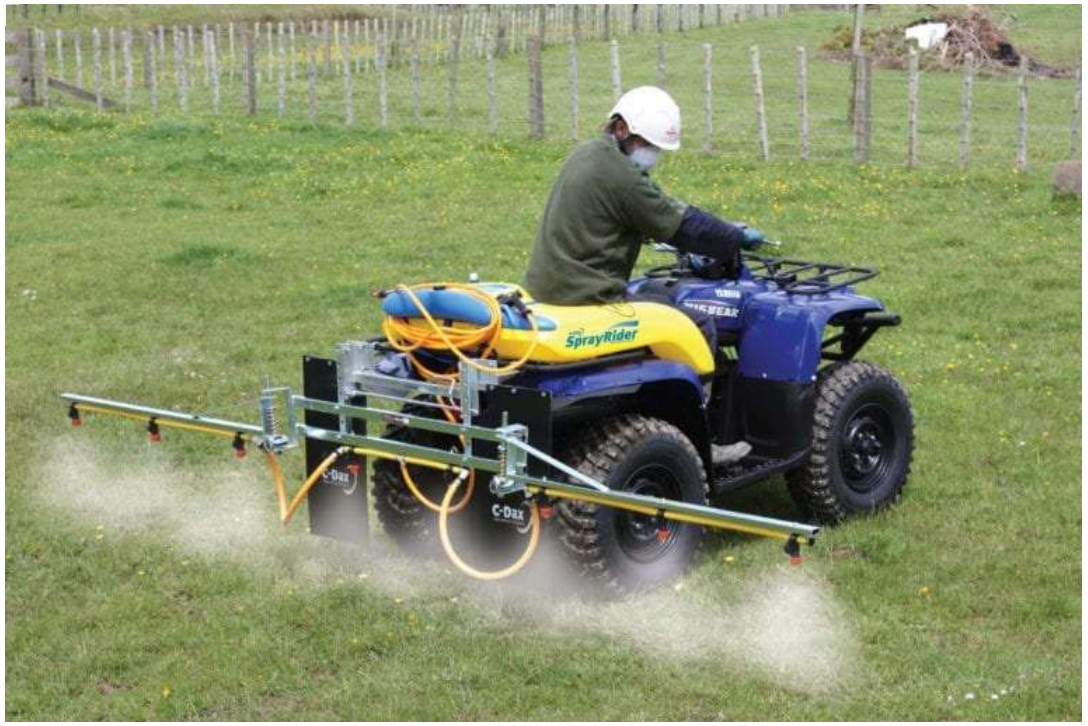
An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine

Pesticide Application Equipment
Inspection of Sub 3m Boom Sprayers

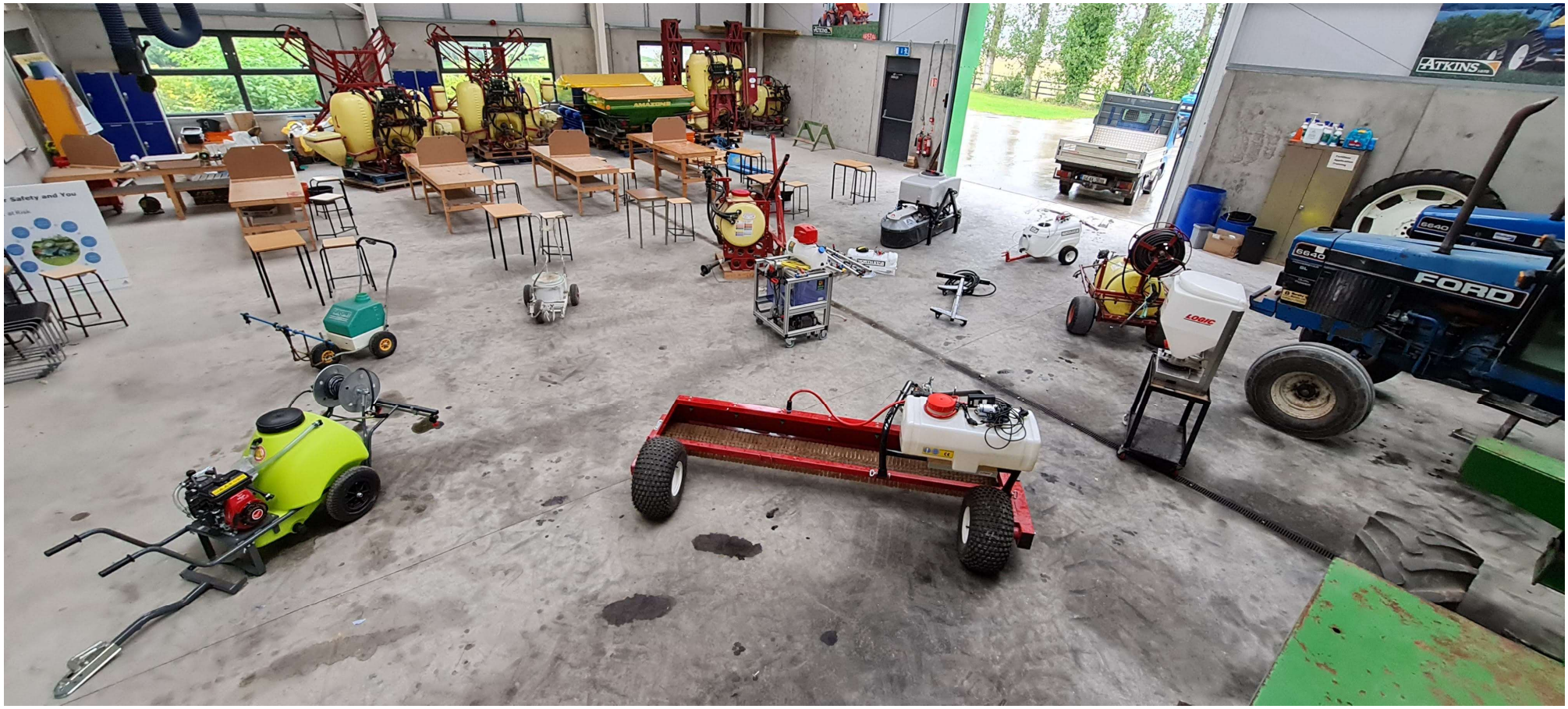
Teagasc
Agriculture and Food Development Authority



