

MEDIA LAB

Effluent Monitoring

TUANZ Rural Broadband Symposium

Rotorua

3rd & 4th July 2008

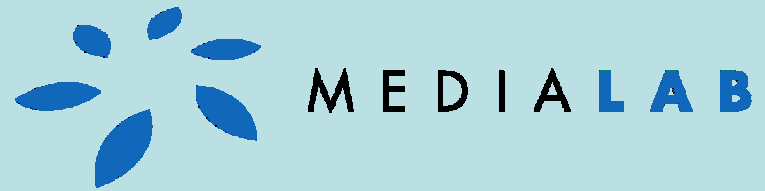
Who is MediaLab?



- Independent R&D company
- Works with NZ universities
- Specialists in communications research
- Works with many partners to develop integrated solutions



Farmgate Programme



- Traceability & Environmental Monitoring identified as areas communication research could be of benefit
- Effluent was chosen as an area to develop new uses for recent technology developments

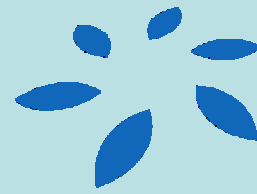


Effluent – what’s the fuss?



- As dairy systems intensify and become larger operations with more staff – effluent management gets harder to do right all the time
- Urban NZ’s view on the impact of dairying on the environment is becoming more critical
- Regional Councils are intensifying their monitoring of waterways and response to breaches of resource consents
 - Jan 07 Taranaki Regional Council **\$30,000 fine**
 - Jan 07 Taranaki Regional Council **\$10,000 fine**
 - Jan 07 Waikato Regional Council **\$35,000 fine**
 - Feb 08 Hawkes Bay Regional Council **\$20,000 fine**
 - Mar 08 Environment Southland **Community Service**
 - Jun 08 Environment Southland **\$60,000 fine**

Effluent monitoring – how does this help?



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Breaches are most often caused by;

- Irrigating when soil is too wet
- Irrigator breakdowns
- Storage overflow



To avoid these;



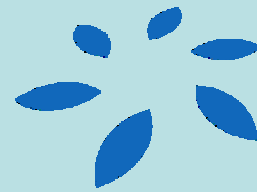
Step 1 – know what's going on



Step 2 – work out the best action

RE:GENERATION

The future of effluent management



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- **Simplifies the system**

- Saves time at busy times of the year
- Less decisions for staff



- **Based on farm level data**

- Don't have to find regional figures
- Don't have to go out & manually take readings

Components – inputs



Step 1 – Know what's going on



Components – inputs

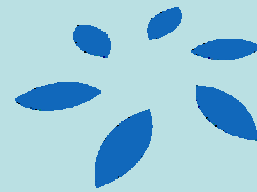


Step 1 – Know what's going on

But how can you without monitoring?



Components – inputs



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Step 1 – Know what's going on

Sensor network over the farm, monitoring;

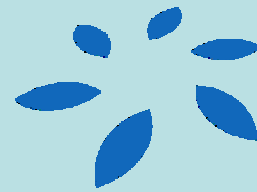
- Soil moisture & temperature
- Rainfall, wind speed, air temperature, humidity
- Effluent pond level
- Irrigator movement

Uses technology to automatically capture and transmit sensor readings

Sensor readings aggregated in a central database



Components – outputs



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Step 2 – Work out best action

Irrigation recommendations;

- Readings are put through “rules” of the relationship between soil moisture, pond level and irrigation rates
- Automatically determines the “best” action, each day

Irrigator control;

- Readings coming in continuously
- Automatically knows when the irrigator stops moving

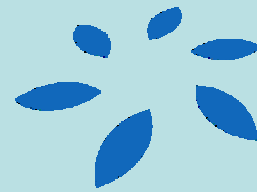


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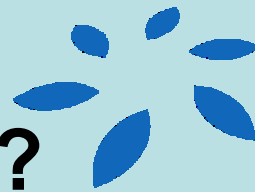
How does it work?



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Platform technology – what else could be done?



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- **With a sensor network in place the data collected can drive other applications;**
 - Soil moisture & temperature
 - Pasture growth prediction
 - Best time to apply Nitrogen fertiliser
 - Volume & concentration of effluent
 - Record where effluent is spread
 - Nutrient budgeting
 - Effluent system design



Thank you – any questions?

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