

Consolidated text

This document is intended only as a means of documentation and the FASFC disclaims all responsibility for its publication

List of the amendments :

[1] MD of 24 January 2005 (BS/MB of 2 February 2005)

ANNEX I

INSPECTION METHODS FOR AGRICULTURAL SPRAYERS

The sprayer shall meet various requirements for admission to inspection. Besides, the main criterion for refusal, not having repaired defects stated during the previous inspection cycle results also in an immediate refusal. The consequences of finding failures during the inspection may be different, i.e. lead to the following conclusions :

- (1) Failures to be Followed-up (FF),
- (2) Failures to be Mended by the Next Cycle (FMNC),
- (3) Failures to be Mended, involving Re-Inspection (FMR)

PART ONE

DESCRIPTION OF THE METHODS FOR INSPECTING CROP SPRAYERS AND ALL TYPES OF OTHER SPRAYERS WORKING ACCORDING TO THE SAME PRINCIPLE

A. GENERAL ORDER

→ visual test

The state of maintenance is checked : presence of unusuale parts and objects such as pieces of rope, iron wire, extreme rust, lack of lubrication, etc.

B. TANK CONTENTS INDICATOR

→ visual test

The level of liquid in the tank is read from the driver's seat on the tractor (by means of transparent pipes, a ball valve, straight through the walls of the tank, etc. ...).

B1

The presence of a tank contents indicator is checked.

B2

The readability of the scale is checked.

C. FILTERS

→ visual test

The presence or absence of filters is checked. The state of the filters is checked only in case of hydraulic problems (differences, drops or variations of pressure, insufficient pressure, ...).

C1 and C2

When filling the main tank : basket filter at manhole level, suction filter at filling line level.

C3 and C4

At the suction of the spray mixture : suction filter before the pump

C5 and C6

At the pressure line of the spray mixture : pressure filter between pump and pressure control device.

C7 and C8

On the spray boom sections : spray boom section filter(s).

D. SPRAY BOOM

→ visual test

D1

Assessment of the symmetrical position of the spray boom with regard to the hitch points on the frame.

[Symmetry of the spray boom is not compulsory if the balance control and the suspension of the non-symmetrical spray boom is guaranteed by means of another device and if the other requirements under D 'Spray boom' are being met.] [1]

→ this test includes a measurement

D2 and D3

Inspection of the bending of the spray boom in the horizontal area.

The horizontal bending is measured by positioning oneself at the end of the extended boom, in the imaginary line of the boom, just behind the sprayer. Then the distance is measured between this line and the actual location of the end of the spray boom.

→ this test includes a measurement

D4 to D7

Inspect the bending of the boom in the vertical area.

The height of the middle of the spray boom is set at 50 cm above ground level. Then the height is measured above ground level at the ends of the boom.

→ this test includes a measurement

D8 and D9

If there is a suspension system, one end of the spray boom is put on the ground while the height of the spray boom is set at 60 cm ± 10 cm. Attention is given to the way in which the spray boom regains its horizontal position.

→ this test includes a measurement

D10

The distance between nozzle holders is measured.

→ visual test

D11 en D12

Attention is given to the vertical position of the nozzle holders.

→ visual test.

D13

The behaviour of the hinges of the spray boom sections is inspected after they have been put into motion in an horizontal direction. At the same time, attention is given to the working order of the foldable extremity, if any.

E. OBSTACLES

→ visual test

E1

Attention is given to the presence of pipes, ropes or foreign objects (i.e. objects that are not part of the construction) in the spray jet.

→ visual test

E2

Attention is given to the presence of obstacles (i.e. objects that are part of the construction) in the spray jet.

F. AGITATION SYSTEM

→ visual test

The intensity of the agitation in the main tank is judged when the agitation system and the sprayer are in action

G. PRESSURE STABILITY

→ visual test

G1 to G4

The movements of the needle are followed on the operating manometer or the test manometer fixed to the spray boom.

The spraying pressure should be constant when engine speed (r.p.m.) is constant.

H. MANOMETER

→ visual test

H1

The presence of a manometer is checked. The scaling interval shall be appropriate for the working pressure of the sprayer.

→ visual test

H2

The readability of the marks on the operating manometer is checked from the driver's seat.

→ visual test

H3 and H4

A test manometer is fixed on the spray boom at the place and instead of a nozzle. The accordance between the pressure values shown on the operating manometer and the real values at the level of the nozzles is checked. Both values are examined at various levels of reference pressure.

If a difference is found, the operating manometer is disconnected by the person presenting the sprayer and connected to an independent calibrator and tested against a reference manometer. Then, both values are examined again at various levels of reference pressure.

