



Foundation of Quality Control of Agricultural Machinery (SKL)

TECHNICAL REQUIREMENTS for the installation of a SKL testing station for air-assisted sprayers for bush and tree crops

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TECHNICAL REQUIREMENTS for the installation of a SKL testing station for testing air-assisted sprayers for bush and tree crops

General

The testing equipment must be such that the obtained test results are mutually and those of other SKL testing stations are similar.

Requirements to the testing place for testing air-assisted sprayers for bush and tree crops

Elaboration

Test equipment must be established in such a way that the measuring results are not influenced by weather circumstances (wind/rain).

Legal requirements

A SKL testing station must meet all legal requirements, which are put in the Dutch law (labour and environmental legislation). In many municipalities is it already obliges to perform the tests on an impermeable floor. The sprayed liquid must be caught.

Requirements testing place:

- The equipment to measure the vertical distribution of the sprayer must be placed inside a building where no influence of weather circumstances is.
- Or
- This equipment is placed under on a both at the top and at the backside-closed hangar, where at minimum three wind breaking walls are.
 - The sprayed liquid must be collected
 - During testing inside a building, the exhaust gases of the tractor of the self-propelled machine must be removed to outside.

The Testing Equipment

Pressure Gauge tester

The pressure gauge tester is used to test the accuracy of the pressure gauge of the sprayer what will be inspected.

The test pressure gauge on the pressure gauge tester has to meet the next requirements:

- Minimum diameter of the scale: 150 mm
- Range of the scale: 0-16 or 0-25 bar
- Scale deviation: 0,1 bar between 0 and 16 or 25 bar
- Accuracy class 0,6 according to DIN-16005

A digital test pressure gauge is also allowed. It has to have a reading of 0,1 bar between 0 and 16 or 25 bar and it has to meet the same requirements of accuracy as mentioned above.

At purchase of the test pressure gauge there shall be an official calibration certificate according to DIN 50049-2.3 of maximum two years old handed over by or on behalf of the NKO (Dutch Calibration Organisation)

Flowmeter

The flowmeter is primarily meant for measuring the agitation capacity of the pump (in l/min). The error of the flowmeter shall not exceed 2% of the end value of the scale with a maximum 6 l/min.

Analogue flowmeter shall have a clearly readable scale partitioning. For the scale partitioning the requirements are:



Table: Requirements scale partitioning flowmeters.

Range flowmeter (l/min)	<100	> 100
< 100 l/min scale partitioning max (l/min)	2	10
> 100 l/min scale partitioning max (l/min)	-	10

Electronic flowmeters must meet the same requirements of exactitude as analogous. At electronic flowmeters the position of the flow sensor is frequently critically for the measured value that is found. For this reason the SKL recommend placing the flowmeter in a fixed support.



The vertical patternator

The vertical patternator used to determine the vertical fluid distribution of the air-assisted sprayer. Requirements to the vertical patternator: -

- The distance between the lamellas must be 33.3 mm (+/- 2%).
- The patternator has work width of minimum 100 cm. (+ or - 2%)
- The used transparent measuring glasses must have exactitude of 2%.
- All liquid is separated from the air
- The height of the patternator must be at minimum 310 cm.



The sprayer must have placed for the test patternator that at least 80% of the sprayed fluid is caught. Emptying the measuring glasses must as such way that it is able take to bring the sprayed liquid back in the tank.

The nozzle flow rate meter.

The device to measure the output of the nozzles if meant to measure the flow rate of the nozzles fitted on the sprayer

- The installation is equipped with proper, leaking free operations connection units to the nozzles
- The measuring glasses where the sprayed liquid is caught has a content of 2 litre, a scale division of 20 ml and a maximum error of 20 ml.
- Emptying the measuring glasses must as such way that it is able to bring the sprayed liquid back in the tank

Both mechanical devices and electronic devices are permitted. The electronic devices may have a maximum error of 1% in the range of 0,25 to 2 l/min.



Other test facilities

- A good evacuation hose for the exhaust gases of the tractor of the self-propelled machine;
- A measuring tape for measuring height and nozzle spacing;
- A revolution counter for measuring the PTO revolutions. This revolution counter must provide measuring which deviate not more than 2% from the scale end value;
- A air pressure gauge for measuring the pressure in the pressure pulsation damper;
- A measuring glass with a good readable classification in ml. (measuring range of 2 l, scale division of 20 ml, error 20 ml.);
- The necessary tools;
- Blocs with testing forms and SKL-approval stickers.

Meter Control

All for the inspection of the sprayers used measuring equipment will be checked on accuracy and good work annually by or on behalf of SKL. When during this control the measuring device is not in good order, an official calibration is required.

Assessment

A by the board of SKL delegated technical inspector determines after research on the basis of the technical requirements if the testing equipment of the testing station (still) meets the requirements. As sign of approval on every testing device a special approval sign shall be placed.