

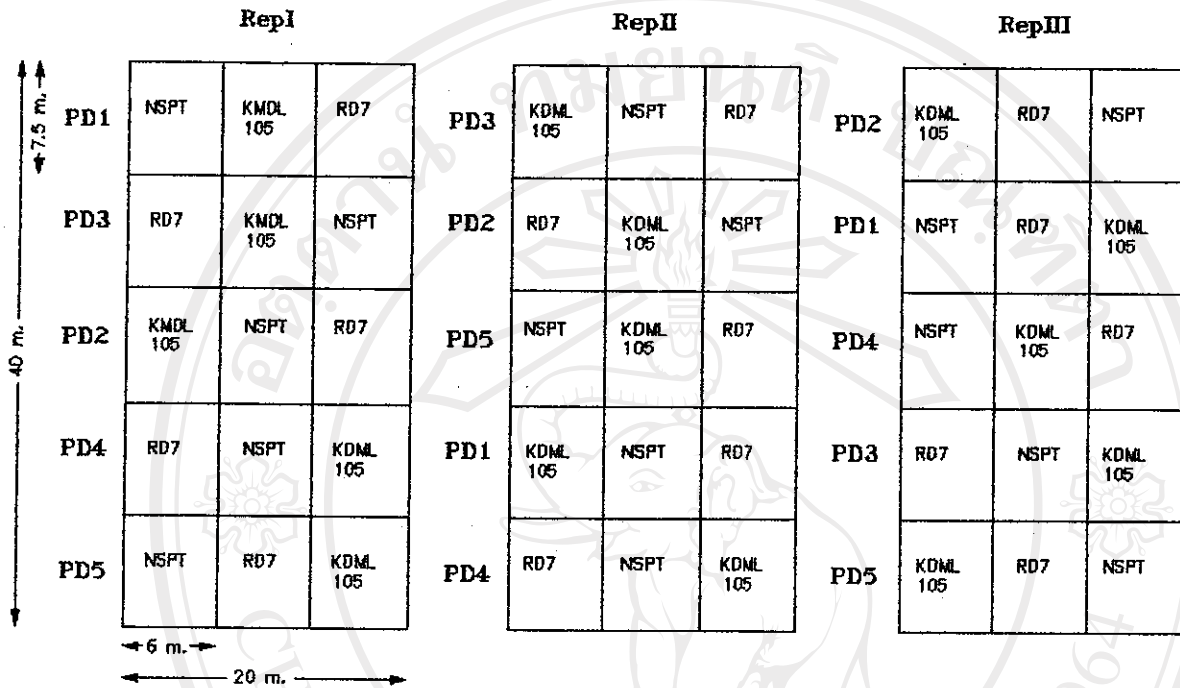


APPENDICES

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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APPENDIX A



Design: Split Plot Design

Three Replications

Planting date - main plot

Varieties - sub-plot

Varieties:

NSPT : Niaw San Pa Tong

KDML105 : Kaow Dawk Mali 105

RD7 : RD7

Transplanting dates

PD1 : May 1

PD2 : June 4

PD3 : July 2

PD4 : August 4

PD5 : September 3

Layout of the field experiment.

APPENDIX B

Table 1. Input file structures; File: daily weather data (THCM0112.W91).

