

Appendix B

The results of crop yield and productivity analysis

Appendix Table B1 Gross irrigation water requirement at different deficit condition

Unit: mcm/ha

Crops	Rainfall Prob. exceedence	No deficit	10%deficit	20%deficit	30%deficit	50%deficit
Paddy	20%	0.00959	0.00883	0.00807	0.00732	0.058
	50%	0.01079	0.00991	0.00903	0.00851	0.00639
	80%	0.01112	0.01021	0.0093	0.00839	0.00656
Maize	20%	0.00745	0.00673	0.00601	0.00529	0.00385
	50%	0.00807	0.00729	0.0065	0.00527	0.00416
	80%	0.00816	0.00737	0.00658	0.00579	0.00421
Soybean	20%	0.00639	0.00577	0.00516	0.00455	0.00332
	50%	0.007	0.00633	0.00565	0.00498	0.00363
	80%	0.0071	0.00641	0.00573	0.00504	0.00367
Peanut	20%	0.00591	0.00535	0.00478	0.00421	0.00308
	50%	0.00653	0.0059	0.00527	0.00465	0.00339
	80%	0.00662	0.00599	0.00535	0.00471	0.00344
Sesame	20%	0.0057	0.00515	0.00461	0.00406	0.00279
	50%	0.00631	0.00571	0.0051	0.00449	0.00328
	80%	0.00641	0.00579	0.00518	0.00456	0.00333
Vegetable	20%	0.00431	0.00391	0.0035	0.00309	0.00228
	50%	0.00431	0.00391	0.0035	0.00309	0.00228
	80%	0.00431	0.00391	0.0035	0.00309	0.00228
Mungbean	20%	0.00361	0.00327	0.00294	0.0026	0.00193
	50%	0.00385	0.00349	0.00313	0.00277	0.00205
	80%	0.00388	0.00352	0.00316	0.00279	0.00207

Appendix Table B2 Relative yield and income of paddy at different irrigation application

% of deficit supply	Rainfall prob.	Eta/Etp	Ky	Yp per ha kg/ha	Ya per ha kg/ha	Production cost/ha (baht)	Investment cost/ha (baht)	Income per ha (baht)	Income per ha (USD)
No	20%	1.000	1.13	5,187.5	5,187.5	20,750.0	9,382.0	11,368	299
	50%	1.000	1.13	5,187.5	5,187.5	20,750.0	9,382.0	11,368	299
	80%	1.000	1.13	5,187.5	5,187.5	20,750.0	9,382.0	11,368	299
10	20%	0.903	1.13	5,187.5	4,618.9	18,475.6	9,382.0	9,094	239
	50%	0.888	1.13	5,187.5	4,531.0	18,123.9	9,382.0	8,742	230
	80%	0.883	1.13	5,187.5	4,510.7	18,042.6	9,382.0	8,661	228
20	20%	0.806	1.13	5,187.5	4,050.3	16,201.2	9,382.0	6,819	179
	50%	0.775	1.13	5,187.5	3,868.6	15,474.3	9,382.0	6,092	160
	80%	0.767	1.13	5,187.5	3,821.7	15,286.7	9,382.0	5,905	155
30	20%	0.709	1.13	5,187.5	3,481.7	13,926.8	9,382.0	4,545	120
	50%	0.663	1.13	5,187.5	3,212.1	12,848.2	9,382.0	3,466	91
	80%	0.650	1.13	5,187.5	3,135.8	12,543.4	9,382.0	3,161	83
50	20%	0.516	1.13	5,187.5	2,350.4	9,401.4	9,382.0	19	1
	50%	0.438	1.13	5,187.5	1,893.1	7,572.5	9,382.0	-1,809	-48
	80%	0.417	1.13	5,187.5	1,770.0	7,080.1	9,382.0	-2,302	-61

Appendix Table B3 Relative yield and income of Maize at different irrigation application

