IRRIG8 Quick

Irrigation Performance Quick Test
Worksheet for Linear Move Irrigators
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Measurement Procedure

What equipment will you need?
This worksheet and the guide sheets

24 Collectors of the same diameter (>150 mm)

1 Measuring cylinder (about 2 Litre)

1 5 m tape

2 Electric fence standards

1 Stop watch

1 Pen or pencil

Speed test

1 Set two markers (electric fence standards) 5.0m apart beside the centre wheel track

2 The markers should be in line with the collectors

3 Measure the time for the irrigator to travel between markers – they move when the carriage hits them

Application test

1 Set 24 collectors (buckets) in a row along the length of the irrigator

2 Arrange eight buckets at even spacing under the first span or two of the machine.

3 Arrange eight more buckets at even spacing in the middle of the machine.

4 Arrange eight more buckets under the last span or two of the machine.

5 If there is an end gun, arrange two of these buckets at even spacing between the end wheel track and the extent of significant wetting

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

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

8 Measure the volume of water caught in each bucket and record on the next page

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Test Details

Farm Name	
Tester's Name	
Test Date	
Test Machine	
Test Position	
Test Pressure [kPa]	At pump
	At Irrigator Entry
	At Irrigator End
Wind conditions	

Speed Test (at end wheels)

Test Distance			
Test time [min]			
Speed [m/min]			

Machine Details

a	Machine length [m]	
b	End gun extra length [m]	
c	Travel distance one rotation [m]	
d	Area (a + b) x c /10,000) [ha]	
e	Number of runs	
f	Total Area (d x e) [ha]	
g	Wetting width [m]	
h	Wetting length [m]	
I	Wetted area (f x g) [m^2]	

Collector Bucket Details

i	Bucket diameter [mm]	
j	Open area (i / 2000)^2 x 3.14 [m^2]	

Irrigation Performance Worksheet – Linear Move Irrigators

Worksheet for Linear Move Irrigator Performance Quick Test

Enter your field measurements from buckets in Column 1.
Complete the calculations in Columns 2 and 3.
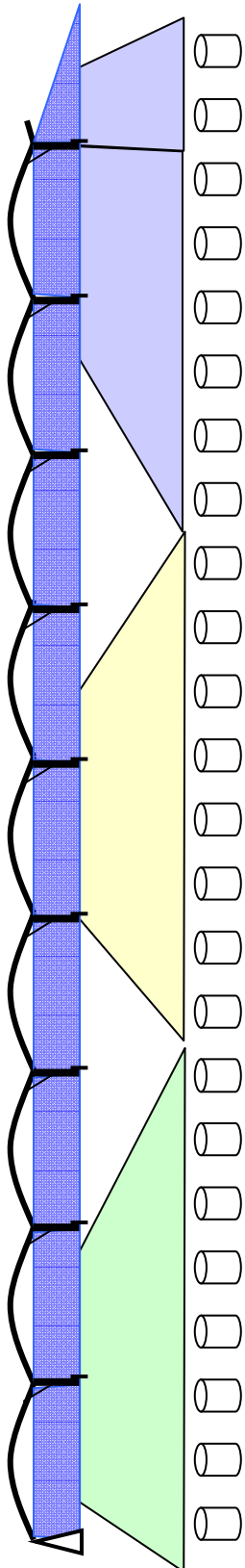
Column 1		Column 2		Column 3	
Collected Volumes		**Calculations**		**Calculate average depth under Sections** Average volume ÷ Bucket Area ÷ 1000	
1		**Calculate Low Quarter Average:** Enter the lowest six volumes in boxes below		Calculate %'s of machine average depth	
2				**Calculate averages under End Spans**	
3		Low 1		SUM 1 – 8	
4		Low 2		AVG 1 – 8	
5		Low 3		Depth mm	
6		Low 4		% of AVG	
7		Low 5		**Calculate averages under middled spans**	
8		Low 6			
9		SUM of 6		SUM 9 - 16	
10		AVG of 6		AVG 9 - 16	
11		**Calculate Overall Average (all twentyfour)**		Depth mm	
12				% of AVG	
13		SUM All 24		**Calculate averages under first spans**	
14		AVG All 24			
15		**Calculate DU:** Divide average of lowest six by average of all 24		SUM 17-24	
16				AVG 17-24	
17		AVG of 6		Depth mm	
18		AVG of 24		% of AVG	
19		DU		**Calculate Excess Water Factor EWF%** ((Depth ÷ DU) −Depth) ÷ Depth x 100	
20		**Calculate average applied depth:** Average volume ÷ Bucket Area ÷ 1000			
21					
22		AVG of 24		Overall Depth	
23		Area m²		DU	
24		Depth mm		EWF	

Calculate average applied depth:
Average volume ÷ Bucket Area ÷ 1000

Calculate Excess Water Factor EWF%
$((Depth \div DU) - Depth) \div Depth \times 100$