THCM	18.48	98.58	12.07	0.00	THCM	91	125	23.25	38.25	23.98	0.00		
THCM	91	60	14.72	35.06	18.55	0.00	THCM	91	126	23.39	37.41	24.52	0.00
THCM	91	61	17.60	35.02	17.52	0.00	THCM	91	127	22.22	37.38	24.60	0.00
THCM	91	62	16.87	34.56	15.12	0.00	THCM	91	128	21.70	37.54	23.54	0.00
THCM	91	63	16.25	34.71	15.92	0.00	THCM	91	129	22.60	38.01	23.96	0.00
THCM	91	64	16.66	35.29	16.93	0.00	THCM	91	130	21.50	36.59	23.37	0.00
THCM	91	65	16.49	35.13	17.61	0.00	THCM	91	131	17.21	35.09	22.82	0.00
THCM	91	67	15.95	35.42	19.04	0.00	THCM	91	132	21.15	36.84	22.77	0.00
THCM	91	68	17.49	36.22	17.85	0.00	THCM	91	133	18.99	36.60	22.73	3.00
THCM	91	69	17.45	35.58	17.49	0.00	THCM	91	134	19.83	38.01	22.95	0.00
THCM	91	70	16.54	35.57	18.08	0.00	THCM	91	135	19.23	37.24	23.81	0.00
THCM	91	71	13.23	35.58	18.82	0.00	THCM	91	136	20.66	36.64	23.36	0.00
THCM	91	72	14.39	36.36	19.12	0.00	THCM	91	137	21.85	37.10	23.07	0.00
THCM	91	73	15.48	36.54	18.55	0.00	THCM	91	138	21.63	35.87	22.49	0.00
THCM	91	74	14.23	36.45	18.64	0.00	THCM	91	139	22.98	37.08	22.78	0.00
THCM	91	75	14.13	36.12	20.95	0.00	THCM	91	140	23.00	37.98	22.84	0.00
THCM	91	76	11.38	32.83	22.30	0.00	THCM	91	141	18.60	37.72	24.95	0.00
THCM	91	77	16.90	35.56	22.94	0.00	THCM	91	142	20.77	37.46	24.00	2.00
THCM	91	78	15.90	35.14	21.09	5.00	THCM	91	143	20.69	35.26	21.10	45.00
THCM	91	79	15.02	34.64	21.57	2.00	THCM	91	144	22.20	36.02	22.95	0.00
THCM	91	80	19.22	35.71	20.31	0.00	THCM	91	145	24.45	37.00	24.04	0.00
THCM	91	81	20.93	36.36	19.87	0.00	THCM	91	146	23.24	37.84	25.02	0.00
THCM	91	82	16.73	35.78	19.90	0.00	THCM	91	147	22.70	37.71	24.95	0.00
THCM	91	83	18.00	36.34	22.05	0.00	THCM	91	148	23.41	36.07	22.49	20.00
THCM	91	84	18.99	37.53	21.22	0.00	THCM	91	149	22.46	33.77	22.93	8.00
THCM	91	85	19.94	37.97	20.40	0.00	THCM	91	150	18.70	34.58	23.94	1.00
THCM	91	86	19.63	37.20	20.69	0.00	THCM	91	151	23.44	34.92	23.75	0.00
THCM	91	87	18.85	37.87	20.88	0.00	THCM	91	152	22.84	35.50	23.60	2.00
THCM	91	88	15.04	37.10	20.10	0.00	THCM	91	153	21.81	35.14	23.54	3.00
THCM	91	89	13.42	35.96	23.49	0.00	THCM	91	154	24.21	35.90	24.62	0.00
THCM	91	90	16.88	37.20	21.45	0.00	THCM	91	155	26.07	37.09	24.74	0.00
THCM	91	91	17.45	35.96	20.87	0.00	THCM	91	156	20.04	35.44	24.02	2.00
THCM	91	92	11.32	32.12	23.62	0.00	THCM	91	157	13.52	31.54	23.90	0.00
THCM	91	93	8.87	30.54	20.75	1.00	THCM	91	158	15.73	34.27	23.13	2.00
THCM	91	94	13.75	31.12	18.61	0.00	THCM	91	159	17.60	33.78	22.95	16.00
THCM	91	95	18.76	34.11	17.88	0.00	THCM	91	160	15.85	34.58	24.12	4.00
THCM	91	96	18.98	36.34	20.92	0.00	THCM	91	161	10.87	28.35	23.47	1.00
THCM	91	97	18.27	37.20	21.94	0.00	THCM	91	162	15.09	32.39	23.65	0.00
THCM	91	98	16.59	37.14	22.92	0.00	THCM	91	163	14.15	31.83	24.04	3.00
THCM	91	99	16.63	37.56	21.99	0.00	THCM	91	164	12.08	33.19	23.43	11.00
THCM	91	100	18.13	37.59	21.31	0.00	THCM	91	165	12.25	31.08	22.60	13.00
THCM	91	101	19.04	37.98	22.06	0.00	THCM	91	166	14.03	34.25	23.54	2.00
THCM	91	102	20.28	38.08	22.32	0.00	THCM	91	167	18.67	35.58	22.85	0.00
THCM	91	103	20.68	38.91	22.92	0.00	THCM	91	168	15.53	35.29	24.28	0.00
THCM	91	104	19.22	39.23	23.12	0.00	THCM	91	169	11.50	32.02	24.22	0.00
THCM	91	105	19.67	39.22	22.87	0.00	THCM	91	170	10.89	28.61	23.12	19.00
THCM	91	106	19.77	39.57	23.68	0.00	THCM	91	171	13.39	30.78	23.23	11.00
THCM	91	107	20.96	39.18	23.27	0.00	THCM	91	172	17.94	34.16	23.69	0.00
THCM	91	108	20.32	39.82	23.94	0.00	THCM	91	173	19.49	35.04	23.80	0.00
THCM	91	109	19.44	40.08	25.21	0.00	THCM	91	174	12.06	34.42	24.77	0.00
THCM	91	110	17.08	38.68	25.16	0.00	THCM	91	175	6.77	28.94	22.93	9.00
THCM	91	111	20.71	36.98	19.15	8.00	THCM	91	176	13.51	34.99	22.86	0.00
THCM	91	112	20.67	35.40	21.52	6.00	THCM	91	177	7.80	28.36	23.34	2.00
THCM	91	113	19.63	35.07	22.87	0.00	THCM	91	178	5.54	28.22	22.64	13.00
THCM	91	114	21.83	36.18	23.24	0.00	THCM	91	179	11.81	31.65	23.18	0.00
THCM	91	115	23.74	36.68	22.12	0.00	THCM	91	180	16.33	31.70	22.14	1.00
THCM	91	116	18.32	34.93	22.30	8.00	THCM	91	181	13.11	31.39	21.84	1.00
THCM	91	117	20.96	36.78	23.71	0.00	THCM	91	182	15.87	33.37	22.75	0.00
THCM	91	118	21.94	36.42	23.80	1.00	THCM	91	183	19.01	35.52	23.11	8.00
THCM	91	119	23.94	37.79	19.97	47.00	THCM	91	184	20.61	35.78	23.41	25.00
THCM	91	120	25.01	42.12	26.18	0.00	THCM	91	185	15.59	33.74	23.70	0.00
THCM	91	121	20.51	35.16	23.89	0.00	THCM	91	186	8.39	29.55	24.24	0.00
THCM	91	122	20.20	36.09	23.23	0.00	THCM	91	187	14.79	31.88	23.01	0.00
THCM	91	123	24.11	36.48	22.17	0.00	THCM	91	188	16.45	33.90	23.53	9.00
THCM	91	124	24.82	37.96	23.24	0.00	THCM	91	189	16.41	35.38	23.35	0.00