% of deficit supply	Rainfall prob.	Eta/Etp	Ky	Yp per ha kg/ha	Ya per ha kg/ha	Production cost/ha (baht)	Investment cost/ha (baht)	Income per ha (baht)	Income per ha (USD)
No	20%	1.000	1.25	3,400.0	3,400.0	11,900.0	7,850.0	4,050	107
	50%	1.000	1.25	3,400.0	3,400.0	11,900.0	7,850.0	4,050	107
	80%	1.000	1.25	3,400.0	3,400.0	11,900.0	7,850.0	4,050	107
10	20%	0.909	1.25	3,400.0	3,013.3	10,546.4	7,850.0	2,696	71
	50%	0.901	1.25	3,400.0	2,979.3	10,427.4	7,850.0	2,577	68
	80%	0.900	1.25	3,400.0	2,975.0	10,412.5	7,850.0	2,563	67
20	20%	0.818	1.25	3,400.0	2,626.5	9,192.8	7,850.0	1,343	35
	50%	0.802	1.25	3,400.0	2,558.5	8,954.8	7,850.0	1,105	29
	80%	0.800	1.25	3,400.0	2,550.0	8,925.0	7,850.0	1,075	28
30	20%	0.727	1.25	3,400.0	2,239.8	7,839.1	7,850.0	-11	0
	50%	0.704	1.25	3,400.0	2,142.0	7,497.0	7,850.0	-353	-9
	80%	0.700	1.25	3,400.0	2,125.0	7,437.0	7,850.0	-413	-11
50	20%	0.545	1.25	3,400.0	1,466.3	5,131.9	7,850.0	-2,718	-72
	50%	0.506	1.25	3,400.0	1,300.5	4,551.8	7,850.0	-3,298	-87
	80%	0.500	1.25	3,400.0	1,275.0	4,462.5	7,850.0	-3,388	-89

Appendix Table B4 Relative yield and income of Soybean at different irrigation application

% of deficit supply	Rainfall prob.	Eta/Etp	Ky	Yp per ha kg/ha	Ya per ha kg/ha	Production cost/ha (baht)	Investment cost/ha (baht)	Income per ha (baht)	Income per ha (USD)
No	20%	1.000	0.85	1,546.9	1,546.9	12,375.2	6,122.0	6,253	165
	50%	1.000	0.85	1,546.9	1,546.9	12,375.2	6,122.0	6,253	165
	80%	1.000	0.85	1,546.9	1,546.9	12,375.2	6,122.0	6,253	165
10	20%	0.910	0.85	1,546.9	1,428.5	11,428.0	6,122.0	5,306	140
	50%	0.901	0.85	1,546.9	1,416.7	11,333.6	6,122.0	5,212	137
	80%	0.900	0.85	1,546.9	1,415.4	11,323.2	6,122.0	5,201	137
20	20%	0.821	0.85	1,546.9	1,311.5	10,492.2	6,122.0	4,370	115
	50%	0.803	0.85	1,546.9	1,287.9	10,303.2	6,122.0	4,181	110
	80%	0.800	0.85	1,546.9	1,283.9	10,271.2	6,122.0	4,149	109
30	20%	0.731	0.85	1,546.9	1,193.2	9,545.6	6,122.0	3,424	90
	50%	0.704	0.85	1,546.9	1,157.7	9,261.6	6,122.0	3,140	83
	80%	0.700	0.85	1,546.9	1,152.4	9,219.2	6,122.0	3,097	82
50	20%	0.545	0.85	1,546.9	957.8	7,662.4	6,122.0	1,540	41
	50%	0.506	0.85	1,546.9	898.7	7,189.6	6,122.0	1,068	28
	80%	0.500	0.85	1,546.9	889.5	7,116.0	6,122.0	994	26

Appendix Table B5 Relative yield and income of Peanut at different irrigation application

% of deficit supply	Rainfall prob.	Eta/Etp	Ky	Yp per ha kg/ha	Ya per ha kg/ha	Production cost/ha (baht)	Investment cost/ha (baht)	Income per ha (baht)	Income per ha (USD)
No	20%	1.000	1.15	1,531.3	1,531.3	18,375.0	8,668.8	9,706	255
	50%	1.000	1.15	1,531.3	1,531.3	18,375.0	8,668.8	9,706	255
	80%	1.000	1.15	1,531.3	1,531.3	18,375.0	8,668.8	9,706	255
10	20%	0.911	1.15	1,531.3	1,374.5	16,494.4	8,668.8	7,826	206
	50%	0.902	1.15	1,531.3	1,358.7	16,304.2	8,668.8	7,635	201
	80%	0.900	1.15	1,531.3	1,355.2	16,261.9	8,668.8	7,593	200
20	20%	0.822	1.15	1,531.3	1,217.8	14,613.6	8,668.8	5,945	156
	50%	0.803	1.15	1,531.3	1,184.4	14,212.2	8,668.8	5,543	146
	80%	0.800	1.15	1,531.3	1,179.1	14,148.7	8,668.8	5,480	144
30	20%	0.734	1.15	1,531.3	1,062.8	12,754.1	8,668.8	4,085	108
	50%	0.705	1.15	1,531.3	1,011.8	12,141.2	8,668.8	3,472	91
	80%	0.700	1.15	1,531.3	1,003.0	12,035.6	8,668.8	3,367	89
50	20%	0.556	1.15	1,531.3	749.4	8,992.7	8,668.8	324	9
	50%	0.508	1.15	1,531.3	664.9	7,978.4	8,668.8	-690	-18
	80%	0.500	1.15	1,531.3	650.8	7,809.4	8,668.8	-859	-23