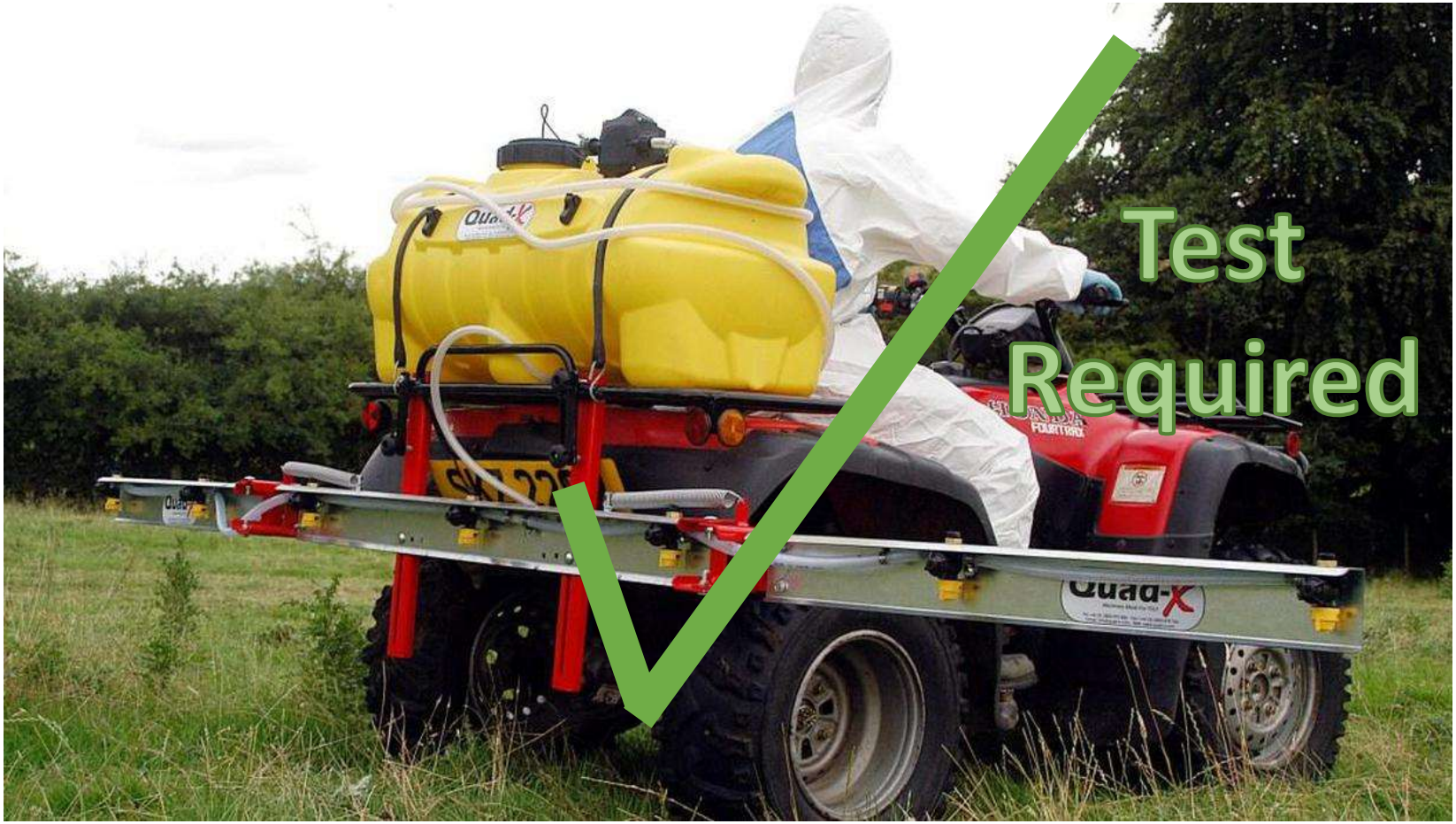
Standardized Procedure for the Inspection of Sprayers in Europe
Spice 8

- About
- Teagasc – the Agriculture and Food Development Authority – is the national body providing integrated research, advisory and training services to the agriculture and food industry and rural communities.
- Farm Machinery and Milking Machine Specialist

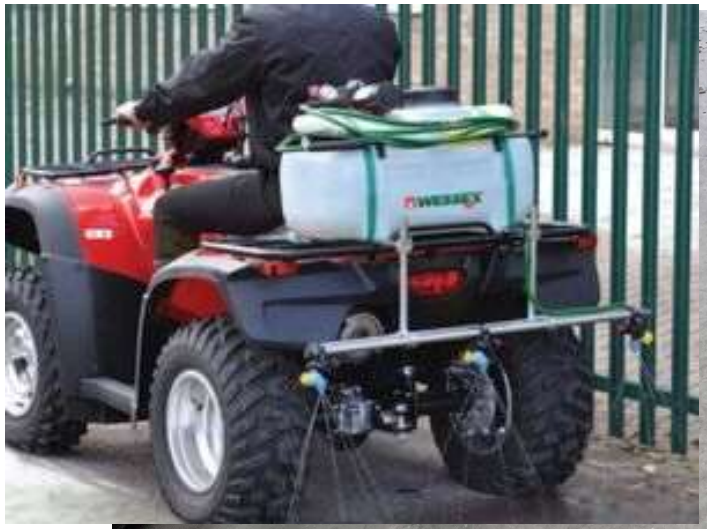
Wide range of <3m machines used to apply pesticide