THCM 91 190	13.27	32.34	23.57	0.00	THCM 91 264	14.80	33.00	22.50	3.60
THCM 91 191	20.23	34.86	23.79	6.00	THCM 91 265	14.70	31.20	23.30	1.50
THCM 91 192	20.03	35.23	23.63	0.00	THCM 91 266	14.70	32.90	23.20	0.00
THCM 91 193	19.88	36.10	23.75	11.00	THCM 91 267	14.60	32.80	23.40	0.00
THCM 91 194	20.86	36.16	23.77	0.00	THCM 91 268	14.60	33.00	23.20	14.50
THCM 91 195	19.13	36.11	24.30	0.00	THCM 91 269	20.55	33.37	22.70	0.00
THCM 91 196	14.49	34.71	24.10	2.00	THCM 91 270	20.30	33.93	23.35	0.00
THCM 91 197	9.97	30.07	23.96	3.00	THCM 91 271	13.11	32.72	24.38	0.00
THCM 91 198	10.68	31.24	23.03	9.00	THCM 91 272	11.96	33.26	23.70	3.00
THCM 91 199	4.40	25.59	22.22	6.00	THCM 91 273	9.84	28.33	22.78	1.00
THCM 91 200	10.15	29.26	22.61	6.00	THCM 91 274	19.37	33.67	22.27	8.00
THCM 91 201	15.66	34.30	23.58	2.00	THCM 91 275	17.10	32.62	23.53	1.00
THCM 91 202	13.63	33.30	23.29	1.00	THCM 91 276	17.32	33.98	23.43	0.00
THCM 91 203	15.45	34.72	23.82	7.00	THCM 91 277	17.34	33.33	22.75	1.00
THCM 91 204	12.18	32.94	23.61	0.00	THCM 91 278	17.03	33.62	21.82	0.00
THCM 91 205	11.17	32.43	23.87	0.00	THCM 91 279	19.27	33.78	22.50	0.00
THCM 91 206	20.52	33.91	23.80	7.00	THCM 91 280	14.61	33.40	21.82	14.00
THCM 91 207	21.39	34.86	23.75	0.00	THCM 91 281	13.30	31.78	21.48	5.00
THCM 91 208	16.13	31.50	24.50	0.30	THCM 91 282	13.07	32.24	21.58	0.00
THCM 91 209	16.13	31.60	23.00	0.00	THCM 91 283	12.00	30.16	22.30	2.00
THCM 91 210	16.12	30.00	24.00	4.80	THCM 91 284	16.21	33.41	22.75	0.00
THCM 91 211	16.11	29.00	23.00	1.50	THCM 91 285	17.00	32.34	23.33	0.00
THCM 91 212	16.10	30.60	23.00	0.50	THCM 91 286	19.63	32.47	22.04	2.00
THCM 91 213	16.09	32.00	22.70	7.40	THCM 91 287	18.58	33.13	22.83	0.00
THCM 91 214	16.08	31.30	23.50	18.80	THCM 91 288	18.36	33.96	22.19	0.00
THCM 91 215	16.08	31.40	23.20	19.10	THCM 91 289	18.03	35.27	21.93	0.00
THCM 91 216	16.07	33.40	23.50	9.10	THCM 91 290	15.40	34.93	21.94	0.00
THCM 91 217	16.06	34.00	23.50	2.50	THCM 91 291	17.01	31.42	21.46	0.00
THCM 91 218	16.04	34.20	22.50	9.10	THCM 91 292	19.62	33.73	21.72	9.00
THCM 91 219	16.03	35.10	24.40	0.00	THCM 91 293	15.63	32.48	22.75	0.00
THCM 91 220	16.02	34.90	23.00	5.60	THCM 91 294	18.29	33.76	21.03	10.00
THCM 91 221	16.01	33.10	23.30	15.70	THCM 91 295	13.83	31.44	21.57	6.00
THCM 91 222	16.00	32.80	23.30	0.50	THCM 91 296	14.40	32.34	22.71	0.00
THCM 91 223	15.98	32.50	23.30	7.60	THCM 91 297	16.36	33.01	21.71	0.00
THCM 91 224	15.97	31.00	23.60	0.00	THCM 91 298	16.65	32.17	22.06	0.00
THCM 91 225	15.95	28.00	23.60	9.40	THCM 91 299	18.02	32.06	20.24	0.00
THCM 91 226	15.94	25.80	22.00	2.80	THCM 91 300	11.24	32.01	21.54	1.00
THCM 91 227	15.92	30.20	22.00	0.00	THCM 91 301	10.89	29.55	20.39	0.00
THCM 91 228	15.90	32.40	23.00	0.00	THCM 91 302	17.82	31.56	19.40	0.00
THCM 91 229	15.89	31.20	23.10	12.20	THCM 91 303	16.30	31.23	19.01	0.00
THCM 91 230	15.87	33.50	23.50	76.50	THCM 91 304	16.99	31.64	18.96	0.00
THCM 91 231	15.85	30.50	22.50	12.20	THCM 91 305	16.01	30.31	18.52	0.00
THCM 91 232	15.83	33.50	22.90	16.30	THCM 91 306	13.78	31.41	21.35	0.00
THCM 91 233	15.81	30.90	23.40	19.10	THCM 91 307	3.38	23.79	19.39	19.00
THCM 91 234	15.79	31.00	23.50	0.00	THCM 91 308	9.05	28.38	20.31	4.00
THCM 91 235	15.77	31.80	23.30	0.00	THCM 91 309	14.68	30.26	20.44	10.00
THCM 91 236	15.74	31.00	23.30	10.50	THCM 91 310	17.42	32.19	20.60	0.00
THCM 91 237	15.72	31.70	22.90	3.30	THCM 91 311	15.87	32.42	20.09	0.00
THCM 91 238	15.70	33.00	23.80	2.50	THCM 91 312	16.84	32.62	19.42	0.00
THCM 91 239	15.67	32.10	23.80	69.90	THCM 91 313	16.37	32.43	19.16	0.00
THCM 91 240	15.64	27.80	22.30	3.60	THCM 91 314	15.09	32.38	19.93	0.00
THCM 91 241	15.62	32.00	23.20	1.30	THCM 91 315	12.05	31.23	19.39	0.00
THCM 91 242	15.59	32.00	23.00	6.90	THCM 91 316	13.20	30.90	19.44	0.00
THCM 91 243	15.56	30.50	23.00	1.00	THCM 91 317	11.71	29.76	18.29	0.00
THCM 91 244	15.53	29.00	23.10	0.80	THCM 91 318	11.62	30.03	19.69	0.00
THCM 91 245	15.50	32.40	23.40	0.00	THCM 91 319	15.40	29.21	20.53	0.00
THCM 91 246	15.50	32.80	32.20	4.80	THCM 91 320	16.56	28.90	17.82	0.00
THCM 91 247	15.40	32.40	23.30	0.50	THCM 91 321	16.35	29.42	14.94	0.00
THCM 91 248	15.40	32.50	23.80	38.40	THCM 91 322	16.31	30.58	15.01	0.00
THCM 91 249	15.40	29.30	23.40	3.10	THCM 91 323	15.50	30.56	15.39	0.00
THCM 91 250	15.30	31.60	23.40	1.00	THCM 91 324	15.04	30.46	18.70	0.00
THCM 91 251	15.30	31.50	23.50	18.50	THCM 91 325	14.75	29.77	15.15	0.00
THCM 91 252	15.30	32.30	23.40	0.30	THCM 91 326	15.48	30.03	13.93	0.00
THCM 91 253	15.20	32.00	23.50	2.30	THCM 91 327	15.24	30.66	14.59	0.00
THCM 91 254	15.20	30.30	23.80	0.30	THCM 91 328	15.29	31.13	16.52	0.00
THCM 91 255	15.20	33.20	22.80	0.30	THCM 91 329	14.60	30.81	16.84	0.00
THCM 91 256	15.10	31.70	23.90	6.60	THCM 91 330	15.43	30.72	15.95	0.00
THCM 91 257	15.10	33.40	23.30	4.30	THCM 91 331	15.01	30.53	15.26	0.00
THCM 91 258	15.00	33.40	23.40	0.00	THCM 91 332	15.39	30.56	15.48	0.00
THCM 91 259	15.00	33.00	23.50	0.30	THCM 91 333	15.61	30.60	15.13	0.00
THCM 91 260	15.00	33.70	24.60	2.80	THCM 91 334	14.66	29.82	14.16	0.00
THCM 91 261	14.90	33.40	22.60	0.00	THCM 91 335	14.97	30.44	14.44	0.00
THCM 91 262	14.90	33.50	23.20	0.00	THCM 91 336	14.23	30.51	14.88	0.00
THCM 91 263	14.80	34.10	23.50	62.00	THCM 91 337	13.76	30.24	15.83	0.00

