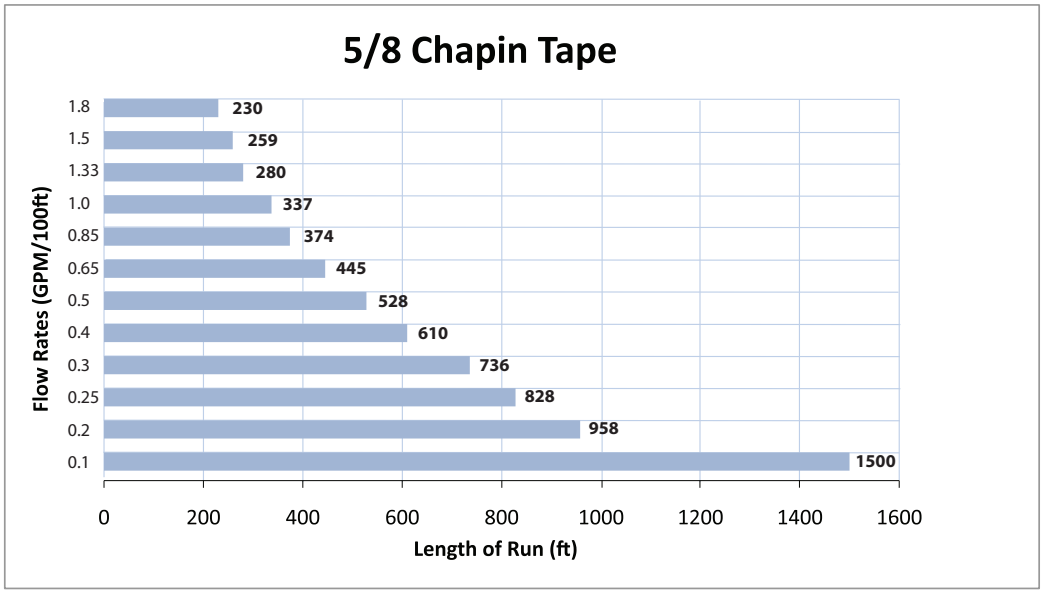
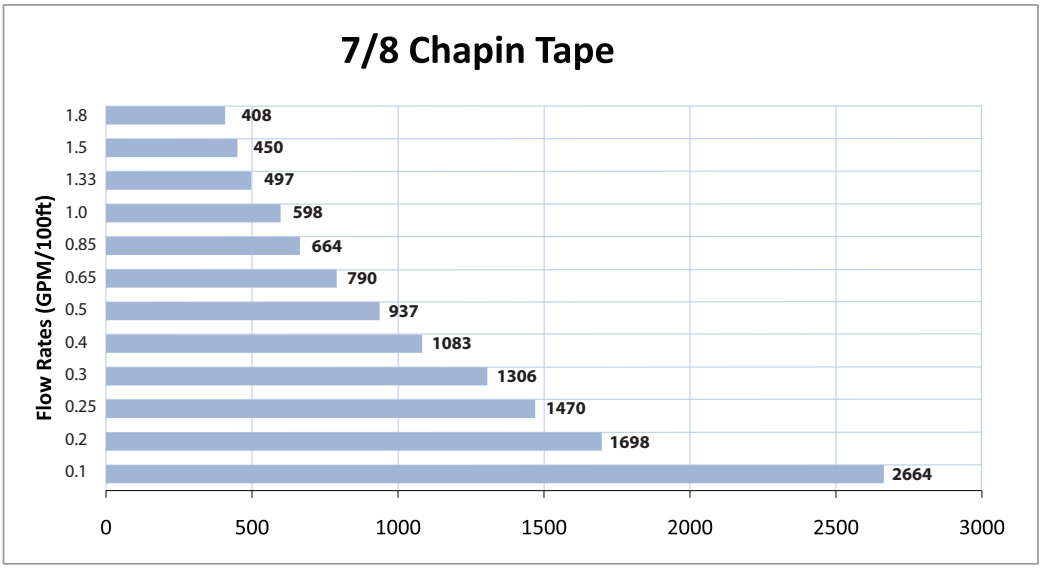
Maximum Length of Run for 90% Uniformity — 0% Slope





