



CRD - Moldova Workshop

Technical aspects of testing

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Programme

UK Legislation & requirements

ISO Standards

NSTS test procedure

Equipment inspected

Plant Protection Products (Sustainable Use) Regulations 2012/1657

All PAE (except handheld)

First test due before the applicator is 5 years old

Booms over 3 metres, air blast, train and aircraft sprayers

- Re-test every 3 years

Plant Protection Products (Sustainable Use) Regulations 2012/1657

Plant Protection Products (Sustainable Use) Regulations 2009/128/EC

Alignment with ISO 16122 – Inspection of sprayers in use

16122-1 – general

16122-5 – aerial spray systems (manned)

16122-2 – horizontal boom sprayers

ISO 16122-5 Aerial spray systems

- Many test items overlap with other parts of the series
- Some items specific to fixed wing and rotary aircraft

Items to consider

- **Spraying section** - spray boom orientation within 5° (10° for horizontal boom)
- **Nozzle orientation** - nozzles positioned to avoid wing tip or rotor vortices

ISO 23117-1 (UASS environmental requirements)

5.3.1 Hoses and connectors

Hoses and connectors shall be secured and have sufficient fastening strength to prevent unintentional disconnection of hoses. There shall be no visible leakage from hoses and connectors

Other considerations

ISO 19932-3 (knapsack sprayers)

6. Specific requirements for engine or electric motor-driven knapsack sprayers

6.1 Spray tank

It shall be possible to empty the spray tank of engine-drive sprayers without having to invert the engine

Note

Agitation

Generally not required/installed due to small tank size/rapid discharge (but necessary for pre-mixer tank (see 23117-1))

Pressure

No pressure gauges and no couplers to enable attachment of a test gauge. Usual standard is a flow meter

So far.....

No tests carried to date on UAV in the UK

Currently no PPP authorisations

Application equipment used for trials/experimental purposes applying PPP's require testing by the specified dates and timescales

Test certification

Test Centres

Trained and qualified Examiners

Completed certificates

- Customer
- NSTS database
- Test Centre & Examiner

Test certificate

NSTS Liquid Certificate: 9007127		NSTS		Certificate Result: FAIL	
Inspection carried out to Standard BS EN ISO 16122					
Certificate Details					
Test Date:	24 Aug 2026	Vehicle Registration:	NA	Machine Type:	Sprayer
Test Centre:	NSTS Test	Year of Manufacture:	2024	Sprayer Type:	Self-Propelled
Examiner:	Ian	Make:	DJI	Boom Width (m):	1.6
Test Location:	Farm	Model:	Agras T50	Tank Capacity (L):	80
Owner Name:	NSTS	Serial Number:	876424	Hectares (ha):	10
Owner Email:	ianf@aea.uk.com	New Machine:	No	Sector:	Agriculture
Owner Address:	Samuelson Farm Peterborough Cambridgeshire PE7 8JB	Operator Present:	Yes	Drift reduction fitted:	Not Fitted
 Examiner Signature					



16	Boom break-backs working	Not Fitted	41	Filters in good condition and compatible with nozzles fitted	Failed	
17	Structural wear and corrosion	Pass	42	Boom transport position correct and secure	Pass	
18	Nozzles - consistent height	Pass	43	Tank emptying device allows safe disposal of contents	Failed	
19	Nozzle uniformity	Pass	44	Forward speed check (for machines fitted with electronic controllers)	Not Fitted	Speedometer (km/h) : Secs to cover 100m :

Filters in good condition and compatible with nozzles fitted	Tank emptying device allows safe disposal of contents
Not possible to remove filters without the contents of the tank coming out (except by inverting the drone)	No isolating tap on drain cap

44 mandatory/cautionary test items

Safe and accurate application of PPP's

- Sprayer & tank security, tank lid & strainer
- Leaks and drips, hose condition
- Filters
- Nozzle output

NSTS Test Procedure

ISO 16122

Filters

When the spray tank is full, it is possible to remove filters without spray liquid leaking out

Tank emptying device allows safe disposal of contents

Safe to the operator and to the environment

Operating labels

All manual controls must be labelled to indicate their function and position

Application equipment

DJI



XAG



The sprayer test

DJI



Operating labels – Complete and legible
– Indicate their function and position

The sprayer test

DJI



Tank emptying device

Able to collect the liquid without risk to the operator or the environment

The sprayer test

DJI



Filters

Shall be possible to remove and clean the filters without the spray liquid leaking out

The sprayer test

XAG



Tank emptying device

Able to collect the liquid without risk to the operator or the environment

The sprayer test

XAG



Tank emptying device

Able to collect the liquid without risk to the operator or the environment

Summary

No standardised test specific to UAV

However, principles of ISO 16122-2 appropriate with reference to other specific standards where necessary

Common (mandatory) faults between different makes that need addressing

Remember – this is a test of the application equipment. Drift parameters, filling methods and calibration do not form part of a test



Any Questions?

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