

N E T A F I M

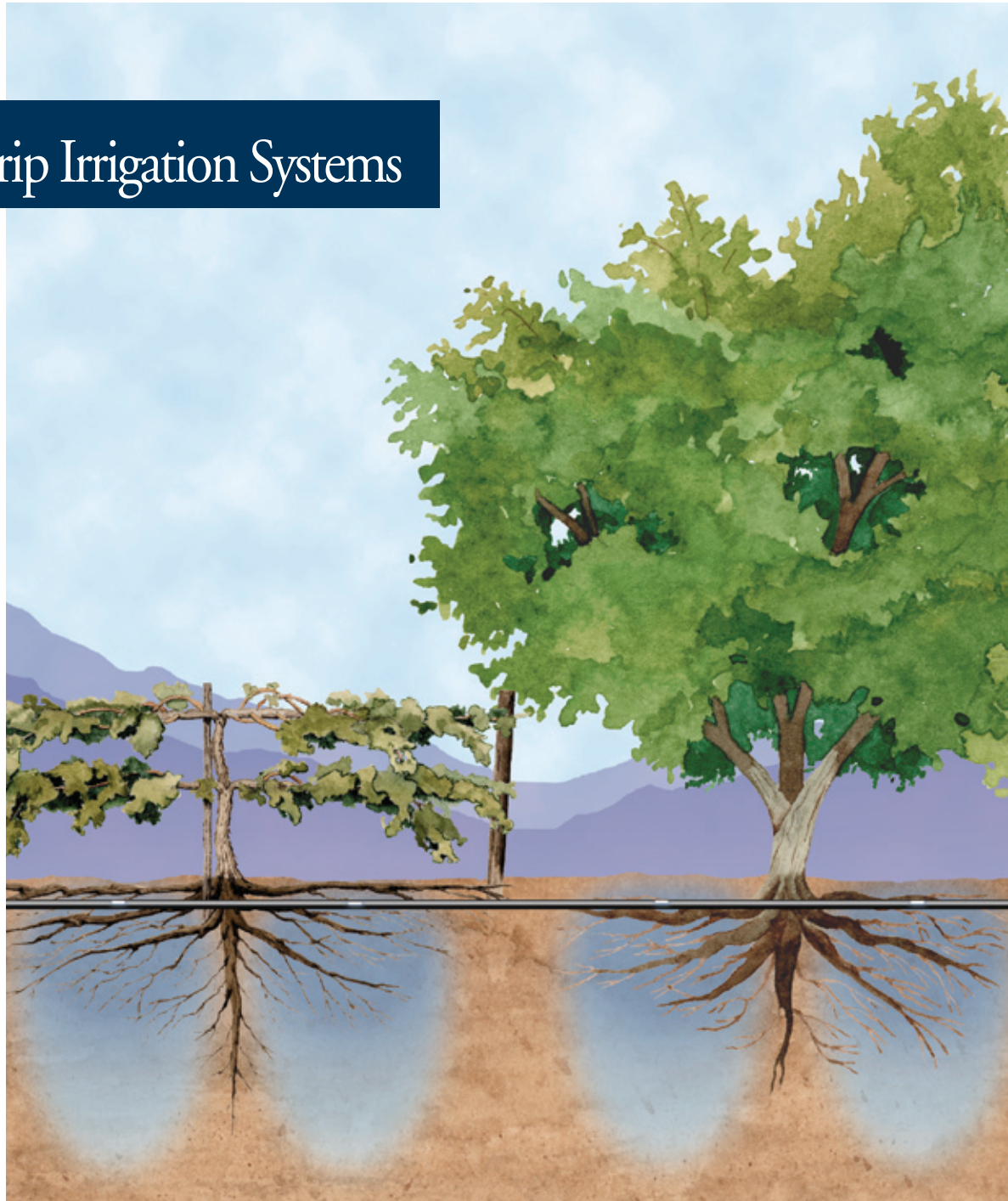
Subsurface Drip Irrigation Systems

Advanced

Drip/Micro

Irrigation

Technologies



IRRIGATION-MART
we SAVVY irrigation

 **NETAFIM**TM

Subsurface Drip Irrigation

Quality. Dependability. Global Expertise.

For over 40 years, growers worldwide have counted on Netafim USA for the most reliable, cost-effective and efficient ways to deliver water, nutrients and chemicals to their crops. This tradition continues with subsurface drip irrigation (SDI), the most advanced method for irrigating agricultural crops. With proper management of water and nutrients, a subsurface drip irrigation system can deliver maximum yields and optimal water use efficiencies.

What is Subsurface Drip Irrigation?

Subsurface drip irrigation is a variation on traditional drip irrigation where the dripperline (tubing and drippers) is buried beneath the soil surface, rather than laid on the ground. The depth and distances the dripperline is placed depends on the soil type and the plant's root structure.

Subsurface Drip Irrigation Advantages.

The key benefit of a surface micro-irrigation system is to apply low volumes of water and nutrients uniformly to every plant across the entire field. Subsurface Drip Irrigation delivers many advantages beyond surface irrigation.

