
Equipment for crop protection — Test methods for air-assisted sprayers for bush and tree crops

*Matériel de protection des cultures — Méthodes d'essai des pulvérisateurs
à jet porté pour les arbustes et arbres fruitiers*



Reference number
ISO 9898:2000(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2000

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 9898 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 6, *Equipment for crop protection*.

Annex A forms a normative part of this International Standard.

Document generated by IHS

Equipment for crop protection — Test methods for air-assisted sprayers for bush and tree crops

1 Scope

This International Standard specifies the methods for measuring the characteristics of mounted, towed and self-propelled air-assisted sprayers, including pneumatic sprayers, used for crop protection in bushes, vineyards and tree crops.

This International Standard specifies testing methods to define sprayers' performances in control conditions (laboratory) with respect to minimising the risk of environmental contamination.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 13441-1, *Air-assisted agricultural sprayers — Data sheets — Part 1: Typical layout*.

3 Test conditions

3.1 Sprayer settings

Tests shall be done with the machine in working order (grids, nozzles, deflectors, etc.).

3.2 Sprayer set-up

The deflector positions, the shapes and the orientation of the air outlet, the nozzle orientation and the other device modifying the air or the liquid distribution should be described in the report. Schematic diagrams and photographs can be used to describe the sprayer set-up.

3.3 Sprayer environment

There should be no obstacles within a distance of at least 5 m in the direction(s) of the outlet velocity.

3.4 PTO speed

The test shall be done at least for the nominal PTO (power take-off) speed (540 ± 5) r/min ¹⁾.

1) (1000 ± 10) r/min in the case of sprayers operating at 1000 r/min.

3.5 Sprayer gear box

If the power transmission includes a device providing different speeds for the fan rotation, the tests should be done for all the gear box positions. The PTO speed and the different fan rotation speeds should be measured.

3.6 Fan with variable pitch blades

For the sprayer's fan equipped with variable pitch blades, the test should be done at least with the angle recommended by the manufacturer. Otherwise, the medium position or the nearest medium position of the adjustment range shall be adopted for the test.

3.7 Variable width fan outlet

For the sprayer equipped with a variable outlet, the tests should be done at least with the width recommended by the manufacturer. Otherwise, the central position or the nearest central position of the adjustment range shall be adopted for the test.

3.8 Mounted sprayer equipped with an axial fan

The height of the fan axis should be mentioned in the report.

3.9 Test liquid

Clean water free from solids in suspension. If any tracer or dye is used on the tests, it shall be reported.

3.10 Atmospheric conditions

Temperature and humidity should be reported.

4 Measurement of the sprayer power consumption

The total power consumption in working order (fan, pump, etc.) shall be measured, for example with a torquemeter. During the test the liquid flow from the nozzle shall be switched off. The measurement shall be made with the maximum pressure recommended by the manufacturer.

5 Measurement of the flow rate

5.1 Reference method

A measuring chamber connected to two measuring tubes shall be used as a general method to measure the air flow rate at the inlet or at the outlet of the single or multiple fans of the sprayer. For the basic set-up of the chamber test stand, see Figure 1. For the possible connections between the measuring chamber and the different types of air-assisted sprayers, see Figure 2.