

B.C. IRRIGATION MANAGEMENT GUIDE

Appendix B – Sprinkler Tables

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The primary purpose of this B.C. Irrigation Management Guide is to provide irrigation professionals and consultants with a methodology to assess the irrigation system performance and manage the system effectively.

While every effort has been made to ensure the accuracy and completeness of these materials, additional materials may be required to complete more advanced assessments. Advice of appropriate professionals and experts may assist in completing assessments that are not covered in this Guide.

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B

SPRINKLER AND GUN NOZZLE SPECIFICATIONS

The tables in this appendix give information on sprinkler nozzles with different spacing, as well as gun nozzles from various series.

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Table B.1 Sprinkler Nozzle Specifications – 30' x 30' Spacing

Nozzle [in]	Nozzle Pressure [psi]	Pressure at Start of Lateral [psi]	Flow Rate [gpm]	Application Rate [in/hr]	Maximum No. of Sprinklers on Aluminum Lateral when on Level Ground									
					100% 2"	75% 2" 25% 3"	50% 2" 50% 3"	100% 3"	75% 3" 25% 4"	50% 3" 50% 4"	100% 4"			
1/16	34	39	0.66	0.07	49	68								
1/16	43	49	0.75	0.08	46	58								
5/64	30	35	0.95	0.10	36	48	56							
3/32	30	35	1.40	0.15	29	35	42	60						
3/32	35	40	1.55	0.16	29	36	43	60						
3/32	40	46	1.73	0.17	26	34	40	56						
7/64	30	35	1.89	0.20	23	29	35	50						
7/64	35 1/2	40 1/2	2.05	0.22	23	29	35	49						
7/64	41	47	2.23	0.24	23	29	34	48	54					
1/8	30	35	2.44	0.26	20	24	29	42	48					
1/8	34	39	2.62	0.28	19	23	28	40	46	52				
1/8	41	47	2.90	0.31	19	23	28	40	46	52				
9/64	30	35	3.10	0.33	16	20	25	35	40	47				
9/64	41	47	3.67	0.39	17	20	25	35	40	46				
9/64	45	52	3.84	0.41	16	20	24	34	39	45	59			
9/64	49 1/2	57	4.00	0.43	17	21	24	35	40	46	58			
5/32	39	45	4.40	0.47	14	18	21	30	34	39	51			
5/32	44	51	4.68	0.50	14	18	21	30	34	39	51			

Table B.2 Sprinkler Nozzle Specifications – 30' x 40' Spacing

Nozzle [in]	Nozzle Pressure [psi]	Pressure at Start of Lateral [psi]	Flow Rate [gpm]	Application Rate [in/hr]	Maximum No. of Sprinklers on Aluminum Lateral when on Level Ground							
					100% 2"	75% 2" 25% 3"	50% 2" 50% 3"	100% 3"	75% 3" 25% 4"	50% 3" 50% 4"	100% 4"	
5/64	32	37	1.00	0.08	36	44	54					
5/64	40	46	1.12	0.09	35	44	52					
3/32	40	46	1.62	0.13	28	35	41	54				
7/64	30	35	1.89	0.15	23	29	35	48	56			
7/64	41	47	2.25	0.18	22	27	33	46	52			
1/8	31	36	2.50	0.20	19	23	28	40	46	52		
1/8	40	46	2.87	0.23	18	22	26	38	43	50	64	
1/8	51	59	3.25	0.26	19	23	29	40	45	52	67	
9/64	34	39	3.35	0.27	17	21	25	35	39	45	58	
9/64	40	46	3.63	0.29	16	20	25	35	39	45	58	
9/64	46	53	3.88	0.31	16	20	25	35	39	45	58	
5/32	34	39	4.10	0.33	15	18	22	31	35	40	51	
5/32	41	47	4.50	0.36	14	18	21	30	34	39	50	
1/8 x 3/32	44	51	4.72	0.38	14	18	21	30	34	39	50	
11/64	35	40	5.00	0.40	13	16	19	27	31	36	46	
11/64	43	49	5.37	0.43	13	16	19	27	31	36	46	
9/64 x 3/32	44	51	5.45	0.44	13	16	19	27	31	36	46	
11/64	46	53	5.76	0.46	13	16	19	27	30	35	45	
5/32 x 3/32	40	46	6.11	0.49	11	14	17	24	27	31	40	

