Standard operating procedures for operating, maintenance and storage of desert locust sprayers

Ultra-low volume vehicle mounted sprayer (airblast)
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Purpose

The desert locust *Schistocerca gregaria* (Forskal) is one of the most serious insect pests that causes heavy losses in agricultural crops and natural pastures, consequently causing economic and social crises for many countries.

Control operations depend on air or ground spraying of conventional chemical pesticides as the main effective technique to contain the desert locust threat.

Locust field officers must be familiar with the aspects that relate to the sprayers which are used against desert locusts, e.g. operation, maintenance and common troubleshooting to resolve problems that might otherwise hamper control operations.

This field guide describes a sprayer used for desert locust control. The sprayer was selected based on technical reports and related references that indicate the importance, effectiveness and efficiency of this sprayer against the desert locusts.

This guide presents only the features and characteristics of the sprayer suitable for use against desert locusts in accordance with FAO’s vision. Therefore there may be some dissimilarities between this manual and the manufacturer’s manual.

Hopefully, this field guide will contribute to the efficiency and efficacy of desert locust control operations.
Specifications

- **Dimensions:** 140 cm long x 76 cm wide x 85 cm height;
- **Height of spray head above bed of vehicle:** 180 cm;
- **Weight (empty):** 130 kg;
- **Power source:** 4 stroke petrol (gasoline) 13 HP engine;
- **Fuel capacity:** 5.0 litres;
- **Running time with a full fuel tank:** 3 hours approx;
- **Chemical Tank:** 100 litres capacity;
- **Flushing Tank:** 10 litres capacity;
- **Pump:** 12 V magnetically coupled centrifugal pump;
- **Flow rate:** 0.2 – 3.5 litres/minute (AU8115M), 0.2 – 2.5 litres/minute (AU8115E);
- **Spray droplet size:** Adjustable 40 - 100 microns VMD;
- **Spray bandwidth:** 10 - 100 meters (when using a drift spraying technique);
- **Electrical Requirements:** 12 volts DC (vehicle battery).

Specifications may vary according to the used version. This sprayer is available in both the AU8115MS (manual flow control) and AU8115E (electronic flow control) versions.
1. Components of vehicle mounted sprayer (AU8115MS)
Components

Sprayer Components:
1. Electrically driven magnetically coupled centrifugal pump, powered from the vehicle battery;
2. pump ON/OFF switch located on the master control box;
3. master isolation valve that shuts off all liquid flow.
4. tank selector valve determines whether the main (100 litres) tank or flushing (10 litres) tank is used;
5. drain valve allows the system to be drained after use.

Engine Components
6. Fuel ON/OFF valve must be opened before starting the engine and closed when the sprayer is not in use;
7. engine choke lever mounted above the carburetor, must be moved in the direction of the arrow (CHOCK) when starting a cold engine and returned to the open position (RUN) during normal running;
8. throttle control remotely operated by ‘T-bar’ on the master control box;
9. stop switch: mounted on the engine side, must be ON to start, switched OFF to stop the engine, left in the OFF position when the sprayer is not in use;
10. starter pull handle: mounted on the side face of the engine.

Be sure that the maintenance accessories and calibration are supplied with the sprayer.
2. Control box of vehicle mounted sprayer (AU8115MS)
3. The pump of vehicle mounted sprayer (AU8115MS)

4. The valves of vehicle mounted sprayer (AU8115MS)
Loading and installation instructions

1. The Micronair AU8115MS can be mounted on any suitable open-backed vehicle provided that it has an enclosed cabine to protect the driver from the spray;
2. the sprayer should be positioned as far to the rear of the vehicle as possible so that, when the mast is extended, the atomiser projects behind the rear of the vehicle;
3. the Micronair AU8115MS should be rigidly secured to the vehicle by means of bolts in four holes drilled in the vehicle floor (in appropriate positions).

When drilling the holes, care should be taken to avoid the vehicle fuel tank or other vulnerable parts.
Preparation instructions

The engine is shipped without oil. Oil MUST BE ADDED before starting the engine, and its level should be checked every five working hours.