I. PRESSURE EQUILIBRIUM

→ this test includes a measurement

I1 to I5

A test manometer is fixed to the supply point of each section of the spray boom. Pressure in the spray boom is set at a reference value and attention is given to any difference in pressure between the section.

J. COMPENSATORY RETURNS

→ this test includes a measurement

J1 to J3

At the place and instead of the nozzle a test manometer is fixed to the supply point of each spray boom section. Pressure in the spray boom is set at a reference value. One spray boom section is shut off after which the pressure is measured again in the sections that have not been shut off; then, the section that was closed is connected again. This operation is repeated for each of the sections of the spray boom.

K. PRESSURE LOSS

→ this test only includes a measurement when there is a risk of pressure lost

Two test manometers are fixed at the place and instead of a nozzle, one close to the supply point of the spray boom section, the other at the far end of the section. Any losses of pressure are checked against a reference pressure at the supply point of the spray boom section.

L. FLOW RATE OF NOZZLES

→ visual test

L1

The uniformity of the nozzles is checked with respect to the brand, the type, the size and the angle of slope when the nozzles are disassembled to measure the flow rate (L2 to L7).

→ the test includes a measurement

L2 to L7

The individual flow rate of the nozzles is measured for all nozzles that are regularly used. The nozzles are disassembled from the sprayer and attached to the test bank. If that is not possible, the flow rate of the nozzles is measured directly on the sprayer. Variation of the flow rate is compared to that of a new nozzle (reference). The flow rate of the nozzle is compared to the nominal pressure mentioned in the tables of the constructor for a particular level of pressure. If the nominal flow rate is unknown, the flow rate of the individual nozzle is compared to the average flow rate of the nozzles submitted to the measuring, showing identical characteristics.

M. CONTROLS AND REGULATON SYSTEMS

→ this test includes a measurement

M1 and M2

Checking the mechanical and electronic regulation systems at a flow rate proportionate to the driving speed as well as the electronic indications of the amount sprayed per hectare (DPDSm and DPDS_e respectively). The driving speed and the amount of fluid sprayed in a certain lapse of time are determined. The actual amount sprayed per hectare is calculated and compared to the amount preset by the user.

→ visual test

M3

The functioning of the opening and shutoff valves of the spray boom sections is checked.

→ visual test

M4

Checking the functioning of the (electric or mechanical) pressure controller of the regulating systems. Checking Constant Pressure (PC) and the delivery rate proportional to engine speed (revolutions per minute) (DPES).

N. LEAKS

→ visual test

N1 and N2

Identifying places where (major and/or minor) leaks have occurred,

O. PUMP

→ visual test

Checking the functioning of the pump by detecting water in the oil of the pump tank.

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
A	GENERAL ORDER State of maintenance of sprayer	V	Absence/Presence of pieces of rope, iron wire, rust, ...	Obvious signs of poor maintenance	FF
B1	TANK CONTENTS GAUGE Absence/Presence	V	Absence/Presence of tank contents gauge	Absence of tank contents gauge	FF
B2	Readability	V	The mark of the fluid level is read from the driver's seat	Fluid level in tank cannot be read by means of filling scale	FF
C1	FILTERS Absence/Presence of a basket filter/suction filter	V	Absence/Presence of basket filter/suction filter	Absence of basket filter/suction filter	FF
C2	State of basket filter/suction filter*	V	State of sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
C3	Absence/Presence of a suction filter	V	Absence/Presence of a suction filter	Absence of a suction filter	FF
C4	State of the suction filter*	V	Inspection of the state of the sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
C5	Absence/Presence of pressure filter	V	Absence/Presence of pressure filter	Absence of pressure filter	FF
C6	State of pressure filter*	V	Inspection of the state of the sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
C7	Absence/Presence on spray boom sections	V	Absence/Presence of section filter(s)	Absence of section filters	FF
C8	State of the section filter(s)* * only in case of a hydraulic problem	V	Inspection of the state of the sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
D1	SPRAYING BOOM Symmetry of the spray boom [(except when this inspection requirement is not technically relevant)] [1]	V	Inspection of the symmetry of the spray boom with regard to the hitch points on the frame	No left/right symmetry	FMR
D2	Horizontal bending	M	Inspection of the bending in horizontal direction / minor bending	• 25 cm < horizontal bending ≤ 50 cm	FF
D3			/ major bending	• Horizontal bending > 50 cm	FMR

(1) Failures to be Followed up (FF) / Failures to be Mended by the Next Cycle (FMNC) / Failures to be Mended involving Re-inspection (FRM)

