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## Crop protection equipment — Drift classification of spraying equipment —

### Part 2: Classification of field crop sprayers by field measurements

*Matériel de protection des cultures — Classification de la dérive des matériels de pulvérisation —*

*Partie 2: Classification des pulvérisateurs pour cultures basses par mesurage au champ*

ICS 65.060.40

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## 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 2.

The main task of technical committees is to prepare International Standards. 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.

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ISO 22369-2 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 6, *Equipment for crop protection*.

ISO 22369 consists of the following parts, under the general title *Crop protection equipment — Drift classification of spraying equipment*:

- *Part 1: Classes*
- *Part 2: Classification of field crop sprayers by field measurements*

## Introduction

This International Standard series specifies the drift classification of spraying equipment. ISO 22369-1 defines the spray drift reduction classes. The other parts of ISO 22369 specify the test procedures and therefore, ISO 22369-1 shall be used in combination with one of the other parts of ISO 22369.

Spray drift of plant protection products can contaminate non-target or sensitive areas, such as surface water, hence minimum spray distances, or buffer zones, are often specified. Using sprayers and/or sprayer parts which reduce levels of spray drift can enable these distances to be reduced. Drift classification procedures for sprayers and sprayer parts facilitate decision making by the farmer and may be of interest in defining best practice or for regulation/legislation.

Spray drift can occur as airborne drift and ground sedimentation of drift fallout. Classification in this part of ISO 22369 series is based on comparing levels of ground sedimentation from spraying equipment (for example sprayers or parts of sprayers) with reference spraying systems based on the use of spraying equipment according to good agricultural practice for plant protection in different regions and crops. Spray drift deposition or collection is measured at different distances from the target area and the drift reducing performance of the spraying equipment is rated against a reference spray system.

The object of ISO 22369 series is to provide uniform procedures for the determination of the drift reducing performance of spraying equipment.

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# Crop protection equipment — Drift classification of spraying equipment — Part 2: Classification of field crop sprayers by field measurements

## 1 Scope

This part of ISO 22369 specifies the drift classification procedure for field crop sprayers by field measurements of spray drift sedimentation according to ISO 22866 including the test methods and evaluation criteria needed and allows the allocation of the spray drift reduction classes specified by ISO 22369-1.

The object of this part of ISO 22369 is to determine the drift reducing performance of field crop sprayers by comparison with a reference spray system in order to rate (classify) the field crop sprayers. The application of this International Standard may support advisory services for farmers, the product development and legal certification and classification schemes.

This part of ISO 22369 is intended to be used together with ISO 22369-1.

This International Standard is applicable to mounted, trailed and self-propelled field crop sprayers used in field crops.

## 2 References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 22369-1, *Crop protection equipment – Drift classification of spraying equipment – Part 1: Classes*

ISO 22866, *Equipment for crop protection – Methods for the field measurement of spray drift*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions of ISO 22369-1 and ISO 22866 and the following apply.

### 3.1

#### zone 1 (1 m to 5 m zone)

zone which is downwind and adjacent to the directly sprayed zone and which is at a distance between 1 m and 5 m of the directly sprayed zone (see Figure 1).

### 3.2

#### zone 2 (5 m to 10 m zone) to 10 (45 m to 50 m zone)

zones which are downwind and further away from the directly sprayed zone and which are at 5 m distances between 5 m and 50 m of the directly sprayed zone (see Figure 1).

3.3

zone 11

zone which is downwind and used for assessing the drift, which consists of one specific, several or all zones from zone 1 to zone 10 and which is at a distance of 1 m up to 50 m of the directly sprayed zone (see Figure 1 which shows the 1 m to 50 m example).