1. Raise the spray head mast so that it protrudes over the rear of the sprayer;
2. secure the mast by lifting the supporting A-frame and locking the mast in place with the pin and clip provided;
3. position the spray head in the support ring (As shown in picture 6), place a red fibre friction disc between each mounting boss and the inside of the support ring. Fix the spray head in position with securing bolts and washers supplied;
4. secure the lower end of the air duct to the fan outlet using the hose clip supplied;
5. locate the control box in the cab of the vehicle, the end of the first wire (upper wire in control box) connected to the car battery through an appropriate slot inside the cab, while the other end (lower wire in control box) is connected to the pump;

Care should be taken to avoid sharp bends in the conduit tubing containing the electrical wiring and throttle cable. The conduit can be fed through the vehicle cab window or through a suitable hole in the rear of the cab.

6. fill the engine crankcase with oil so that the level is mid-way between the minimum and maximum marks on the dipstick.
5. The external parts of the engine in the vehicle mounted sprayer (AU8115MS)

6. The installation of the spray-head in the vehicle mounted sprayer (AU8115MS)
7. The flow restrictor valve, oil crankcase and oil dipstick of vehicle mounted sprayer (AU8115MS)
Operating instructions

ENGINE check
1. Check the engine’s fuel and oil levels are as recommended;
2. open fuel ON/OFF valve;
3. set engine choke lever to CHOCK position;

It may only be necessary to set the CHoke to MID position in hot climates.

4. Set the engine throttle T-bar control to FULL position;
5. move the engine stop switch to the ON position;
6. pull the engine starter cord gently until the engine’s compression is felt. Release the cord so that it retracts fully, and then pull again firmly to start the engine. The cord should never be pulled fully out to the end stop;
7. as soon as the engine starts, move the CHOKE lever to RUN position;
8. slowly move the throttle control lever to the IDLE position;
9. move the engine stop switch to the OFF position;

The engine has now been checked

SPRAYER Check

10. Stop engine if in use (OFF position);
11. place a small amount (5 – 10 litres) of kerosene or diesel in the 10 litres tank;
12. rotate the tank selector valve to select the 10 litres tank;
13. make sure the isolation valve near the filter is open;
14. make sure the variable restrictor valve is open;
15. angle the spray head to point downwards and place a container underneath the atomiser;
16. switch on the pump at the control box without the fan engine running;
17. after a short period, liquid should start flowing from the atomiser.

The sprayer (pump) has now been checked.

Check that there are no leaks from any of the tubes or connections.
### Valves Positions

<table>
<thead>
<tr>
<th>Valve</th>
<th>Stop</th>
<th>Flushing</th>
<th>Drain</th>
<th>Control</th>
<th>Calibration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel on/off valve</td>
<td>close</td>
<td>open</td>
<td>close</td>
<td>open</td>
<td>close</td>
</tr>
<tr>
<td>Isolation valve</td>
<td>close</td>
<td>open</td>
<td>open</td>
<td>open</td>
<td>open</td>
</tr>
<tr>
<td>Tank selector valve</td>
<td>open-flushing tank</td>
<td>open-flushing tank</td>
<td>open-main tank</td>
<td>open-main tank</td>
<td>open-main tank</td>
</tr>
<tr>
<td>Drain valve</td>
<td>close</td>
<td>close</td>
<td>open</td>
<td>close</td>
<td>close</td>
</tr>
</tbody>
</table>

### Operating Modes

<table>
<thead>
<tr>
<th>Mode</th>
<th>Pump</th>
<th>Engine</th>
<th>Spray head*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calibration</td>
<td>not working</td>
<td>working</td>
<td>not working</td>
</tr>
<tr>
<td>Control</td>
<td>working</td>
<td>working</td>
<td>working</td>
</tr>
<tr>
<td>Flushing</td>
<td>working</td>
<td>working</td>
<td>working</td>
</tr>
</tbody>
</table>

*Spray head = atomiser
Safety instructions (operator)

1. Always follow the safety instructions on the pesticide label when handling and using pesticides;
2. always use the personal protective equipment (PPE) during filling, calibration and control;
3. do not spray near people, domestic animals, waterways, rivers or lakes. A 200 meters buffer zone must be maintained downwind of the spray area;
4. do not carry people, bedding, foodstuffs, clothing or animals in the back of the spray vehicle when spraying or when it is contaminated with pesticide;
5. only use a spray vehicle fitted with an enclosed cab;
6. always wash hands, face and body after filling the spray tank, after spraying and before eating or smoking;
7. always carry soap and towels for washing in the spray vehicle cabin and a supply of diesel, water, and rags to clean the vehicle and sprayer.