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
D4	Vertical bending	M	Inspection of the bending in vertical direction	<ul style="list-style-type: none"> • 15 cm < vertical bending ≤ 30 cm • Vertical bending > 30 cm • 25 cm < vertical bending ≤ 50 cm • Vertical bending > 50 cm 	<ul style="list-style-type: none"> FF FMR FF FMR
D5			• for spray boom of ≤ 18 m long / minor bending		
D6			• for spray boom of ≤ 18 m long / major bending		
D7			• for spray boom of > 18 m long / minor bending		
D8	Suspension system	V	Check the return of the spray boom to its horizontal position	<ul style="list-style-type: none"> • No return with less than 3 oscillations • No return 	<ul style="list-style-type: none"> FMNC FMNC
D9			/ suspension is too flexible		
D10	Distance between nozzle holders	M	Measuring the distance between the nozzle holders	Difference of > 10 % of initial distance	FMNC
D11	Vertical position of nozzle holders	V	Inspection of vertical position of nozzle holders	<ul style="list-style-type: none"> Not vertical Not vertical 	<ul style="list-style-type: none"> FMNC FF
D12			/ lack of maintenance		
D13	Functioning of hinges and extremities of spray boom sections	V	Behaviour of spray boom and foldable extremities after use	Much play on the hinges ; foldable extremities do not return to their working position	FMNC
E1	OBSTACLES Obstacles in spray jet	V	Identifying disturbing elements (ropes, pipes, ...) in the spray jet	<ul style="list-style-type: none"> Presence of obstacles in the spray jet Presence of obstacles in the spray jet 	<ul style="list-style-type: none"> FMNC FF
E2			/lack of maintenance		
F	AGITATION SYSTEM Agitation of the mixture in the tank	V	Inspection of the intensity of agitation in the tank	No or insufficient agitation on visual inspection	FF

(1) Failures to be Followed up (FF) / Failures to be Mended by the Next Cycle (FMNC) / Failures to be Mended involving Re-inspection (FRM)

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
G1	PRESSURE STABILITY Stability of spraying pressure	V	Checking on rapid movements of the needle of the manometer which make it impossible to read the pressure value	It is not possible to read the pressure from the manometer (oscillating needle)	FMR
G2			/ air chamber diaphragm torn		FF
G3			/ inadequate pressure in air chamber		FMNC
G4			/ false air		FMR
			/ poorly working pump		
H1	MANOMETER Presence of a manometer	V	Check the presence of a manometer	No manometer	FMR
H2	Readability of the manometer	V	Readability of scale from the driver's seat	Scaling > 0,2 bar and/or diameter < 6 cm	FF
H3	Functioning of manometer (mounted)	M	Differences of pressure between operating manometer mounted on sprayer and test manometer mounted on spray boom	Difference > 10 % of reference pressure	FF
H4	Functioning of (not mounted)	M	Differences of pressure between operating manometer and test manometer mounted on calibrator	Difference > 10 % of reference pressure	FMR
I1	PRESSURE EQUILIBRIUM Pressure equilibrium between spray boom sections	M	Differences of pressure between test manometers on spray boom sections and average spraying pressure	One single difference of pressure > 10 % compared to initial spraying pressure	FF
I2			/ sections of various lengths		FMNC
I3			/ supply lines of sections of various lengths		FMNC
I4			/ poor functioning of filters on spray boom sections		FMR
I5			/ problem with lines of spray boom sections		FMR
			/ bad connection with dispenser or faulty dispenser		
J1	COMPENSATORY RETURNS Functioning of compensatory returns	M	Difference of pressure compared to initial pressure when spray boom sections are shut off one after the other	One single difference of pressure > 10 % compared to average spraying pressure	FF
J2			/ no compensation control		FF
J3			/ incorrect setting of compensatory return flow		FMNC
			/ poorly functioning (dirt, ...) compensatory return flow		

(1) Failures to be Followed up (FF) / Failures to be Mended by the Next Cycle (FMNC) / Failures to be Mended involving Re-inspection (FRM)