Appendix Table B6 Relative yield and income of Sesame at different irrigation application

% of deficit supply	Rainfall prob.	Eta/Etp	Ky	Yp per ha kg/ha	Ya per ha kg/ha	Production cost/ha (baht)	Investment cost/ha (baht)	Income per ha (baht)	Income per ha (USD)
No	20%	1.000	0.9	421.9	421.9	6,961.4	6,203.0	758	20
	50%	1.000	0.9	421.9	421.9	6,961.4	6,203.0	758	20
	80%	1.000	0.9	421.9	421.9	6,961.4	6,203.0	758	20
10	20%	0.911	0.9	421.9	388.5	6,410.3	6,203.0	207	5
	50%	0.902	0.9	421.9	384.7	6,347.6	6,203.0	145	4
	80%	0.900	0.9	421.9	383.9	6,334.4	6,203.0	131	3
20	20%	0.822	0.9	421.9	354.7	5,852.6	6,203.0	-350	-9
	50%	0.803	0.9	421.9	347.1	5,727.2	6,203.0	-476	-13
	80%	0.800	0.9	421.9	345.9	5,707.4	6,203.0	-496	-13
30	20%	0.734	0.9	421.9	321.3	5,301.5	6,203.0	-902	-24
	50%	0.705	0.9	421.9	309.9	5,113.4	6,203.0	-1,090	-29
	80%	0.700	0.9	421.9	308.0	5,082.0	6,203.0	-1,121	-30
50	20%	0.556	0.9	421.9	254.1	4,192.7	6,203.0	-2,010	-53
	50%	0.508	0.9	421.9	235.1	3,879.2	6,203.0	-2,324	-61
	80%	0.500	0.9	421.9	232.0	3,828.0	6,203.0	-2,375	-63

Appendix Table B7 Relative yield and income of Vegetable at different irrigation application

% of deficit supply	Rainfall prob.	Eta/Etp	Ky	Yp per ha kg/ha	Ya per ha kg/ha	Production cost/ha (baht)	Investment cost/ha (baht)	Income per ha (baht)	Income per ha (USD)
No	20%	1.000	1.1	10,000.0	10,000.0	12,264.0	5,869.0	6,395	168
	50%	1.000	1.1	10,000.0	10,000.0	12,264.0	5,869.0	6,395	168
	80%	1.000	1.1	10,000.0	10,000.0	12,264.0	5,869.0	6,395	168
10	20%	0.900	1.1	10,000.0	8,900.0	10,915.0	5,869.0	5,046	133
	50%	0.900	1.1	10,000.0	8,900.0	10,915.0	5,869.0	5,046	133
	80%	0.900	1.1	10,000.0	8,900.0	10,915.0	5,869.0	5,046	133
20	20%	0.800	1.1	10,000.0	7,800.0	9,565.9	5,869.0	3,697	97
	50%	0.800	1.1	10,000.0	7,800.0	9,565.9	5,869.0	3,697	97
	80%	0.800	1.1	10,000.0	7,800.0	9,565.9	5,869.0	3,697	97
30	20%	0.700	1.1	10,000.0	6,700.0	8,216.9	5,869.0	2,348	62
	50%	0.700	1.1	10,000.0	6,700.0	8,216.9	5,869.0	2,348	62
	80%	0.700	1.1	10,000.0	6,700.0	8,216.9	5,869.0	2,348	62
50	20%	0.500	1.1	10,000.0	4,500.0	5,518.8	5,869.0	-350	-9
	50%	0.500	1.1	10,000.0	4,500.0	5,518.8	5,869.0	-350	-9
	80%	0.500	1.1	10,000.0	4,500.0	5,518.8	5,869.0	-350	-9

Appendix Table B8 Relative yield and income of Mungbean at different irrigation application

