

# THE NEW GENERATION IN IRRIGATION

*“Anything else is a waste of water!”*



by  
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&  
David Hinton

Irrigation & Water Technologies Pty Ltd

Version DG – 8 February 2006

*Save Water*

*Save Money*

*Save the Environment*

# KISSS Technology

Is an Internationally Patented Technology, invented, developed and manufactured in Australia.

It uses the hydraulic capacity of specialized geo-textiles in combination with low-flow emission drippers to create an unmatched 98% even dispersal mechanism.

# IWT – Irrigation & Water Technologies



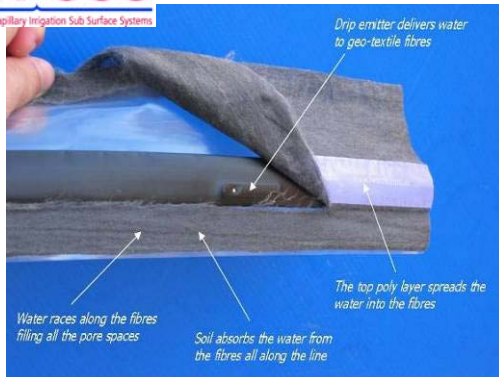
**Water Buffalo Reservoir**



**KSSS Nursery Mat Systems**  
Kapillary Irrigation Sub Surface Systems



**KSSS Irrigation Systems**  
Kapillary Irrigation Sub Surface Systems



**KSSS**  
Kapillary Irrigation Sub Surface Systems

**TermiBlock**

Watch this space...future product for new turf installations

## **OBJECTIVE – to develop the most efficient form of irrigation**

- ☞ **applies water directly to the root zone**
- ☞ **at a flow rate designed for optimal absorption**
- ☞ **releases water to the driest areas first**

## **OUTCOMES**

- ☞ **less evaporation**
- ☞ **minimal deep percolation**
- ☞ **eliminates run-off**
- ☞ **reduced salinity impacts**
- ☞ **reduced fertiliser and insecticide use**
- ☞ **lower health risks from re-use of water**

