5.4 Reporting format

5.4.1 System layout

Provide a sketch of the irrigation area with North at the top of the page.

Identify water supply and mainline locations, access track, hydrants and any segment excluded from irrigation.

Identify the area(s) watered outside the target area.

Identify the location of sprinklers used in testing, and the wind direction during the test.

Identify the location of the traveller at the start and end of the strip, and the wind direction during the test.

5.4.2 Ground profiles

If the irrigated area contains significant elevation variation, provide a diagram and mark locations of ground profiles measured. Present scale sketches of ground profiles with distance and reduced levels in metres.

5.4.3 Test design

Present a plan showing the location of critical test elements as below:

5.4.3.1 Drip-micro

- Pressure test point locations
- Flow test locations

5.4.3.2 Spraylines / multiple spraylines

- Sprayline position in field
- Grid test location
- Collector placement
- Irrigation strip width
- Wetted radii and locations measured
- Identify wind direction during testing

5.4.3.3 Travellers

- Delivery tube laid position
- Transverse test line locations
- Collector placement
- Irrigation strip width
- Wetted radii and locations measured
- Gun sector angle if relevant
- Wind direction during testing for each transverse line.

5.4.3.4 Lateral moves

- Lateral position in field
- Wetted length
- Lateral uniformity test position
- Longitudinal uniformity test position
- Collector placement
- Wind direction during each test

5.4.3.5 Centre pivots

- Pivot lateral position in field
- Wetted radii
- Radial uniformity test position
- Circular uniformity test position
- Collector placement
- Wind direction during each test

5.4.4 General observations

5.4.4.1 Surface ponding

Note any observed surface ponding

Identify implications of soil water ponding or runoff on actual distribution uniformity

5.4.4.2 Application rates

Present calculated instantaneous application rates.

Identify implications of calculated application rates versus estimated soil infiltration rate

5.4.5 Uniformity

5.4.5.1 Applied depth graph

Present a graph or graphs of collector volumes (corrected for evaporation) along each transverse line. Use shading to distinguish between collector rows.

Present a graph or graphs of applied depths (corrected for evaporation and for overlap) across the irrigated strip width at each transverse line. Use shading to distinguish between collector rows.

5.4.5.2 Distribution uniformity

State the method used to determine uniformity, present the result and give an interpretation based on expectations for the type of system.

Present low quarter Distribution Uniformity (DU_{lq}) as a decimal. Do <u>not</u> present it as a percentage.

For example:

$$Lateral\ DU_{lq} = 0.83$$

Interpretation: This is considered “good” for a linear move irrigator on level ground.

5.4.6 Causes of Non-Uniformity

Identify the contribution to non-uniformity that can be attributed to key causes.

5.4.6.1 Inappropriate strip width

From transverse line and overlap calculations, determine the optimum strip width for highest distribution uniformity at the prevailing conditions and machine settings tested.

5.4.6.2 Wind effects

From transverse line and overlap calculations, determine the effect of wind on distribution patterns if possible.

5.4.6.3 Incorrect components

Report any components that do not meet specifications. Note number and proportion of sprinklers or other components represented.

5.4.6.4 Boom distribution systems

Compare the result of the discharge (sprinkler) and collector distribution uniformity results.

For example:

1. Low quarter discharge uniformity was calculated based on measurements from 16 sprinklers.

   DU_d = 0.65

Interpretation: This is considered 'poor' for a travelling irrigator fitted with a boom distribution system.

Report possible interference if sprayers not horizontally staggered.

Report on nature of wear, damage or blockage, number and proportion of instances, and any possible causes.

Present an overall interpretation:

5.4.6.5 Pressure

Present pressure measurements made at headworks, hydrants and the machine.

Note range of elevations identified in the field including minimum and maximum variations from a mean or mode elevation.

5.4.6.6 Application rates

Present the calculated instantaneous application rate and the assessed infiltration rate of the soil.

Interpret the result, for example:

The soil is a clay loam with signs of compaction. The calculated application rate of 60mm/hr is high for this soil type.

Field observations found ponding and minor runoff under the wetting area. This indicates excessive application rates and redistribution of water at the soil surface. This will reduce the actual distribution uniformity.

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