% of deficit supply	Rainfall prob.	Eta/Etp	Ky	Yp per ha kg/ha	Ya per ha kg/ha	Production cost/ha (baht)	Investment cost/ha (baht)	Income per ha (baht)	Income per ha (USD)
No	20%	1.000	1.15	1,137.5	1,137.5	10,237.5	7,262.5	2,975	78
	50%	1.000	1.15	1,137.5	1,137.5	10,237.5	7,262.5	2,975	78
	80%	1.000	1.15	1,137.5	1,137.5	10,237.5	7,262.5	2,975	78
10	20%	0.907	1.15	1,137.5	1,015.8	9,142.6	7,262.5	1,880	49
	50%	0.901	1.15	1,137.5	1,008.0	9,072.0	7,262.5	1,810	48
	80%	0.900	1.15	1,137.5	1,006.7	9,060.2	7,262.5	1,798	47
20	20%	0.815	1.15	1,137.5	895.5	8,059.5	7,262.5	797	21
	50%	0.802	1.15	1,137.5	878.5	7,906.4	7,262.5	644	17
	80%	0.800	1.15	1,137.5	875.9	7,882.9	7,262.5	620	16
30	20%	0.722	1.15	1,137.5	773.8	6,964.6	7,262.5	-298	-8
	50%	0.703	1.15	1,137.5	749.0	6,740.9	7,262.5	-522	-14
	80%	0.700	1.15	1,137.5	745.1	6,705.5	7,262.5	-557	-15
50	20%	0.537	1.15	1,137.5	531.8	4,786.6	7,262.5	-2,476	-65
	50%	0.504	1.15	1,137.5	488.7	4,398.0	7,262.5	-2,864	-75
	80%	0.500	1.15	1,137.5	483.4	4,351.0	7,262.5	-2,912	-77

Appendix Table B9 Comparison of crop area and income for 1 mcm. irrigation
water in wet year

Deficit irrigation level	Paddy				Maize			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	104.25	47409.30	0.00	0.00	134.23	21744.97	0.00	0.00
10%	113.21	41183.06	7.91	13.13	148.69	16026.75	9.72	26.30
20%	123.85	33787.47	15.83	28.73	166.39	8936.77	19.33	58.90
30%	136.71	24855.78	23.74	47.57	189.04	-83.18	28.99	100.38
Deficit irrigation level	Peanut				Sesame			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	169.18	63092.54	0.00	0.00	175.56	5321.28	0.00	0.00
10%	187.09	55992.52	9.57	11.25	194.10	1603.26	9.55	69.87
20%	209.25	47210.71	19.15	25.17	217.06	-3047.54	19.12	157.27
30%	237.36	36266.32	28.72	42.52	246.18	-8884.79	28.69	266.97
Deficit irrigation level	Vegetable				Mungbean			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	231.91	59322.82	0.00	0.00	277.01	32963.99	0.00	0.00
10%	256.02	51674.35	9.42	12.89	305.44	22968.85	9.31	30.32
20%	285.71	42251.43	18.83	28.78	340.37	10850.92	18.62	67.08
30%	323.31	30365.34	28.27	48.81	384.32	-4581.09	27.92	113.90
Deficit irrigation level	Soybean							
	Area (ha)	Income (USD)	% area increase	% Income declined				
0%	156.57	39162.36	0.00	0.00				
10%	173.22	36767.71	9.61	6.11				
20%	193.84	33884.47	19.23	13.48				

Appendix Table B10 Comparison of crop area and income for 1 mcm. irrigation water in normal year

Deficit irrigation level	Paddy				Maize			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	92.72	42165.04	0.00	0.00	123.95	20079.33	0.00	0.00
10%	100.94	35299.28	8.14	16.28	137.25	14150.43	9.69	29.53
20%	110.77	26996.01	16.30	35.98	153.75	6794.28	19.38	66.16
30%	122.70	17015.95	24.43	59.64	174.73	-2467.24	29.06	112.29
Deficit irrigation level	Peanut				Sesame			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	153.16	57120.54	0.00	0.00	158.38	4800.44	0.00	0.00
10%	169.46	49454.33	9.62	13.42	175.19	1007.36	9.60	79.02
20%	189.65	39804.67	19.24	30.31	196.04	-3734.56	19.21	177.80
30%	215.29	27724.43	28.86	51.46	222.47	-9701.89	28.81	302.10
Deficit irrigation level	Vegetable				Mungbean			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	231.91	59322.82	0.00	0.00	259.67	30901.06	0.00	0.00
10%	256.02	51674.35	9.42	12.89	286.45	20733.31	9.35	32.90
20%	285.71	42251.43	18.83	28.78	319.39	8227.40	18.70	73.38
30%	323.31	30365.34	28.27	48.81	361.01	-7530.69	28.07	124.37
Deficit irrigation level	Soybean							
	Area (ha)	Income (USD)	% area increase	% Income declined				
0%	142.76	35707.35	0.00	0.00				
10%	158.00	32938.85	9.65	7.75				
20%	176.87	29579.06	19.29	17.16				
30%	200.88	25227.00	28.93	29.35				