Quad mounted boom sprayer



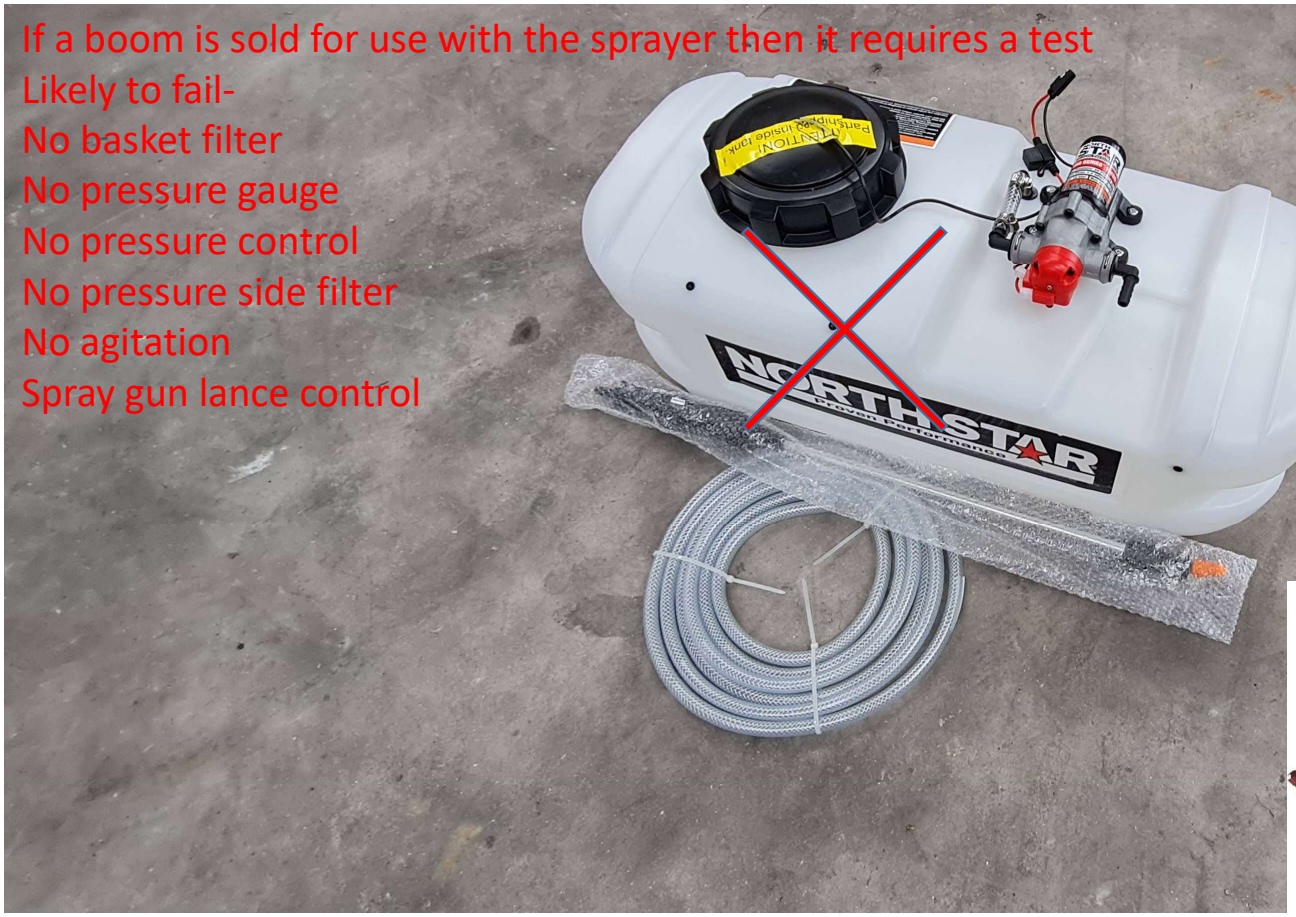
2 or more Nozzles spraying horizontally



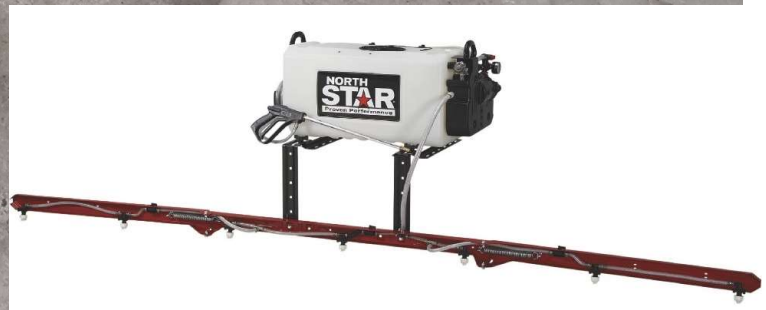
Likely to fail-
No basket filter
No pressure filter

