

FOUR ARROWS ETHANOL PTY LTD : *Water demands in a decile 9 or very wet year*



					JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTALS
METEOROLOGICAL																	
Rain			mm/mth		38.3	39.0	40.6	40.3	50.7	51.2	43.2	45.8	44.6	50.4	34.5	36.5	515.1
Evaporation	Class A pan		mm/mth		220.0	190.0	150.0	90.0	50.0	30.0	35.0	50.0	80.0	125.0	175.0	215.0	1,410.0
Evapotranspiration	Pan factor		kp		0.70	0.70	0.70	0.75	0.80	0.90	0.90	0.90	0.80	0.80	0.70	0.70	
	Reference crop		mm/mth		154.0	133.0	105.0	67.5	40.0	27.0	31.5	45.0	64.0	100.0	122.5	150.5	1,040.0
WATER DEMAND - DAIRY ENTERPRISE																	
Cattle	milkers	6,000	hd using	L/day	140	140	140	120	100	80	80	90	100	120	140	140	390.9
	dries & 1st heifers	1,975			80	80	80	65	50	40	40	50	60	70	80	80	
	heifers	1,599			10	10	10	8	5	3	3	5	7	9	10	10	
	weaners	2,942			20	20	20	15	11	8	8	10	14	18	20	20	
	yearlings	2,842			40	40	40	32	27	20	20	25	30	35	40	40	
	joined	1,666			75	75	75	60	45	35	35	45	55	65	75	75	
	bulls	178			10	10	10	8	5	3	3	5	7	9	10	10	
				ML/d	1.31	1.31	1.31	1.10	0.89	0.70	0.70	0.82	0.95	1.13	1.31	1.31	
				ML/mth	40.71	36.77	40.71	32.93	27.64	21.09	21.79	25.52	28.47	35.18	39.40	40.71	
Free stalls	flushing	7,200	hd using	L/day	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	2,641.1
	misting	7,200			10	10	10	5						5	10	10	
				ML/d	7.27	7.27	7.27	7.24	7.20	7.20	7.20	7.20	7.20	7.24	7.27	7.27	
				ML/mth	225.43	203.62	225.43	217.08	223.20	216.00	223.20	223.20	216.00	224.32	218.16	225.43	
Dry lots	misting	5,000	hd using	L/day	15	15	15	10					10	15	15	15	16.7
	other/dust control	5,000															
				ML/d	0.08	0.08	0.08	0.05	0.00	0.00	0.00	0.00	0.05	0.08	0.08	0.08	
				ML/mth	2.33	2.10	2.33	1.50	0.00	0.00	0.00	0.00	1.50	2.33	2.25	2.33	
Dairy	cow wash down	6,000	hd using	L/day	100	100	100	100	100	100	100	100	100	100	100	100	350.4
	yard wash down	6,000			50	50	50	50	50	50	50	50	50	50	50	50	
	cleaning	6,000			10	10	10	10	10	10	10	10	10	10	10	10	
				ML/d	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
				ML/mth	29.76	26.88	29.76	28.80	29.76	28.80	29.76	29.76	28.80	29.76	28.80	29.76	
Other	office	10	people using	L/day	20	20	20	20	20	20	20	20	20	20	20	20	111.9
	staff	60	people using		25	25	25	25	25	25	25	25	25	25	25	25	
	workshop	1	facility using		30	30	30	30	30	30	30	30	30	30	30	30	
	landscape	2	ha with Kc =	0.80	79,484	76,000	54,194	36,000	20,645	14,400	16,258	23,226	34,133	51,613	65,333	77,677	
	sundry	5	ha with Kc =	0.30	74,516	71,250	50,806	33,750	19,355	13,500	15,242	21,774	32,000	48,387	61,250	72,823	
				ML/d	0.53	0.51	0.36	0.24	0.14	0.10	0.11	0.16	0.23	0.35	0.44	0.52	
				ML/mth	16.53	14.28	11.29	7.27	4.33	2.94	3.42	4.87	6.90	10.75	13.16	16.16	
Total water demand by dairy enterprise					314.76	283.65	309.52	287.58	284.94	268.83	278.18	283.34	281.67	302.34	301.77	314.38	3,511.0
WATER DEMAND - ETHANOL PLANT																	
Ethanol production	grain usage	725,000	tonnes/yr	t/mth	61,575	55,616	61,575	59,589	61,575	59,589	61,575	61,575	59,589	61,575	59,589	61,575	1,573.3
	water usage	2170	L/t grain 12%	ML/mth	133.62	120.69	133.62	129.31	133.62	129.31	133.62	133.62	129.31	133.62	129.31	133.62	
Other	office	10	people using	L/day	20	20	20	20	20	20	20	20	20	20	20	20	
	staff	45	people using		25	25	25	25	25	25	25	25	25	25	25	25	
	workshop	1	facility using		30	30	30	30	30	30	30	30	30	30	30	30	
	landscape	5	ha with Kc =	0.80	198,710	190,000	135,484	90,000	51,613	36,000	40,645	58,065	85,333	129,032	163,333	194,194	
	sundry	5	ha with Kc =	0.30	74,516	71,250	50,806	33,750	19,355	13,500	15,242	21,774	32,000	48,387	61,250	72,823	
				ML/d	1.37	1.31	0.93	0.62	0.36	0.25	0.28	0.40	0.59	0.89	1.12	1.34	
				ML/mth	42.39	36.61	28.92	18.60	11.04	7.47	8.70	12.42	17.64	27.54	33.73	41.43	286.5
Total water demand by ethanol plant					176.01	157.30	162.54	147.91	144.66	136.77	142.32	146.04	146.95	161.16	163.04	175.05	1,859.7
TOTAL WATER DEMAND																	
	Dairy enterprise			ML/mth	314.76	283.65	309.52	287.58	284.94	268.83	278.18	283.34	281.67	302.34	301.77	314.38	5,370.7
	Ethanol plant			ML/mth	176.01	157.30	162.54	147.91	144.66	136.77	142.32	146.04	146.95	161.16	163.04	175.05	
	Total			ML/mth	490.77	440.95	472.05	435.49	429.60	405.61	420.50	429.38	428.62	463.50	464.80	489.43	