

# Irrigation Calibration Quick Check

## Worksheet for Sprayline Irrigation

Download from: [www.pagebloomer.co.nz/resources](http://www.pagebloomer.co.nz/resources)

### Measurement Procedure

#### What equipment will you need?

The guide and this worksheet

- 24 Collectors of the same diameter (at least 150 mm) – 9 Litre plastic buckets are good
- 1 Measuring cylinder (about 1 Litre)
- 1 50 m tape
- 1 Stop watch
- 1 Pen or pencil

#### Application test

- 1 Set 24 buckets in two rows across the sprayline [see **T1** and **T2** in Diagram 1]. The first row is at the second sprinkler, the second row half way between the last two sprinklers
- 2 Run the irrigation to collect an easily measured amount of water. It need not be the whole usual run time. Record the run time
- 3 Measure the volume of water caught in each bucket and record on the Record Sheet, taking care to record each in the correct position
- 4 Do the calculations as shown in the worksheet

### Testing Layout

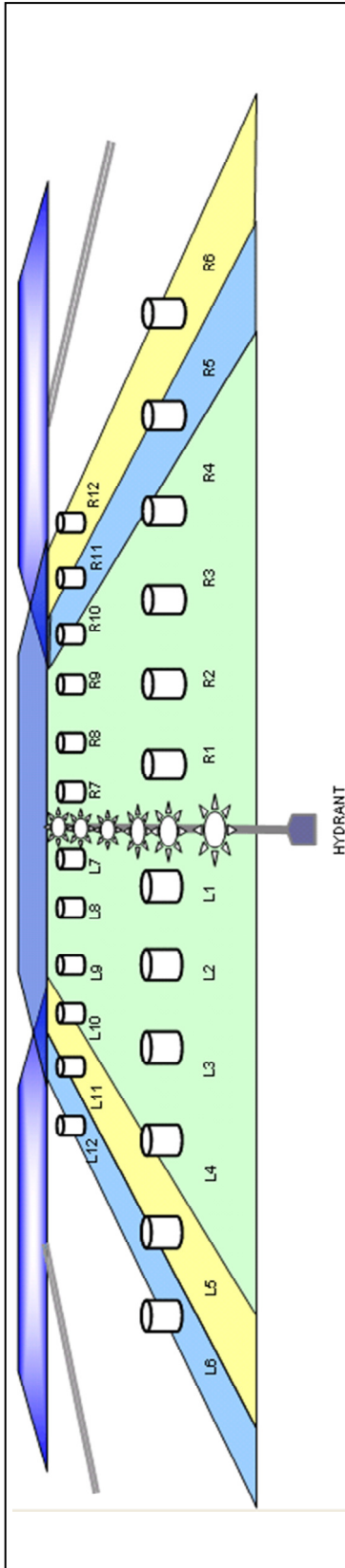
1. Place a marker half way between two adjacent operating positions or “Sets” (‘a’ in Diagram 1).
2. Mark the extent of obvious wetting when the irrigation runs. This is the “Wetted Width” (‘f’).
3. If the wetted width is greater than the set width, you need to account for overlap.
4. Place one bucket half way between the edge of the set and the edge of the wetted width [see ‘**L6**’ in Diagram 2].
5. Mirror this inside the edge of the lane, setting another bucket at the same spacing from the edge of the lane [see ‘**L5**’ in Diagram 2].
6. Arrange four more buckets at even spacing to cover the area back to the centre line (the lateral pipe) [see ‘**L4-L1**’ in Diagram 2]. The spacing may be different to overlap buckets.
7. Repeat Steps 4, 5 & 6 on the right hand side (**R1-R6** in Diagram 2).
8. Then repeat Steps 4 to 7 at position T2 (**L7-12** and **R7-12** in Diagram 2).

Test Details	
Farm Name	
Tester's Name	
Test Date	
Test Sprayline	
Test Field	
Target Irrigation Depth [mm]	
Test duration [hr]	
Normal irrigation duration [hr]	
Test Water Meter Flow [m <sup>3</sup> /h]	
Test Pressure at pump [kPa]	
Test Pressure at sprayline [kPa]	
Wind conditions	

Field Details			
<b>a</b>	Set spacing	[m]	
<b>b</b>	Sprayline length	[m]	
<b>c</b>	Area Irrigated ( <b>a</b> x <b>b</b> / 10,000)	[ha]	
<b>d</b>	Number of spraylines		
<b>e</b>	Total Area ( <b>c</b> x <b>d</b> )	[ha]	
<b>f</b>	Sprayline wetting width	[m]	
<b>g</b>	Wetting area ( <b>b</b> x <b>f</b> x <b>d</b> )	[m <sup>2</sup> ]	
<b>h</b>	Bucket diameter	[mm]	
<b>i</b>	Open area ( <b>h</b> / 2000) <sup>2</sup> x 3.14	[m <sup>2</sup> ]	
<b>j</b>	Test Applied Depth	[mm]	
<b>k</b>	Test Duration	[hours]	
<b>m</b>	Application Rate ( <b>j</b> / <b>k</b> )	[mm/h]	
<b>n</b>	Flow Rate ( <b>g</b> x <b>j</b> / 10,000) / <b>k</b>	[m <sup>3</sup> /h]	

## Recording Sheet for Sprayline Irrigation Calibration “IRRI8Quick” Test

Enter your field measurements from buckets in Column 1.  
Complete the overlap adjustments in Column 2.  
Complete the calculations in Column 3.



Column 1		Column 2		Column 3	
Collected Volumes		Transect 1 Overlapped Volumes		Calculations	
R6	1	Transfer and Add volumes as shown to calculate overlap		Enter the lowest five volumes in boxes 1 – 5	
R5	2	R5+L6	2	1	
R4		R4		2	
R3		R3		3	
R2		R2		4	
R1		R1		5	
L1		L1		AVG of lowest 5	
L2		L2		AVG of ALL 20	
L3		L3		Calculate DU: Divide average of lowest five by average of all twenty	
L4		L4		DU	
L5	1	L5+R6	1	Compare beginning and end averages – Transect 1 / Transect 2	
L6	2	AVG of 10		T1/T2	
R12	1	Transect 2 Overlapped Volumes		Calculate average applied depth: Average volume ÷ Bucket Area ÷ 1000	
R11	2	R11+L12	2	AVG of 20	
R10		R10		Area m <sup>2</sup>	
R9		R9		Depth mm	
R8		R8		Calculate Excess Water Factor EWF% ((Depth ÷ DU) – Depth) ÷ Depth x 100	
R7		R7		Depth	
L7		L7		DU	
L8		L8		EWF	
L9		L9			
L10		L10			
L11	1	L11+R12	1		
L12	2	AVG of 10			