Lance only sprayer no test required

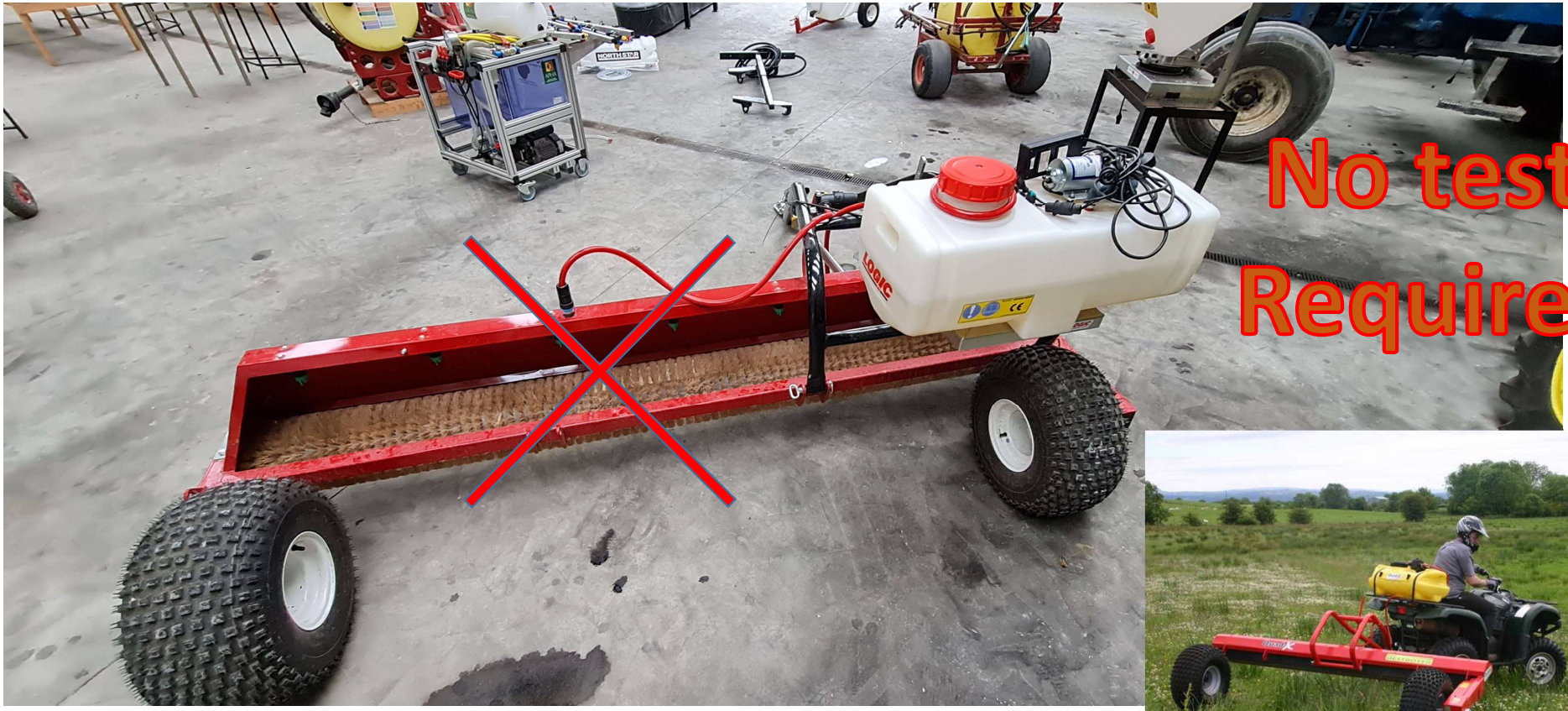
If a boom is sold for use with the sprayer then it requires a test
Likely to fail-
No basket filter
No pressure gauge
No pressure control
No pressure side filter
No agitation
Spray gun lance control



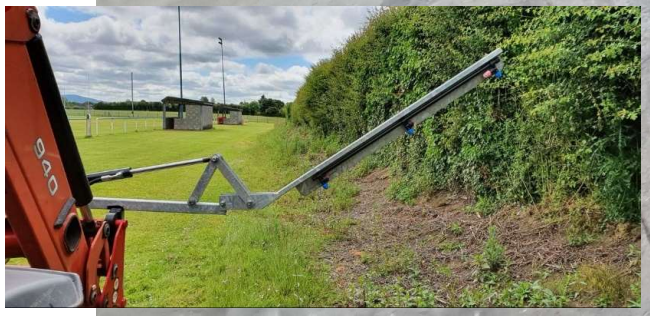
No test Required



Weed wiper with internal boom – not a horizontal boom sprayer

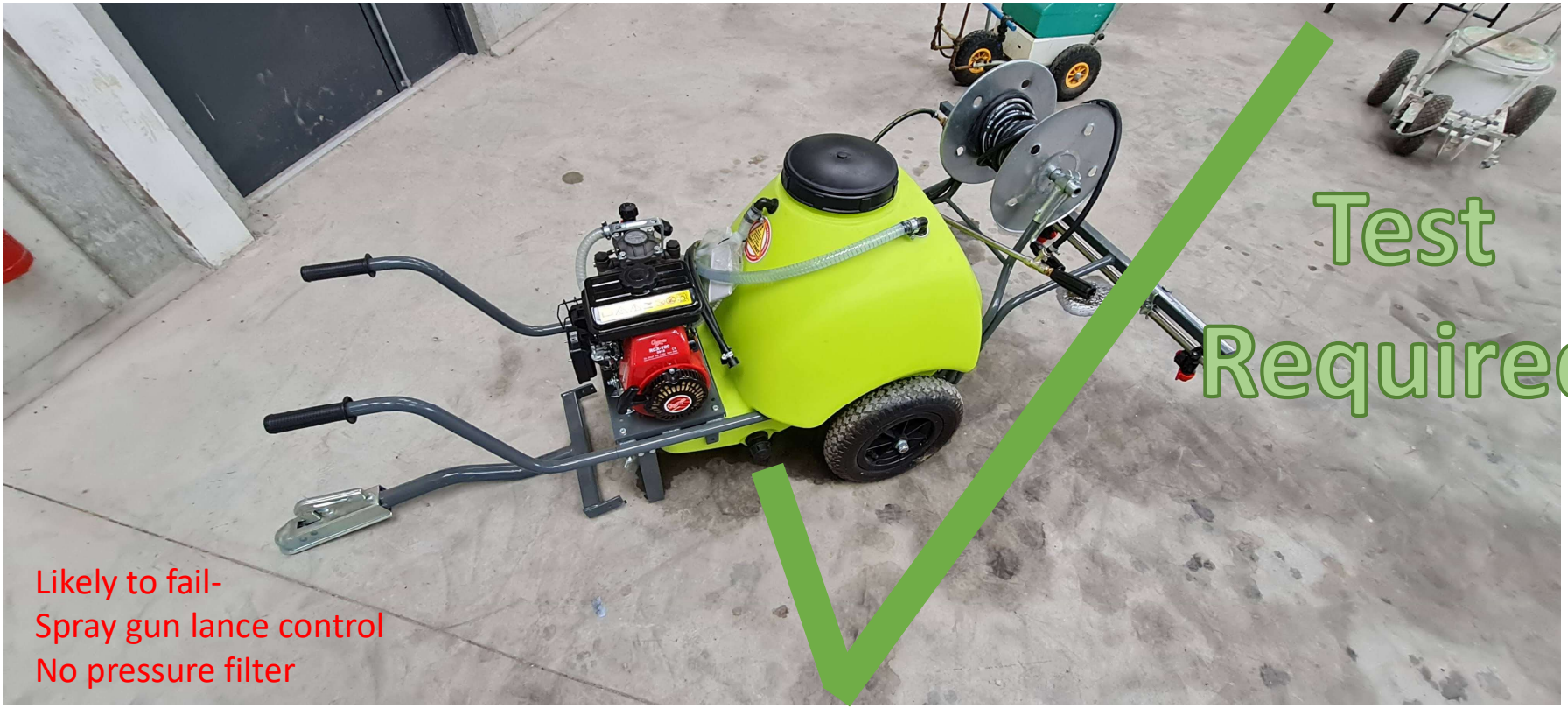


Hedge/Ditch sprayer – not included (not horizontal boom)

