain** dan satuan/unit menjadi **mm**, lalu klik OK.

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8. Klik kanan pada kolom ketiga, lalu ubah variabel menjadi **Tmax** dan satuan/unit menjadi ^oC, lalu klik OK.

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9. Klik kanan pada kolom keempat, lalu ubah variabel menjadi **Tmin** dan ubah satuan/unit menjadi ^oC, lalu klik OK.

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11. Pilih *scan files for error format and data* dengan logo kaca pembesar seperti di bawah untuk mengecek adanya data dan format data yang salah/*error*.

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12. Pilih *import data into WM* untuk memasukkan data ke dalam *Weatherman*.

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Common Tasis Pile Copen Station Import Open Station Import Wew Station Import Origine Select a database to merge data Configure Select a database to merge data Explorer Discard raw data file outside of the WM database and exit Prompt to save the raw data file outside of the WM database and exit Resume eding of raw data file for import	

14. Berikan nama untuk data iklim yang telah dibuat, lalu klik OK => Beri nama juga untuk menyimpan file di folder *Climate*, lalu klik *Save*.

WeatherMan Version	n 4.7.0.0		() WeatherMa	an Version 4	4.7.0.0			
File Edit Tools Analyze Da	Natabase Help		File Edit Tools	Analyze Data	abase Help			
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WeatherMan Homepage	Data Import		Input a 4-cl	haracter Clir	mate Station			8
Common Tasks	Fie	1	Folder:	🕌 Climate		🔹 🗿 🏚 📑 🔹		
open Station New Station Configure Deporer	File Options		Deaktop Libraries Computer Network	ASAL CM11 CM14 PAMA PM10 PM11 PM11 PM11 PM12 PM12 PM12 PM12 PM15 PM15 PM15 PM15 PM15 PM15 PM15 PM15	PM88 PM89 PM89 PM85 PM85 SBCD SBCD PM86			Şave Cancel
Station: ????			Station: ????				_	

15. Masukkan lintang, bujur, dan ketinggian lokasi yang akan di-*running*, lalu klik OK => lalu akan muncul jendela seperti di bawah ini

WeatherMan Vers	sion 4.7.0.0		() WeatherMan Version 4.7	7.0.0	
File Edit Tools Analyze	Database Help		File Edit Tools Analyze Databa	ase Help	
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Veralterden Honepage Commo Tasks Open Station Wew Station New Station Configure Explorer	Obta Import File File Station Parameters Location Unglude 017 197	 	Staten Procettes	Status Identifians CANE Describbitin Location CANE Climate data Am Tropical morecon and trade-wind litteral data with Latitude 6 2 4 9 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
Station: CJMB			Station: CJMB		

16. Simpan data iklim yang sudah di-import pada menu file lalu klik *save station* => lalu akan muncul jendela seperti di bawah ini. Isi panjang data observasi yaitu dari 01/01/1998

hingga 05/24/1999, pilih *single file* pada bagian output, dan DSSAT v4 pada bagian file format, lalu pilih *Write File*.

			Weather Data to Export Sec. 8
WeatherMan Version 4.7.0.0			
Ele Edit Tools Analyze Database Help			Observed Data Corrected Data Generated Data
EB EX1 Tools Analyze Database Heip Deen Station Deen St	toton Tropical morecon and trade-wind littoral dm + B Minutes 2 B 0 0 0 1 Sa 2 South + 2 B 0 0 0 2 Sa 2 South + 2 B 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1	Observed Data Corrected Data Observed Data Write Files First 01/01/1998 Last 05/24/1999 Output Yearly Yearly Single File File Format 0 ICASA 1.0 Destination
			C:\DSSAT47\WEATHER\
Station: CJMb Write available daily weather data to ICAS	SA V.1 Weather (WTH) Tiles		

INPUT DATA TANAH

1. Pada menu utama DSSAT, pilih Soil Data untuk menginput data tanah.



2. Lalu akan muncul jendela seperti ini, pilih Profile lalu klik New.



3. Isi informasi lokasi dan tanah sesuai dengan lokasi tanah yang akan disimulasikan seperti gambar di bawah ini => klik next.