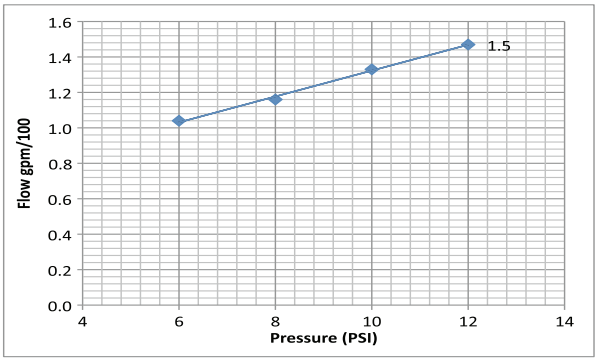
**For other slopes and uniformity co-efficients, use our calculator on www.jainsusa.com*

Spacing and Flow Rates

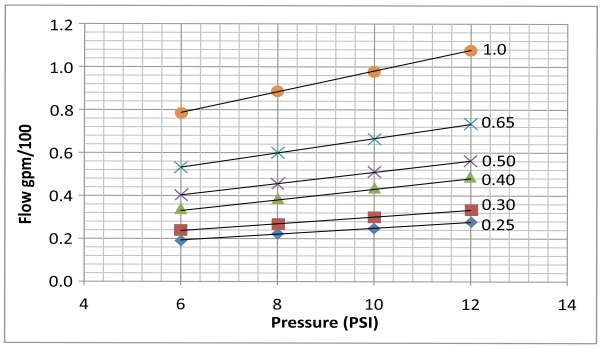
Spacing		Outlets / 100 ft	Flow Rates at 10PSI				Flow Rates at 8 PSI				Cv	K	X
inch	cms		gpm/100ft	lph/100m	gph/outlet	lph/outlet	gpm/100ft	lph/100m	gph/outlet	lph/outlet			
2	5	600	1.50	1,116	0.15	0.57	1.20	893	0.12	0.45	2.5	0.041	0.51
4	10	300	0.69	513	0.14	0.53	0.62	461	0.12	0.46	3	0.007	0.53
4	10	300	1.00	744	0.20	0.76	0.80	595	0.16	0.60	2.4	0.07	0.47
4	10	300	1.33	989	0.27	1.01	1.06	792	0.21	0.80	1.3	0.083	0.54
4	10	300	1.80	1,339	0.36	1.36	1.44	1,071	0.29	1.09	2.5	0.001	0.6
6	15	200	0.25	186	0.08	0.28	0.20	149	0.06	0.23	4.6	0.023	0.53
6	15	200	0.30	223	0.09	0.34	0.24	179	0.07	0.27	3.5	0.032	0.47
6	15	200	0.50	372	0.15	0.57	0.40	298	0.12	0.45	3.4	0.052	0.47
6	15	200	0.65	484	0.20	0.74	0.52	387	0.16	0.59	3	0.071	0.42
6	15	200	1.00	744	0.30	1.13	0.80	595	0.24	0.91	4.4	0.017	0.49
6	15	200	1.33	989	0.40	1.51	1.06	792	0.32	1.21	2	0.117	0.5
8	20	150	0.40	298	0.16	0.60	0.32	238	0.13	0.48	3.7	0.111	0.45
8	20	150	0.50	372	0.20	0.76	0.40	298	0.16	0.60	1.6	0.064	0.49
8	20	150	0.65	484	0.26	0.98	0.52	387	0.21	0.79	2.1	0.081	0.51
8	20	150	0.85	632	0.34	1.29	0.68	506	0.27	1.03	1.6	0.064	0.49
8	20	150	1.50	1,116	0.60	2.27	1.20	893	0.48	1.81	1.5	0.182	0.5
12	30	100	0.25	186	0.15	0.57	0.20	149	0.12	0.45	2.6	0.044	0.53
12	30	100	0.30	223	0.18	0.68	0.24	179	0.14	0.54	2	0.068	0.43
12	30	100	0.40	298	0.24	0.91	0.32	238	0.19	0.73	1.4	0.075	0.54
12	30	100	0.50	372	0.30	1.13	0.40	298	0.24	0.91	1.7	0.101	0.48
12	30	100	0.65	484	0.39	1.47	0.52	387	0.31	1.18	2.7	0.138	0.46
12	30	100	1.00	744	0.60	2.27	0.80	595	0.48	1.81	3	0.202	0.47
16	41	75	0.20	149	0.16	0.60	0.16	119	0.13	0.48	2.7	0.056	0.43
16	41	75	0.25	186	0.20	0.76	0.20	149	0.16	0.60	1.9	0.061	0.53
16	41	75	0.40	298	0.32	1.21	0.32	238	0.26	0.97	2.2	0.121	0.46
16	41	75	0.50	372	0.40	1.51	0.40	298	0.32	1.21	2.2	0.118	0.52
18	46	67	0.50	372	0.45	1.70	0.40	298	0.36	1.36	2.9	0.15	0.49
24	61	50	0.10	75	0.02	0.80	0.08	60	0.02	0.06	2.2	0.027	0.72
24	61	50	0.20	149	0.24	0.91	0.16	119	0.19	0.73	2	0.001	0.6
24	61	50	0.30	223	0.36	1.36	0.24	179	0.29	1.09	1.9	0.094	0.61
24	61	50	0.50	372	0.60	2.27	0.40	298	0.48	1.81	1.8	0.193	0.5