# Research

10 years of development and on-going testing



## Results:

**75% less water v sprinkler**

**60% less water v drip line\***

**Uniform crop growth**

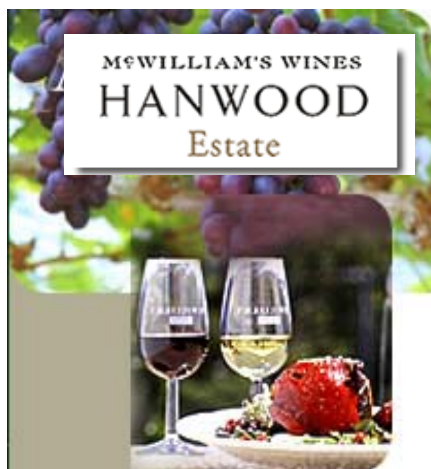
**CSIRO**

Welcome to the Commonwealth Scientific and Industrial Research Organisation



# Research - Vineyards

In-situ testing over last six years



University of Western Sydney  
Bringing knowledge to life

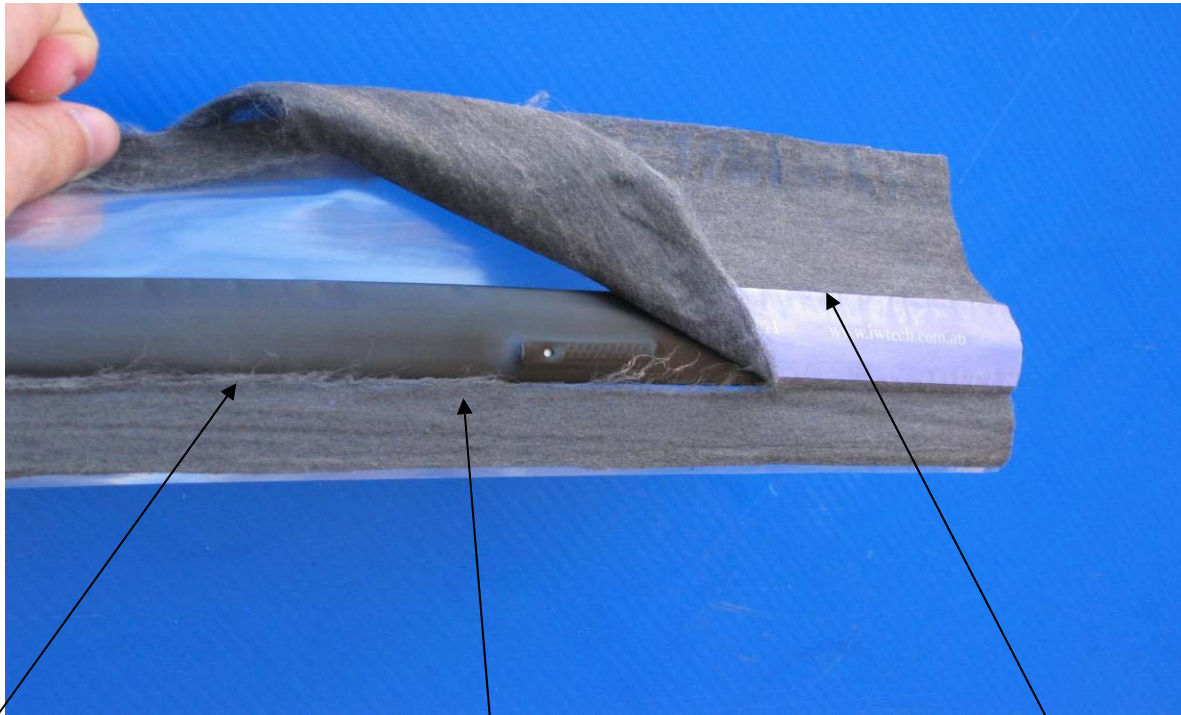
**2 ha under vine since 2000**

**Results:**  
**More production**  
**Less weed growth**

**1 ha under vine since 2000**

**Results:**  
**60 % less water use than drip line**  
**Less weed growth**

# BelowFlow Flat

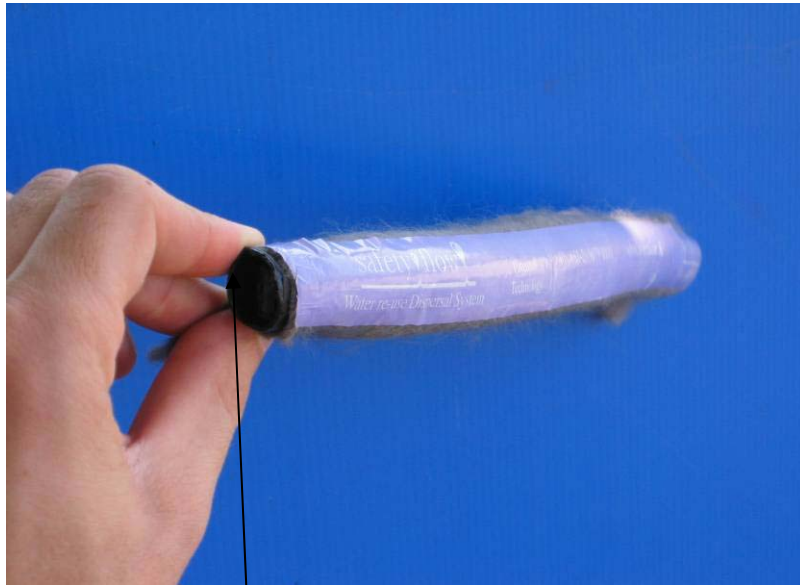


*Water races along the fibres filling all the pore spaces*

*Soil absorbs the water from the fibres all along the line*