Appendix Table B11 Comparison of crop area and income for 1 mcm. irrigation water in dry year

Deficit irrigation level	Paddy				Maize			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	89.92	40891.11	0.00	0.00	122.52	19848.08	0.00	0.00
10%	97.95	33795.67	8.20	17.35	135.67	13905.85	9.69	29.94
20%	107.56	25408.20	16.40	37.86	152.00	6535.95	19.39	67.07
30%	119.26	15085.27	24.60	63.11	172.77	-2850.73	29.08	114.36
Deficit irrigation level	Peanut				Sesame			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	150.99	56309.83	0.00	0.00	156.05	4730.02	0.00	0.00
10%	167.06	48474.77	9.62	13.91	172.65	906.42	9.61	80.84
20%	186.95	38775.47	19.24	31.14	193.20	-3827.28	19.23	180.91
30%	212.27	26459.35	28.87	53.01	219.25	-9837.75	28.83	307.99
Deficit irrigation level	Vegetable				Mungbean			
	Area (ha)	Income (USD)	% area increase	% Income declined	Area (ha)	Income (USD)	% area increase	% Income declined
0%	231.91	59322.82	0.00	0.00	257.67	30662.20	0.00	0.00
10%	256.02	51674.35	9.42	12.89	284.25	20440.59	9.35	33.34
20%	285.71	42251.43	18.83	28.78	316.96	78668.88	18.71	-156.57
30%	323.31	30365.34	28.27	48.81	358.17	-7979.94	28.06	126.03
Deficit irrigation level	Soybean							
	Area (ha)	Income (USD)	% area increase	% Income declined				
0%	140.86	35234.54	0.00	0.00				
10%	155.91	32436.86	9.65	7.94				
20%	74.55	28971.90	-88.95	17.77				
30%	198.26	24563.84	28.95	30.28				

Appendix Table B12 Weekly crop coefficient of different crops by Penman-Monteith Method

Week	Paddy	Maize	Soybean	Sesame	Peanut	Vegetable	Mungbean
1							
2		0.63	0.64	0.59	0.8	1.03	0.58
3	1.03	0.72	0.69	0.70	0.69	1.09	0.87
4	1.07	0.86	0.81	0.85	0.80	1.14	1.18
5	1.12	1.13	1.01	1.11	0.88	1.17	1.40
6	1.29	1.35	1.23	1.23	0.95	1.18	1.28
7	1.38	1.52	1.32	1.28	1.00	1.16	1.19
8	1.44	1.61	1.35	1.24	1.03	1.14	0.66
9	1.50	1.63	1.34	1.21	1.03		0.44
10	1.48	1.58	1.27	1.13	1.01		0.34
11	1.42	1.50	1.09	0.98	0.97		
12	1.34	1.38	0.85	0.71	0.89		
13	1.23	1.25	0.74	0.55	0.76		
14	0.94	0.90	0.74				
15	0.86	0.67	0.72				

Source: Office of Hydrology and Water Management, RID.

Appendix Table B13 Weight of rainfall for estimation of effective rainfall

Crop	Month	Effective Rainfall
Paddy	December to February	0
	March to April	90
	May to September	85
	October	70
	November	85
Upland Crop	December to February	0
	March to April	85
	May to September	80
	October	65
	November	80

Source: Sahoo (1998) refer to SEATEC (1981)

Appendix Table B14 Gross irrigation water requirement of paddy in wet year

Week	1st week 1,600ha	2nd week 2,240ha	3rd week 2,080ha	4th week 2,080ha	5th week 1,600ha	Total 9,600ha
	5.290					5.290
1		7.406				7.406
2	1.231		6.877			8.108
3	1.255	1.756		6.877		9.888
4	1.356	1.891	1.763		5.290	10.300
5	1.586	1.955	1.815	1.815		7.171
6	1.725	2.415	1.970	1.970	1.515	9.595
7	1.807	2.529	2.349	2.060	1.585	10.330
8	1.957	2.572	2.388	2.388	1.611	10.916
9	1.467	1.957	1.657	1.657	1.274	8.012
10	2.011	2.773	2.475	2.297	1.767	11.323
11	2.086	2.920	2.669	2.563	1.825	12.063
12	2.126	2.976	2.763	2.721	2.011	12.597
13	1.904	2.853	2.650	2.650	2.005	12.062
14		2.045	2.079	2.079	1.599	7.802
15			2.067	2.239	1.722	6.028
16				1.685	1.430	3.115
17					0.248	0.248

