

NOIC IRRIGATION MANAGEMENT PLAN

*Amount and timing of irrigation is managed to **minimise leaching run-off** and ensure efficient use*

Property Name: Bedding Hill

Person responsible for implementing this Plan: Dene and Carolyn Thelning

Date: 21st October

Contacts for breakdowns and maintenance: Waterforce Oamaru 03 437 2210

Target 1: New irrigation – design and Installation	Evidence
1.1 Design	
Site approval:	
Fixed Grid irrigation has been designed to: Mitigate risk on farm. Maximise efficiency of water use.	
1.2 Installation	
New Fixed Grid installed on farm not through a company so no commissioning report. Pressure tested before backfilling.	Maintenance record.
Actions: Bucket tests to ensure application depth of new Fixed Grid	Bucket Test results

Target 2: No Overwatering	
2.1 Timing and Depth:	
- Low rate irrigation systems on 52.8ha, high rate on 19.2ha: 22.1ha Fixed Grid 30.7ha Pivot 19.2ha Hard hose Gun - Application rates from bucket testing. - Pivot 5.9mm - Fixed grid application rate 3.4mm daily. - Hard Hose Gun 39mm on 15 days, only runs when pivot is off. The entire farm is Claremont Silt Loam which has a Profile Available Water of 47mm to 300mm and therefore a Readily Available Water of 23mm. The Frizzell SMP3A soil moisture probe reads 28% in soil with wilting grass and 48% in saturated soil. The pivot is applying 5.9mm to 9.5mm every three days and is switched on if soil moisture reading falls below 36%. Fixed grid applies 3.4mm per day every day so can catch up quickly. Not turned on above 41% soil moisture reading, but in practice can be turned on with no penalty at lower readings. Bucket test on gun to be done - assuming 39mm per run over fifteen different runs. Return time is minimum fifteen days but can only run when pivot is off so in practice it's much longer because pivot is prioritised. Hard hose gun is run at fastest speed with smallest nozzle to minimise application rate.	Bucket Tests Soil Moisture Conversions

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Actions: Hard hose gun to be replaced with low rate irrigation at end of life.	

2.2 Irrigation Decisions	Evidence
Environmental Risk Assessment: Highest risk run-off route checked daily. Hard hose gun has one higher risk run which is checked when it's in that location. See water run off risk map. Fixed grid installed in place of long line sprinklers to mitigate risk. New irrigation is all low rate - fixed grid.	Run off risk map
Incident report procedure: - Run-off points are checked daily at 7.45am and 5.30pm as well as during the course of the day. - If any run-off occurs, leaks found, or faulty irrigators noticed then faulty line turned off and repairs made. - Record repairs on maintenance.	Maintenance record.

Target 3: Maintenance and Operations	Evidence
3.1 System Assessment	
All irrigation bucket tested annually.	Bucket Tests
3.2 Maintenance	
Pre-season checklist of all irrigation types done in late Winter and on first start up. Pivots self serviced annually on farm and recorded. Daily: pods, sprinklers and leaks are checked. - All maintenance recorded.	Pivot Checklist Also see Maintenance record.
3.3 Operating Procedures	Records
Daily Procedures: - Weather forecast is checked. - Rainfall recorded in book. - Soil Moisture reading is checked before irrigating after rain before irrigating. Trigger at 36% indicated. - In shoulder seasons temperature checked to ensure greater than 10 degrees. - Daily record of water on/off for each irrigator. Monthly: - Check Windsor evapotranspiration on shoulder seasons.	Rainfall, Irrigation and Soil Moisture Record

Start Up ○ All operators trained. ○ All irrigators have operations manuals from the manufacturer. ○ HH Gun manual on machine. ○ Fixed Grid manual online. ○ Zimmatic pivot manual in door of pivot.	
Applications and shifting Rotation: ○ Pivot as dictated by soil moisture. ○ Hard Hose Gun as per soil moisture and availability of water. ○ Fixed Grid on customised schedule with some sprinklers watering less.	

Seasonal Setup Information	
Start of season set up Pivot Checklist Link: https://drive.google.com/file/d/1H3QSoPsNf4gr6c1Pf7Is6VygZL37PxmA/view?usp=sharing Check for inevitable leaks/blockages on first start up and subsequent starts for first week.	
End of season shut down Drain lines at pivot centres and hard hose gun. Fixed grid will automatically drain, then inhibit controllers to preserve battery.	

Target 4: Staff Training	
4.1 Staff training on farm	
○ Staff with new irrigation responsibilities are suitably trained and signed this management plan below. No staff at present. Owner operated.	
4.2 Staff training off farm	
○ The Manager attends NOIC irrigation management workshop.	Certificates.

Staff Training I have read and understood the Irrigation Management Plan			
Name	Position/responsibility	Signature	Date
Dene Thelning	Owner		
Carolyn Thelning	Owner		