Performance Charts — Flow vs. Pressure

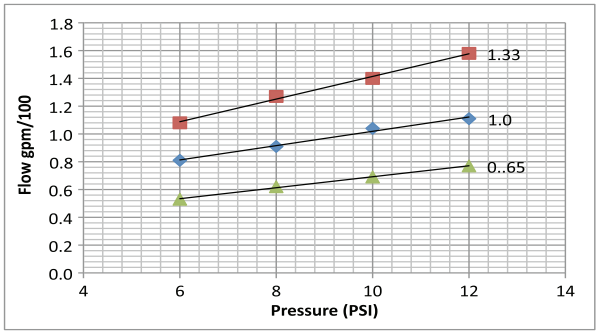
2” Spacing



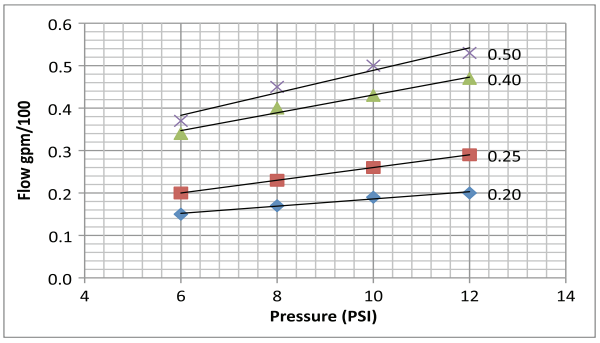
12” Spacing



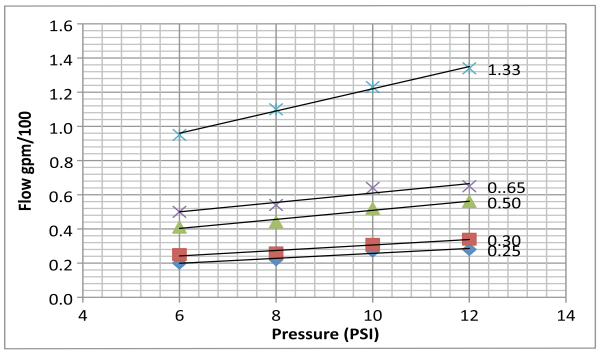
4” Spacing



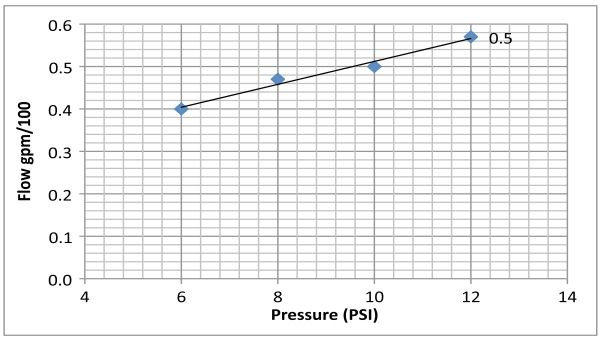
16” Spacing



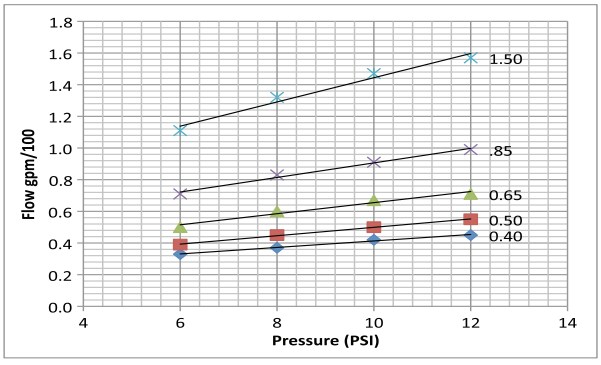
6” Spacing



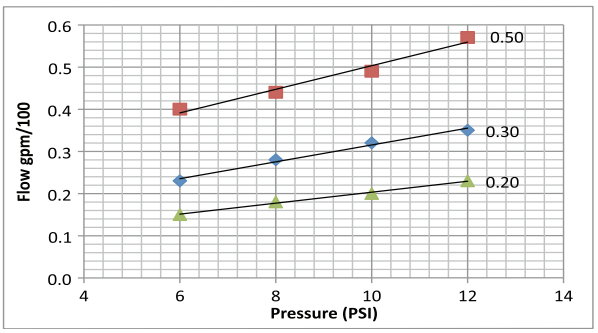
18” Spacing



8” Spacing



24” Spacing



Storage and handling

- Protect Chapin tape rolls from environmental conditions until installation.
- Do not remove packaging or protective film until installation.
- Do not drop or throw Chapin tape rolls.
- Do not drag or push Chapin tape rolls over rough surfaces.
- Do not cut through cardboard when removing protective film,

Surface Installation

- Place tape on the windward side of the row.
- Install with emitters facing upward.
- Anchor Chapin tape every 20 feet with wire staple or with dirt.
- Leave extra tape on the ends for proper connection.
- Leave end of tape open for initial flushing.
- Surface drip tape should be held at both ends with end holders.

Mechanical Sub-Surface Installation

- Support both sides of roll with metal, plastic, or wooden backers.
- Install outlets facing upwards.
- Use adjustable braking mechanism to provide uniform tension on the roll.
- Support the roll core with an insert plug.
- Do not allow tape to rub against sharp objects or the side of the shank.
- The shaft, reel and backers should all turn simultaneously.
- Position the bottom of the roll 35 inches away from the funneled injection shank opening.
- Avoid all possible damage to tape from bolts, worn-out or rusty metal parts, kinks and stretching.
- Allow extra tape at the beginning and end of the row for proper connections.
- Do not walk on top of the drip tape in order to avoid compacting dirt.
- Leave end of tape open for initial flushing.
- Flush main, sub-main, and manifold before connecting the lateral drip line.

Clear Plastic Mulch Installation

- When using clear plastic mulch Chapin tape must be buried to prevent sunburn caused by the magnifying glass effect.

Maintenance and Troubleshooting

Maintenance

- To prevent insect damage spray insecticide prior to and during installation.
- Flush sub-main and lateral lines regularly in order to prevent plugging.
- Filter water as recommended. Use sand media filters for pond water. Use 150 or 200 mesh screen filters for clean water sources. Filter must be maintained and cleaned regularly.
- Always flush the lateral lines after fertilizer injection.
- Schedule your irrigation time and frequency correctly. Root intrusion may occur when plants are stressed or when fertilizer remains in the lateral lines.
- Analyze water supply on a regular basis to help forecast potential problems.