THCM 91 338	14.14	30.66	16.27	0.00
THCM 91 339	13.37	30.62	16.43	0.00
THCM 91 340	14.08	30.19	14.89	0.00
THCM 91 341	8.41	28.45	16.37	0.00
THCM 91 342	14.70	29.55	14.73	0.00
THCM 91 343	13.25	28.34	14.59	0.00
THCM 91 344	11.22	28.05	16.40	0.00
THCM 91 345	14.19	30.58	15.28	0.00
THCM 91 346	12.83	29.91	16.89	0.00
THCM 91 347	12.95	30.71	17.46	0.00
THCM 91 348	13.31	29.23	15.38	0.00
THCM 91 349	13.31	28.90	12.95	0.00
THCM 91 350	14.05	28.13	13.61	0.00
THCM 91 351	14.68	27.49	11.30	0.00
THCM 91 352	14.23	27.83	10.94	0.00
THCM 91 353	8.80	27.73	11.98	0.00
THCM 91 354	8.26	27.85	17.24	0.00
THCM 91 355	12.60	28.48	14.48	0.00
THCM 91 356	13.16	28.00	13.40	0.00
THCM 91 357	10.80	28.40	13.00	0.00
THCM 91 358	10.80	29.00	12.60	0.00
THCM 91 359	10.90	30.50	13.80	0.00
THCM 91 360	10.90	28.50	18.10	0.00
THCM 91 361	10.90	25.50	18.50	0.00
THCM 91 362	10.90	28.20	13.60	0.00
THCM 91 363	10.90	29.00	16.50	0.00
THCM 91 364	10.90	26.30	18.00	0.00
THCM 91 365	10.90	27.40	17.30	0.00

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Table 2. Input file structures; File: Soil Profile Properties (SPROFILE.RI2).

