NutraDrip
Irrigation Systems

SUBSURFACE
DRIP
IRRIGATION
+ manure

2991 GOLDFINCH RD
HIAWATHA, KS 66434
785-547-5209
WWW.NUTRADRIP.COM

MANURE MANAGEMENT

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THE BENEFITS OF TURNING WASTE INTO VALUE

INCREASED CROP UNIFORMITY

With SDI, water and nutrients are used more efficiently reducing input costs, producing a more uniform crop and higher yields.

REDUCED NEED FOR SCARCE WATER RESOURCES

Allows farmers the ability to weather extreme drought.

REDUCED RISK OF POLLUTING WATER BODIES

Reduced nutrient use avoids polluting water supplies by delivering nutrients directly to the root zone.

REDUCED NEED FOR SYNTHETIC FERTILIZER

Farmers save by utilizing the already available organic on-farm nutrients.

SDI

SUBSURFACE DRIP IRRIGATION REDUCES CULTIVATION COSTS

SDI is the most efficient irrigation system using less water and fertilizer, and saving operational expenses. Drip is well adapted to 'No-till, Strip-till, and Minimum till' systems reducing cultivation costs.

Precise application of nutrients to root system.

Less fertilizer.

Use on-farm nutrients to fertilizer forage crops

Reduces synthetic fertilizer cost.

Soil surface stays dry.

Less weed growth.

Using SDI with strip or no-till streamlines crop management strategy.

Reduces time for ground preparation cultivation and crop residue management.

SDI irrigates 100% of the land.

No corners as with center pivot irrigation.

SUBSURFACE DRIP IRRIGATION

is defined as the application of water below the soil surface by micro-irrigation emitters. SDI has been used commercially for irrigating many crops since the early 1990's.

Common spacings today are 30", 40" and 60". The dripline is typically buried 8 to 14 inches deep depending upon soil type and germination conditions.

In addition to the water savings provided by drip irrigation, field trials have shown an increase in nitrogen use efficiency of up to 47%. This results in more of this organic fertilizer being taken up by the plant, preventing the leaching of excess nutrients from the soil to the groundwater below. The system has also shown to help decrease the emission of greenhouse gasses.

HIGHEST WATER USE EFFICIENCY

Water loss through evaporation, runoff and deep percolation are virtually eliminated.

ADAPTS FOR FIELD SIZE, SHAPE & TOPOGRAPHY

Odd shaped, small, and steep fields are not an issue with Netafim SDI solutions.

IMPROVES CROP QUALITY & BOTTOM LINE RESULTS

Water and nutrients are used more efficiently, resulting in reduced input costs, and produces a more uniform crop and higher yields.

LONG LASTING PERFORMANCE

A high-quality drip system can last 25 years or more, when properly maintained.

NETAFIM™

50+ YEARS IN DRIP
30+ YEARS IN WASTEWATER

IN-SEASON APPLICATION &

UTILIZATION OF ON-FARM NUTRIENTS

WATER CONSERVATION

By applying an effluent water and freshwater mix. Coordinating timing of nutrient distribution directly to the root zone via SDI evaporation is almost totally eliminated. No moisture on soil surface means less weed growth and less cultivation or herbicide sprays.

ENERGY CONSERVATION

Typically, SDI gives the ability to reduce overall amount of nutrients being applied, because it is applied with better timing coordinated with plant uptake.

NUTRIENT CONSERVATION

Coordinating timing of nutrient distribution with plant uptake can reduce the amount of nutrients being applied. With drip, nutrients are applied directly to the root zone becoming quickly available to the crop.

FILTRATION

The filter system protects the drip system from the fine sand and other small particles that can plug the emitters. A well-conceived filter system provides the maximum operating life of the SDI system.

NITROGEN USE EFFICIENCY

TONS YIELD / ACRE / LBS OF NITROGEN **47.22%**

NITROGEN APPLIED

LBS N APPLIED PER ACRE **-44.78%**

& BLENDING

Application of effluent water from Confined Animal Feeding Operations (CAFOs) requires the blending of freshwater with effluent water. For control purposes, we need to measure both the effluent and freshwater being delivered to the head control and also measure the water going to the field.

NUTRIENT CONTENT

PER PIG/DAY

N	P	K
0.030-0.033 #/day	0.020-0.027 #/day	0.016-0.024 #/day

PER COW/DAY

N	P	K
0.595 #/day	0.24 #/day	0.48 #/day

FLUSH MANIFOLDS

Most Permanent SDI systems use flush or collection manifolds so that an entire zone can be flushed at the same time. A collection manifold at the end of the field also improves system distribution uniformity a percent or two, by balancing out the flow and pressure of all laterals collected in the manifold.

The use of flush manifolds is required to properly flush the driplines and reduce the labor requirement at the same time. This would be especially true on systems applying any effluent water. An example of this is about 25% of the particles in dairy effluent water will not be captured by 120 mesh filtration (120 mesh = 125 microns = 0.125 mm = 0.0049”). These fine particles will migrate and collect at the hydraulic low end of the system and without it being removed, could cause dripper plugging. Flush manifold systems can easily be automated with Netafim Digital Farming components.