*The top poly layer spreads the water into the fibres*

# BelowFlow Wrap



*Pressure  
compensating drip  
line*



*Geotextile conducts the  
water*

# Why More Efficient?

- More uniform application
- More water in root zone
- Less evaporation

# More uniform application

- Continuous source
- Intelligent
- Soil testing

# Uniformity of wetting

## KISSS



elliptical  
wetting pattern  
along the entire  
length

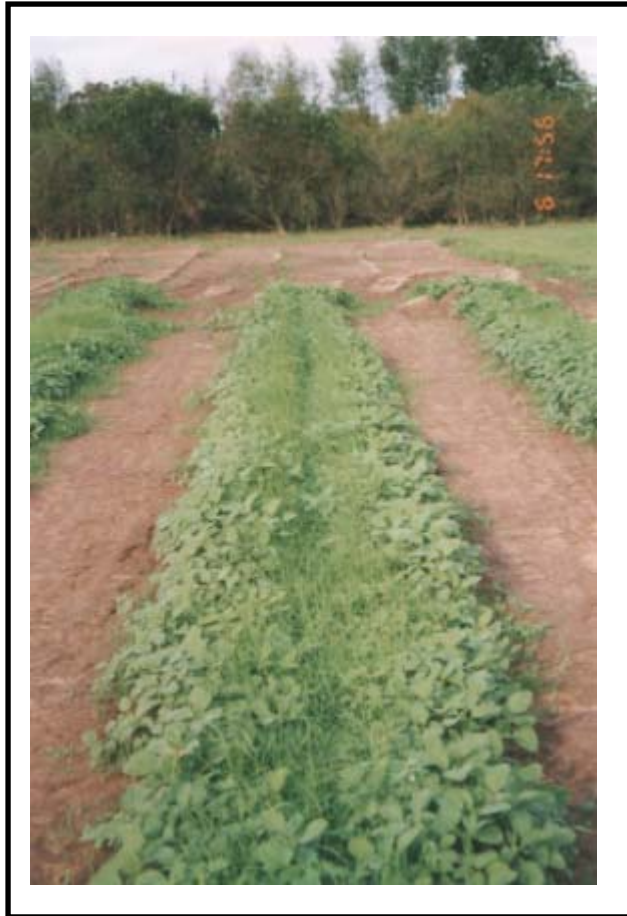
## Drip System



inconsistent  
wetting  
pattern and  
tunnelling

# Uniformity of wetting

**KISSS**



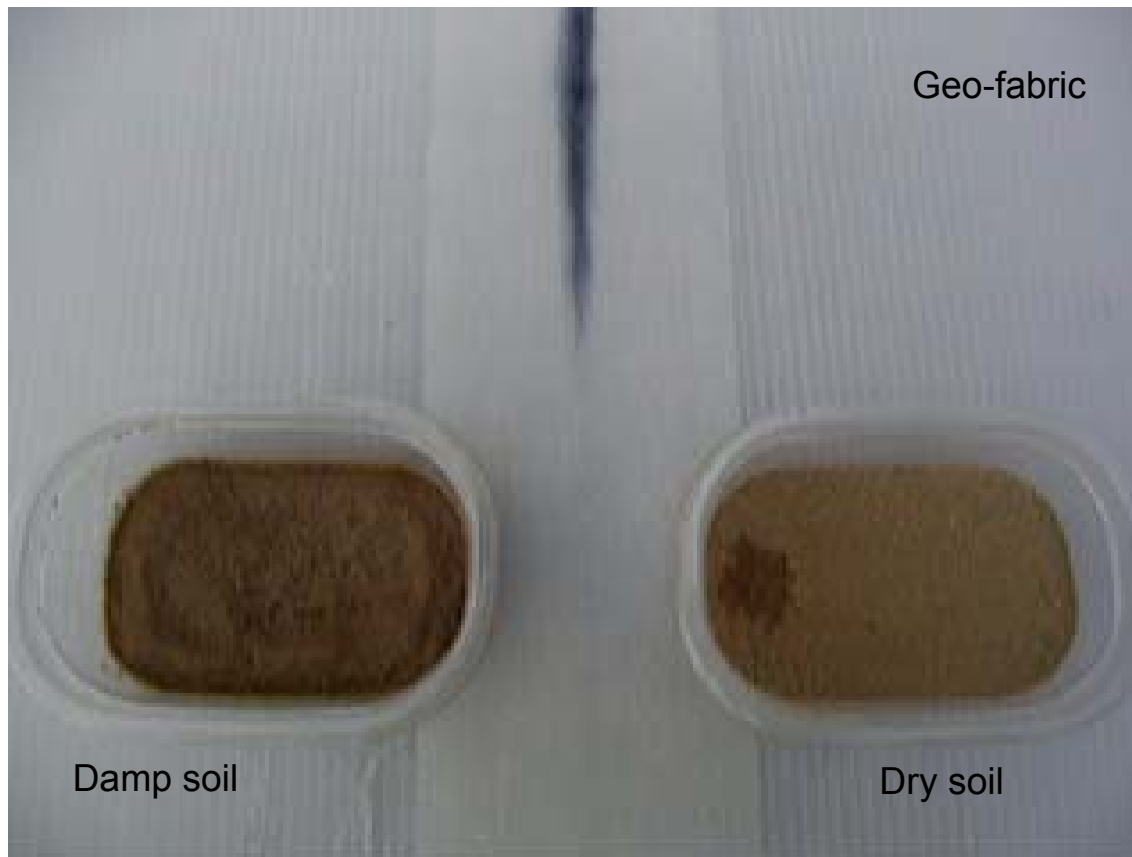
**Drip System**



# More uniform application

- Continuous source
- Intelligent
- Soil testing

# Intelligent



Note the water and ink ignores the damp soil pot on the left for the dry soil pot on the right.  