Diesel is recommended for cleaning residues of ULV products, while petrol is not advised (and dangerous) due to its flammability.
Safety instructions (sprayer)

The following instructions should be followed to avoid burns or injury to the operator:

1. If fuel is spilt, move the sprayer away from the spill area and avoid creating an ignition source until the petrol (gasoline) has evaporated;
2. never run the pump dry;
3. do not run the engine in an enclosed area. Exhaust gases contain carbon monoxide, an odourless and deadly poison;
4. do not fill the fuel tank while the engine is running; allow the engine to cool for two minutes before refuelling. Only fill in a well-ventilated area;
5. do not operate the engine without a muffler fitted. Inspect the muffler periodically and replace if necessary;
6. do not use the engine on any forest, brush, grass or unimproved land unless a spark arrester is attached to the muffler;
7. do not operate the engine if the air cleaner or the cover directly over the carburetor air intake is removed;
8. the engine switch should always be left in the OFF position when the sprayer is not in use;
9. when transporting the sprayer, the fuel shut-off valve must be closed to prevent fuel from leaking from the carburetor;
10. do not use the choke on the carburetor to stop the engine;
11. do not change the engine speed selected by the manufacturer;
12. avoid any contact with the exhaust, cylinder or fins when hot as it may cause burns;
13. to prevent the sprayer’s accidental start, always disconnect the wire from the spark plug.
Calibration

When should calibration be carried out?
1. When using a new sprayer;
2. when the type or concentration of a pesticide’s formulation is changed;
3. when the volume application rate, track spacing or forward speed is changed;
4. at the beginning of the control campaign and at intervals during the campaign.

Calibration equipment
1. Graduated measuring cylinder or jug;
2. stopwatch;
3. a sufficient amount of the same pesticide to be used in the control operation
4. a sufficient amount of kerosene or diesel;
5. two buckets (graduated container);
6. anemometer.

Note: Two persons are required to carry out the calibration.
Calibration steps

For proper calibration, follow the following steps and record the results in your notes.

1. The sprayer (and tools) should be cleaned using the kerosene or diesel, through the flushing tank;
2. determine the forward speed (for the vehicle) by measuring the elapsed time (in seconds) for the vehicle to cover 100 meters at the appropriate speed for the terrain:

\[ \text{Speed (km/hr.)} = 3.6 \times \left( \frac{\text{distance travelled (m)}}{\text{time (seconds)}} \right) \]

Note: Normally, the forward speed:
- In flat terrain is around 20 km/hr (max.);
- in rugged terrain is approximately 10 km/h.

3. according to the previous steps, determine the track spacing as follows:

<table>
<thead>
<tr>
<th>Wind speed (m/sec)</th>
<th>Forward speed (km/hr)</th>
<th>Track spacing (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3</td>
<td>10-20</td>
<td>Up to 30</td>
</tr>
<tr>
<td>4-6</td>
<td>10-20</td>
<td>Up to 40</td>
</tr>
<tr>
<td>8-10</td>
<td>10-20</td>
<td>Up to 50</td>
</tr>
</tbody>
</table>
4. calculate the volume application rate (l/ha) from the formula:

\[ \text{var (l/ha)} = \frac{\text{Recommended dose (g.ai./ha)}}{\text{Concentration (g.ai./l)}} \]

Note: The recommended dose could be obtained from the recommended doses list (page 35), while the concentration could be obtained from the pesticide label (% × 10).