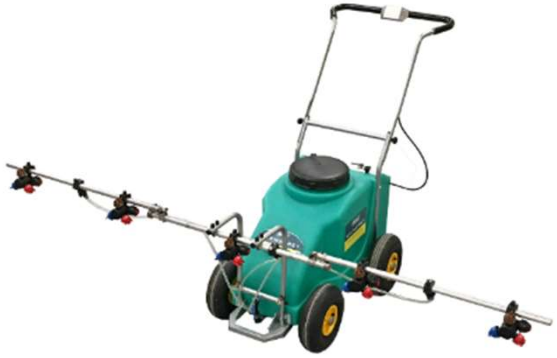


No Product Approved

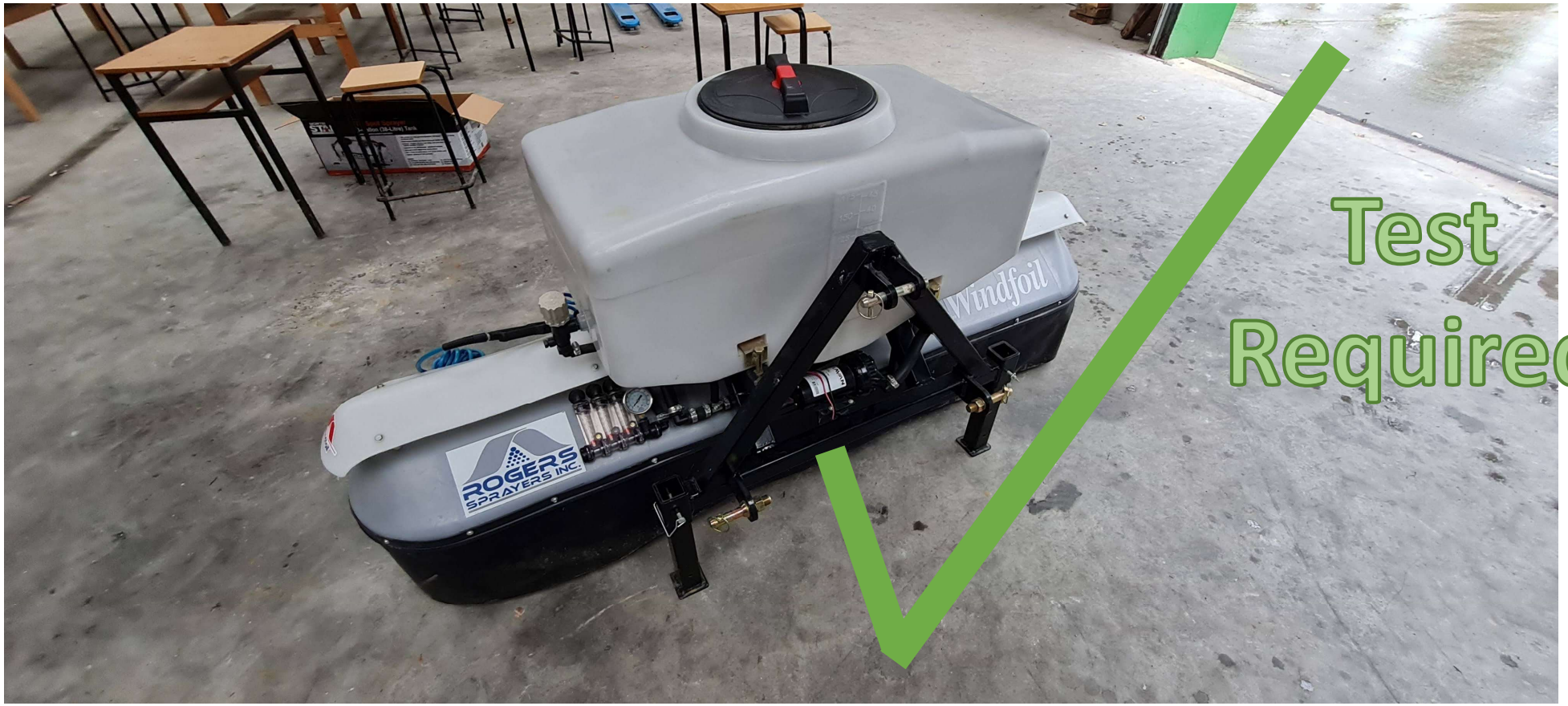
Engine powered walk behind sprayer with boom fitted