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
K	LOSS OF PRESSURE Loss of pressure in spray boom sections* * <i>only when a loss of pressure is being suspected</i>	M	Checking losses of pressure within spray boom sections	Loss of pressure > 10 % of reference pressure (compared to near end of section)	FMNC
L1	FLOW RATE OF NOZZLES Uniformity of nozzles	V	Checking characteristics of nozzles the delivery rate of which is measured Difference between delivery rate of nozzles checked and a reference value	One single nozzle with other characteristics (brand, type, size) than the other nozzles of a set	FMR
L2	Flow rate of nozzles <u>T-nozzles</u> • known reference	M	/ average variation too great when compared to nominal flow rate	Average variation > 5 % of nominal flow rate	FMR
L3	• known reference		/ average variation within authorized limits but individual variation too great when compared to nominal flow rate	Average variation ≤ 5 % and one single deviation > 10 % of nominal flow rate	FMNC
L4	• unknown reference		/ individual variation too great when compared to average flow rate	Individual variation > 5 % of average flow rate	FMR
L5	<u>Other types of nozzles</u> • known reference	M	/ average variation too great when compared to nominal flow rate	Average variation > 10 % of flow delivery rate	FMR
L6	• known reference		/ average variation within authorized limits but individual variation too great when compared to nominal flow rate	Average variation ≤ 10 % and one single deviation > 15 % of nominal flow rate	FMNC
L7	• unknown reference		/ individual variation too great when compared to average flow rate	Individual variation > 5 % of average flow rate	FMR
	CONTROLS REGULATION SYSTEMS Functioning of regulation system	M	Difference between amount sprayed/ha and amount /ha set or programmed / inadequate setting of sprayer pump (DPDSm) / inadequate calibration of sensors of speed/delivery rate/pressure (DPDSe)	Variation > 10 % of amount/ha set or programmed	FMR
M1					FMR
M2					FMR
M3	Functioning of distribution box	V	Shut-off valves damaged	One poorly functioning valve	FMR
M4	Functioning of pressure valve	V	Pressure valve damaged	It is not possible to make pressure oscillate between the pressure levels at which the device is used	FMR
	LEAKS	V			

(1) Failures to be Followed up (FF) / Failures to be Mended by the Next Cycle (FMNC) / Failures to be Mended involving Re-inspection (FRM)

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
N1 N2	Finding leaks		/ inspection in order to detect major leaks / inspection in order to detect minor leaks	Presence of major leaks Presence of minor leaks	FMR FMNC
O	PUMP Functioning of pump	V	Checking the presence of water in the oil tank of the pump (milky fluid)	Presence of water in oil	FMR

(1) **F**ailures to be **F**ollowed up (**FF**) / **F**ailures to be **M**ended by the **N**ext **C**ycle (**FMNC**) / **F**ailures to be **M**ended involving **R**e-inspection (**FRM**)

PART TWO

DESCRIPTION OF THE METHODS FOR INSPECTING ORCHARD SPRAYERS AND ALL TYPES OF OTHER SPRAYERS WORKING ACCORDING TO THE SAME PRINCIPLE

A. GENERAL ORDER

→ visual test

A1

The state of maintenance is checked : presence of unusual objects and parts such as pieces of rope, iron wire, extreme rust, lack of lubrication, etc. ...

A2

The fan blades shall not be damaged and the deflectors shall be in an appropriate state.

B. TANK CONTENTS GAUGE

→ visual test

The level of liquid in the tank is read from the driver's seat (through a transparent pipe, a ball valve, directly through the wall of the tank, etc ...) from the driver's seat.

B1

The presence of a tank content gauge is checked.

B2

The readability of the tank content gauge is checked

C. FILTERS

→ visual test

The presence or absence of filters is checked. The state of the filters is checked only in case of hydraulic problems (differences, drops, variations of pressure, insufficient pressure, ...).

C1 and C2

When filling the main tank : basket filter at manhole level, suction filter at filling line level.

C3 and C4

At the suction of the spray mixture : suction filter before the pump.

C5 and C6

At the pressure line of the spray mixture : pressure filter between pump and pressure controller.

C7 and C8

At the level of the spraying arc sections : section filter(s).

D. SPRAYING ARC

→ this test includes a measurement

D1

Attention is given to any deformations of the spraying arc and/or pipes. On the other hand the symmetrical position of the spraying arc is checked with regard to the hitch points on the tank or the frame.

→ visual test

D2

Checking the solidity and the fixation of the spraying arc to the frame or the tank.

→ this test includes a measurement

D3

Checking if the distance between the nozzle holders on both sides of the spraying arc is symmetrical.

→ this test includes a measurement

D4

Checking if the distance between the nozzle holders on both sides of the spraying arc is symmetrical.

E. OBSTACLES

→ visual tests

E1

Attention is given to the presence of pipes, ropes or other unusual objects (i.e. objects that are not part of the construction) in the spray jet and/or the air inlet or the air outlet circuit of the fan

E2

Attention is given to the presence of pipes, ropes or other unusual objects (i.e. that are part of the construction) in the spray jet and/or in the air inlet or the air outlet circuit of the fan.

F. AGITATION SYSTEM

→ visual test

The intensity of the agitation in the main tank is judged when the agitation system and the sprayer are in action.