Table B.3 Sprinkler Nozzle Specifications – 30' x 60' Spacing

Nozzle [in]	Nozzle Pressure [psi]	Pressure at Start of Lateral [psi]	Flow Rate [gpm]	Application Rate [in/hr]	Maximum No. of Sprinklers on Aluminum Lateral when on Level Ground						
					100% 2"	75% 2" 25% 3"	50% 2" 50% 3"	100% 3"	75% 3" 25% 4"	50% 3" 50% 4"	100% 4"
9/64	43	49	3.76	.20	16	21	25	34	39	46	59
9/64	52	60	4.13	.22	16	21	25	34	39	46	59
5/32	41	47	4.50	.24	14	18	21	30	34	39	51
5/32	44	51	4.66	.25	14	18	21	30	34	39	51
11/64	36	41	5.09	.27	13	16	19	27	30	35	45
11/64	41	47	5.43	.29	13	16	19	27	30	35	45
11/64	44	51	5.64	.30	13	16	19	27	30	35	45
5/32 x 3/32	36	41	5.78	.31	12	15	18	25	28	32	41
11/64	50	58	6.01	.32	13	16	19	27	30	35	45
11/64 x 3/32	35	40	6.57	.35	10	13	16	23	26	29	38
3/16	44	51	6.73	.36	11	14	17	24	27	31	40
11/64 x 3/32	41	47	7.11	.38	10	13	16	23	26	29	38
11/64 x 3/32	45	52	7.46	.40	10	13	16	22	25	28	37
3/16 x 3/32	40	46	8.08	.43	10	12	15	20	23	27	35
3/16 x 3/32	45	52	8.57	.46	10	12	15	20	23	27	35
3/16 x 3/32	50	58	9.04	.48	10	12	15	20	23	27	35
3/16 x 1/8	40 1/2	46 1/2	9.54	.51	9	11	13	18	21	24	31

Table B.4 Sprinkler Nozzle Specifications – 40' x 40' Spacing

Nozzle [in]	Nozzle Pressure [psi]	Pressure at Start of Lateral [psi]	Flow Rate [gpm]	Application Rate [in/hr]	Maximum No. of Sprinklers on Aluminum Lateral when on Level Ground							
					100% 2"	75% 2" 25% 3"	50% 2" 50% 3"	100% 3"	75% 3" 25% 4"	50% 3" 50% 4"	100% 4"	
7/64	39	45	2.17	.13	21	26	31	43	49	56	70	
1/8	39	45	2.83	.17	18	22	26	37	41	48	60	
1/8	48	56	3.16	.19	17	22	26	36	40	47	58	
9/64	37	42	3.46	.21	15	19	22	31	35	40	50	
9/64	45	52	3.84	.23	15	19	22	31	35	40	50	
5/32	35	42	4.16	.25	13	16	19	27	31	35	44	
5/32	41	47	4.50	.27	13	16	19	27	31	35	44	
5/32	50	58	4.98	.30	13	16	19	27	31	35	44	
11/64	40 1/2	46 1/2	5.40	.33	11	14	17	24	27	31	39	
11/64	50	58	6.01	.36	11	14	17	24	27	31	39	
5/32 x 3/32	40	46	6.11	.37	10	13	16	22	25	29	37	
5/32 x 3/32	45	52	6.48	.39	10	13	16	22	25	29	37	
3/16	45	52	6.81	.41	10	13	16	22	25	29	36	
11/64 x 3/32	40	46	7.03	.42	10	12	15	20	23	26	33	
11/64 x 3/32	45	52	7.46	.45	10	12	15	20	23	26	33	