The KISS system **releases water to dry soils first** before releasing to more wet soils.

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# Intelligent



Note the water and ink ignores the damp soil pot on the left for the dry soil pot on the right. The KISS system will tend to release water to dry soils before releasing to more wet soils.

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# More uniform application

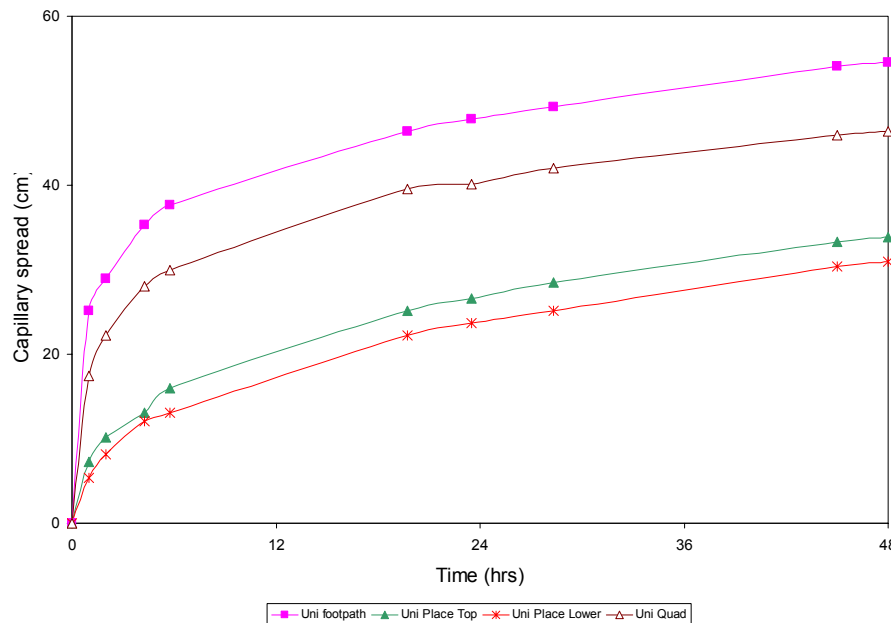
- Continuous source
- Intelligent
- Soil testing

# Soil Test Reports

Determining soils ability to absorb water over time

- ☞ Optimum system flow rate
- ☞ Predicting wetting profile

Soil capillary wetting curve



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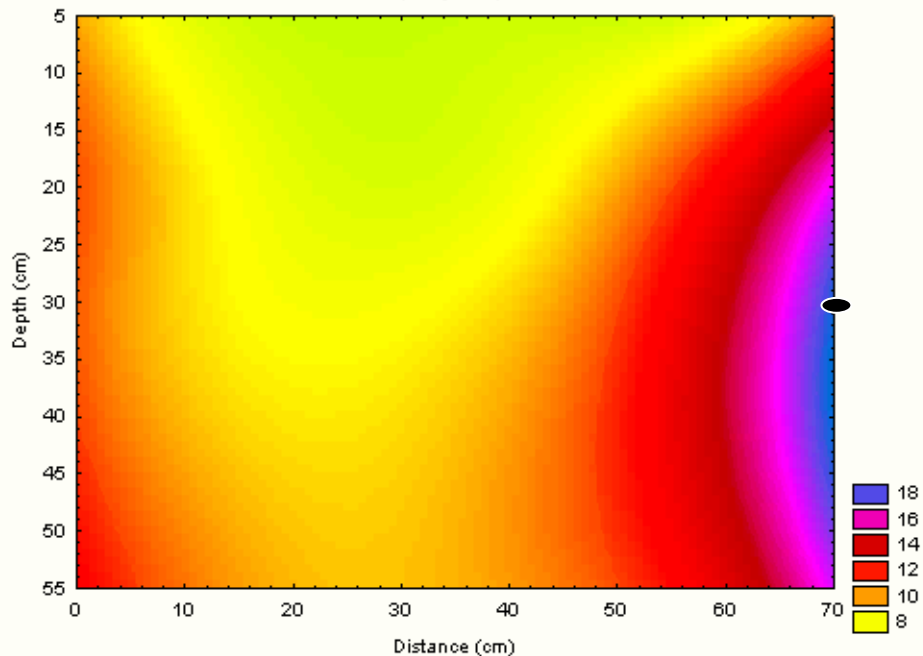
# More root zone moisture