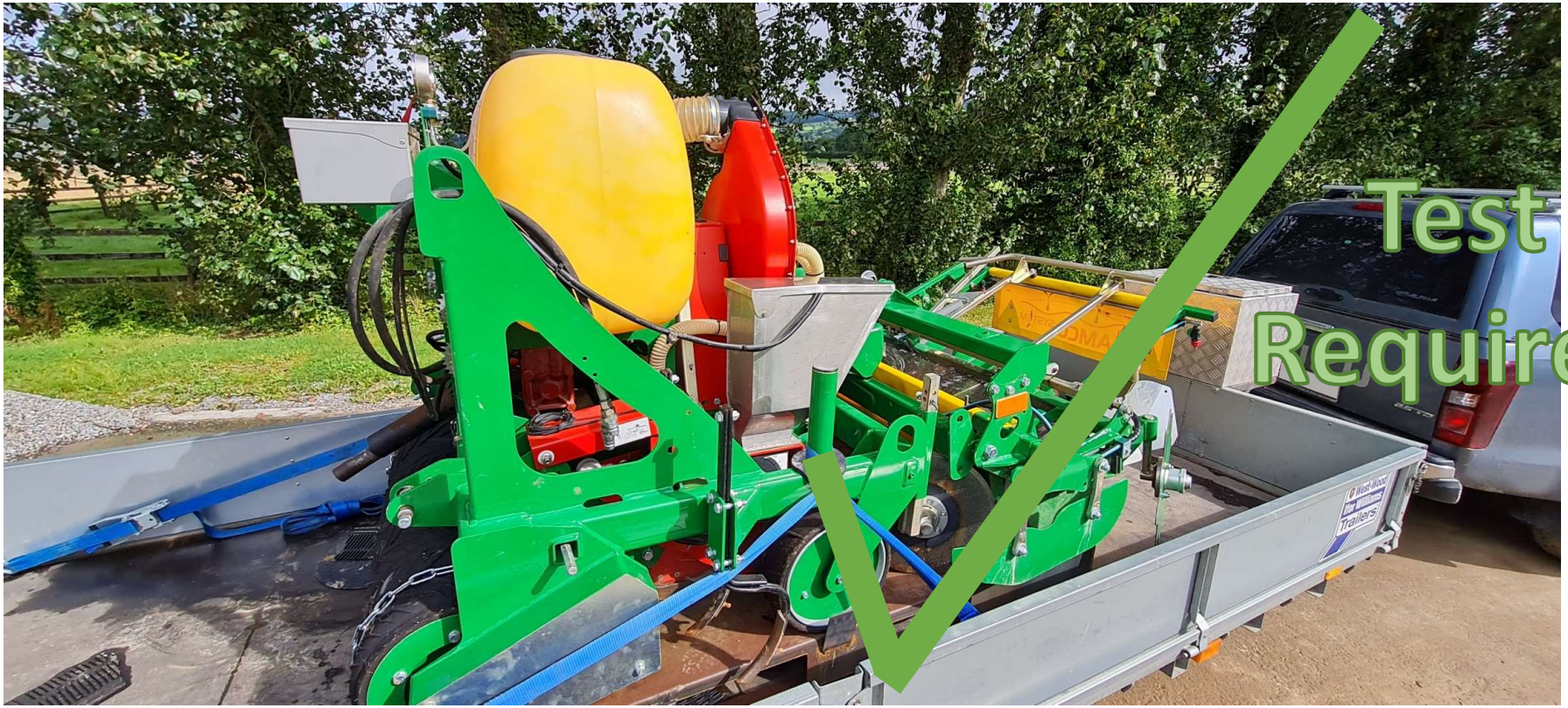
Battery powered walk behind sprayer with boom



Specialised sprayer with hidden boom



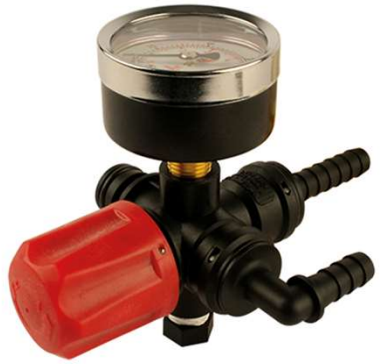
Planting equipment with sprayer system



Sprayer test

- 2. Pump
  - 2.1 Pump(s) – needs to be visible agitation while spraying.
- 3. Agitation
  - 3.1 Hydraulic or mechanical, clearly visible when spraying.
- 4.2 Strainer – **sprayer purchased after Jan 2013**
  - as per standard BS EN ISO 16119-2:2013
- 4.5 Emptying
  - **It must be possible to empty the tank and collect the liquid without contamination of the environment and without potential risk of exposure of the operator.**

Pressure Gauge



- 5.5 Pressure gauge **Marking**
  - The scale of analogue pressure indicators must provide graduations:
  - at least every 0.25*bar for working pressures less than 5 bar;
- 5.6 Pressure Gauge – **diameter ≥40mm**
- 5.7 Pressure Gauge – **accuracy**
  - 4 equally spaced points on working pressure range (??)
  - Can be tested by fitting a test gauge on boom, (± 0. 5 bar).
- 5.8 Pressure adjusting device
  - +/- 10%, 10 secs after switching on, it returns to original set working pressure.

7. Filtering

- 7.1 Pressure Filter required (other than nozzle filters)
- 7.2 Isolation and removal of filter, with the tank full.
- 7.3 Filter must be changeable.

8 Spray Boom

- 8.8 Height adjustment must function - if fitted

Spray gun lance

- 8.10 Spray gun lance trigger –must function, must be lockable in closed position and not lockable in the open position. No dripping when turned off. (simple valve?)
- 8.11 Spray gun lance, flow rate, angle adjustment. Must function if present

9/10. Pressure Measurements

- 9.1 Pressure in each boom section with ± 10 % of average pressure across boom. (flow rate from know nozzle?)

Nozzles

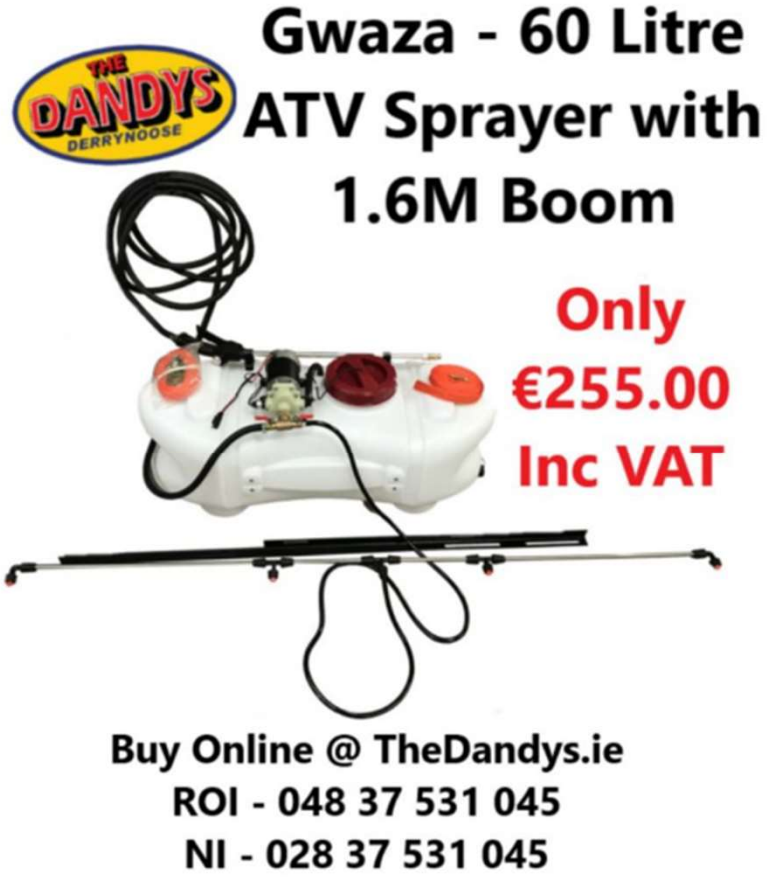
- 10.1 Nozzles identical
- 10.2 No dripping after 5 secs
- 10.3 Flow rate across boom (<=10%)