WATER:MANURE BLEND

Typically, water is blended with manure at a water:manure ratio of 4:1.

ELECTROCONDUCTIVITY MEASUREMENTS

An automated blending process that is based on the EC content, injects more/less in order to keep EC in balance, and not damage the crop.

SEPARATION

IMPORTANCE OF EVALUATING THE QUALITY OF MANURE SEPARATION PRIOR TO INTAKE INTO THE SDI-E SYSTEM

In preparation for installing the manure SDI system, a review of the farm's manure management system is recommended. For converting to manure SDI, retrofits to the manure management system may be needed to reduce the concentration of coarse solids.

WHAT IS THE SYSTEM?

A modified drip irrigation system that uses manure nutrients instead of synthetic fertilizers to grow feed crops with less environmental impacts. Netafim's patented precisioin blending control systems (US Patent No. 10143130) blends the fresh and effluent water for precise nutrient uptake.

GROWER BENEFITS

- Increased yields
- Reduced need for scarce water resources
- Increased water use efficiency
- Reduced risk of polluting waterbodies
- Lower application cost
- Reduces fertilizer expense with on-farm produced nutrients (effluent)
- In-season application

CLIMATE BENEFITS

- Injecting at root zone
- Underground inseason results in lower greenhouse gas emmisisons
- Reduced nutrient use avoids polluting water supplies
- Healthier plants

FAQ

PRESSURE COMPENSATED DRIPPERS

Allows for the drip line to be installed in rolling topography. Two different kinds of emitters are installed, depending on the topography. This produces a uniform amount of water from one end to the other. The drip line can be installed in up to 80' elevation change within one field.

SCALABLE SYSTEM

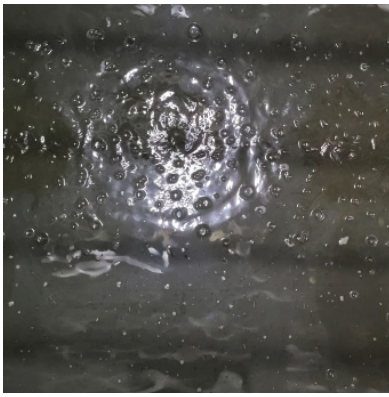
The system is scalable, depending on the gallons of manure being pumped through.

PIT AERATION

Aeration is the process of mixing air, or creating bubbles, into the manure to promote the growth of aerobic bacteria. This process flights the formation of odor-producing bacteria, while simultaneously boosting the breakdown of the organic material.

BENEFITS

- Lower Ammonia
- Increased Nitrogen
- No Pit Agitation Needed
- Decreased Odor
- Eliminates Hydrogen Sulfide



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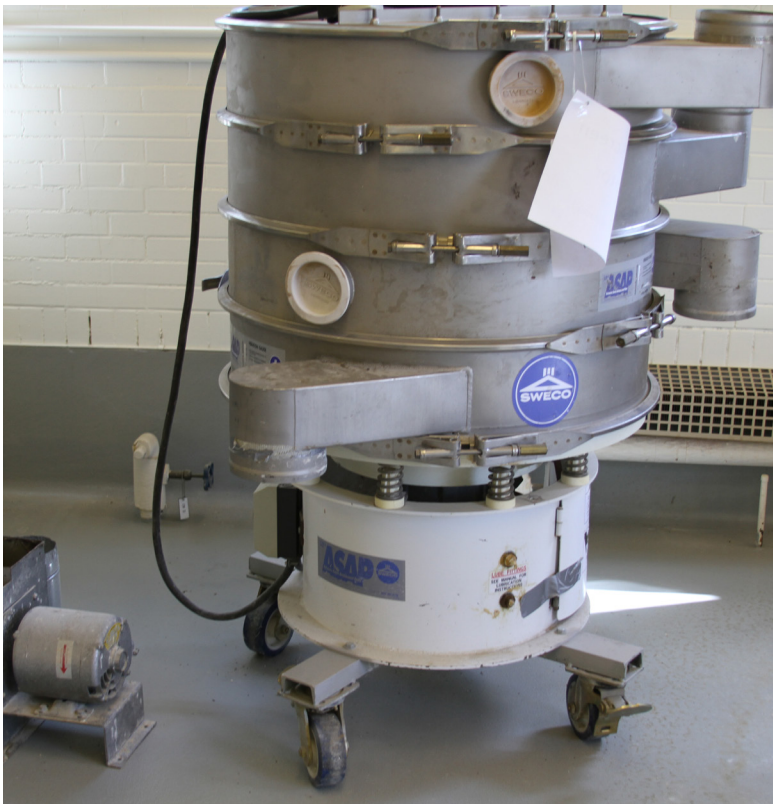
Microfilter

Screwpress

Shaker



Riverscreen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