Table B.5 Sprinkler Nozzle Specifications – 40' x 50' Spacing

Nozzle [in]	Nozzle Pressure [psi]	Pressure at Start of Lateral [psi]	Flow Rate [gpm]	Application Rate [in/hr]	Maximum No. of Sprinklers on Aluminum Lateral when on Level Ground							
					100% 2"	75% 2" 25% 3"	50% 2" 50% 3"	100% 3"	75% 3" 25% 4"	50% 3" 50% 4"	100% 4"	
9/64	37 1/2	43	3.50	.17	15	19	22	31	36	40	52	
9/64	46	53	3.90	.19	15	18	21	30	34	38	49	
5/32	46	53	4.75	.23	13	16	20	27	31	35	45	
5/32 x 3/32	36	41	5.80	.28	10	13	16	22	25	29	37	
5/32 x 3/32	40	46	6.11	.29	10	13	16	22	25	29	37	
5/32 x 3/32	45	52	6.48	.31	10	13	16	22	25	29	37	
5/32 x 3/32	50	58	6.84	.33	10	13	16	22	25	29	37	
11/62 x 3/32	45	52	7.46	.36	10	12	15	20	23	26	34	
13/64	45	52	8.07	.39	9	11	14	19	22	25	32	
3/16 x 3/32	49	57	8.95	.43	9	11	13	18	21	24	31	
3/16 x 1/8	40	46	9.48	.46	8	10	12	17	19	22	28	
3/16 x 1/8	45	52	10.10	.49	8	10	12	17	19	22	28	
3/16 x 1/8	50	58	10.60	.51	8	10	12	16	19	21	27	

Table B.6 Sprinkler Nozzle Specifications – 40' x 60' Spacing

Nozzle [in]	Nozzle Pressure [psi]	Pressure at Start of Lateral [psi]	Flow Rate [gpm]	Application Rate [in/hr]	Maximum No. of Sprinklers on Aluminum Lateral when on Level Ground							
					100% 2"	75% 2" 25% 3"	50% 2" 50% 3"	100% 3"	75% 3" 25% 4"	50% 3" 50% 4"	100% 4"	
9/64	37	42	3.50	.14	15	18	22	31	35	39	51	
9/64	43	49	3.75	.15	15	18	22	31	35	39	51	
9/64	48	55 1/2	3.95	.16	15	18	22	31	35	39	51	
5/32	41	47	4.50	.18	13	16	19	27	31	35	44	
5/32	46	53	4.76	.19	13	16	19	27	31	35	44	
5/32	50	58	4.98	.20	13	16	19	27	31	35	44	
11/64	38	44	5.23	.21	11	14	17	24	27	31	40	
11/64	42	48	5.51	.22	11	14	17	24	27	31	40	
11/64	45	52	5.70	.23	11	14	17	24	27	31	40	
11/64	50	58	6.01	.24	11	14	17	24	27	31	40	
5/32 x 3/32	42	48	6.25	.25	10	13	16	22	26	29	37	
5/32 x 3/32	45	52	6.48	.26	10	13	16	22	26	29	37	
5/32 x 3/32	48 1/2	56	6.73	.27	10	13	16	22	26	29	37	
11/64 x 3/32	40	46	7.03	.28	10	12	15	20	23	26	33	
11/64 x 3/32	42 1/2	49	7.25	.29	10	12	15	20	23	26	33	
11/64 x 3/32	45	52	7.46	.30	9	12	14	20	23	26	33	
11/64 x 3/32	47 1/2	55	7.70	.31	9	12	14	20	23	26	33	
3/16 x 3/32	40	46	8.00	.32	9	11	13	18	21	24	31	
3/16 x 3/32	44	51	8.50	.34	9	11	13	18	21	24	31	
3/16 x 3/32	49	57	9.00	.36	8	11	13	18	21	24	30	
3/16 x 1/8	40	46	9.48	.38	8	10	12	17	19	22	28	
3/16 x 1/8	44	51	10.00	.40	8	10	12	17	19	22	28	
3/16 x 1/8	49	57	10.50	.42	8	10	12	17	19	22	28	
3/16 x 1/8	54	63	11.00	.44	8	10	12	17	19	22	28	
13/64 x 1/8	46	53	11.50	.46	7	9	11	15	17	20	26	
13/64 x 1/8	50 1/2	58 1/2	12.00	.48	7	9	11	15	17	20	26	
13/64 x 1/8	55	64	12.50	.50	7	9	11	15	17	20	26	