5. calculate the flow rate (l/min) from the formula:

\[ \text{Flow Rate} = \frac{\text{VAR (l/ha)} \times \text{track spacing (m)} \times \text{speed (km/hr.)}}{600} \]

6. convert the result (step 5) from l/min to ml/min (multiply by 1 000);

7. ensure that the sprayer is ready to spray. Angle the spray head to point downwards;

8. fill the main tank with half the amount of pesticide;

9. run the vehicle’s engine so that the battery is being charged during the calibration process. This ensures that the battery voltage (and hence pump speed) is the same as whilst spraying;

10. run the pump but not the engine of the sprayer;

11. collect the pesticide in the first bucket until the liquid flows uniformly and all air has been purged from the pipework;
12. after the pesticide flows uniformly in the first bucket, start to collect the pesticide in the second bucket for one minute;
13. after collecting the pesticide for one minute, remove the second bucket and allow the pesticide to flow into the first bucket to avoid any spillage;
14. switch off the pump and ensure that the pesticide flow has stopped before removing the bucket;
15. pour the collected amount of pesticide (second bucket), into the graduated cylinder. This corresponds to the volume in ml collected in one minute (ml/min);
16. if the collected amount of pesticide (step 15) equals the calculated flow rate (step 6), then calibration has been done correctly. Repeat the steps (11-15) three times to confirm the results;
17. if the collected amount of pesticide in the graduated cylinder (step 15) is greater or less than the required result calculated in step six, then the calibration has been carried out unsuccessfully. **It will be necessary to either readjust the restrictor valve or change the orifice restrictor plate.**

**Note:** Normally, the orifice restrictor plates are used to adjust the flow rate. However, it is possible to achieve higher flow rates through the adjustable restrictor valve than through the largest orifice restrictor plate.
9. The orifice restrictor plates of vehicle mounted sprayer (AU8115MS)

10. The adjustable restrictor valve of vehicle mounted sprayer (AU8115MS)
11. Placing of interchangeable restrictor orifice plate in vehicle mounted sprayer (AU8115MS)

12. Adjustable restrictor valve (flow control valve knob can be fixed by tightening the locking screw)
17.A. Calibration by using the restrictor valve

- Check the valves to ensure that the drain valve is closed and the main tank valve is open;
- ensure that there is no orifice restrictor plate fitted;
- increase or decrease the setting of the variable restrictor valve to give a flow rate corresponding to the required output from the sprayer (flow rate closest to the result obtained from step six);
- re-check the selected restrictor valve three times to verify the results. The new flow rate will be compensated in formula five, to obtain the new track spacing;
- the variable restrictor valve should be firmly fixed. (see picture no. 12).
17.B. Calibration by using the orifice restrictor plates

- The variable restrictor valve should be set to its fully open position (knob rotated fully anti-clockwise);
- referring to the table below, select and fit the orifice restrictor plate which gives the flow rate closest to that required (flow rate closest to the result obtained from step 6):

<table>
<thead>
<tr>
<th>Restrictor plates No.</th>
<th>Flow rate (ml/min) for oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>24</td>
<td>108</td>
</tr>
<tr>
<td>30</td>
<td>149</td>
</tr>
<tr>
<td>39</td>
<td>294</td>
</tr>
<tr>
<td>49</td>
<td>461</td>
</tr>
<tr>
<td>59</td>
<td>581</td>
</tr>
<tr>
<td>68</td>
<td>709</td>
</tr>
<tr>
<td>80</td>
<td>957</td>
</tr>
<tr>
<td>98</td>
<td>1 210</td>
</tr>
</tbody>
</table>

- re-check the orifice restrictor plate three times to verify the results;
- the new flow rate will be compensated in formula five to obtain the new track spacing.

**Note:** Calibration should be carried out using the pesticide used in the control operations due to the variance in the viscosity of pesticides.
Carrying out control

1. Fill the main tank (100 litres) with an amount of pesticide;
2. rotate the tank selector valve to select the 100 litre tank;
3. make sure the isolation valve near the filter is open;
4. make sure that the restrictor valve is in the correct setting according to calibration;
5. if the spray vehicle is stationary, it must be parked upwind of the target area. If the vehicle is moving whilst spraying, it must be driven upwind of the target at 90° to the wind direction (e.g. spraying tracks are vertical to wind direction);
6. start the engine, as described on page 14 (steps one to eight);
7. switch on the pump;

Spraying is ready to start (control).

