

Amount of Cotton Evapotranspiration Replacement for Various 60-Acre Center Pivot Irrigation Pumping Capacities and Delivery Efficiencies

GPM	Pumping capacity delivered to center pivot				Acre-inches/acre/day at 100% efficiency	Inches/acre/day delivered at irrigation application efficiency (%)			For 85% irrigation application efficiency % ET replacement if actual crop ET (in inches/day) is:			
	GPM/acre	Gallons/day	Acre-feet/day	Acre-inches/day		95	85	75	0.25	0.35	0.45	0.55
						(LEPA, SDI)	(Low elevation spray)	(Poor spray)	(moderate)	(high)	(very high)	(extreme)
100	1.7	144,000	0.44	5.3	0.09	0.08	0.08	0.07	30	21	17	14
200	3.3	288,000	0.88	10.6	0.18	0.17	0.15	0.13	60	43	33	27
300	5.0	432,000	1.33	15.9	0.27	0.25	0.23	0.20	90	64	50	41
400	6.7	576,000	1.77	21.2	0.35	0.34	0.30	0.27	120	86	67	55
500	8.3	720,000	2.21	26.5	0.44	0.42	0.38	0.33	150	107	83	68
600	10.0	864,000	2.65	31.8	0.53	0.50	0.45	0.40	180	129	100	82
700	11.7	1,008,000	3.09	37.1	0.62	0.59	0.53	0.46	210	150	117	96
800	13.3	1,152,000	3.53	42.4	0.71	0.67	0.60	0.53	240	172	133	109
900	15.0	1,296,000	3.98	47.7	0.80	0.76	0.68	0.60	270	193	150	123
1000	16.7	1,440,000	4.42	53.0	0.88	0.84	0.75	0.66	300	215	167	137

Note: 12 acre inches = ~326,000 gallons



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Texas High Plains research indicates that ~75% ET replacement can generally maximize water-use efficiency (lbs of lint/inch of water) but not necessarily total yield/acre.

Salinity will complicate this response.