Drip Irrigation Advantages

- Increases production and yields
- Increases quality and uniformity of crop production
- Accelerates crop maturity
- Increased ability to farm marginal land
- More efficient use of applied water
- Substantial water savings

The Netafim USA Advantage.

Netafim USA offers the widest selection of subsurface drip irrigation products and superior system accessories available in the industry. Designed to work together, a complete system from Netafim USA is made of top-quality products, ensuring a successful subsurface drip irrigation system.

Advanced Technologies from the Leaders in Precision Irrigation

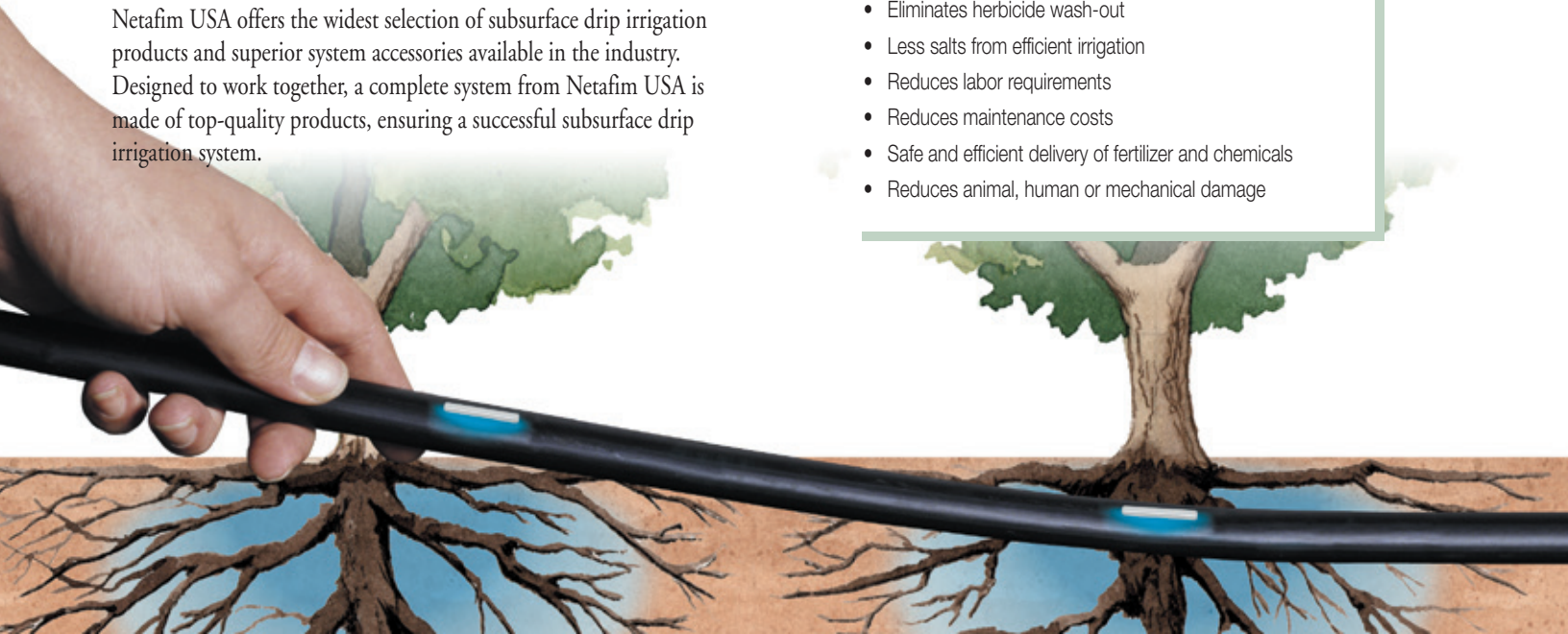


Water Movement in Subsurface Drip Irrigation Systems

When applied slowly to the soil at a single point, water moves through the soil in two ways: 1) downward pulled by gravity and 2) outward and upward, pulled by capillary action.

Subsurface Drip Irrigation Advantages

- Eliminates surface evaporation
- Reduces crop stress
- Extends life of irrigation system
- Prevents weed germination
- Eliminates herbicide wash-out
- Less salts from efficient irrigation
- Reduces labor requirements
- Reduces maintenance costs
- Safe and efficient delivery of fertilizer and chemicals
- Reduces animal, human or mechanical damage



Achieving Success

System Planning in Two Steps

Step 1

Site Evaluation – Selecting the Best Emission Device for Your Application

Site evaluation is the first step in developing a successful Subsurface Drip Irrigation system - it requires assessments of the water quality and availability, soil and topography. Listed below are some general guidelines to help in the selection of an emission device for your specific application.

Water Quality and Availability

Properly addressing water quality issues often solves most problems associated with the successful operation of the subsurface drip irrigation system:

- Physical - suspended particles and filtration
- Chemical - ph iron, bicarbonates, carbonates
- Biological - bacteria and filtration/chemical treatment

Soil Type

Soil type and absorption play an important role in determining dripper application. Maintaining a dry soil surface is essential. When water migrates to the surface weeds germinate and compete with the crop for water and nutrients.