Remark: Start plant 1st January 2004

Appendix Table B15 Gross irrigation water requirement of paddy in normal year

Week	1st week 1,600ha	2nd week 2,240ha	3rd week 2,080ha	4th week 2,080ha	5th week 1,600ha	Total 9,600ha
	5.290					5.290
1		7.406				7.406
2	1.231		6.877			8.108
3	1.255	1.756		6.877		9.888
4	1.356	1.898	1.763		5.290	10.307
5	1.586	1.955	1.815	1.815		7.171
6	1.725	2.415	1.970	1.970	1.515	9.595
7	1.807	2.529	2.349	2.060	1.585	10.330
8	1.957	2.572	2.388	2.388	1.611	10.916
9	2.007	2.714	2.359	2.359	1.815	11.254
10	2.254	3.113	2.791	2.612	2.009	12.779
11	2.413	3.378	3.095	2.989	2.152	14.027
12	2.400	3.361	3.120	3.078	2.285	14.244
13	2.308	3.420	3.175	3.175	2.409	14.487
14		2.963	2.931	2.931	2.255	11.080
15			2.737	2.910	2.238	7.885
16				2.624	2.153	4.777
17					1.649	1.649

Remark: Start plant 1st January 2004

Appendix Table B16 Gross irrigation water requirement of paddy in dry year

Week	1st week 1,600ha	2nd week 2,240ha	3rd week 2,080ha	4th week 2,080ha	5th week 1,600ha	Total 9,600ha
	5.290					5.290
1		7.406				7.406
2	1.231		6.877			8.108
3	1.255	1.756		6.877		9.888
4	1.356	1.898	1.763		5.290	10.307
5	1.586	1.955	1.815	1.815		7.171
6	1.725	2.415	1.970	1.970	1.515	9.595
7	1.807	2.529	2.349	2.060	1.585	10.330
8	1.957	2.572	2.388	2.388	1.611	10.916
9	2.075	2.809	2.448	2.448	1.883	11.663
10	2.306	3.185	2.858	2.680	2.061	13.090
11	2.444	3.421	3.135	3.029	2.183	14.212
12	2.459	3.443	3.197	3.155	2.344	14.598
13	2.373	3.511	3.260	3.260	2.474	14.878
14		3.417	0.353	3.353	2.579	9.702
15			3.055	3.228	2.483	8.766
16				2.991	2.434	5.425
17					2.173	2.173

Remark: Start plant 1st January 2004

Appendix Table B25 Dry season cropping in five phases for paddy in normal year
(4th week)

Week	ET _o mm/day	K _c	ET _{crop} mm/day	P mm/day	50% ER mm/day	ET _c +P-ER mm/day	Water duty (ET _c +P-ER)/8640 cms/ha	Water duty IE=63.28% cms/ha	Water duty for 2080ha cms/ha
	2.940								
1	3.200								
2	3.240								
3	3.320								
4	3.670								
5	3.810	0.990	3.772	1.000	0.000	4.772	0.000552	0.000873	1.815409
6	4.220	0.990	4.178	1.000	0.000	5.178	0.000599	0.000947	1.969828
7	4.460	0.990	4.415	1.000	0.000	5.415	0.000627	0.000990	2.060220
8	4.550	1.160	5.278	1.000	0.000	6.278	0.000727	0.001148	2.388386
9	4.690	1.160	5.440	1.000	0.239	6.201	0.000718	0.001134	2.359244
10	5.220	1.160	6.055	1.000	0.189	6.866	0.000795	0.001256	2.612159
11	5.570	1.250	6.963	1.000	0.107	7.856	0.000909	0.001437	2.988525
12	5.620	1.300	7.306	1.000	0.216	8.090	0.000936	0.001480	3.077738
13	5.740	1.320	7.577	1.000	0.230	8.347	0.000966	0.001527	3.175434
14	5.920	1.320	7.814	1.000	1.110	7.704	0.000892	0.001409	2.931041
15	5.670	1.320	7.484	1.000	0.836	7.648	0.000885	0.001399	2.909737
16	5.720	1.240	7.093	1.000	1.194	6.899	0.000798	0.001262	2.624561
17	5.500								