í.	SBuild v 4.7.0Working with file C\DSS File Profile Help	AT47\SOIL\SOILSOL						- 0 ×
ſ	Editing a soil profile : SBSBCJ3003							<u> </u>
	General Information							
	Country	Indonesia	_	Soil Data Source			SBPN	
l	Site Name	SUBANG	_	Soil Series Name	CIJAMBE			
	Institute Code	SB	_	Soil Classification	GENERIC			
	Latitude	-6.17	_					
	Longitude	107.48	3					
	Surface Information							
	Color	Brown	•	% Slope			8	
	Drainage	Moderately well	•	Runoff Potential		Lowest	•	
				Fertility Factor (0 to 1)			1	
					Cancel	Ne <u>x</u> t >	1	

4. Isi informasi tanah sesuai kedalaman, tekstur tanah, karbon organik, pH air, kapasitas pertukaran kation, dan total Nitrogen => klik next.

ng soil profile : 583	SBCJ3002									
			Inpu	ut Table						
Death	Master				Organia		Cation	Total pitrogen	More inputs	
bottom), cm	horizon	Clay, %	Silt, %	Stones, %	carbon, %	pH in water	capacity, cmol/kg	% %	Add Layer	
5	-99	42	46	12	1.74	6.5	39.6	0.17	Delete Lover	
15	-99	51	49	0	1.58	6.6	37.6	0.17	E or or or or of or	
30	-99	53	47	0	1.57	6.3	38.6	0.17		
35	-99	54	46	0	-99	-99	-99	-99		

5. Pada jendela berikut, isi informasi parameter tanah lainnya berdasarkan kondisi tanah yang akan disimulasikan => lalu pilih *Finish*

tace Param	eters	Calcula	te/Edit Soil	Parameters					
Runoff Curv	e Number	68	_	Albedo	0.11	Drainage Rate	0.4		
Depth bottom), cm	Clay, %	Silt, %	Stones, %	Lower limit	Drained Upper limit	Saturated Water Content	Bulk density, g/cm3	Sat. hydraulic conduct, cm/h	Root growth factor, 0.0 to 1.0
5	42	46	12	0.228	0.385	0.463	1.35	0.09	1
15	51	49	0	0.35	0.537	0.633	1.35	0.09	0.533
30	53	47	0	0.341	0.538	0.629	1.34	0.09	0.395
35	54	46	0	0.32	0.475	0.49	1.42	0.09	0.522
40	55	45	0	0.326	0.481	0.499	1.42	0.09	0.472

6. Simpan data tanah dengan memilih menu profile, lalu klik save => beri nama *profile*, lalu klik OK.



Input Data Manajemen Tanaman

1. Pilih tools Crop Management Data untuk menginput data tanaman seperti gambar di bawah.



2. Isi informasi tipe file, nama eksperimen dan identifikasi eksperimen.

File Type	Experiment	al 🔻			
Experiment Name *	RICE CIJAM	BE, SUBANG			
xperiment Identifier (file na	me)	General Info	rmation		
Institute Code *	сJ	People	Bowo dan Virzy	r	
Site Code *	MB				
Year *	1999	Address	CIJAMBE, Subar	rà.	and states and states
Experiment Number *	6		CLIAMBE		
Crop * Rice	-	Site	CIONDES		
Plot					
Plot Information				Harvest Information	
Gross Plot Area per re	p, m2			Harvest Area, m-2	
Rows per Plot				Harvest Row Number	
Plot Longth m				Harvest Pow Length m	
r lot Congui, in				Harvest Now Length, III	
Plots Relative to Drain	s, degrees			Harvest Method	
Plot Spacing, cm					
Plot Levout					
r ior Eayout					

3. Pilih menu environment, lalu klik *Fields* => maka akan muncul jendela seperti di bawah ini. Isi input stasiun cuaca dan data tanah sesuai dengan nama stasiun dan data tanah yang telah disimpan sebelumnya.

XBuild v 4.7.0 Ella Environment Management Textments Simulation Onlines Petersh Mate	
Fields-C\DSSAT47\RICE\CIMB9906.REX(Experimental)	
Field Details Additional Information	Lavel Description
Level 1 Field ID (8 characters) PMSB0001 Weather Station Name* C3985	Soil Name* CIJANER(SOIL.SOL) SBCIJANER1 Surface Texture Depth, cm Surface stones
Drainage Drainage No drainage	Drain Depth, cm Drain Specing, m Cancel QK
la 🖉 🔍 🖳 🌄 💽	IN 🔺 💹 🍢 🖇 🖨 🛷 7.59 PM

4. Pilih menu *Management*, lalu klik kolom kosong di bawah *Crop*, lalu isi dengan pilihan *Rice*. Pilih kolom kosong di bawah *Cultivar*, lalu pilih IR64*.