G. PRESSURE STABILITY

→ visual test

G1 to G4

A test manometer is fixed to the spraying arc at the place and instead of a nozzle. The movements of the needle are followed on the operating manometer or the test manometer. The spraying pressure should be constant when engine speed (r.p.m.) is constant.

H. MANOMETER

→ visual test

H1

The presence of a manometer is checked. The scaling interval shall be appropriate for the working pressure of the sprayer.

→ visual test

H2

The readability of the marks on the operating manometer is checked from the driver's seat.

→ this test includes a measurement

H3 and H4

A test manometer is fixed on the spray boom at the place and instead of a nozzle. The accordance between the pressure values shown on the operating manometer and the real values at the level of the nozzles is checked. Both values are examined at various levels of reference pressure.

If a difference is found, the operating manometer is disconnected by the person presenting the sprayer and connected to an independent calibrator and tested against a reference manometer. Then, both values are examined again at various levels of reference pressure.

I. PRESSURE EQUILIBRIUM

→ this test includes a measurement

I1 to I5

A test manometer is fixed on each section of the spraying arc at the place and instead of a nozzle, at the level of each nozzle holder. The pressure in the spraying arc is set at a reference value and attention is given to possible differences of pressure between the sections of the spraying arc.

J. COMPENSATORY RETURNS

→ this test includes a measurement

J1 to J3

A test manometer is fixed to each section of the spraying arc at the place and instead of a nozzle, at the level of the nozzle holder. The pressure in the spraying arc is set at a reference value. One section of the spraying arc is shut off after which the pressure is measured again in the sections that have not been shut off ; then, the section that was closed is connected again. This operation is repeated for each of the sections of the spraying arc.

J4 and J5

An identical check is conducted for the nozzles. All nozzles are closed one after the other, leaving only one nozzle of the spraying arc spraying.

K. PRESSURE LOSS

→ the test only includes a measurement when there is a risk of losing pressure

Two test manometers are fixed at the place and instead of a nozzle, one close to the supply point of the spraying arc section, the other at the far end of the section. Any losses of pressure are checked against a reference pressure at the supply point of the spraying arc section.

L. INDIVIDUAL FLOW RATE OF NOZZLES

→ visual test

L1

The uniformity of the nozzles in symmetrical positions on the left and the right side of the spraying arc is checked with respect to the brand, the type, the size and the spray angle.

→ these tests include a measurement

L2 and L3

The individual flow rate of the nozzles is measured directly on the sprayer, separately for each of the nozzles on the spraying arc. The flow rates of nozzles with identical characteristics are compared to each other and to the flow rate of a new (reference) nozzle at a set reference pressure.

If the nominal flow rate is not known, the individual flow rate of the nozzle is compared to the average value of the nozzles submitted to measuring showing identical characteristics.

L4 and L5

The flow rate of demounted nozzles is measured on a test bank when the measurement of the nozzles mounted on the sprayer shows significant variations. The variation of the flow rate is determined with regard to that of a new (reference) nozzle. The flow rate of the nozzle is compared to the nominal pressure mentioned in the tables of the constructor.

M. NOZZLE HOLDERS

→ when flow rate variations are not due to the nozzles (L2-L5), but to the nozzle holders, a measurement is carried out

This measurement starts with measuring the flow rate of the nozzles (see L2-L5). The places of the nozzles are changed and the flow rate is measured again. Flow rate values are compared to each other. Then, the pressure on the different nozzle holders is measured against a set reference value and the results are compared to each other.

N. CONTROLS AND REGULATION SYSTEMS

→ this test includes a measurement

N1 and N2

Checking the mechanical and electronic regulating system (DPDSm and DPDS_e) at a delivery rate proportionate to the driving speed as well as the electronic indications of the amount sprayed per hectare. The driving speed and the amount of water sprayed in a certain lapse of time are determined. The actual amount sprayed per hectare is calculated and compared to the amount preset by the user.

→ visual test

N3

The functioning of the opening and shutoff valves of the spraying arc sections is checked.

→ visual test

N4

The functioning of the pressure controller (electric or mechanical) of the regulating systems for constant pressure (PC) and the delivery rate proportionate to engine speed (DPES) is checked.

O. LEAKS

→ visual test

O1 and O2

Identifying places where (major and minor) leaks have occurred.

P. PUMP

→ visual test

Checking the functioning of the pump by detecting water in the oil of the pump tank.