- Lowest discharge rate
- Intelligent

# Wetting Pattern Comparison

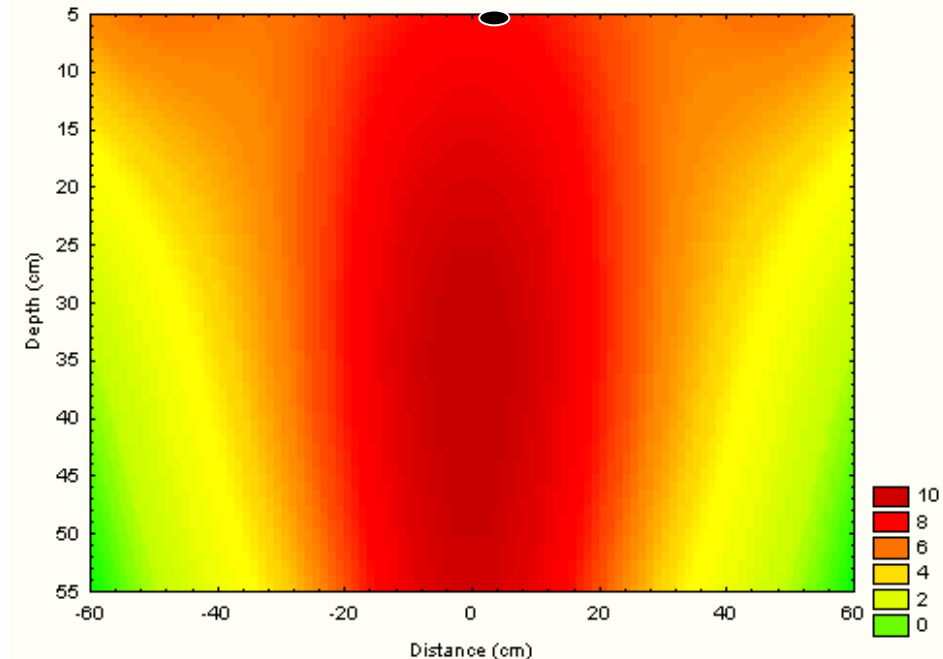
## KISSS

CRZI (Image196)



## Drip System

DRIP (Image76387)