	Cultivar		Level	Crop	Cultivar	
ANR IN		•	1	Rice	IR 64*	
and the second						
ALC: NOT	Add De	lete				

5. Pilih menu *Management*, lalu klik *Planting* maka akan muncul menu seperti di bawah ini. Isi tanggal tanam, metode penanaman, distribusi tanaman, jumlah pupulasi pada saat *seeding*, jarak baris, arah baris dari utara, dan kedalaman penanaman sesuai dengan data yang ada.

NBuild v 4.7.0				
File Environment Management Trea	ments Simulation Options Refresh Help			
Planting-C:\DSSAT47\RICE\CJMB9906.RL	((Experimental)			
Sowing Transplant	Planting Add Delete	Level Descriptio	n	
Year 1998	Planting Date (MM/dd/yyyy)*	09/1999		
	Planting Method * Dry seed	•		
	Planting Distribution * Rows	•	Row Spacing, cm*	30
	Plant Population at Seeding, plants m-2*	100	Row Direction, degrees from North *	0
	Plant Population at emergence, plants m-2		Planting Depth, cm*	10
			Ci	ancel <u>O</u> K
📀 🛆 🚞			IN	▲ 🦉 😼 💲 🗈 🐗 7:54 PM 07/07/2019

6. Pilih menu *Management*, lalu klik *Irrigation*. Isi jadwal irigasi, tipe irigasi, dan total air irigasi sesuai dengan data yang ada.

氜		Irrigati	ion				Level	Description	n Cijambe Observasj		
	4			Add	Dele	te		ITTART	cijanue obselväsi		
rigation Application	ns	Year		•	Management		On report	ed dates		•	
Efficiency fraction	1			Date (MM/dd/yyyy)	Amount of water, mm	Operation					
			•	01/18/1999	90	Flood, mm					
				02/05/1999	150	Flood, mm					
									Add Application	Delete Application	

7. Pilih menu *Management*, lalu klik *Fertilizer*. Isi jadwal pemberian pemupukan, cara pengaplikasian pemupukan, jenis pupuk, kedalaman, dan total NPK.

(Build v 4.) Environ	7.0 ment Management	Treatments Simulation Optio	ns Refresh Help							
rtilizers-C:	\DSSAT47\RICE\CJMB	9906.RIX(Experimental)								
		Fertilizers	Add Delete	Lev	el Description 1 Urea 350 2 Urea 350	kg/ha + ur kg/ha + ur	ea 120 kg/ ea 300 kg/	'ha + urea : 'ha + urea ;	120 kg/ha 300 kg/ha	
L	_evel 1	Year	Management	On	reported d	ates				•
	Date (MM/dd/yyyy)	Fertilizer material	Fertilizer applications	Depth, cm	N, kg ha-1	P, kg ha-1	K, kg ha-1	Ca, kg ha-1	Other elements, kg ha-1	Other element code
•	01/26/1999	Urea	Banded beneath surface	5	150	100	100			
	02/19/1999	Urea	Banded beneath surface	5	40	40	40			
						Ac	ld Applicatio	n	Delete A	pplication
			1				4		Cancel	<u></u> K

8. Pilih menu *Treatments*, lalu isi deskripsi sesuai dengan jumlah pemberian pupuk, pilih Cultivar, *Fields, Plant, Irrigation, fertilizer, dan simmulation control* sesuai data yang akan disimulasi.

	XBuild v	4.7.0														
Fi	le Envir	onment	Management Treatments	Simulation	Options Ref	fresh Help										
Т	reatment	s-C:\DSSA1	T47\RICE\CJMB9906.RIX(Experime	ental)												
			Treat	ments												
		Level	Description	Cultivar	Field	Soil. Anal.	Init. Cond.	Plant.	Irrigat.	Fertil.	Resid.	Chem. App.	Tillage	Env. Mod.	Harv.	Sim. Contr.
	•	1	0 kg check plot	1	1			1	1							1
		2	350+120+120 kg/ha	1	1			1	1	2						1
	Selec	t level fo	r each experiment factor	by clicking	the mouse i	into the cell				_	<u>A</u> dd	<u>D</u> el	ete	Cancel		<u>0</u> K
			🚞 🔍 🔿											IN 🔺 🛔	1 😼 🖇 🔒	ađ