SUMMARY TABLE ON THE INSPECTION OF **ORCHARD SPRAYERS** (TOLERABLE DEVIATIONS AND INTERPRETATION OF TEST RESULTS)

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
	GENERAL ORDER				
A1	State of maintenance of sprayer	V	Absence/Presence of pieces of rope, iron wire, rust,	Obvious signs of poor maintenance	FF
A2	State of the fan	V	Check the state of the fan blades and the deflectors	Fan blades and/or deflectors clearly damaged	FMR
	TANK CONTENTS GAUGE				
B1	Absence/Presence	V	Absence or presence of tank contents gauge	Absence of a tank contents gauge	FF
B2	Readability	V	The mark of the fluid level is read from the driver's seat	Fluid level in tank cannot be read by means of filling scale	FF
	FILTERS				
C1	Absence/Presence of a basket filter/suction filter	V	Absence or presence of basket filter/suction filter	Absence of basket filter/suction filter	FF
C2	State of basket filter/suction filter*	V	Inspection of the state of sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
C3	Absence/Presence of suction filter	V	Absence or presence of filter on pump suction	Absence of suction filter	FF
C4	State of suction filter*	V	Inspection of the state of the sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
C5	Absence/Presence of pressure filter	V	Absence or presence of pressure filter	Absence of pressure filter	FF
C6	State of pressure filter*	V	Inspection of the state of the sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
C7	Absence/Presence of section filter(s)	V	Absence or presence of section filter(s)	Absence of section filter(s)	FF
C8	State of section filter(s) * * <i>only in case of a hydraulic problem</i>	V	Inspection of state of sieve and/or extent of obstruction	Sieve damaged and/or obstructed	FMNC
	SPRAYING ARC				
D1	Symmetry and deformation	M	Inspection of the symmetry of the spray boom with regard to the hitch points on the frame or the tank and deformation thereof	No left-right symmetry and deformation of spraying arc > 5 cm	FMR
D2	Fixation of arc	V	Inspection of the solidity of the fixation of the arc to the tank	No solid fixation	FMNC
D3	Symmetrical spacing of nozzle holders	M	Checking (by measurement) if the distance between nozzle holders left and right is symmetrical	Different spacing (no left-right symmetry) > 3 cm	FMNC
D4	Symmetrical position of nozzle holders	M	Checking (by measurement) if angle of slope of nozzle holders left and right is symmetrical	Different spacing (no left-right symmetry) > 10°	FMNC

(1) **F**ailures to be **F**ollowed up (FF) / **F**ailures to be **M**ended by the **N**ext **C**ycle (FMNC) / **F**ailures to be **M**ended involving **R**e-inspection (FMR)

SUMMARY TABLE ON THE INSPECTION OF **ORCHARD SPRAYERS** (TOLERABLE DEVIATIONS AND INTERPRETATION OF TEST RESULTS)

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
E1	OBSTACLES Obstacles in spray jet and fan	V	Identifying disturbing objects (ropes, pipes ...) in the spray jet and the air jet of the fan	Presence of obstacles in the spray jet and the air jet / lack of maintenance	FMNC
E2	Obstacles in spray jet and fan	V	Identifying obstacles (frame, pipes ...) in the spray jet and the air jet of the fan	Presence of obstacles in the spray jet and the air jet/construction	FF
F	AGITATION SYSTEM Agitation of the mixture in the tank	V	Inspection of the intensity of agitation in the tank	No or insufficient agitation	FF
G1	PRESSURE STABILITY Stability of spraying pressure	V	Checking on rapid movements of the needle of the manometer which make it impossible to read the pressure / air chamber diaphragm torn	It is not possible to read the pressure from the manometer (oscillating needle)	FMR
G2			/ inadequate pressure in air chamber		FF
G3			/ false air		FMNC
G4			/ poorly working pump		FMR
H1	MANOMETER Presence of manometer	V	Check the presence of a manometer	No manometer	FMR
H2	Readability of the manometer	V	Readability of scale from driver's seat	Scaling > 0,2 bar to 5 bar and/or > 1 bar to 20 bar and/or diameter < 6 cm	FF
H3	Functioning of manometer (mounted)	M	Differences of pressure between operating manometer mounted on sprayer and test manometers mounted on spray boom	Difference > 10 % reference pressure	FF
H4	Functioning of manometer (not mounted)	M	Differences of pressure between operating manometer and reference manometer mounted on calibrator	Difference >10 % reference pressure	FMR
I1	PRESSURE EQUILIBRIUM Pressure equilibrium between sections of the spraying arc	M	Differences of pressure between average pressure of each section (test manometer on each nozzle holder) and average spraying pressure	One single difference of pressure > 10 % compared to average spraying pressure	FF
I2			/ sections of various lengths		FMNC
I3			/ supply lines of sections of various lengths		FMNC
I4			/ poor functioning of filters on spraying arc sections		FMR
I5			/ problem with lines of spraying arc sections		FMR
			/ bad connection with dispenser / faulty dispenser	FMR	