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1 SANSAI          COARSE-LOAMY, MIXED, TROPIC TROPAQUALFS
0.13 8.20 0.05 88.00 25.6 7.3 1.0 2.67E-03 62.0 6.68 0.03 0.70 38.0
  5. 0.094 0.215 0.347 0.265 1.000 1.56 .83
 15. 0.116 0.236 0.347 0.265 1.000 1.79 .55
 15. 0.125 0.246 0.338 0.208 .300 1.72 .53
 20. 0.139 0.259 0.327 0.220 .100 1.71 .52
-1.
-1.
2 HANGDONG       FINE, KAOLINITIC, ISOHYPERThERMIC, TYPIC TROPAQUALFS
0.13 24.63 0.05 87.00 20.0 0.0 1.0 1.32E-03 76.6 6.67 0.04 1.00
  5. 0.174 0.296 0.364 0.296 0.500 1.14 1.06 -9.0 -9.0 5.8 -9.0
 10. 0.174 0.296 0.364 0.296 0.500 1.14 1.06 -9.0 -9.0 5.8 -9.0
 15. 0.169 0.289 0.355 0.289 .200 1.51 0.39 -9.0 -9.0 7.7 -9.0
 15. 0.183 0.301 0.352 .301 .100 1.50 0.38 -9.0 -9.0 7.8 -9.0
-1.
-1.
3 EXPT 3         SOIL 3
0.10 7.50 0.00 60.00 28.0 5.0 1.0 0.27E-02 58.0 6.68 0.03 1.00 41.0
  5. 0.294 0.420 0.435 0.420 1.000 1.00 2.10
 15. 0.294 0.420 0.435 0.420 1.000 1.00 2.10
 15. 0.294 0.419 0.434 0.419 0.450 1.00 1.39
 15. 0.294 0.419 0.434 0.419 0.450 1.00 1.39
-1.
-1.
4 EXPT 4         SOIL 4
0.10 7.50 0.00 60.00 28.0 5.0 1.0 0.27E-02 58.0 6.68 0.03 1.00 38.0
  5. 0.267 0.397 0.412 0.397 1.000 1.00 1.30
 15. 0.267 0.397 0.412 0.397 1.000 1.00 1.30
 15. 0.285 0.412 0.427 0.412 0.450 1.00 0.60
 15. 0.285 0.412 0.427 0.412 0.450 1.00 0.60
-1.
-1.
5 EXPT 5         SOIL 5
0.10 7.50 0.00 60.00 28.0 5.0 1.0 0.27E-02 58.0 6.68 0.03 1.00 29.0
  5. 0.214 0.349 0.392 0.349 1.000 1.00 1.19
 15. 0.214 0.349 0.392 0.349 1.000 1.00 1.19
 15. 0.227 0.361 0.392 0.361 0.450 1.00 0.57
 15. 0.227 0.361 0.392 0.361 0.450 1.00 0.57
-1.
-1.
6 EXPT 6         SOIL 6
0.10 7.50 0.00 60.00 28.0 5.0 1.0 0.27E-02 58.0 6.68 0.03 1.00 36.0
  5. 0.258 0.389 0.404 0.389 1.000 1.00 1.18
 15. 0.258 0.389 0.404 0.389 1.000 1.00 1.18
 15. 0.271 0.400 0.415 0.400 0.450 1.00 0.53
 15. 0.271 0.400 0.415 0.400 0.450 1.00 0.53
-1.
-1.
7 EXPT 7         SOIL 7
0.10 7.50 0.00 60.00 28.0 5.0 1.0 0.27E-02 58.0 6.68 0.03 1.00 32.0
  5. 0.223 0.353 0.403 0.353 1.000 1.00 0.97
 15. 0.223 0.353 0.403 0.353 1.000 1.00 0.97
 15. 0.223 0.353 0.403 0.353 0.450 1.00 0.97
 15. 0.223 0.353 0.403 0.353 0.450 1.00 0.97
-1.
-1.

```

Table 3. Input file structures; File: Genetic coefficients
(GENETICS.RI9)

1	IR 8	880.00	52.00	550.00	12.1	75.0	0.0280	1.00	1.00
2	IR 20	500.00	166.00	500.00	11.2	75.0	0.0280	1.00	1.00
3	IR 36	550.00	149.00	550.00	11.7	70.0	0.0230	1.00	1.00
4	IR 43	720.00	120.00	580.00	10.5	75.0	0.0280	1.00	1.00
5	LABELLE	318.00	189.00	550.00	12.8	75.0	0.0280	1.00	1.00
6	MARS	698.00	134.00	550.00	13.0	75.0	0.0280	1.00	1.00
7	NOVA 66	389.00	155.00	550.00	11.0	75.0	0.0280	1.00	1.00
8	PETA	420.00	240.00	550.00	11.3	75.0	0.0280	1.00	1.00
9	STARBONNETT	880.00	164.00	550.00	13.0	75.0	0.0280	1.00	1.00
10	UPLRI5	780.00	160.00	430.00	11.5	75.0	0.0280	1.00	1.00
11	UPLRI7	760.00	150.00	450.00	11.7	75.0	0.0280	1.00	1.00
12	IR 58	500.00	120.00	500.00	11.5	90.0	0.0240	1.00	1.00
13	IR 54	400.00	100.00	600.00	10.5	75.0	0.0280	1.00	1.00
14	RD 7 (cal.)	603.33	150.00	452.50	11.2	75.0	0.0230	1.00	1.00
15	IR 64	540.00	150.00	470.00	10.5	90.0	0.0270	1.00	1.00
16	RD 23 (cal.)	603.33	150.00	452.50	11.2	75.0	0.0230	1.00	1.00
17	CICAB	700.00	120.00	360.00	11.7	60.0	0.0270	1.00	1.00
18	SenTaNi (???)	320.00	50.00	550.00	10.0	90.0	0.0300	1.00	1.00
19	SenTaNi (???)	320.00	50.00	550.00	10.0	90.0	0.0300	1.00	1.00
20	SenTaNi (???)	320.00	50.00	550.00	10.0	90.0	0.0300	1.00	1.00
21	NSPT (adjust)	420.00	2000.00	350.00	13.00	75.0	0.0280	1.00	1.00
22	KDML105 (adjust)	420.00	2000.00	350.00	13.00	75.0	0.0270	1.00	1.00
23	RD7(adjust)	460.00	94.00	320.00	11.9	75.0	0.0280	1.00	1.00
24	NSPT (JIN.W)	480.00	1370.00	380.00	12.65	75.0	0.0280	1.00	1.00
25	KDML105 (JIN.W)	480.00	1370.00	380.00	12.65	75.0	0.0280	1.00	1.00
26	RD7 (JIN.W)	588.00	150.00	452.00	11.20	75.0	0.0280	1.00	1.00

APPENDIX C

The examples simulation are designed to demonstrate the model operation.

Welcome to the C E R E S R I C E model Version 2.10 for upland and lowland rice. Version 2.10 incorporates new menu structure and support for multi-year and multi-treatment runs. Version 2.10 also provides output support for IBSNAT graphics and DSSAT Strategy Application.

Press "Enter" to continue ←

LIST OF EXPERIMENTS TO BE SIMULATED				
	INST. ID	SITE ID	EXPT. NO	YEAR
1) MCC EXPERIMENT, 5 PLANTING DATES	TH	CM	01	1991
2) MCC EXP, 1992	TH	CM	01	1992
3) SPT EXPERIMENT 1989	TH	SP	01	1989
4) SPT EXPERIMENT 1990	TH	SP	01	1990
5) SPT EXPERIMENT 1991	TH	SP	01	1991

1) <=== CURRENT EXPERIMENT SELECTION.

<--- INPUT NEW SELECTION or

<--- Press <ENTER> to view the list again.

1 ←

TRT NO.	MCC EXPERIMENT, 5 PLANTING DATES	INST. ID	SITE ID	EXPT. NO	YEAR
1)	PD1 NSPT	TH	CM	01	1991
2)	PD1 KDML105	TH	CM	01	1991
3)	PD1 RD7	TH	CM	01	1991
4)	PD2 NSPT	TH	CM	01	1991
5)	PD2 KDML105	TH	CM	01	1991
6)	PD2 RD7	TH	CM	01	1991
7)	PD3 NSPT	TH	CM	01	1991
8)	PD3 KDML105	TH	CM	01	1991