Note:
- During turns between adjacent spray lines:
  - pump must be OFF;
  - it is not necessary to set the engine throttle to IDLE;
- the spray head may be de-mounted from the gimbal ring and hand-held, if required, to enable the spray to be directed at a specific target, or into a gully, etc.

After the end of the control process
8. Switch OFF the pump;
9. set the engine throttle to the IDLE position;
10. set the engine ignition switch to OFF.
13. Control procedures using spraying passes

hopper band or swarm

start

downwind edge

wind

do not spray during turns

upwind edge

finish
Daily maintenance after use

1. The pump, atomiser and pipework should be flushed through with a cleaning fluid, such as kerosene or diesel, by using the flushing tank (10 litres), refer to checking sprayer (page 8, steps 10-17), with the engine running;
2. disconnect the cable plug from the control box;
3. all external surfaces of the sprayer should be cleaned to remove any spray residues and dirt, with rags soaked in Kerosene/diesel or soapy water;
4. replace the protective cover to avoid damage to the atomiser;
5. fold down the mast to minimise the risk of damage during transport.

Maintenance

1. Main tank cleaning (100 litres):
   • Unused pesticide (remaining) in the sprayer must be drained by opening the drain valve, then collected in an appropriate container for future use or safe disposal;
   • any remaining pesticide that could not be collected must be disposed of by flushing the tank, at the spray site to avoid the risk of contamination of a non-target area by dilute chemical;
   • the cleaning fluids (kerosene, diesel) used in the flushing tank could remain in the tank until it is required again OR drained from the tank and disposed of safely at the spray site;
2. check that all pipe connections are secure and leak-free.
3. check that the atomiser spins freely and the gauze
cylinder is in good condition.
4. occasionally check that the in-line filter is clean;
5. the fan and fan casing must be cleaned after every 6; months of operation or more frequently if the sprayer is used in dusty or dirty conditions;
6. If the pump is obstructed, it needs to be disassembled and cleaned. See the AU8115MS operator’s manual for details.

Storage

1. Ensure that the sprayer’s tanks are empty (fuel or pesticide);
2. place the sprayer on a raised wooden pallet to keep it away from the ground;
3. store the sprayer in a clean and dry place that is not exposed to the sun and dust;
4. cover the sprayer with a plastic sheet if possible, and the dust cover used to protect the atomiser;
5. clean the orifice restrictor plates and put them in a separate bag or container to prevent them from being lost;
6. arrange sprayers on shelves, to be easily handled (non-stacked) and leave appropriate spaces between sprayers;
7. ensure that the mast is in the folded position.
Troubleshooting

1. Engine does not start

**Fault remedy**
- Open fuel valve, if closed;
- switch the engine ignition switch **ON**, if **OFF**;
- set the engine choke control to the **CHOCK** position if the engine is cold;
- clean and adjust spark plug if contaminated;
- clean or replace fuel filter if blocked;
- top up oil in the engine if the level is too low. Note that the engine incorporates a low oil level cut out that prevents the engine from running if there is insufficient oil.

2. Engine fails to start after pulling the starter cord

The cord should never be pulled fully out to the end stop as this will strain the cord and the starter mechanism and could lead to premature failure.

**Fault remedy**
- Move the **CHOKE** to MID position;
- pull the starter cord to check if the engine will start;
- if the engine still fails to start and the carburetor becomes flooded, set the **CHOKE** to the open position (**RUN** position);
- pull the starter cord at least 10 times before repeating the standard starting procedure.
3. **Unsteady engine speed**  
*Fault remedy*  
- Drain the fuel tank and re-fill if the fuel is contaminated;  
- clean or replace the fuel filter if blocked;  
- refer to a qualified mechanic if the carburetor is contaminated or requires adjustment.

4. **No flow from the pump**  
*Fault remedy*  
- Check if there is sufficient pesticide in the tank;  
- check that the tank selector valve is correctly set and the isolating valve is **OPEN**;  
- check that the in-line orifice restrictor is not blocked or that the variable restrictor valve is correctly adjusted;  
- check electrical connections and circuit breakers in the control box;  
- check inline filter is not clogged;  
- check that the pump impeller is not obstructed (motor runs but no flow). This will require the disassembly of the pump head by a qualified mechanic.