(1) **F**ailures to be **F**ollowed up (FF) / **F**ailures to be **M**ended by the **N**ext **C**ycle (FMNC) / **F**ailures to be **M**ended involving **R**e-inspection (FMR)

SUMMARY TABLE ON THE INSPECTION OF **ORCHARD SPRAYERS** (TOLERABLE DEVIATIONS AND INTERPRETATION OF TEST RESULTS)

Code	Parameter checked	Test : <u>Visual</u> <u>Measurement</u>	Item inspected by observation or measurement	Limit values	Interpretation of test (1)		
J1	COMPENSATORY RETURNS Functioning of compensatory return of spray boom sections	M	Difference of pressure compared to initial pressure when spray boom sections are shut off one after the other / no compensation control	One single difference of pressure > 10 % compared to initial spraying pressure	FF		
J2						/ incorrect setting of compensatory returns	FF
J3						/ poorly functioning (dirt, ...) compensation control	FMNC
J4	Functioning of compensatory return flow of nozzles	M	Difference of pressure compared to initial pressure when nozzles are shut off one after the other / no compensation control	One single difference of pressure > 15 % compared to initial spraying pressure	FF		
J5						/ incorrect setting of compensatory return flows	FF
J6						/ poorly functioning (dirt, ...) compensation control	FMNC
K	PRESSURE LOSS Loss of pressure in the spray boom sections* <i>* only when a loss of pressure is suspected</i>	M	Checking losses of pressure within spray boom sections	Drop of pressure > 10 % of reference pressure (compared to near end of section)	FMNC		
L1	FLOW RATE OF NOZZLES Uniformity of nozzles	V	Checking left/right uniformity (type, size, brand) of the nozzles on the spraying arc	Non symmetrical position of nozzles with different characteristics	FMR		
L2	Testing nozzles when mounted on the sprayer • known reference	M	/ average variation within authorized limits but individual variation too great when compared to nominal flow rate	Average variation ≤ 5 / 10 % and an individual variation > 10 / 15 % of nominal delivery rate (T-nozzles and swirl nozzles)	FMNC		
L3	• unknown reference	M	/individual variation too great when compared to average flow rate	Individual variation > 5 % of average flow rate	FMR		
L4	Testing nozzles when not mounted on the sprayer [(only in case of obvious significant differences)] [1] • known reference	M	/ average variation within authorized limits but individual variation too great when compared to nominal flow rate	Average variation ≤ 5 / 10 % and one individual variation > 10 / 15 % of nominal flow rate (T-nozzles and swirl nozzles)	FMNC		
L5	• known reference	M	/ average variation too great when compared to nominal flow rate	Average variation > 5 / 10 % of nominal delivery rate (T-nozzles and swirl nozzles)	FMR		

(1) **F**ailures to be **F**ollowed up (FF) / **F**ailures to be **M**ended by the **N**ext **C**ycle (FMNC) / **F**ailures to be **M**ended involving **R**e-inspection (FMR)

SUMMARY TABLE ON THE INSPECTION OF **ORCHARD SPRAYERS** (TOLERABLE DEVIATIONS AND INTERPRETATION OF TEST RESULTS)

<i>Code</i>	<i>Parameter checked</i>	<i>Test : Visual Measurement</i>	<i>Item inspected by observation or measurement</i>	<i>Limit values</i>	<i>Interpretation of test (1)</i>
M1 M2	NOZZLE HOLDERS State of nozzle holders	M	Variation of pressure in nozzle holder when compared to average spraying pressure / lack of maintenance (dirt, filters, ...) / failure of nozzle holder	One single variation of pressure > 10 % of average spraying pressure	FMNC FMR
N1 N2	CONTROLS AND REGULATION SYSTEMS Functioning of regulating system	M	Difference between amount sprayed/ha and amount/ha set or programmed / inadequate setting of sprayer pump (DPDSm) / inadequate calibration of sensors of speed/delivery rate/pressure (DPDSe)	Variation > 10 % of amount/ha set or programmed	FMR FMR
N3	Functioning of distribution box	V	/ Shut-off valves damaged	Only one poorly functioning valve	FMR
N4	Functioning of pressure valve	V	/ Pressure valve damaged	It is not possible to make pressure oscillate between the pressure levels at which the device is used	FMR
O1 O2	LEAKS Finding leaks	V	/ inspection in order to detect major leaks / inspection in order to detect minor leaks	Presence of major leaks Presence of minor leaks	FMR FMNC
P	PUMP Functioning of pump	V	Checking the presence of water in the oil tank of the pump (milky fluid)	Presence of water in oil	FMR

