

Application

All subsurface applications including:

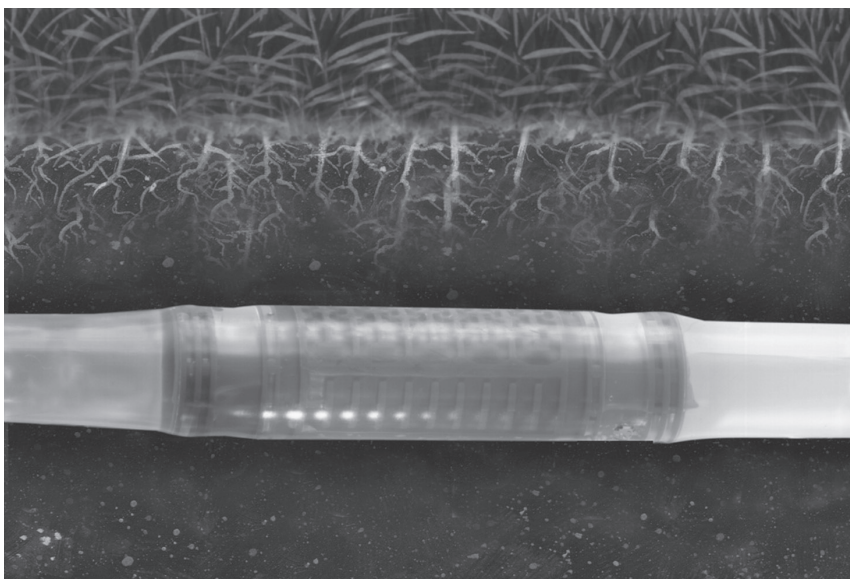
- Vineyards
- Orchards
- Row Crops

What is Subsurface Irrigation?

Traditional drip irrigation is found above the ground. Subsurface drip irrigation is simply drip irrigation buried below the surface of the ground. Any pipework conveying water underground runs the risk of root intrusion. Rootguard® technology combines Treflan® within the drip emitter to inhibit root growth. The herbicide is released at a uniform rate, maintaining sufficient concentration in the soil immediately around the dripper to deter roots from growing into the emitter. Most importantly, this gives year round protection regardless of whether the irrigation system is operated.

Storage

- It is important that the rolls of tube are installed below ground as close to the time of manufacture as possible. The TREFLAN® release rate is affected by the temperature, the higher the temperature the greater the release rate.
- When the rolls need to be stored prior to installation, they should be stored in a dry, well ventilated place out of direct sunlight. It is recommended that Rootguard® tube be installed as close as possible to the time of manufacture. Do not store for more than six months from the date of manufacture.



Clear tube shown for demonstration purposes only.

Features

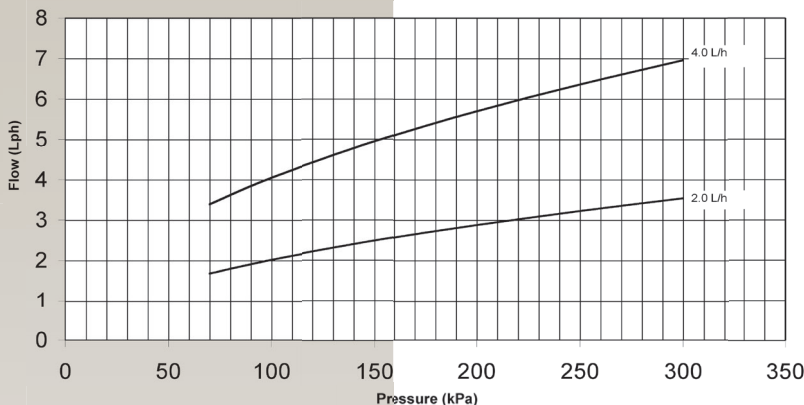
- Conservation - Water and nutrients delivered directly to the root zone.
- Healthier, better quality plants - reduced risk of fungal disease.
- Less salt in the soil or the aquifer.
- Safe and efficient delivery of fertilisers.
- Longer life of the irrigation system protected from machines, vandalism, animals, UV and temperature fluctuations.
- Fewer weeds.
- Improved soil aeration.
- Dry soil surface so the operation of the irrigation system does not interfere with cultivating or harvesting.
- Water saving - No losses to evaporation, wind, run-off or misting.
- Lower maintenance costs.
- Labour savings.
- Available in Non-Compensated (2.0 L/h and 4.0 L/h), and Pressure Compensated (1.6L/h, 2.0 L/h, 2.4 L/h and 4.0 L/h) emitters.
- Australian made.
- Two outlet holes and large exit chamber reduces the risk of exit hole plugging.
- Available in 16mm and 20mm OD tubing, and 13mm ID tubing.
- Raised inlet on emitter helps to keep the emitter cleaner.
- Filtration requirement 120 micron or smaller.
- 10 year guarantee against root intrusion. (pro rata after 5 years)