Machine cost v Test cost

- Sprayer unit without boom €179
- Sprayer with boom kit €255

- Test cost (>3m) €150
- Plus parts to meet standard €100

- Test required after 3 years
- Identification?



End

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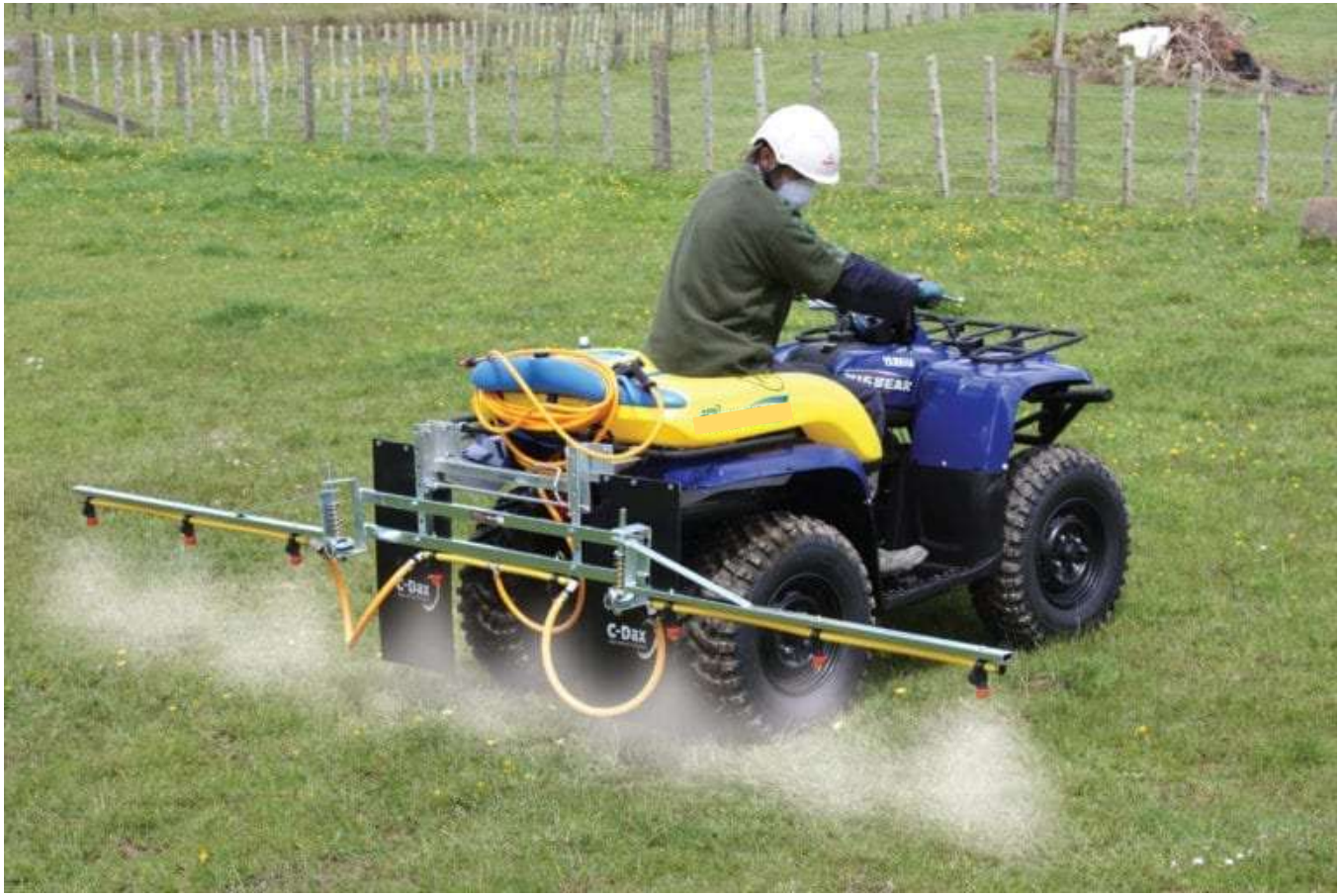


Pre inspection checks

- Remain unchanged
  - 1.1 Cleaning
  - 1.2 Power transmission parts (if present)
  - 1.3 Moving parts
  - 1.4 Pipes and hoses for hydraulic transmission (if present)
  - 1.5 Structural parts and framework
  - Lockable foldable parts (if present)

  - Pre inspection needs to be documented and provided to the sprayer owner.