Approved to be annexed to the Ministerial decree of 25 August 2004,
The Minister of Social Affairs and Public Health,

Rudy DEMOTTE

(1) **F**ailures to be **F**ollowed up (FF) / **F**ailures to be **M**ended by the **N**ext **C**ycle (FMNC) / **F**ailures to be **M**ended involving **R**e-inspection (FMR)



Approved to be annexed to the Ministerial Decree of 25 August 2004,

The Minister of Social Affairs and Public Health,

Rudy DEMOTTE



Approved to be annexed to the Ministerial Decree of 25 August 2004,

The Minister of Social Affairs and Public Health,

Rudy DEMOTTE

ANNEX III



FORM TO BE FILLED OUT WHEN A SPRAYER IS SOLD OR RESOLD

Please send to :

Ministry of the Flemish Community

Institute for Agricultural and Fisheries Research, Unit Food & Technology – Agricultural Engineering

–ILVO, T&V - AT

Burg. van Gansberghelaan 115

9820 MERELBEKE

Tel : 09/272 27 57 – Fax : 09/272 28 01

E-mail : keuringspuit@ilvo.vlaanderen.be

INFORMATION ABOUT THE BUYER

Surname + First Name :

Street + number :

Postal code :

Place :

Telephone : /

Fax : /

Use : private use contractor association

IN CASE OF A RESALE, INFORMATION ABOUT THE PREVIOUS OWNER
--

[(DEALER-REPAIRER OR PRIVATE PERSON)] [1]

Surname + First name :

Street + number :

Postal code :

Place :

Telephone : /

Fax : /

INFORMATION ABOUT THE SPRAYER

Brand : Year of manufacture :

Type : crop sprayer orchard sprayer hose sprayerModel : mounted trailed self-propelled

Control systems :

 Constant pressure D.P.E.S. (Delivery rate proportionate to engine speed) D.P.D.S.. m (Mechanical control system with delivery rate proportionate to driving speed) D.P.D.S. e (Electronic control system with delivery rate proportionate to driving speed)

Working width : meter

Tank : liter

Fan type : axial radial otherDrive : P.T.O. engine electric (voltage :)

Frame number :

Date of purchase : / /

N° last inspection (if relevant) :

Notes :

.....

.....

.....

Date of sending the form : / /

Signature [(+ stamp of dealer-repairer)] [1]:

The Minister of Social Affairs and Public Health,
Rudy DEMOTTE

ANNEX IV



FORM TO BE FILLED OUT WHEN A SPRAYER IS PUT OUT OF USE

Please send to :

Ministry of the Flemish Community

Institute for Agricultural and Fisheries Research, Unit Food & Technology – Agricultural Engineering

–ILVO, T&V - AT

Burg. van Gansberghelaan 115

9820 MERELBEKE

Tel : 09/272 27 57 – Fax : 09/272 28 01

E-mail : keuringspuit@ilvo.vlaanderen.be

INFORMATION ABOUT THE OWNER	
Surname + First name :	
Street + number :	
Postal code :	Place :
Telephone : /	Fax : /
INFORMATION ABOUT THE SPRAYER	
Brand : Year of manufacture :	
Type :	<input type="checkbox"/> crop sprayer <input type="checkbox"/> orchard sprayer <input type="checkbox"/> hose sprayer
Model :	<input type="checkbox"/> mounted <input type="checkbox"/> trailed <input type="checkbox"/> self-propelled
Control system :	<input type="checkbox"/> Constant pressure <input type="checkbox"/> D.P.R. (Delivery rate proportionate to revolutions per minute) <input type="checkbox"/> D.P.D.S. m (Mechanical control system with delivery rate proportionate to driving speed) <input type="checkbox"/> D.P.D.S. e (Electronic control system with delivery rate proportionate to driving speed)
Working width : meter	Tank : liter
Fan type :	<input type="checkbox"/> axial <input type="checkbox"/> radial <input type="checkbox"/> other
Drive :	<input type="checkbox"/> P.T.O. <input type="checkbox"/> engine <input type="checkbox"/> electric (voltage :)
Frame number. :	Date of purchase : / /
Date of actual putting out of use : / /	
N° last inspection (if relevant) :	
Date of sending the form : / /	Signature :
<p>I am aware that, according to article 6. §2. of this Decree, I have to demount the spray boom of the crop sprayer, the spraying arc of the orchard sprayer when the sprayer is put out of use.</p>	

Approved to be annexed to the Ministerial Decree of 25 August 2004,

The Minister of Social Affairs and Public Health,

Rudy DEMOTTE