Table B.7 Sprinkler Nozzle Specifications – 60' x 60' Spacing

Nozzle [in]	Nozzle Pressure [psi]	Pressure at Start of Lateral [psi]	Flow Rate [gpm]	Application Rate [in/hr]	Maximum No. of Sprinklers on Aluminum Lateral when on Level Ground						
					100% 2"	75% 2" 25% 3"	50% 2" 50% 3"	100% 3"	75% 3" 25% 4"	50% 3" 50% 4"	100% 4"
11/64 x 3/32	45	52	7.46	.20	8	10	13	17	20	23	29
11/64 x 3/32	55	64	8.25	.22	8	10	13	17	20	23	29
3/16 x 3/32	45	52	8.57	.23	8	9	11	15	18	21	27
3/16 x 1/8	45	52	10.10	.27	7	8	10	14	16	19	24
13/64 x 1/8	51	59	12.00	.32	6	8	9	13	15	18	22
13/64 x 1/8	55	64	12.50	.33	6	8	9	13	15	18	22
7/32 x 1/8	49	57	13.20	.35	6	7	9	13	14	16	20
7/32 x 1/8	65	75	14.90	.39	6	7	9	13	14	17	21

Table B.8 Gun Nozzle Specifications – Series 100 Guns 24° Trajectory

		Nozzle .5"		Nozzle .55"		Nozzle .6"		Nozzle .65"		Nozzle .7"		Nozzle .75"		Nozzle .8"		Nozzle .85"		Nozzle .9"		Nozzle 1.0"		
		GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	
PSI																						
	40	47	191'	57	202'	66	213'	78	222'	91	230'	103	240'	118	250'	134	256'	152	262'			
	50	50	205'	64	215'	74	225'	87	235'	100	245'	115	256'	130	265'	150	273'	165	280'	204	300'	
	60	55	215'	69	227'	81	240'	96	250'	110	260'	126	270'	143	280'	164	288'	182	295'	224	316'	
	70	60	225'	75	238'	88	250'	103	263'	120	275'	136	283'	155	295'	177	302'	197	310'	243	338'	
	80	64	235'	79	248'	94	260'	110	273'	128	285'	146	295'	165	305'	189	314'	210	325'	258	354'	
	90	68	245'	83	258'	100	270'	117	283'	135	295'	155	306'	175	315'	201	326'	223	335'	274	362'	
	100	72	255'	87	268'	106	280'	123	293'	143	305'	163	316'	185	325'	212	336'	235	345'	289	372'	
	110	76	265'	92	278'	111	290'	129	303'	150	315'	171	324'	195	335'	222	344'	247	355'	304	380'	
RING NOZZLES																						
		Ring .712"		Ring .768"		Ring .812"		Ring .857"		Ring .895"		Ring .927"		Ring .965"								
		GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA							
PSI																						
	50	74	220'	88	225'	100	230'	115	240'	129	250'	150	255'	167	260'							
	60	81	235'	96	240'	110	245'	125	260'	141	270'	164	275'	183	280'							
	70	88	245'	104	250'	118	260'	135	275'	152	290'	177	295'	198	300'							
	80	94	255'	111	265'	127	275'	145	285'	163	300'	189	305'	211	315'							
	90	99	265'	117	275'	134	285'	154	295'	173	310'	201	315'	224	325'							
	100	105	270'	124	280'	142	295'	162	305'	182	320'	212	325'	236	335'							
	110	110	275'	130	290'	149	305'	170	315'	191	325'	222	335'	248	345'							
The diameter of throw is approximately 3% less for the 21° trajectory angle, 6% less for 18° trajectory angle.																						