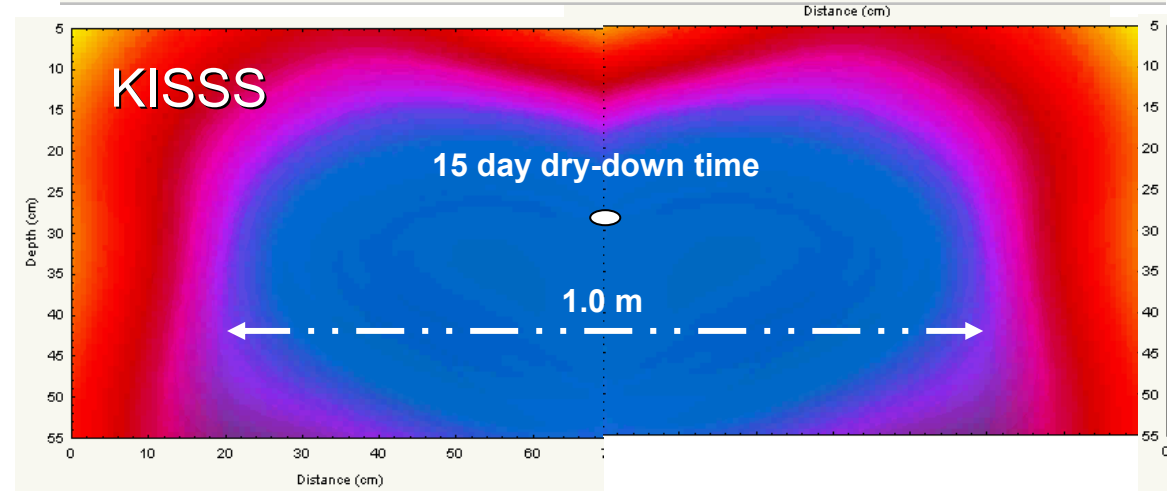
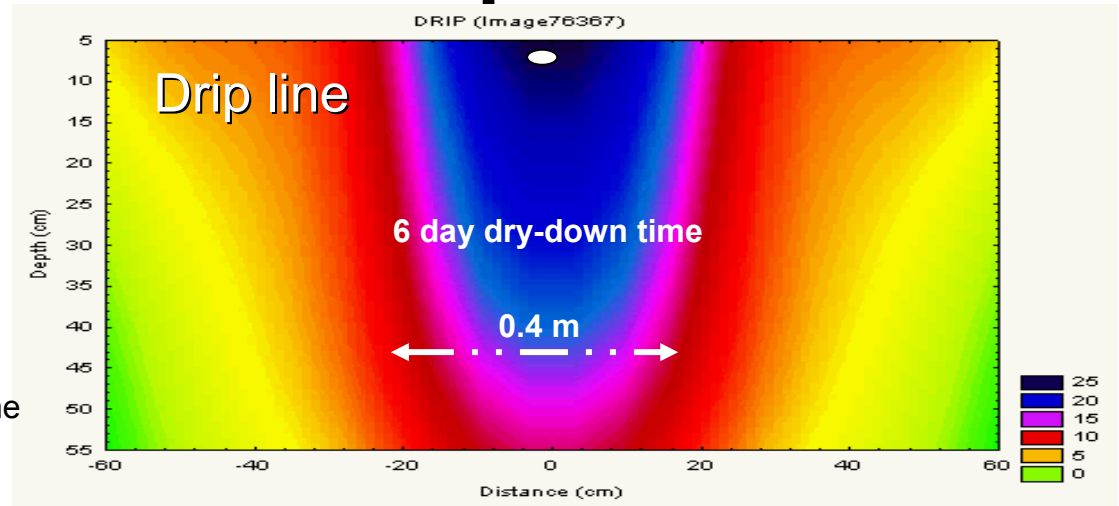
### Experiment

- 1.5 hour irrigation
- Flow rate is identical
- Soil type is loamy sand.
- Testing authority is **University of Western Sydney**

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# Wetting Pattern Comparison

- KISSS wets three times the soil volume
- Uses 60% less water than conventional drip-line



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# Less Evaporation

- Dry surface
- No tunnelling

# Dry surface

Conventional  
Drip System  
used



KISS  
system  
used

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# Tunnelling

Tunnelling over conventional sub-surface drip tape



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# Installation

- Plough attachment
- Fast recovery

# Installation



Safety Flow Implement on a Tractor

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# Installation

The implement leaves a small cut in the turf



Depth of installation can be varied according to the soil texture



Line separation based on soil capillary flow test



## Quakers Hill Park – Blacktown City Council



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# It's new technology – or is it?

## Drip Irrigation

- Has been around worldwide for over 30 years
- Over 10 Billion lineal meters installed worldwide

## KISSS (sub-surface)

- 10 years of research and development
- First sporting field installed in 2000
- Market release in 2005
- 300,000 lineal meters of KISSS in last 6 months

# Some of our Customers



Coverdale Christian School  
Riverstone



Pacific Hills Christian School, Dural



Parliament House Canberra

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# *Summary*

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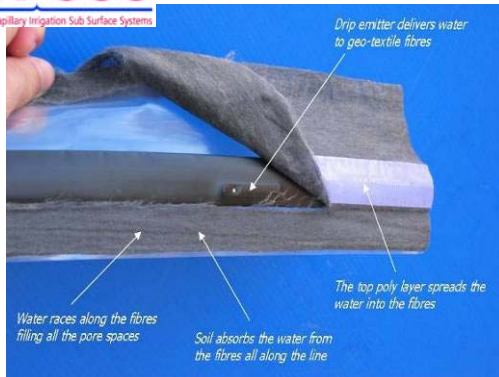
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[www.kisss.net.au](http://www.kisss.net.au)

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