IRRIG8Quick™

Irrigation Performance Quick Test

Worksheet for Travelling Irrigators

Download from: www.claw.net.nz/resources/irrigation

PAGEBLOOMER

Measurement Procedure

What equipment will you need?

This guide and the worksheet

22 Collectors of the same diameter (at least 150 mm) – 9 Litre plastic buckets are good

1 Measuring cylinder (about 2 Litre)

1 5 m tape

2 Electric fence standards

1 Stop watch

1 Pen or pencil

Application test

1 Set your 22 buckets in a row across the direction of irrigator travel [**T1** in Diagram 1]

2 Start the irrigator away from (before any water can reach) the line of buckets

3 Run the irrigator until it is well past wetting the buckets. Measure the irrigator speed as it passes over the test buckets

4 Measure the volume of water caught in each bucket and record on the Record Sheet

Dealing with overlap

1. Place a marker half way between two hydrants. This is the edge of the "Lane".
2. Mark the extent of obvious wetting when the irrigator runs. This is the "Irrigator wetting width".
3. If the wetting width is greater than the lane width, you need to account for overlap.
4. Place one bucket half way between the edge of the lane and the edge of the wetting width.
5. Mirror this inside the edge of the lane, setting another bucket at the same spacing from the edge of the lane.
6. Arrange nine more buckets at even spacing to cover the area back to the centre line (the hose or cable).
7. Repeat 4, 5 & 6 on the right hand side.

Speed test

1 Set two markers (e.g. fence standards) 5.0m apart along the hose or cable

2 The markers should cross the line of collectors

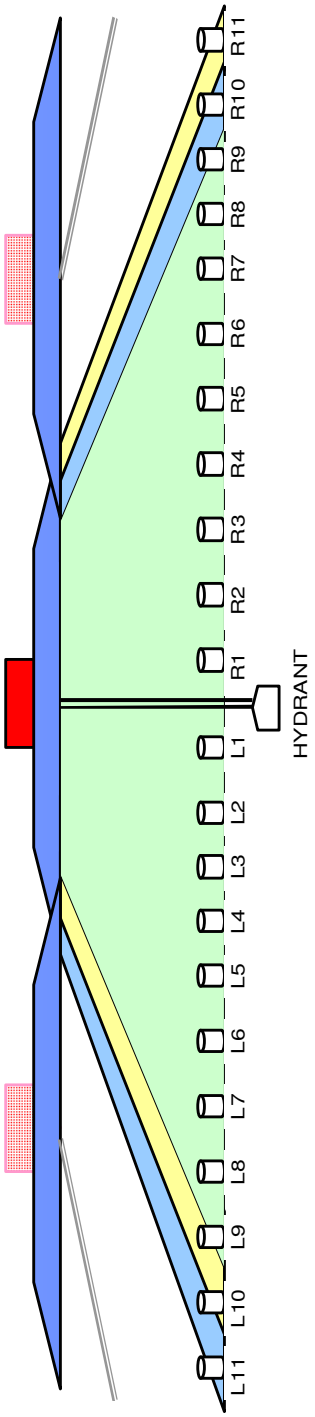
3 Measure the time for the irrigator to travel between markers.

Test Details	
Farm Name	
Tester's Name	
Test Date	
Test Machine	
Test Field/Run	
Target Irrig Depth [mm]	
Test distance [m]	
Test time [min]	
Speed [m/min]	
Test Flow [L/min]	
Test Pressure at pump [kPa]	
Test Pressure at irrigator [kPa]	
Wind conditions	

Field Details			
a	Hydrant / lane spacing	[m]	
b	Run length	[m]	
c	Area Irrigated (**a** x **b** / 10,000)	[ha]	
d	Number of runs		
e	Total Area (**c** x **d**)	[ha]	
f	Irrigator wetting width	[m]	
g	Wetting pattern width	[m]	
h	Wetted area (**f** x **g**)	[m^2]	
i	Bucket diameter	[mm]	
j	Open area (**i** / 2000)^2 x 3.14	[m^2]	
k	Applied Depth	[mm]	
m	Speed	[m/min]	
n	Flow Rate (**a** x **k** x **m**)	[L/min]	

Recording Sheet for Travelling Irrigator Performance "IRRIG8 Quick" 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	
Collected Volumes	
R11	1
R10	2
R9	
R8	
R7	
R6	
R5	
R4	
R3	
R2	
R1	
L1	
L2	
L3	
L4	
L5	
L6	
L7	
L8	
L9	
L10	1
L11	2

Column 2	
Overlapped Volumes	
Add Boxes R11 and L10 from Collected Volumes and enter in L10 Below. Repeat for R10 and L11	
R10	
R9	
R8	
R7	
R6	
R5	
R4	
R3	
R2	
R1	
L1	
L2	
L3	
L4	
L5	
L6	
L7	
L8	
L9	
L10	
SUM of 20	
AVG of 20	

Column 3	
Calculations	
Enter the lowest five volumes in boxes 1 – 5	
1	
2	
3	
4	
5	
SUM of 5	
AVG of 5	
Calculate DU: Divide average of lowest five by average of all twenty	
AVG of 5	
AVG of 20	
DU	
Calculate average applied depth: Average volume ÷ Bucket Area ÷ 1000	
AVG of 20	
Area m^2	
Depth mm	
Calculate Excess Water Factor EWF% ((Depth ÷ DU) –Depth) ÷ Depth x 100	
Depth	
DU	
EWF	