9. Pilih *simulation option*, pada menu general dan option, pengisian sesuai *default* dan tidak perlu diubah.

	C.						
	31	imulation Options		Level	Description		
N Par	to - Distant		•	1	DEPAULT SIMULATIC	ON CONTR	
1	13. A.L.	ا بيم	Delete				
5		<u>A</u> aa	Delete				
- 14	ALC: NO						
- Martin							
r	General Options N	Management Outputs					
18	General						
	Level 1						
	Simulation Start D	nto (MM/dd/www)	01/09/1999	-	Buns		
	onnuluiton otari o	ana (ana ara 1111)	01/03/1333		Years	Replications	
	Start	On specified date			1	1	
	Rendom number s	haa	211	10			
	ridindon number o		law.				
	Crop Module	CERES-Rice		<u>•</u>			

XBuild v 4.7.0				
File Environme	int Management Treatments	Simulation Options Refresh Help		
Simulation Opti	ions-C:\DSSAT47\RICE\CIMB9906.I	RDX(Experimental)		
	s and a second	imulation Options	Level Descrip	NOR 27 SINULATION CONTR
Year	General Options	Methods Management Outputs		
1998	Level 1			
	Water	Yes 🗸	Potassium	No
	Nitrogen	Yes 💌	Chemicals	No
	Symbiosis	Yes	Diseases	No
	Phosphorus	No	Tillage	Yes ·
			CO ₂	Actual 002; Mauna Loa, Mawaii (Keeling curve
				Cancel OK
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10. Pada menu Methods, ubah metode fotosintesis menjadi Radiation efficiency.

and a	Simu	llation Options	Level Description		
		Add Delete	1 DEFAULT SIMULAT	ION CONTR	
ear 998	General Options Methods	ods Management Outputs			
	Level 1				
	Weather	Measured data	Photosynthesis	Radiation efficiency •	[
	Init.Soil Cond.	As reported 💌	Hydrology	Ritchie water balance 🗸	[
	Evapotranspiration	Priestley-Taylor/Ritchie	Method of Soil Organic Matter	Ceres (Godwin)	[
	Infiltration	Soil Conservation Service 🔹	Soil evaporation method	Suleiman-Ritchie	[
			Soil layer distribution	Modified soil profile	

11. Pada menu *Managemet*, biarkan *planting*, *irrigation and water management*, *fertilizer*, dan harvest sesuai *default*, namun ubah *organic Amendments* menjadi *No Application*.

in twinner Maganeti Testretti Suddin Options Rette help	лини иллани и Эмени илла	
Simulation Options CLOSSITICALCHARGESCRUCEperformants Simulation Options Lavel Description Add Delete Year General Options Management Outputs Management Outputs Issee Penning Year General Options Management Outputs Management Penning Organic Amendments Harvest Organic Amendments Incorporation Percentage, % Incorporation Depth, cm 20 Management Ottputs	g roomor verso File Environment Management Treatments Simulation Options Refresh Help	
Sinulation Options Add Delete Yer Concil Management Delete Yer Concil Concil No applications No	Simulation Ontions. CA DSSATUR DICEV. (MR0006 RIV/Experimental)	
Simulation Options Level Description Ad Delee Yer General Option Methods Management Outputs Yer General Option Methods Management Outputs Image: Control option Methods Management Outputs Image: Control option Methods Management Fertilizer Image: Control option Methods Management Imagement Image: Control option Percentage, % 100 Imagement Image: Control option Depth, cm 20 Control option		
Year General Options Methods Management Outputs 1998 Management Outputs Level 1 Planting Irrigation and Water Management Fertilizer Organic Amendments 100 Incorporation Percentage, % 100 Incorporation Depth, cm 20 Incorporation Depth, cm 20 Vareed 0K	Simulation Options Level Description	
Ad Delete Yer General Options Methods Management Outputs 1993 Management Usered 1 Planing Inigation and Water Management Fertilizer Organic Amendments Harvest Organic Amendments Incorporation Percentage, % Incorporation Depth, cm 20 Numerication Depth, cm 20	1 DEFAULT SIMULATION CONTR	
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Year General Options Methods Management Outputs Management Planting Irrigation and Water Management Fertilizer Organic Amendments Harvest Level 1 Planting Irrigation and Water Management Fertilizer Organic Amendments Harvest Incorporation Percentage, % 100 Incorporation Percentage, % 100 Incorporation Depth, cm 20	Add Delete	
Year General Options Methods Management Outputs Management Planting Irrigation and Water Management Fertilizer Organic Amendments Harvest Level 1 Planting Irrigation and Water Management Fertilizer Organic Amendments Harvest Incorporation Percentage, % 100 Incorporation, Days after Harvest 1 Incorporation Depth, cm 20 Venue Venue Venue Venue Venue Venue		
Year General Options Methods Management Outputs 1998 Management Planting Irrigation and Water Management Fertilizer Organic Amendments Level 1 Planting Irrigation and Water Management Fertilizer Organic Amendments Isource Organic Amendments Incorporation Percentage, % 100 Incorporation, Days after Harvest 1 Incorporation Depth, cm 20 Incorporation Depth, cm 20 Cancel OK		
1998 Management Planting Irrigation and Water Management Fertilizer Organic Amendments Harvest Level 1 Organic Amendments Imagement Imagement Imagement Imagement No applications Imagement Imagement Imagement Imagement Imagement Incorporation Percentage, % 100 Imagement Imagement Imagement Incorporation Depth, cm 20 Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Imagement Image	Year General Options Methods Management Outputs	
Level 1	1998 Management Disting Irrighten and Water Management Estilizer Occurring American Harring	
Organic Autominities No applications Incorporation Percentage, % Incorporation, Days after Harvest Incorporation Depth, cm 20	Level 1 remaining impaulation and white Managements Teruizer Organic Amendments Travest	
Incorporation Percentage, % 100 Incorporation, Days after Harvest 1 Incorporation Depth, cm 20		
Incorporation Percentage, % 100 Incorporation, Days after Harvest 1 Incorporation Depth, cm 20 Cancel OK	No applications	
Incorporation, Days after Harvest	Incorporation Percentage, % 100	
Incorporation, Days after Harvest		
Incorporation Depth, cm 20	Incorporation, Days after Harvest 1	
Incorporation Depth, cm 20		
	Incorporation Depth, cm 20	
		Cancel OK