Rootguard Reference Guide

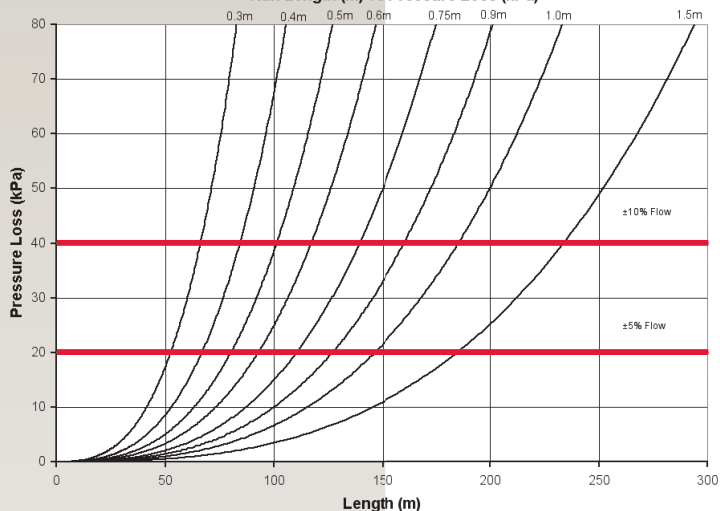
Tube Size (mm)	Emitter Spacing - m								Emitter Flow Rate Lph			
	0.3	0.4	0.5	0.6	0.75	0.9	1.0	1.5	1.6	2.0	2.4	4.0
13 PC	✓	✓								✓		
16 Classic	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓
16 PC	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
20 Classic	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓
20 PC	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓

Rootguard® is a registered trademark of A.I. Innovations.
 Treflan® is a registered trademark of Dow Elanco.
 For further information on Drip-In™ with Rootguard® refer to the web sites www.toro.com.au and www.geoflow.com

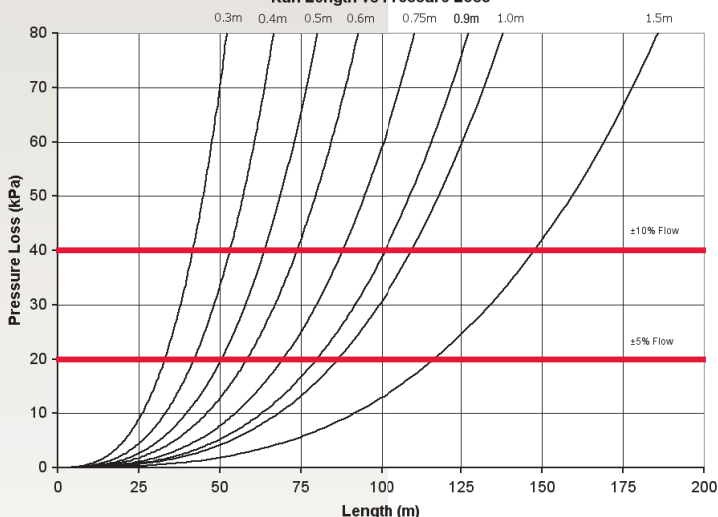
Emitter Flow vs Pressure



16mm Drip-In with Rootguard Non-compensating 2.0 L/h
Run Length (m) vs Pressure Loss (kPa)



16mm Drip-In with Rootguard Non-compensating 4.0 L/h
Run Length vs Pressure Loss



16mm Drip-In with Rootguard Classic

Nom. Flow (Lph)	2.0	4.0
Exponent, x	0.592	1.245
Constant, k_b	0.52	0.507
Barb Factor k_b	0.90	0.90
Max ^m Pressure (kPa)	350	350