9)	PD3 RD7	TH	CM	01	1991
10)	PD4 NSPT	TH	CM	01	1991
11)	PD4 KDML105	TH	CM	01	1991
12)	PD4 RD7	TH	CM	01	1991
13)	PD5 NSPT	TH	CM	01	1991
14)	PD5 KDML105	TH	CM	01	1991
15)	PD5 RD7	TH	CM	01	1991
16)	Run all treatments without keyboard inputs				

1] <=== CURRENT TREATMENT SELECTION.
<--- NEW SELECTION?

11 ←

RUN-TIME OPTIONS?

- 0) RUN SIMULATION
- 1) SELECT SIMULATION OUTPUT FREQUENCY
- 2) MODIFY SELECTED MODEL VARIABLES INTERACTIVELY.

<=== CHOICE? [DEFAULT = 0]

0 ←

<=== ENTER UP TO HERE RUN IDENTIFIER, <ENTER> FOR NONE.

Do you want post harvest comparison with observed data
displayed on the screen (Y/N) ?

y ←

RUN 1 OUTPUT SUMMARY

INST_ID :TH SITE_ID: CM EXPT_NO: 01 YEAR : 1991 TRT_NO: 11
 EXP. :MCC EXPERIMENT, 5 PLANTING DATES
 TRT. :PD4 KDML105
 WEATHER :MCC WEATHER DATA,1991
 SOIL :COARSE-LOAMY, MIXED, TROPIC TROPAQUALFS
 VARIETY :KDML105 (adjust)
 PLANTING:TRANSPLANTED SIMULATION BEGINS AT TRANSPLANTING
 IRRIG. :ASSUMED NO WATER STRESS - TRANSPLANTED.

PLANT POPULATION = 16.00 HILLS PER SQ METER 3.0 PLANTS PER HILL
 LATITUDE = 18.5 , SOWING DEPTH = 5. CM

GENETIC SPECIFIC CONSTANTS P1 = 420.00 P20 = 13.0 P2R =2000.00
 P5 = 350.00 G1 = 75.0 G2 = .0270
 G3 = 1.00 G4 = 1.00

Please press RETURN to continue. ←

SOIL PROFILE DATA [PEDON: SANSAI]
 SOIL ALBEDO= .13 U= 8.2 SWCON= .05 RUNOFF CURVE NO.= 88.0

DEPTH-CM	LO LIM	UP LIM	SAT SW	EXT SW	IN SW	WR	NO3	NH4
0.- 5.	.113	.231	.347	.000	.265	1.000	4.0	18.0
5.- 10.	.113	.231	.347	.000	.265	1.000	3.0	17.0
10.- 30.	.101	.219	.338	.000	.219	.300	1.7	15.5
30.- 50.	.093	.219	.327	.000	.219	.100	1.0	15.0
T 0.- 50.	5.0	11.1	16.8	6.1	11.4		0.*	

* NOTE: Units are in kg / hectare.

NITROGEN NON-LIMITING

Please press RETURN to continue. ←

SIMULATION HAS BEGUN....PLEASE WAIT.
DON'T TOUCH THE TERMINAL UNTIL IT PROMPTS YOU.

DATE	CDTT	PHENOLOGICAL STAGE	BIOM	LAI	NUPTK	N%	FLOOD
RAIN+IRR	PESW	13 Sep 1079.	PANICLE INITIATION		195.	2.99	.0
.00	0.	0.	0.				
1 Aug	264.	TRANSPLANTING	2.	.02	.0	.00	0.
0.	0.						
20 Aug	632.	END JUVENILE	7.	.06	.0	.00	0.
0.	0.						
13 Sep	1079.	PANICLE INITIATION	195.	2.99	.0	.00	0.
0.	0.						
CUM SPIKE	STM	MSTM	.00	778.25	10.38	.93	
16 Oct	1701.	HEADING	796.	4.36	.0	.00	0.
0.	0.						
25 Oct	1865.	BEGIN GRAIN FILL	959.	3.97	.0	.00	0.
0.	0.						
GNP GRNWT	ta	tm	RES	STM	.000	3.385	.000
7.669							3.385
12 Nov	2160.	END MAIN GR. FILL	1217.	3.52	.0	.00	0.
0.	0.						
17 Nov	2234.	END TILL. GR. FILL	1146.	2.06	.0	.00	0.
0.	0.						
18 Nov	2248.	PHYSIOL. MATURITY	1146.	2.06	.0	.00	0.
0.	0.						

FILL GRAINS= 489. POTL GRAINS= 778. UNFILL GR.= 289.

YIELD(KG/HA)= 7376. N UPTAKE(KG N/HA)= 0. FINAL GPSM= 23493. GRN WT.(mg)=27.

ISTAGE	CSD1	CSD2	CNSD1	CNSD2	STAGE	OF	GRO
W T H							
1	.00	.00	.00	.00	EMERGENCE	-	END
JUVENI							
2	.00	.00	.00	.00	END JUVENIL	-	
PANICLE IN							
3	.00	.00	.00	.00	PANICLE INIT	-	END
LF GROW							
4	.00	.00	.00	.00	END LF GRTH	-	BEGIN
GRAIN							
5	.00	.00	.00	.00	BEG GRAIN FILL	-	
PHYS MATU							

* NOTE: In the above table, 0.0 represents minimum stress and 1.0 represents maximum stress for water (CSD) and nitrogen (CNSD), respectively.

Press "ENTER" to continue. ←

	PREDICTED	OBSERVED
HEADING DATE	289	288
MATURITY DATE	322	325
GRAIN YIELD (KG/HA)	7376.	5078.
GRAIN WEIGHT (G)	.0270	.0271
GRAINS PER SQ METRE	23493.	24698.
PANICLES PER SQ METRE	345.	193.
MAX. LAI	4.36	5.00
BIOMASS (KG/HA)	11457.	15996.
STRAW (KG/HA)	5114.	9529.
GRAIN N%	.00	1.34
TOT N UPTAKE (KG N/HA)	.0	134.6
STRAW N UPTAKE	.0	58.1
GRAIN N UPTAKE	.0	76.3

Press "ENTER" to continue. ←

Simulation complete for this treatment.

Do you want to :

0. Repeat the Same Experiment Again
1. Return to Experiment and Treatment Menu
2. Display Detailed Outputs on Screen
3. Quit

Input a number (default is 0)

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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APPENDIX D

Table 1. LAI of RD7 at PD1 to PD5

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5						
(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM					
0	0.15	0.01	0	0.16	0.01	0	0.17	0.01	0	0.05	0.01	0	0.18	0.05
21	0.61	0.1	21	0.97	0.12	21	1.80	0.14	21	0.43	0.11	14	0.53	0.22
28	1.15	0.44	35	1.21	1.26	35	2.59	1.52	35	2.05	1.26	28	1.67	1.45
35	1.63	1.38	42	3.14	2.1	42	4.16	2.5	42	3.26	2.09	35	2.17	2.23
42	1.74	2.34	49	3.87	3.01	49	4.13	3.47	56	3.54	3.51	42	2.54	3
49	2.19	3.25	56	4.43	3.79	56	4.19	4.07	63	3.93	3.56	49	3.51	3.33
56	2.37	3.76	63	4.59	4	63	3.55	4.12	70	4.04	3.47	56	3.84	3.32
63	2.80	3.97	70	4.29	3.85	77	2.90	3.71	77	4.36	3.38	63	3.12	3.26
70	3.58	3.82	77	4.41	3.67	84	2.20	3.57	84	3.44	2.81	70	1.97	3
77	4.58	3.65	84	3.93	3.53	91	1.26	2.68	91	3.01	2.15	77	1.60	2.57
84	3.88	3.52	91	3.43	2.93							84	0.93	1.99
91	3.54	2.89	98	1.61	1.36									

Table 2. Tiller numbers m² of RD7 at PD1 from PD5.

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5						