Heavy Clay Soil

Low flow drippers are recommended. Water moves to the soil's surface easily when the dripperline is installed too shallow or if a high flow dripper exceeds the soil's ability to absorb water - resulting in channeling.



Medium Textured Soil

Requires closer dripper spacing (compared to clay soil). Lower flow drippers are recommended.



Light Textured Soil

Closer dripper spacing is required in order to uniformly wet the soil profile. High frequency irrigation can be used to achieve similar results.

Heavywall Dripperline Options to Meet the demands of Permanent Crops

Heavywall dripperlines are recommended for permanent crop subsurface drip applications:

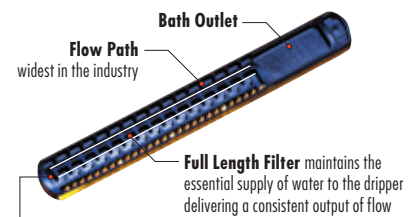
- 35 mil tubing thickness or greater (heavywall dripperlines)
- High-quality drippers designed for long-term applications
- Recommended depth of burial from 4" to 24" (based on soil type)

Topography

Field Slope will determine whether a designer selects a pressure compensating or non-pressure compensating dripper:

Flat Terrain

- Economical non-compensating drip irrigation for all flat terrain
- Large fields with quarter mile runs



Turbonet Technology
wider cross-section allows large particles through flow path

Triton X Non-Pressure Compensating Dripperline

The Quarter-Mile Solution for Non-Pressure Compensating Drip Irrigation

Rolling Terrain

- Pressure compensating dripperline
- Long runs
- Applications demanding high uniformity



UniRam Pressure Compensating Dripperline

- Large Filtration Area
- Anti-Siphon Mechanism
- Self-flushing, Self-Cleaning



Step 2 Getting the Best Return on Your Investment

The goal is to get the best return on your investment. A well-designed system quickly pays for itself and adds to your bottom line. Subsurface drip irrigation allows growers to cut labor expenses and more efficiently manage water and nutrients.

Product Selection – Making the Right Decision

Heavywall dripperlines are available in many different configurations to meet your unique crop and soil conditions. The options you choose will determine the overall cost of the system:

- Wall thickness - consider planned length of use
- Tubing size and dripper spacing
- Dripper type - pressure compensating (undulating terrain) or non-pressure compensating (slopes)
- Dripper performance - consider product history, physical characteristics of flow path and hydraulic parameters

System Components

Other factors to consider when planning your system are filtration, vacuum relief and root intrusion protection.

Filtration – Sand, Disc and Screen

Many factors should be considered when selecting a filter system including: flow rate, quality of incoming and discharged water and the type of dripper - the smaller the flow path, the more critical the required filtration.



Galaxy Disc-Kleen Filter
High-Flow Water Filtration System



19000 Series Screen Filter
Manual Steel Filter



AGF Media Filter
Plastic, Corrosion Proof

Pressure Relief with Air Relief and Vacuum Valves

Air/vacuum relief vents are an inexpensive protection against soil ingestion and can extend the life of the drippers in the subsurface drip irrigation system. If the system is not properly vented, when the dripperline drains during shutdown, fine soil particles can be ingested

into the dripper – potentially plugging the dripper. Other system design considerations include:

- Submain positioning - should be placed in the highest location
- Rolling terrain - requires strategic placement of pressure regulation, vacuum relief and check valves



1" Automatic Continuous Acting Air Vent

- For high spots where air accumulates.



1" and 2" Combination Vacuum Relief and Continuous Acting Air Vent

- For release of large volumes of air at pump and filtration stations, along mains, and at end of mainlines.
- At high elevations in pipe network and upstream side of manifolds.

1" to 3" Guardian Air and Vacuum Vent

- For downstream of valves, and at manifolds to break vacuum caused by system draining.



Reliable, Accurate Flow Meters

Flow Meters are specifically designed for irrigation systems to provide the most accurate and reliable flow readings. When properly selected and maintained, flow meters can be the most accurate and easiest method for measuring water flow in the pipelines and improving efficiency through accurate application of water.



3", 4", 6", 8", 10" and 12" WST Flow Meters

- Maximum protection from fine sand damage.
- Low wear, long-life impeller shaft and bearings.
- Can be installed in a vertical, horizontal or oblique position.

Netafim USA – Delivering Total System Solutions for Agriculture

- Dripperlines • Sprinklers • Filters • Valves • Air Vents • Flow Meters • Crop Management Technologies



IRRIGATION-MART

we SAVVY irrigation

800-SAY-RAIN | www.irrigation-mart.com

200 South Service Road East | Ruston, LA 71270-3442 | P: 318-255-1832 | F: 318-255-7572 | info@irrigation-mart.com

13799 Airline Highway | Baton Rouge, LA 70817-5924 | P: 225-755-3447 | F: 225-755-1240