Troubleshooting

Problem	Description	Possible Solution
Dirt plugging in the turbulent channel	Sucking dirt into the tape when the water is shut off. As water drains after shut-off, a vacuum is formed.	Install air relief valve(s).
Root intrusion in buried tape	Will occur when a plant is starved for water. Hairline roots will seek water and enter the turbulent channel.	Schedule your irrigation time correctly/ increase hours of water per day.
Dirt in buried tape	Evidence of dirt throughout supply hose, inlet, outlet, turbulent channel.	Adequate filtration.
Ant/insect damage to drip wall tape	Small pin holes chewed in sides of drip tape and/or enlargement of outlet orifice. Most likely to occur with tapes below 15 mil.	Spray and/or injection of appropriate insecticides; release of Beneficial's.
Mechanical damage during installation	Punctures, tears, scratch marks.	Flushing mains, sub mains before connecting drip tape. Use of acid to clean system. Check for line breakage.
Clogging due to foreign materials after the filter system	Accumulated in mains and sub mains from prior season breakage of likes.	Flushing mains, sub mains before connecting drip tape, use of acid to clean system. Check for line breakage.
No water is flowing	Water is not being emitted.	Check the connections to the submain. Check for adequate water pressure. Check for kinks of twists in the tape line. Check water supply.
Precipitates	Discoloration at outlets.	Check for possible build up of minerals, fertilizer, and/or bacterial slime.
Reduced Flow	Reduction of water over time.	Check that filter is properly cleaned and free of debris.

Water Quality Management

Precipitates	None	Increasing	Severe	Possible Solutions
Iron (ppm)	0.0 - 0.1	0.1-0.4	0.4+	Use Acid in proper solution to dissolve
Manganese (ppm)	0.0-0.2	0.2-0.4	0.4+	Use Acid in proper solution to dissolve
Sulfides (ppm)	0.0-0.1	0.1-0.2	0.2+	Use Acid in proper solution to dissolve
Calcium Carbonate (ppm)	No Levels Eatablished			Use Acid in proper solution to dissolve
Organic material	Slime, colored, deposits on emitter, odiferous			Use chlorine in proper solution to decompose