Tube Dimensions

Nom. Diam (mm)	ID (mm)	OD (mm)	Coil Length (m)
16	14	16	450

±10% Flow variation on flat ground

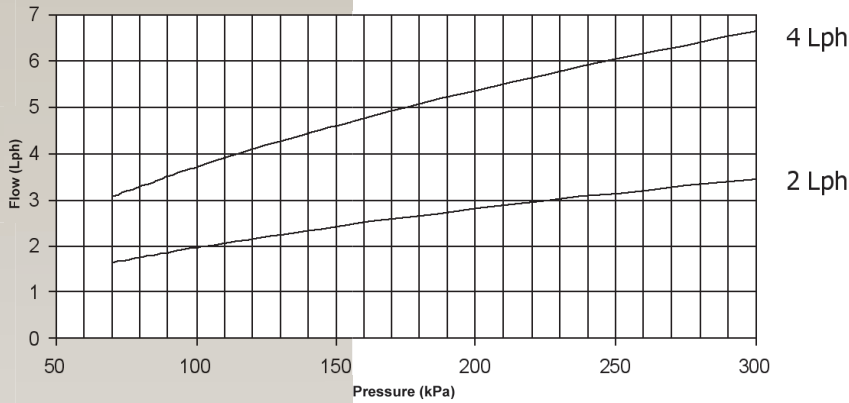
±5% Flow variation on flat ground

Ordering Information

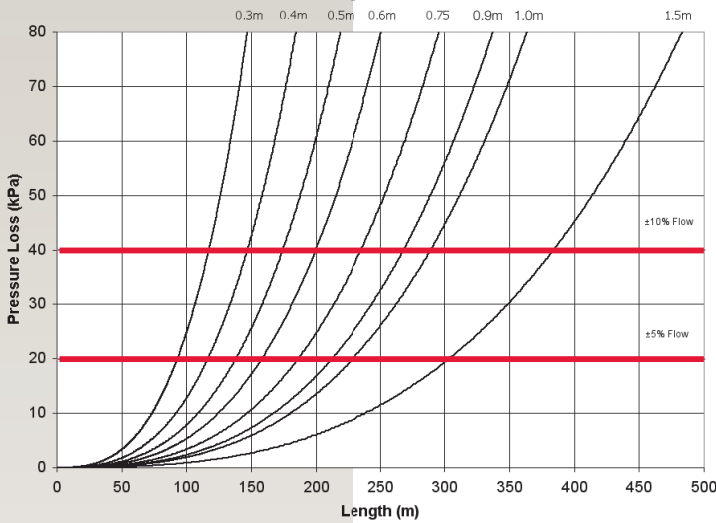
16mm Drip-In with ROOTGUARD® - Coil Length 450 metres

Flowrate	0.3 m	0.4 m	0.5 m	0.6 m	0.75 m	0.9 m	1.0 m	1.5 m
2.0 L/h	DGN1620030	DGN1620040	DGN1620050	DGN1620060	DGN1620075	DGN1620090	DGN1620100	DGN1620150
4.0 L/h	DGN1640030	DGN1640040	DGN1640050	DGN1640060	DGN1640075	DGN1640090	DGN1640100	DGN1640150

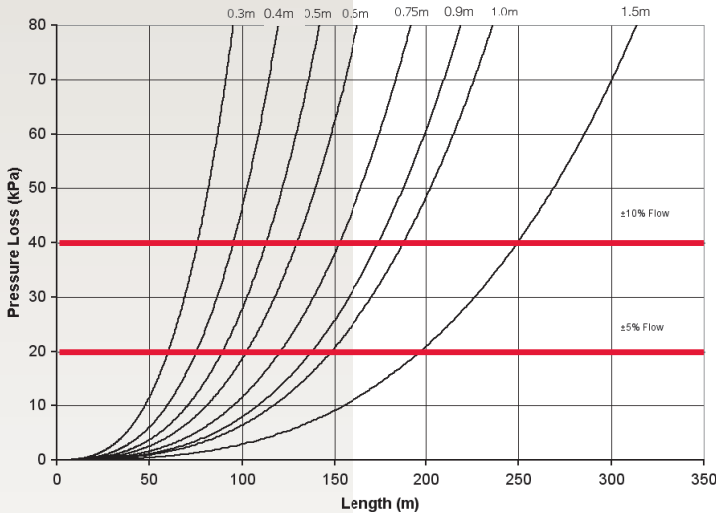
Emitter Flow vs Pressure



20mm Drip-In with Rootguard Non-compensating 2.0 L/h Run Length vs Pressure Loss



20mm Drip-In with Rootguard 4.0 L/h Non-compensating Run Length vs Pressure Loss



±10% Flow variation on flat ground

±5% Flow variation on flat ground

20mm Drip-In Classic with Rootguard		
Nom. Flow (Lph)	2.0	4.0
Exponent, x	0.507	0.529
Constant, k_p	0.6114	1.092
Barb Factor k_b	0.35	0.35
Max ^m Pressure (kPa)	350	350

Tube Dimensions			
Nom. Diam (mm)	ID (mm)	OD (mm)	Coil Length (m)
20	18	20	300

Ordering Information

20mm Drip-In with Rootguard® - Coil length 300 metres

Flow rate	0.3 m	0.4 m	0.5 m	0.6 m	0.75 m	0.9 m	1.0 m	1.5 m
2.0 L/h	DGN2020030	DGN2020040	DGN2020050	DGN2020060	DGN2020075	DGN2020090	DGN2020100	DGN2020150
4.0 L/h	DGN2040030	DGN2040040	DGN2040050	DGN2040060	DGN2040075	DGN2040090	DGN2040100	DGN2040150