12. Pada menu *Outputs*, pilih details sesuai yang diinginkan, pada simulasi ini, *Frequency of output*: 1, *Overview: Yes, Summary: Yes, Output file: default, Format: Text Format (ASCII), Growth: Yes, Carbon: No, Water: Yes, Nitrogen: NO, Phosphorus: No, Diseases: No, Chemical: No, Operation output: No, dan Verbose: Normal output.*

Ruild v 4.7.0											- • ×
File Environment	Management Treatments	Simulation Options	s Refresh Help								
Simulation Options	-C:\DSSAT47\RICE\CJMB9906.	RIX(Experimental)									
	S S	imulation O _l	otions		Level	Description					
and the second second	NY - A ANAL			_	1	DEFAULT SIMUL	ATION CONTR				
			Add	<u>D</u> elete							
Year	General Options	Methods Managem	ent Outputs								
1998	Outputs										
	Level 1										
	Frequency of outp	put (days)		1	Overv	iew Yes	•	Summary	Yes	-	·]
	Output files	Defau	lt	<u>.</u>	·	Format	Text Forma	t (ASCII)		•]
	Details										1
	Growth	Yes	•	Nitrogen	No	•	Chemical	No		•	
	Carbon	No	•	Phosphorus	No	•	Operation: output	S No		•	
	Water	Yes	•	Diseases	No	•	Verbose	Nor	al output	•	
										1	
	😁 📄 (W								Cancel		OK 7:58 PM
									···· • 🔠 I	88 E -	07/07/2019

13. Setelah selesai meng-input data tanaman, pilih menu file lalu klik Save.

-prov				
Close	Simulation Options	Level	Description	
eve	Sec.	• 1	DEPAULT SIMULATION CONTR	
ive As	Add Dele	te		
rint Preview	Ton Tone			
oit.				
efresh	und Ontional Matheda Massacreant Output			
98	General			
	Lovel 1			
_	Level			
_	Simulation Start Date (MM/dd/yyyy)*	01/09/1999	Runs	
_			Years Replications	
	Start On specified date	<u>•</u>	1 1	
_	Random number seed	2150		
_				
_	Crop Module	-		
_				

14. Beri nama file tanaman, lalu klik save.

🔾 🗸 - 🚺 « (C:)	Local Disk 🕨 DSSAT47 🕨 Rice	✓ 4 Search Rice		Ŷ
Organize 🔻 New	folder		l⊞ -	0
🔆 Favorites	A Name	Date modified	Туре	
E Desktop	CJMB1901	06/09/2019 9:46 PM	RIX File	
Downloads	CJMB9901	06/10/2019 10:58	RIX File	
📃 Recent Places	CJMB9902	06/18/2019 7:49 PM	RIX File	
	CJMB9903	06/25/2019 11:24	RIX File	
🥽 Libraries	CJMB9904	06/26/2019 6:22 PM	RIX File	
Documents	CJMB9905	07/03/2019 3:28 PM	RIX File	
👌 Music	CJMB9906	07/07/2019 7:54 PM	RIX File	
Pictures	CJMB9907	07/07/2019 9:05 PM	RIX File	
😸 Videos	DTSP8502	08/14/2017 10:40	RIX File	
	IRCH0301	06/10/2019 10:53	RIX File	
👰 Computer		m		F
File name:	CJMB9907			
Save as type:	FILEX (*.*X)			
Alida Folderr		Save	Can	cel

Running Model

1. Pada bagian *Selector*, pilih bagian Crops => Cereal => Rice, lalu ceklis data tanaman yang telah disimpan sebelumnya=> klik *RUN*.