5. **Erratic chemical flow**  
*Fault remedy*  
- Disassemble and clean pesticide filter, if blocked;  
- if variable restrictor valve is blocked. Open valve fully and flush through with kerosene. Re-calibrate sprayer after flushing.

6. **The atomiser runs out of balance and vibrates**  
*Fault remedy*  
- Spraying 1 – 2 litres of kerosene through the atomiser at
Optimum conditions for spraying

Time
The best time for spraying is usually in the morning between 08.00 and 11.00 hours and in the afternoon after 16.00 hours. Effective spraying may be possible before 08.00 hours if the wind is strong enough. It may also be possible to spray effectively between 11.00 and 16.00 hours if it is either cloudy or relatively cool (less than about 30°C) or if there is a steady wind over 4 m/s that will tend to prevent convection.

Wind
The best wind speed for spraying is usually between 2-10 m/sec. Never spray when there is no wind because the spray will not be adequately spread over the swath, and the operator is likely to be contaminated because the spray is not being carried away from the sprayer.

However, because AU8115 is equipped with a fan blower that produces an air stream that helps to carry and distribute the pesticide droplets over a long distance (up to 100 meters), it can be used if the wind speed is less than 2 m/sec.

Sunshine
Never spray when there is strong convection. Convection occurs when the sun rises high in the sky and heats the ground. The hot ground warms up the air near it, which rises and may carry spray droplets out of the target area. Convection usually occurs on hot afternoons but may also occur in the late morning, especially if there is very little wind.

Rainfall
Never spray when it is raining or expected to rain shortly.
## Verified dosage of different insecticides for desert locust

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Dose (g a.i./ha)</th>
<th>Overall treatment - adults</th>
<th>Overall treatment - hoppers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endiocarb</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Chlorpyrifos</td>
<td>225</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td>Deltamethrin*</td>
<td>12.5 or 17.5</td>
<td>12.5 or 17.5</td>
<td></td>
</tr>
<tr>
<td>Diflubenzuron</td>
<td>60</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>Fenitrothion</td>
<td>450</td>
<td>450</td>
<td></td>
</tr>
<tr>
<td>Fipronil</td>
<td>4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Lambda-cyhalothrin</td>
<td>20</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Malathion</td>
<td>925</td>
<td>925</td>
<td></td>
</tr>
<tr>
<td>Metarhizium anisopliae</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Teflubenzuron</td>
<td>30</td>
<td>n.a.</td>
<td></td>
</tr>
<tr>
<td>Triflumuron</td>
<td>25</td>
<td>n.a.</td>
<td></td>
</tr>
</tbody>
</table>

*The higher dose rate may be required if there is a risk of recovery of late instars or at high temperatures.
the end of each spray job.

**Conversions**

<table>
<thead>
<tr>
<th>Unit</th>
<th>Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area</strong></td>
<td></td>
</tr>
<tr>
<td>1 km²</td>
<td>= 1 000 000 m²</td>
</tr>
<tr>
<td>1 km²</td>
<td>= 100 ha</td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td></td>
</tr>
<tr>
<td>1 mile/hr</td>
<td>= 1.61 Km/hr.</td>
</tr>
<tr>
<td>1 km/hr</td>
<td>= 0.278 m/sec</td>
</tr>
<tr>
<td>1 m/sec</td>
<td>= 3.6 Km/hr.</td>
</tr>
<tr>
<td><strong>Volume</strong></td>
<td></td>
</tr>
<tr>
<td>1 litre</td>
<td>= 1 000 ml</td>
</tr>
<tr>
<td><strong>Dose (solids)</strong></td>
<td></td>
</tr>
<tr>
<td>1 kg/ha</td>
<td>= 1 000 g/ha</td>
</tr>
<tr>
<td><strong>Dose (liquids)</strong></td>
<td></td>
</tr>
<tr>
<td>1 l/ha</td>
<td>= 1 000 ml/ha</td>
</tr>
</tbody>
</table>
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