Dimensions are in metres

Key

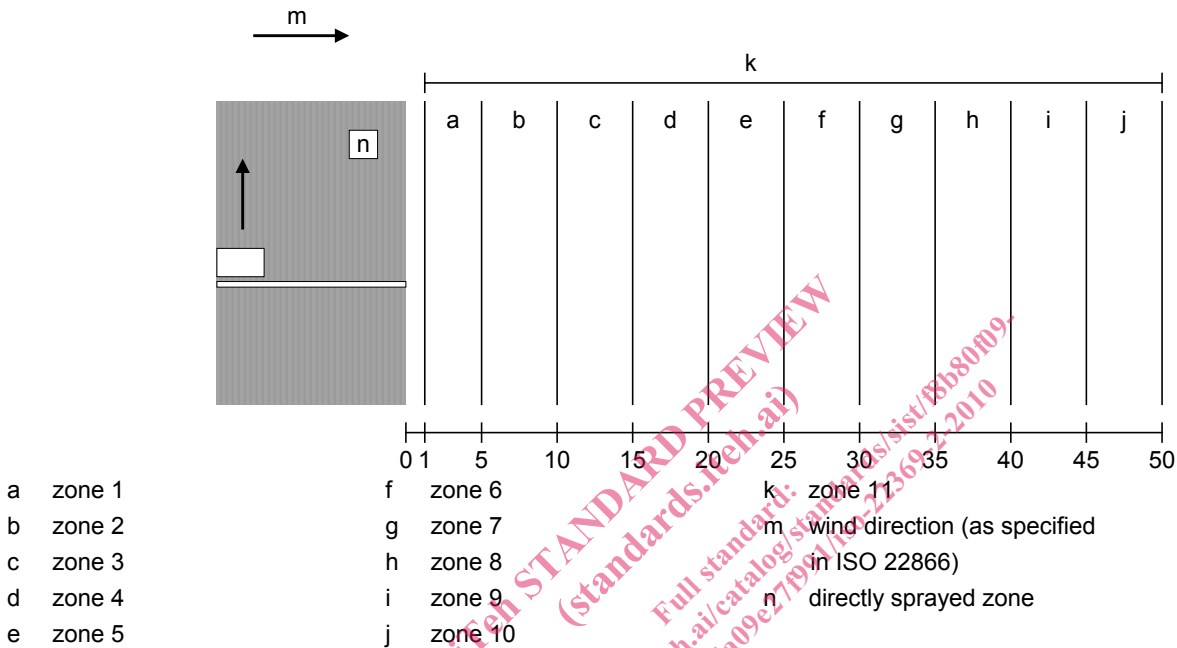


Figure 1 – Zone 1 (1 m to 5 m) to zone 11 (1 m to 50 m)

4 Classification

The classification is based on the comparison of the candidate spraying equipment (field crop sprayer) with the reference spraying system (see 5.2). The classification may include classes A to F (see ISO 22369-1) and may be done for one, several or all zones as specified in Figure 1. The classification of the spraying equipment depends on the amount of reduction of soil sediments of spray drift determined by field measurements (see 5.1) compared with the spray drift deposition of the reference spray system (see 5.2) in a comparative measurement at the same time and weather and crop condition. The classification is based on the evaluation (see 5.3).

5 Drift classification procedure

5.1 Measurements

The measurements shall be carried out according to ISO 22866 and downwind from the edge of the directly sprayed zone. The soil sediments shall be measured in one, several or all zones as specified in Figure 1 and at least at the distances to the directly sprayed zone shown in Table 1.

NOTE Additional zones may be added in case of special interests.



Table 1 — Distances for ground sediment measurements

Zone	Distance to the sprayed zone m	Zone	Distance to the sprayed zone m
1 (1 m to 5 m)	1, 3, 5	7 (30 m to 35 m)	30, 35
2 (5 m to 10 m)	5, 10	8 (35 m to 40 m)	35, 40
3 (10 m to 15 m)	10, 15	9 (40 m to 45 m)	40, 45
4 (15 m to 20 m)	15, 20	10 (45 m to 50 m)	45, 50
5 (20 m to 25 m)	20, 25	11	1, 5, 10, 20, 30, 40, 50
6 (25 m to 30 m)	25, 30		

## 5.2 Reference spray system

The reference spray system is defined by the equipment related data (as given in Table 3), crop related data (as given in Table 4) and meteorological data (as given in Table 5). The crop related data and the meteorological data shall be the same for the candidate and the reference spraying equipment and shall be specified.

Due to the different good agricultural practices for plant protection in different regions and crops the modification of the reference spray system may be necessary. However, to allow international comparison of data any classification scheme shall include data derived with the equipment as given in Table 3.

Table 3 – Equipment related data

Nozzle type	Comparable with ASAE 572 <sup>a)</sup>
Spray pressure	See above
Nozzle size	Borderline nozzle fine/medium <sup>b)</sup>
Nozzle height above target	50 cm
Driving speed	6 to 8 km/h
<sup>a)</sup> To be replaced by ISO 25358 (under study by ISO/TC 23/SC 6/WG 13).	
<sup>b)</sup> Typically used in North-West Europe.	

Table 4 – Crop related data

Type of crop	
Crop condition and growth stage	
Physical description (including height of crop)	