Table B.9 Gun Nozzle Specifications – Series 150 Guns 24° Trajectory

TAPER BORE NOZZLES															
PSI	Nozzle .7"		Nozzle .8"		Nozzle .9"		Nozzle 1.0"		Nozzle 1.1"		Nozzle 1.2"		Nozzle 1.3"		
	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	
50	100	250'	130	270'	165	290'	205	310'	255	330'	300	345'	350	360'	
60	110	265'	143	285'	182	305'	225	325'	275	345'	330	365'	385	380'	
70	120	280'	155	300'	197	320'	245	340'	295	360'	355	380'	415	395'	
80	128	290'	165	310'	210	335'	260	355'	315	375'	380	395'	445	410'	
90	135	300'	175	320'	223	345'	275	365'	335	390'	405	410'	475	425'	
100	143	310'	185	330'	235	355'	290	375'	355	400'	425	420'	500	440'	
110	150	320'	195	340'	247	365'	305	385'	370	410'	445	430'	525	450'	
120	157	330'	204	350'	258	375'	320	395'	385	420'	465	440'	545	460'	
RING NOZZLES															
PSI	Ring .86"		Ring .97"		Ring 1.08"		Ring 1.18"		Ring 1.26"		Ring 1.34"		Ring 1.41"		
	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	
50	100	245'	130	265'	165	285'	205	300'	255	320'	300	335'	350	350'	
60	110	260'	143	280'	182	300'	225	315'	275	335'	330	350'	385	365'	
70	120	270'	155	290'	197	310'	245	330'	295	350'	355	365'	415	380'	
80	128	280'	165	300'	210	320'	260	340'	315	360'	380	380'	445	395'	
90	135	290'	175	310'	223	330'	275	350'	335	370'	405	390'	475	405'	
100	143	300'	185	320'	235	340'	290	360'	355	380'	425	400'	500	415'	
110	150	310'	195	330'	247	350'	305	370'	370	390'	445	410'	525	425'	
120	157	315'	204	335'	258	360'	320	380'	385	400'	465	420'	545	435'	

The diameter of throw is approximately 3% less for the 21° trajectory angle.

Table B.10 Gun Nozzle Specifications – Series 200 Guns 27° Trajectory

TAPER BORE NOZZLES

PSI	Nozzle 1.05"		Nozzle 1.1"		Nozzle 1.2"		Nozzle 1.3"		Nozzle 1.4"		Nozzle 1.5"		Nozzle 1.6"		Nozzle 1.75"		Nozzle 1.9"	
	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA
60	250	345'	285	355'	330	375'	385	390'	445	410'	515	430'	585	445'	695	470'	825	495'
70	270	360'	310	380'	355	395'	415	410'	480	430'	555	450'	630	465'	755	495'	890	515'
80	290	375'	330	395'	380	410'	445	430'	515	450'	590	470'	675	485'	805	515'	950	535'
90	310	390'	350	410'	405	425'	475	445'	545	465'	625	485'	715	505'	855	535'	1005	555'
100	325	400'	370	420'	425	440'	500	460'	575	480'	660	500'	755	520'	900	550'	1060	575'
110	340	410'	390	430'	445	450'	525	470'	605	495'	695	515'	790	535'	945	565'	1110	590'
120	355	420'	405	440'	465	460'	545	480'	630	505'	725	530'	825	550'	985	580'	1160	605'
130	370	425'	425	445'	485	465'	565	485'	655	515'	755	540'	860	560'	1025	590'	1210	620'

RING NOZZLES

PSI	1 1/4" Ring (1.29" actual)		1 3/8" Ring (1.46" actual)		1 1/2" Ring (1.56" actual)		1 5/8" Ring (1.66" actual)		1 3/4" Ring (1.74" actual)		1 7/8" Ring (1.83" actual)		2" Ring (1.93" actual)	
	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA	GPM	DIA
50	230	325'	300	355'	350	370'	410	390'	470	405'	535	420'	640	435'
60	250	340'	330	370'	385	390'	445	410'	515	425'	585	440'	695	455'
70	270	355'	355	385'	415	405'	480	425'	555	440'	630	455'	755	475'
80	290	370'	380	400'	445	420'	515	440'	590	455'	675	470'	805	490'
90	310	380'	405	415'	475	435'	545	455'	625	470'	715	485'	855	505'
100	325	390'	425	425'	500	445'	575	465'	660	480'	755	500'	900	520'
110	340	400'	445	435'	525	455'	605	475'	695	490'	790	510'	945	535'
120	355	410'	465	445'	545	465'	630	485'	725	500'	825	520'	985	545'
130	370	415'	485	450'	565	470'	655	490'	755	505'	860	525'	1025	550'

The diameter of throw is approximately 2% less for the 24° trajectory angle, 5% less for 21° trajectory angle.