Drip TAPE

Rolls of Tape Required Per Acre

5/8"		4 mil	5 mil	6 mil	8 mil	10 mil		12 mil		15 mil		
7/8"					6 mil		8 mil		10 mil		13 mil	15 mil
Avg. tape spacing inches	Ft of tape per acre	15,000	12,000	10,000	7,500	6,000	5,500	5,000	4,500	4,000	3,500	3,000
30	17,424	1.16	1.45	1.74	2.32	2.90	3.17	3.48	3.87	4.36	4.98	5.81
32	16,335	1.09	1.36	1.63	2.18	2.72	2.97	3.27	3.63	4.08	4.67	5.45
34	15,374	1.02	1.28	1.54	2.05	2.56	2.80	3.07	3.42	3.84	4.39	5.12
36	14,520	0.97	1.21	1.45	1.94	2.42	2.64	2.90	3.23	3.63	4.15	4.84
38	13,756	0.92	1.15	1.38	1.83	2.29	2.50	2.75	3.06	3.44	3.93	4.59
40	13,068	0.87	1.09	1.31	1.74	2.18	2.38	2.61	2.90	3.27	3.73	4.36
42	12,446	0.83	1.04	1.24	1.66	2.07	2.26	2.49	2.77	3.11	3.56	4.15
44	11,880	0.79	0.99	1.19	1.58	1.98	2.16	2.38	2.64	2.97	3.39	3.96
46	11,363	0.76	0.95	1.14	1.52	1.89	2.07	2.27	2.53	2.84	3.25	3.79
48	10,890	0.73	0.91	1.09	1.45	1.82	1.98	2.18	2.42	2.72	3.11	3.63
50	10,454	0.70	0.87	1.05	1.39	1.74	1.90	2.09	2.32	2.61	2.99	3.48
52	10,052	0.67	0.84	1.01	1.34	1.68	1.83	2.01	2.23	2.51	2.87	3.35
54	9,680	0.65	0.81	0.97	1.29	1.61	1.76	1.94	2.15	2.42	2.77	3.23
56	9,334	0.62	0.78	0.93	1.24	1.56	1.70	1.87	2.07	2.33	2.67	3.11
58	9,012	0.60	0.75	0.90	1.20	1.50	1.64	1.80	2.00	2.25	2.57	3.00
60	8,712	0.58	0.73	0.87	1.16	1.45	1.58	1.74	1.94	2.18	2.49	2.90
62	8,431	0.56	0.70	0.84	1.12	1.41	1.53	1.69	1.87	2.11	2.41	2.81
64	8,168	0.54	0.68	0.82	1.09	1.36	1.49	1.63	1.82	2.04	2.33	2.72
66	7,920	0.53	0.66	0.79	1.06	1.32	1.44	1.58	1.76	1.98	2.26	2.64
68	7,687	0.51	0.64	0.77	1.02	1.28	1.40	1.54	1.71	1.92	2.20	2.56
70	7,467	0.50	0.62	0.75	1.00	1.24	1.36	1.49	1.66	1.87	2.13	2.49
72	7,260	0.48	0.61	0.73	0.97	1.21	1.32	1.45	1.61	1.82	2.07	2.42
74	7,064	0.47	0.59	0.71	0.94	1.18	1.28	1.41	1.57	1.77	2.02	2.35
76	6,878	0.46	0.57	0.69	0.92	1.15	1.25	1.38	1.53	1.72	1.97	2.29
78	6,702	0.45	0.56	0.67	0.89	1.12	1.22	1.34	1.49	1.68	1.91	2.23
80	6,534	0.44	0.54	0.65	0.87	1.09	1.19	1.31	1.45	1.63	1.87	2.18
82	6,375	0.42	0.53	0.64	0.85	1.06	1.16	1.27	1.42	1.59	1.82	2.12
84	6,223	0.41	0.52	0.62	0.83	1.04	1.13	1.24	1.38	1.56	1.78	2.07
86	6,078	0.41	0.51	0.61	0.81	1.01	1.11	1.22	1.35	1.52	1.74	2.03
88	5,940	0.40	0.50	0.59	0.79	0.99	1.08	1.19	1.32	1.49	1.70	1.98
90	5,808	0.39	0.48	0.58	0.77	0.97	1.06	1.16	1.29	1.45	1.66	1.94
92	5,682	0.38	0.47	0.57	0.76	0.95	1.03	1.14	1.26	1.42	1.62	1.89
94	5,561	0.37	0.46	0.56	0.74	0.93	1.01	1.11	1.24	1.39	1.59	1.85
96	5,445	0.36	0.45	0.54	0.73	0.91	0.99	1.09	1.21	1.36	1.56	1.82
98	5,334	0.36	0.44	0.53	0.71	0.89	0.97	1.07	1.19	1.33	1.52	1.78
100	5,227	0.35	0.44	0.52	0.70	0.87	0.95	1.05	1.16	1.31	1.49	1.74

Common Tape Selection and Flows

Spacing (inch)	Flow (GPM/100feet)	Applications
12	0.25	Cotton, Pineapple
8	0.30	Strawberries, Cauliflower
8	0.50	Tomatoes, Peppers
8	0.65	Melons, Cauliflower
12	0.50	Cane Berries, Brocolli
2	1.50	Cut Flowers
4	1.00	Vines, Landscape
24	0.30	Sugarcane, Cotton

2851 E. Florence Ave.
Fresno, CA 93721
Ph 800-695-7171
Fax 888-434-3747

P.O. Box 3760
Ontario, CA 91761
Ph 800-828-9919
Fax 800-777-6162

740 Water St.
Watertown, NY 13601
Ph 800-242-7467
Fax 866-329-2427

P.O. Box 3546 • Haines City, FL 33845
3857 W. Lake Hamilton Dr.
Winter Haven, FL 33881
Ph 800-848-8153 • Fax 800-533-6421