Appendix Table B26 Dry season cropping in five phases for paddy in normal year
(5th week)

Week	ET _o mm/day	K _c	ET _{crop} mm/day	P mm/day	50% ER mm/day	ET _c +P-ER mm/day	Water duty (ET _c +P-ER)/8640 cms/ha	Water duty IE=63.28% cms/ha	Water duty for 1600ha cms/ha
	2.940								
1	3.200								
2	3.240								
3	3.320								
4	3.670								
5	3.810								
6	4.220	0.990	4.178	1.000	0.000	5.178	0.000599	0.000947	1.515253
7	4.460	0.990	4.415	1.000	0.000	5.415	0.000627	0.000990	1.584785
8	4.550	0.990	4.505	1.000	0.000	5.505	0.000637	0.001007	1.610859
9	4.690	1.160	5.440	1.000	0.239	6.201	0.000718	0.001134	1.814803
10	5.220	1.160	6.055	1.000	0.189	6.866	0.000795	0.001256	2.009353
11	5.570	1.160	6.461	1.000	0.107	7.354	0.000851	0.001345	2.152163
12	5.620	1.250	7.025	1.000	0.216	7.809	0.000904	0.001428	2.285258
13	5.740	1.300	7.462	1.000	0.230	8.232	0.000953	0.001506	2.409046
14	5.920	1.320	7.814	1.000	1.110	7.704	0.000892	0.001409	2.254647
15	5.670	1.320	7.484	1.000	0.836	7.648	0.000885	0.001399	2.238259
16	5.720	1.320	7.550	1.000	1.194	7.356	0.000851	0.001346	2.152807
17	5.500	1.240	6.820	1.000	2.186	5.634	0.000652	0.001030	1.648757

Appendix Table B31 Dry season cropping in five phases for paddy in dry year
(5th week)

Week	ET _o mm/day	K _c	ET _{crop} mm/day	P mm/day	80% ER mm/day	ET _c +P-ER mm/day	Water duty (ET _c +P-ER)/8640 cms/ha	Water duty IE=63.28% cms/ha	Water duty for 1600ha cms/ha
	2.940								
1	3.200								
2	3.240								
3	3.320								
4	3.670								
5	3.810								
6	4.220	0.990	4.178	1.000	0.000	5.178	0.000599	0.000947	1.515253
7	4.460	0.990	4.415	1.000	0.000	5.415	0.000627	0.000990	1.584785
8	4.550	0.990	4.505	1.000	0.000	5.505	0.000637	0.001007	1.610859
9	4.690	1.160	5.440	1.000	0.005	6.435	0.000745	0.001177	1.883282
10	5.220	1.160	6.055	1.000	0.012	7.043	0.000815	0.001288	2.061151
11	5.570	1.160	6.461	1.000	0.001	7.460	0.000863	0.001364	2.183183
12	5.620	1.250	7.025	1.000	0.014	8.011	0.000927	0.001465	2.344372
13	5.740	1.300	7.462	1.000	0.008	8.454	0.000978	0.001546	2.474013
14	5.920	1.320	7.814	1.000	0.000	8.814	0.001020	0.001612	2.579482
15	5.670	1.320	7.484	1.000	0.000	8.484	0.000982	0.001552	2.482910
16	5.720	1.320	7.550	1.000	0.231	8.319	0.000963	0.001522	2.434623
17	5.500	1.240	6.820	1.000	0.393	7.427	0.000860	0.001358	2.173468

Table B32 Weekly different percentage of rainfall probability exceedence of fitted distribution