Sprayer test

- 2. Pump
  - 2.1 Pump(s) – needs to be visible agitation while spraying.
  - 2.2 Pulsations - <10% of the working pressure
  - 2.3 Air chamber (if fitted)
  - 2.4 Leakage – from pump test both static and working

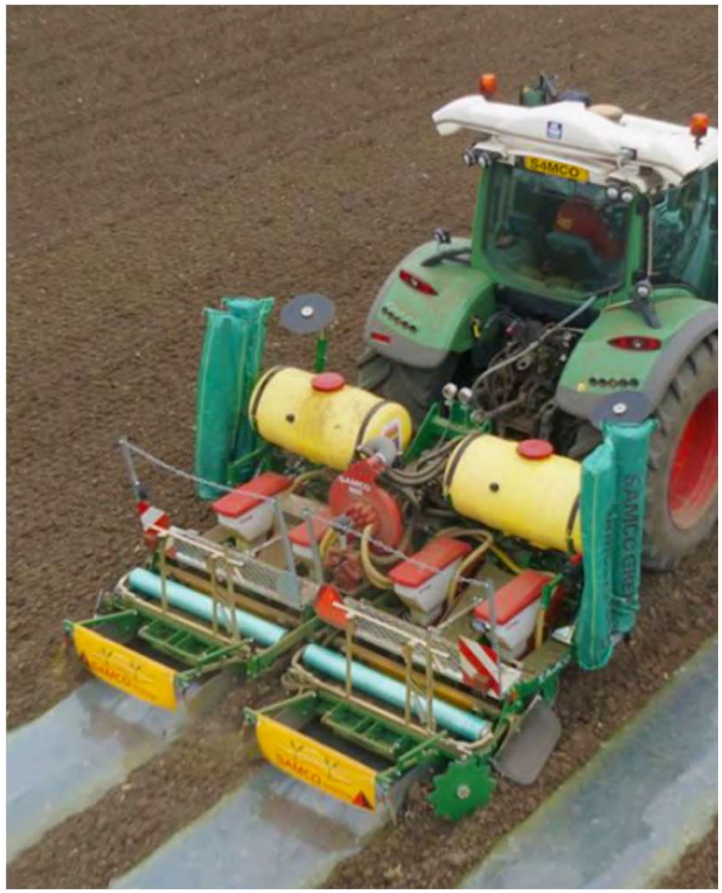
- 3. Agitation
  - 3.1 Hydraulic or mechanical, clearly visible when spraying.

Spray Liquid tank

- 4.1 Leakage from spray tank
  - Static Leaks
  - Dynamic Leaks
  - Leak test while spraying
  - Lid
- 4.2 Strainer – **sprayer purchased after Jan 2013**
  - as per standard BS EN ISO 16119-2:2013
- 4.3 Pressure compensation (e.g. vent)
- 4.4 Level indicator
- 4.5 Emptying -**It must be possible to empty the tank and collect the liquid without contamination of the environment and without potential risk of exposure of the operator.**

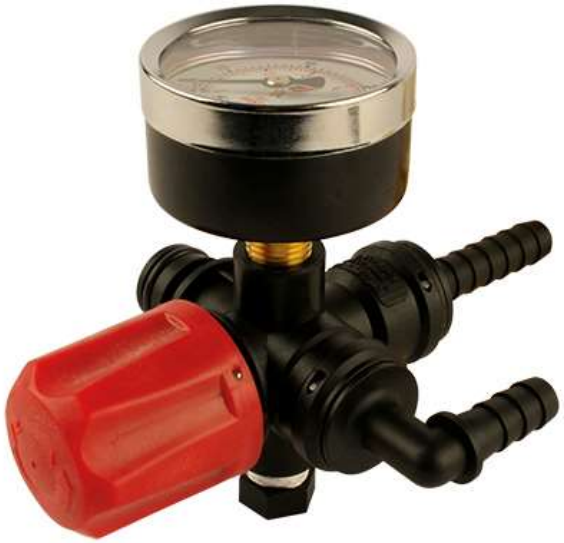
Spray Liquid tank

- 4.6 Non return valve on water filing (if present)
- 4.7 Suction side filter (if present)
- 4.8 Chemical induction hopper (if present)
- 4.9 Grating (if present)
- 4.10 Container rinsing (if present)
- 4.11 Other cleaning equipment (if present)



Measuring / Control

- 5.1 Function of controls
- 5.2 Leakage from controls
  - Static
  - Leaks while spraying
- 5.3 Operation of controls



Pressure Gauge

- 5.4 Pressure Gauge
  - Readability – visible from operators position
- 5.5 Pressure gauge **Marking**
  - The scale of analogue pressure indicators must provide graduations:
  - at least every 0.25*bar for working pressures less than 5 bar;
  - at least every 1.0 bar for working pressures between 5 bar and 20 bar;
  - at least every 2.0 bar for working pressures more than 20 bar.
  - * 1 bar = 0.1 MP. = 0.1 N/mm2 = 10^5 N/
- 5.6 Pressure Gauge – **diameter ≥40mm**

Pressure Gauge

- 5.7 Pressure Gauge – **accuracy**
  - The accuracy of the pressure gauge must be
  - ± 0.25 bar for working pressures at 2 bar and below,
  - ± 10 % of the real value for pressures at 2 bar and above.
  - This requirement must be achieved within the working pressure range suitable for the nozzles mounted on the sprayer under test.
  - 4 equally spaced points on working pressure range (??)
  - Can be tested by fitting a test gauge on boom, (± 0. 5 bar).
- 5.8 Pressure adjusting device
  - +/- 10%, 10 secs after switching on, it returns to original set working pressure.
- 5.8 All nozzles on/off simultaneously,
- 5.9 Individual boom sections on/off (if present)

6. Pipes and Hoses

- 6.1 Check for static leaks, and leaks while spraying
- 6.2 Surface wear cuts and cracks

7. Filtering

- 7.1 Pressure Filter required (other than nozzle filters)
- 7.2 Isolation and removal of filter, with the tank full.
- 7.3 Filter must be changeable.

8 Spray Boom

- 8.1 Stable, no excessive movement, equal length on both sides (unless designed for special function)
- 8.2 Horizontal (forward backward) ± 2.5 % of boom width (75mm on 3m)
- 8.3 Auto reset(if fitted)
- 8.4 Nozzle spacing and direction. ± 5 %, (max 10 deg. orientation)
- 8.5 Nozzle height not more ± 5cm
- 8.6 No spray dripping onto sprayer parts
- 8.7 Prevent of nozzle damage (only if fitted)

8 Spray Boom

- 8.8 Height adjustment must function - if fitted
- 8.9 Slope compensation, dampening etc. (if fitted must function)

Spray gun lance

- 8.10 Spray gun lance trigger –must function, must be lockable in closed position and not lockable in the open position. No dripping when turned off. (simple valve?)
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