(days) OBS	SIM	(days) OBS	SIM	(days)OBS	SIM	(days) OBS	SIM	(days) OBS	SIM					
0	48.00	48	0	48.00	48	0	48.00	48	0	48.00	48	0	16.00	103
21	205.33	214	21	202.67	182	21	280.00	204	21	122.67	204	14	144.00	275
28	341.33	371	35	208.00	507	35	270.67	493	35	312.00	472	28	245.33	521
35	368.00	562	42	269.33	588	42	285.33	527	42	298.67	490	35	237.33	517
42	357.33	621	49	296.00	584	49	258.67	523	56	301.33	468	42	237.33	504
49	309.33	617	56	272.00	571	56	248.00	503	63	277.33	439	49	224.00	479
56	288.00	602	63	261.33	543	63	242.67	472	70	256.00	410	56	216.00	444
63	290.67	573	70	243.20	501	77	242.67	409	77	245.33	390	63	194.67	418
70	284.00	528	77	245.33	471	84	242.67	409	84	240.00	390	70	192.00	405
77	277.33	497	84	232.00	461	91	240.00	409	91	221.33	390	77	197.33	405
84	274.67	486	91	226.67	461							84	194.67	405
91	269.33	486	98	190.22	461									

Table 5. Panicle dry weight (g m⁻²) of R07 from PD1 to PD5

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5	
(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
21	0.00	0	0.00	0	0.00	0	0.00	14	0.00
28	0.00	0	0.00	0	0.00	0	0.00	28	0.00
35	0.00	0	0.00	0	0.00	0	0.00	35	0.00
42	0.00	0	0.00	0	17.97	0	0.00	42	0.00
49	0.00	0	6.93	0	60.88	0	4.51	49	3.57
56	0.00	0	44.99	0	130.08	0	48.69	56	55.12
63	22.88	0	114.69	0	360.08	0	139.96	63	95.03
70	193.49	0	177.65	0	511.84	520.3	247.01	70	210.93
77	258.77	0	302.37	445.9	690.21	607.2	388.77	77	416.32
84	337.07	432.9	426.64	598.5			606.2	84	475.71
91	515.12	572.1	534.92	672					

Table 6. Total dry weight (g m⁻²) of R07 from PD1 to PD5.

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5	
(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM
0	7.47	2	13.17	2	22.40	2	5.05	2	13.59
21	76.13	12	81.76	11	163.81	12	38.29	12	43.36
28	137.28	35	136.11	87	397.00	103	166.69	90	159.07
35	252.00	99	332.56	167	514.99	209	304.13	183	233.13
42	332.61	189	461.49	278	667.33	332	351.07	416	305.81
49	417.28	303	586.93	408	740.80	461	502.64	541	508.43
56	454.03	398	794.85	535	926.88	589	679.07	662	635.20
63	865.55	520	1017.22	667	1142.00	830	899.97	792	670.57
70	1089.92	653	1078.83	792	1271.92	944	934.64	890	844.35
77	1179.17	753	1116.00	915	1469.40	1024	1063.25	954	1058.83
84	1138.35	870	1294.77	1002				84	1055.01
91	1274.88	962	1206.11	997					

Table 9. Stem dry weight (g m⁻²) of NSPT from PD1 to PD5.

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5	
(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM
0	3.95	0	6.51	0	10.0533	0	3.83	0	7.32
21	41.81	1.92	48.61	1.44	79.2266	1.92	24.99	1.44	23.60
28	89.73	12	85.92	28.8	173.173	33.6	98.13	28.8	94.72
35	152.11	36.96	113.79	56.16	483.04	108.48	206.11	64.32	278.95
42	207.31	67.2	439.04	136.32	776.826	190.08	402.07	202.56	325.87
49	259.84	107.04	735.39	221.76	781.92	244.8	514.08	297.6	434.99
56	429.47	136.24	985.23	304.8	1023.49	313.92	673.41	416.16	474.77
63	465.49	180	1233.63	421.92	1125.41	508.32	712.85	556.8	453.71
70	510.67	228.96	1406.93	500.16	1261.17	636.96	774.39	384.48	438.53
77	902.88	264.48	1569.39	604.32	1225.25	781.92	775.89	252.96	449.19
91	1086.16	349.44	1634.05	729.12	1133.84	502.08	755.60	227.52	
105	1316.37	435.36	1636.11	861.12	1156.2	311.04	731.97	227.52	
119	1502.13	546.24	1798.80	1005.6					
133	1763.92	715.68	1563.44	559.2					
147	1826.40	968.16	1598.03	360.96					
154	1967.39	1103.04	1487.47	360.96					
161	1998.55	1232.16							
168	2007.52	437.28							
175	1912.19	437.28							
182	1830.91	437.28							

Table 10. Leaf dry weight (g m⁻²) of NSPT from PD1 to PD5.

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5	
(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM
0	3.79	1.92	5.43	1.92	6.9866	1.92	2.92	1.92	5.81
21	41.20	11.04	42.27	10.08	65.973	11.04	19.57	11.04	23.28
28	65.41	29.76	64.29	66.24	140.74	80.64	78.69	75.36	101.17
35	95.89	77.76	129.41	123.36	192.18	252.96	133.53	147.84	119.00
42	126.99	145.92	186.93	298.08	245.81	432.96	145.75	258.72	136.75
49	147.92	227.04	224.64	476.64	252.93	506.88	223.03	291.36	145.67
56	191.01	293.28	254.27	655.2	310.61	560.16	271.34	298.56	161.44
63	206.67	376.32	324.48	791.52	306	623.04	249.73	297.12	143.04
70	219.23	463.2	344.75	834.72	300.72	620.64	210.47	295.2	119.60
77	256.56	531.36	356.45	860.64	284.50	615.84	230.00	270.24	136.41
91	312.56	706.56	320.05	859.68	278.34	610.56	194.67	264.96	
105	365.89	877.92	296.56	852.96	286.4	564.96	243.48	168.96	
119	422.69	1023.8	392.61	846.72					
133	432.48	1104	371.20	830.4					
147	456.13	1101.1	291.95	790.08					
154	420.88	1093.9	295.52	785.28					
161	377.60	1086.7							
168	382.85	1031.0							
175	391.41	1025.7							
182	341.71	719.52							

Table 11. Panicle dry weight (g m⁻²) of NSPT from PD1 to PD5

PD1		PD2		PD3		PD4		PD5	
DAT	SIM	DAT	SIM	DAT	SIM	DAT	SIM	DAT	SIM
(days)	OBS	(days)	OBS	(days)	OBS	(days)	OBS	(days)	OBS
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
21	0.00	0	0.00	0	0.00	0	0.00	14	0.00
28	0.00	35	0.00	35	0.00	35	0.00	28	0.00