Ex.Prob	Week																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
20%	0.95	0.02	1.04	1.36	0.16	2.21	0.58	6.84	5.58	16.22	7.92	9.53	8.98	12.54	26.06	20.21	28.50	57.42	61.28	66.71	87.51	71.49	77.27	64.44	62.60	67.42
30%	0.22	0.00	0.27	0.47	0.02	0.62	0.23	3.33	2.59	8.27	4.62	4.51	5.25	6.78	18.68	14.40	19.56	38.96	46.53	54.42	66.40	60.89	65.80	50.05	50.25	57.20
40%	0.04	0.00	0.06	0.14	0.00	0.15	0.10	1.57	1.15	4.09	2.67	2.04	3.05	3.60	13.16	10.06	13.60	26.76	35.53	44.62	51.28	50.20	56.51	39.55	40.84	48.46
50%	0.04	0.00	0.01	0.04	0.00	0.03	0.04	0.67	0.46	1.86	1.47	0.83	1.68	1.79	8.63	6.50	9.29	18.00	26.52	36.04	39.43	39.65	47.74	31.20	32.94	40.30
60%	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.24	0.15	0.73	0.73	0.28	0.84	0.78	4.66	3.40	6.05	11.53	18.69	28.00	29.62	29.49	39.89	24.13	25.88	32.13
70%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.04	0.22	0.31	0.07	0.35	0.27	1.00	0.55	3.61	6.72	11.51	19.97	21.19	19.99	31.90	17.90	19.22	23.40
80%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.04	0.09	0.01	0.11	0.06	0.00	0.00	1.80	3.24	4.60	11.33	13.71	11.42	23.07	12.19	12.52	13.18
90%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.57	0.97	0.00	0.61	6.86	4.28	11.77	6.67	5.01	0.00
Mean	1.49	1.44	1.45	1.38	0.54	2.83	2.79	4.93	4.19	11.28	5.04	7.05	5.70	8.34	12.98	9.98	17.29	34.83	35.44	40.23	54.83	41.21	51.02	41.06	39.38	10.30
Stdv	4.84	8.06	4.54	3.75	2.13	8.56	10.66	10.45	9.28	22.87	8.67	15.38	9.78	15.80	18.73	14.73	21.99	45.52	37.35	33.73	52.20	29.09	32.46	35.91	31.93	32.22
Skew	4.22	5.98	3.66	2.92	5.15	3.39	5.30	2.62	2.62	2.05	2.04	3.51	1.75	2.11	1.45	1.47	1.60	1.80	1.49	0.75	1.46	0.24	0.56	0.80	1.24	0.55

Table B33 Average weekly effective rainfall(mm/day) at different probability exceedence for paddy

Ex.Prob	Week																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
20%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.09	1.02	1.23	1.15	1.61	3.35	2.60	3.66	6.97	7.44	8.10	10.63	8.68	9.38	7.82	7.60	8.19
30%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.06	0.59	0.58	0.68	0.87	2.40	1.85	2.51	4.73	5.65	6.61	8.06	7.39	7.99	6.08	6.10	6.95
40%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.34	0.26	0.39	0.46	1.69	1.29	1.75	3.25	4.31	5.42	6.23	6.10	6.86	4.80	4.96	5.88
50%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.19	0.11	0.22	0.23	1.11	0.84	1.19	2.19	3.22	4.38	4.79	4.81	5.80	3.79	4.00	4.89
60%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.04	0.11	0.10	0.60	0.44	0.78	1.40	2.27	3.40	3.60	3.58	4.84	2.93	3.14	3.90
70%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.01	0.05	0.03	0.13	0.07	0.46	0.42	1.40	2.42	2.57	2.43	3.87	2.17	2.33	2.84
80%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	0.00	0.23	0.39	0.56	1.38	1.66	1.39	2.80	1.48	1.52	1.60
90%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.12	0.00	0.07	0.83	0.52	1.53	0.81	0.61	0.00

Table B34 Average weekly effective rainfall(mm/day) at different probability exceedence for non-paddy

Ex.Prob	Week																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
20%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97	0.96	1.16	1.09	1.52	3.16	2.45	3.46	6.56	7.00	7.62	10.00	8.17	8.83	7.36	7.15	7.71
30%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.56	0.55	0.64	0.82	2.27	1.75	2.38	4.45	5.32	6.22	7.59	6.96	7.52	5.27	5.74	6.54
40%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.32	0.25	0.37	0.44	1.60	1.22	1.65	3.06	4.06	5.10	5.86	5.74	6.46	4.52	4.67	5.54
50%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.18	0.10	0.20	0.22	1.05	0.79	1.13	2.06	3.03	4.12	4.51	4.53	5.46	3.57	3.76	4.61
60%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.09	0.03	0.10	0.09	0.57	0.41	0.73	1.32	2.14	3.20	3.39	3.37	4.56	2.76	2.96	3.67
70%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.04	0.01	0.04	0.03	0.12	0.07	0.44	0.77	1.32	2.28	2.42	2.28	3.65	2.05	2.20	2.67
80%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.01	0.00	0.00	0.22	0.37	0.53	1.29	1.57	1.31	2.64	1.39	1.43	1.51
90%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.11	0.00	0.07	0.78	0.49	1.35	0.76	0.57	0.00