

Table A1 Parameters used for the Expert-N water sub-model for each management zone

	Depth (cm)	Palm circle	Inter-row	FronD- stacked area
Interception				
Saturation capacity (mm d ⁻¹)		8.4	4.7	4.7
Throughfall (%)		50	10	10
Plant water uptake				
Plant height (cm)		874	874	874
Leaf area index		3.64	1.8	0.75
Leaf number		40	40	40
Aboveground biomass (kg ha ⁻¹)		47400	47400	47400
Maximum rooting depth (cm)		100	50	50
Root biomass (kg ha ⁻¹)		15600	15600	15600
Root partition (%)	0–10	29	29	29
	10–30	31	31	31
	30–50	18	18	18
	50–100	15	15	15
	100–150	5	5	5
	150–200	2	2	2
Soil properties				
Bulk density (g cm ⁻³)	0–10	1.37	1.36	0.8
	10–30	1.36	1.36	1.26
	30–50	1.52	1.52	1.52
	50–100	1.50	1.50	1.50
	100–150	1.58	1.58	1.58
	150–200	1.46	1.46	1.46
Texture – Clay (%)	0–10	15.8	15.8	15.8
	10–30	24.5	24.5	24.5
	30–50	37.5	37.5	37.5
	50–100	41.0	41.0	41.0
	100–150	43.3	43.3	43.3
	150–200	47.6	47.6	47.6
Texture – Sand (%)	0–10	53.3	53.3	53.3
	10–30	47.6	47.6	47.6
	30–50	35.9	35.9	35.9
	50–100	34.4	34.4	34.4
	100–150	31.7	31.7	31.7
	150–200	29.8	29.8	29.8
Organic matter (%)	0–10	3.2	2.9	8.7
	10–30	2.8	2.6	3.7

	30–50	2.0	1.6	2.0
	50–100	2.5	2.5	2.5
	100–150	2.0	2.0	2.0
	150–200	1.2	1.2	1.2
Porosity (Vol %)	0–10	48.8	48.8	70.0
	10–30	45.7	45.7	45.7
	30–50	41.9	41.9	41.9
	50–100	43.3	43.3	43.3
	100–150	40.3	40.3	40.3
	150–200	45.0	45.0	45.0
Field capacity (Vol %)	0–10	27.2	27.2	27.2
	10–30	27.4	27.4	27.4
	30–50	21.3	21.3	21.3
	50–100	23.1	23.1	23.1
	100–150	24.5	24.5	24.5
	150–200	28.1	28.1	28.1
Wilting point (Vol %)	0–10	18.3	18.3	18.3
	10–30	17.3	17.3	17.3
	30–50	17.9	17.9	17.9
	50–100	17.3	17.3	17.3
	100–150	20.4	20.4	20.4
	150–200	24.5	24.5	24.5
Saturated hydraulic conductivity (mm d ⁻¹)	0–10	400	400	200
	10–30	200	200	400
	30–50	200	200	300
	50–100	150	150	150
	100–150	260	260	260
	150–200	260	260	260
Van Genuchten α (cm ⁻¹)	0–10	0.059	0.059	0.059
	10–30	0.025	0.025	0.035
	30–50	0.010	0.010	0.020
	50–100	0.008	0.008	0.015
	100–150	0.021	0.021	0.021
	150–200	0.021	0.021	0.021
Van Genuchten n	0–10	1.70	1.70	1.70
	10–30	1.71	1.71	1.81
	30–50	1.12	1.12	1.25
	50–100	1.09	1.09	1.15
	100–150	1.21	1.21	1.21
	150–200	1.23	1.23	1.23