35	0.00	42	0.00	49	0.00	42	0.00	42	1.99
42	0.00	56	0.00	63	0.00	56	0.00	49	14.72
49	0.00	70	0.00	70	0.00	63	0.00	56	103.05
56	0.00	84	0.00	77	0.00	70	15.49	63	140.57
63	0.00	98	0.00	91	84.93	77	81.17	70	419.68 209.28
70	0.00	105	0.00	98	136.43	84	115.96 300.4	77	519.39 321.12
77	0.00	112	1.20	105	360.56 760.3	91	328.27 573.1	84	541.95 409.44
91	0.00	119	25.57	112	593.17 853.4	98	467.01 679.2		
105	0.00	126	112.52	126	678.93 936.9	105	618.08 756.9		
119	0.00	133	178.56						
133	0.00	140	362.69 591.3						
147	3.81	147	477.15 925.9						
154	35.71	154	552.88 1014.						
161	130.83								
168	294.75 982.0								
175	581.23 1098.								
182	621.25 1189.								

Table 12. Total dry weight (g m⁻²) of NSPT from PD1 to PD5.

PD1		PD2		PD3		PD4		PD5	
DAT	SIM	DAT	SIM	DAT	SIM	DAT	SIM	DAT	SIM
(days)	OBS	(days)	OBS	(days)	OBS	(days)	OBS	(days)	OBS
0	7.73	2	11.93	2	17.04	2	6.75	2	13.13
21	83.01	13	90.88	11	145.20	13	44.56	13	46.88
28	155.15	41	150.21	95	313.92	114	176.83	104	195.89
35	248.00	115	243.20	180	675.23	361	359.44	212	399.93
42	334.29	213	625.97	435	1022.64	623	547.24	461	477.33
49	407.76	334	960.03	698	1034.85	752	737.12	589	683.71
56	620.48	432	1239.49	960	1334.11	874	960.21	715	776.88
63	672.16	556	1558.11	1214	1516.35	1131	1043.68	854	1016.43
70	729.89	692	1751.68	1335	1698.32	1258	1100.72	980	1077.52
77	1159.44	796	1927.04	1465	1870.32	1398	1334.16	1096	1127.55
91	1398.72	1056	1979.68	1589	2005.36	1525	1417.23	1171	
105	1682.27	1313	2045.19	1714	2121.53	1730	1593.41	1153	
119	1924.83	1570	2369.97	1853					
133	2196.40	1820	2297.33	1981					
147	2286.35	2069	2367.12	2077					
154	2423.97	2197	2335.87	2160					
161	2506.97	2319							
168	2685.12	2451							
175	2884.83	2561							
182	2793.87	2346							

Table 17. Panicle dry weight ($g\ m^{-2}$) of KDNL105 from PD1 to PD5

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5	
(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM
0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
21	0.00	0	0.00	0	0.00	0	0.00	0	0.00
28	0.00	0	0.00	0	0.00	0	0.00	0	0.00
35	0.00	0	0.00	0	0.00	0	0.00	0	0.00
42	0.00	0	0.00	0	0.00	0	0.00	0	0.00
49	0.00	0	0.00	0	0.00	0	0.00	0	0.00
56	0.00	0	0.00	0	0.00	0	0.00	0	0.00
63	0.00	0	0.00	0	0.00	0	0.00	0	0.00
70	0.00	0	0.00	0	0.00	0	0.00	0	0.00
77	0.00	0	0.00	0	0.00	0	0.00	0	0.00
91	0.00	0	0.00	0	0.00	0	0.00	0	0.00
105	0.00	0	0.00	0	0.00	0	0.00	0	0.00
119	0.00	0	0.00	0	0.00	0	0.00	0	0.00
133	0.00	0	0.00	0	0.00	0	0.00	0	0.00
147	6.24	0	0.00	0	0.00	0	0.00	0	0.00
154	75.60	0	0.00	0	0.00	0	0.00	0	0.00
161	223.95	0	0.00	0	0.00	0	0.00	0	0.00
168	385.52	0	0.00	0	0.00	0	0.00	0	0.00
175	574.00	0	0.00	0	0.00	0	0.00	0	0.00
182	690.69	0	0.00	0	0.00	0	0.00	0	0.00

Table 18. Total dry weight ($g\ m^{-2}$) of KDNL105 from PD1 to PD5.

DAT PD1		DAT PD2		DAT PD3		DAT PD4		DAT PD5	
(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM	(days)OBS	SIM
0	7.92	2	11.76	2	11.89	2	3.88	2	13.15
21	41.09	13	73.01	11	138.91	13	48.69	13	42.61
28	121.31	41	152.03	95	365.44	114	161.89	104	179.28
35	178.80	115	319.23	180	637.39	361	373.84	212	384.08
42	234.59	213	656.61	435	802.75	623	522.41	461	524.19
49	332.03	334	1089.60	698	971.39	752	616.99	589	591.12
56	369.89	432	1285.01	960	1187.28	874	719.55	715	711.33
63	464.29	556	1724.05	1214	1249.84	1131	968.91	854	947.15
70	552.64	692	1832.88	1335	1423.60	1258	1055.79	980	1006.99
77	989.04	796	2012.67	1465	1680.40	1398	1269.81	1096	995.76
91	1282.19	1056	2242.21	1589	1987.63	1648	1448.00	1184	
105	1468.88	1313	2274.13	1714	1739.83	1512	1688.21	1166	
119	1565.23	1570	2457.81	1853					
133	1827.07	1820	2625.44	1981					
147	1885.01	2069	2678.69	2093					
154	2147.55	2197	2636.09	2176					
161	2477.73	2319							
168	2728.83	2456							
175	2752.64	2505							
182	2622.51	2290							

Table 19. Observed grain yield and yield components of RD7, NSPT,

Planting dates	Variety	Grain yield t/m ²	Spike- /m ² grain	%Filled	Panicle /m ²	1000- grain	HI	Shoot d matter
PD1	NSPT	4230	21950	76.31	121	28.22	1.686	17.95
	KDML105	4550	2685	76.04	144.7	27.48	1.986	15.77
	RD7	3693	2707	61.27	237	29.72	3.134	7.06
PD2	NSPT	4607	2521	78.15	127	28.15	1.9	16.89
	KDML105	5495	2700	89.74	167.7	27.56	2.047	18.43
	RD7	3954	2753	65.93	266.3	27.21	3.207	7.15
PD3	NSPT	4943	2643	84.61	132.3	27.85	2.411	13.61
	KDML105	5678	2491	88.81	162.7	27.17	3.188	10.55
	RD7	5582	2903	84.88	212	27.93	4.078	6.98
PD4	NSPT	5348	2712	94.64	153.3	29.04	3.036	10.57
	KDML105	5078	2470	89.07	193.3	27.06	3.248	9.53
	RD7	6022	3179	78.17	283	27.72	4.5	6.32
PD5	NSPT	5014	2102	83	141.7	28.83	4.37	5.54
	KDML105	4513	2252	85.32	183.7	26.23	4.1	5.54
	RD7	3565	2289	78.09	189.3	27.79	2.55	5.55
LSD		0.05726.1	2570.7	28.71	29.69	0.76	0.07	2.341
LSD0.01		990.3	3509.0	39.16	40.49	1.03	0.1	3.194
CV(a)		9.12	5.63	6.87	8.18	1.13	11.17	7.49
CV(b)		8.849	5.87	5.61	9.79	1.6	14.01	13.09

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