File Data Model Documentation Help Image: Crop Nanagement Data	DSSAT Version 4	\$.7.0.0	A					
New Pain Tools Crops Crop Management Data Core as Craphical Display Core as Craphical Display Core as Craphical Display Data Outputs Sol Data Craps Scraption Pearl Milet Scrapson Scraption Modified Scrapson Scrapson Sol Data Craps Scrapson Crapson Scrapson Pearl Milet Scrapson Scrapson Pearl Milet Sol Data Crapson Scrapson Pearl Milet Scrapson Scrapson Pearl Milet Scrapson Scrapson Pearl Milet Sol Data Crapson Scrapson Pearl Milet Scrapson Scrapson Pearl Milet Scrapson Scrapson Pearl Milet Sol Data Core Sol Crops Pearl Milet Scrapson Scrapson Pearl Milet Pear	File Data Model D	ocumentation Help						
Tools Sector Crop Management Data Barley Graphical Daplay Barley Sol Data Gran Sorghun Vegetiments Data Barley Sol Data Barley Vegetiments Data Seasonal Vegetiments Data Seasonal Vegetiments Data Seasonal Vegetiments Seasonal Vegetiments Seasonal Vegetiments Seasonal Vegetiments Seasonal Vegetiments Standard Data	🗋 New 👻 🐁	∕⊃ <u>∕R</u> un - ⊜						
Crop Management Data Crop Construct Description Modified Crop Management Data Crop Ma	Tools	Selector	Data					
Crop Management Data # # Experiment Description Modified Graphical Daplay Part Milet Part Milet # 4 C M99903.RLX RICE CLAMEE, SUBANG 23:24:31, 0 Graphical Daplay Part Milet Part Milet Part Milet # 5 C M99904.RLX RICE CLAMEE, SUBANG 23:24:31, 0 Graphical Daplay Part Milet Part Milet Part Milet Part Milet Part Milet Sol Data Part Milet Part Milet Part Milet Part Milet Part Milet Sol Data Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Part Milet Paret Milet Part Milet Pare		4 - 😼 Crops	Experiments Data Outputs					
Crop Management Data Maize 4 CM89903.RLX RLCE CLIAMEE, SUBANG 23:22:43.1 Graphical Diplay Maize 9 CM89904.RLX RLCE CLIAMEE, SUBANG 15:23:80, Sol Data 0 Rot Crops 9 DTSP502.RLX RLCE CLIAMEE, SUBANG 21:06:22, Weather Data 0 Ford Seasonal Accessories 9 DTSP502.RLX EFFCTS CF APPL, N & ENVR. ON RLCE 22:03:06, Weather Data 0 Ford Seasonal Seasonal Seasonal Reference % 10 iR cho30 rRI RLCE CLIAMEE, SUBANG 21:06:22, Wisher 0 Seasonal Seasonal Seasonal Seasonal % Free/wew Wisher 0 Seasonal Seasonal % I 10 log doek plot %		4 - Cereals	+ # Experiment Description	Modified ^				
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Graphical Display			5 CIMB9904.RIX RICE CIDAMBE, SUBANG	18:22:27.				
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2. Setelehnya akan muncul jendela seperti di bawah ini, setelah itu klik *Run Model* hingga muncul jendela informasi bahwa simulasi telah selesai.

	DSSAT	v47 Simulation		00	3	
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•€				Cancel		Information Simulations are completed!

3. Pilih menu Analysis, lalu tandai bagian *Summary.OUT* untuk melihat hasil simulasi yang telah dijalankan => klik *View*.

DSSATv47 Simulation	
Model Analysis	
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4. Setelahnya akan muncul informasi *dry weight*, hasil (produktivitas) dan komponen hasil lainnya. Dalam hal ini, simulasi sesuai demplot yaitu 4547 kg/ha.

🖳 Summary.OUT - Notepad	
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