



**Julius Kühn Institute  
Federal Research Institute for Cultivated Plants  
Federal Republic of Germany**

## **Guideline for the testing of plant protection equipment**

January 2021 **2-2.1**

**Procedure for the entry of plant protection equipment into  
the section "List of loss-reducing equipment  
- drift reduction" of the descriptive list**

**Non-official translation - German text is legally binding**

**Publisher:**

Julius Kühn-Institut, Federal Research Centre for Cultivated Plants  
Erwin-Baur-Strasse 27  
06484 Quedlinburg

**Executing Institute:**

Institute for Application Technology in Plant Protection  
Messeweg 11/12  
38104 Braunschweig

[www.julius-kuehn.de](http://www.julius-kuehn.de)

The reproduction of common names, trade names, product designations etc. in this guideline does not justify the assumption that such names being used by anyone. They may be legally protected, registered trademarks, even if they are not marked as such. No responsibility is taken for incorrect text.

## Testing

Julius Kühn-Institut (JKI) can test devices and equipment on application with regard to their drift-reducing properties in accordance with Section 52 (1) of the Plant Protection Act (PflSchG) of 6 February 2012 (Federal Law Gazette I p. 148, 1281), as last amended by Article 2 of the Act of 20. Dezember 2022 (Federal Law Gazette. I S. 2752). The regulations of the examination regulations for plant protection equipment (guideline 2-1.1.1) apply.

### 1. Pre-condition

The pre-condition for an entry in the section "List of loss-reducing devices - drift reduction" is that either the device itself or the drift-reducing device of the equipment has been tested according to § 52 article 1 PflSchG. In addition, the device has to be approved by the JKI and has been entered in the section "JKI-approved plant protection devices and parts of devices" of the descriptive list according to § 52 article 2 PflSchG.

### 2. Type and scope of the examination

The applicant must provide the test results necessary for the assessment.

For this purpose, field tests according to guideline 7-1.5 "Measurement of direct drift when applying liquid plant protection products in the field" and the guidelines for the testing of plant protection equipment of the JKI must be carried out in at least three replicates for each variant. In doing so, the ground sediment shall be determined at least at distances of 3 m, 5 m, 10 m, 15 m and 20 m. For each distance, at a minimum of at least 30 measured values must be determined.

In the case of field sprayers with certain nozzle designs and arrangements, the JKI may use wind tunnel measurements in accordance to guideline 7-1.8 "Measurement of the drift potential of nozzles in the wind tunnel" for the assessment instead of field tests.

If results from both field tests and wind tunnel measurements are available, the evaluation is done based on the field test results.

### 3. Evaluation of the tests

The evaluation of the field tests is done by comparing the respective medians with the values in the table in appendix 1. The drift reduction classes are calculated from the medians, which result from the tests on which the basic drift values are based on and can be found in the table in Appendix 1.

The test instrument is classified in the class whose limit values according to Appendix 1 lie above the median of the measured values for the test instrument in the entire measured range (see example in Appendix 2).

If wind tunnel tests are used for the evaluation, the evaluation is based on the drift potential index (DIX) in comparison with the reference specified in ISO 22856:2008 (TeeJet TP11003-SS at 3.0 bar spray pressure). The DIX values measured and rounded to whole numbers must meet the following conditions for classification:

Drift reduction 50%:  $DIX \leq 33$

Drift reduction 75%:  $DIX \leq 18$

Drift reduction 90%:  $DIX \leq 12$

Drift reduction 95%:  $DIX \leq 6$

#### **4. Decision**

- 4.1 The crop protection device is entered into the section "List of loss-reducing devices - drift reduction" of the descriptive list by JKI, if the test has shown that the device has the necessary properties for classification. If several operating points (spray pressures) can be set, the device must have the properties required for classification in one of the drift reduction classes for more than one operating point. A prerequisite for the positive completion of a test and an entry in the above-mentioned section is that the device or device part has been approved and that all requirements have been met.
- 4.2 If drift-reducing devices are to be offered as a kit for retrofitting of existing crop protection devices, these retrofit kits must be accompanied by instructions manual and, if applicable, installation instructions. The instructions manual must describe the tested conditions and limits of use as well as the device settings for use as a drift-reducing device. These shall be included in the list as conditions of use. The instructions for use must also contain a list (matrix) of the types of equipment suitable for retrofitting, unless retrofitting is possible for all types of equipment of one type (e.g. flat spray nozzles for field sprayers). Registration can be then carried out for all types of equipment with the drift-reducing device.
- 4.3 Prior to entry into in the section "List of loss-reducing devices - drift reduction" of the descriptive list, the JKI consults the Advisory Committee on Equipment Recognition Procedures (see Guideline 2-1.1.1).
- 4.4 If the registration of the device in the section "List of loss-reducing devices - drift reduction" of the descriptive list is advertised, it must be referred to the special requirements and operating conditions to be complied with as specified in the instructions manual in accordance with § 53 PflSchG. At all exhibitions and demonstrations, the equipment must be equipped as listed. The registered versions displayed in a matrix are an essential part of the instructions manual.
- 4.5 With the expiry of the recognition and with the deletion of the entry in the section "JKI-approved plant protection equipment and equipment parts" of the descriptive list, the deletion of the device from the section "List of loss-reducing devices - drift reduction" of the descriptive list also takes place.
- 4.6 Contrary to 4.5., if the production and sale of the device or drift reduction equipment has ceased at the time of expiry of the approval, the device shall not be deleted from the section "List of loss mitigation devices - drift mitigation" of the descriptive list.
- 4.7 If there are new findings with regard to drift reduction, reviews are carried out to determine whether the registered device needs to be reassessed with the regard to

classification. This may result in the decision on the drift-reducing properties having to be cancelled or amended by means by a notice of amendment.

**6. Announcement**

- 6.1 The JKI publishes the entries, changes and deletions in the section "List of Loss Reducing Devices - Drift Reduction" of the descriptive list in the Federal Gazette.

**7. Come into effect**

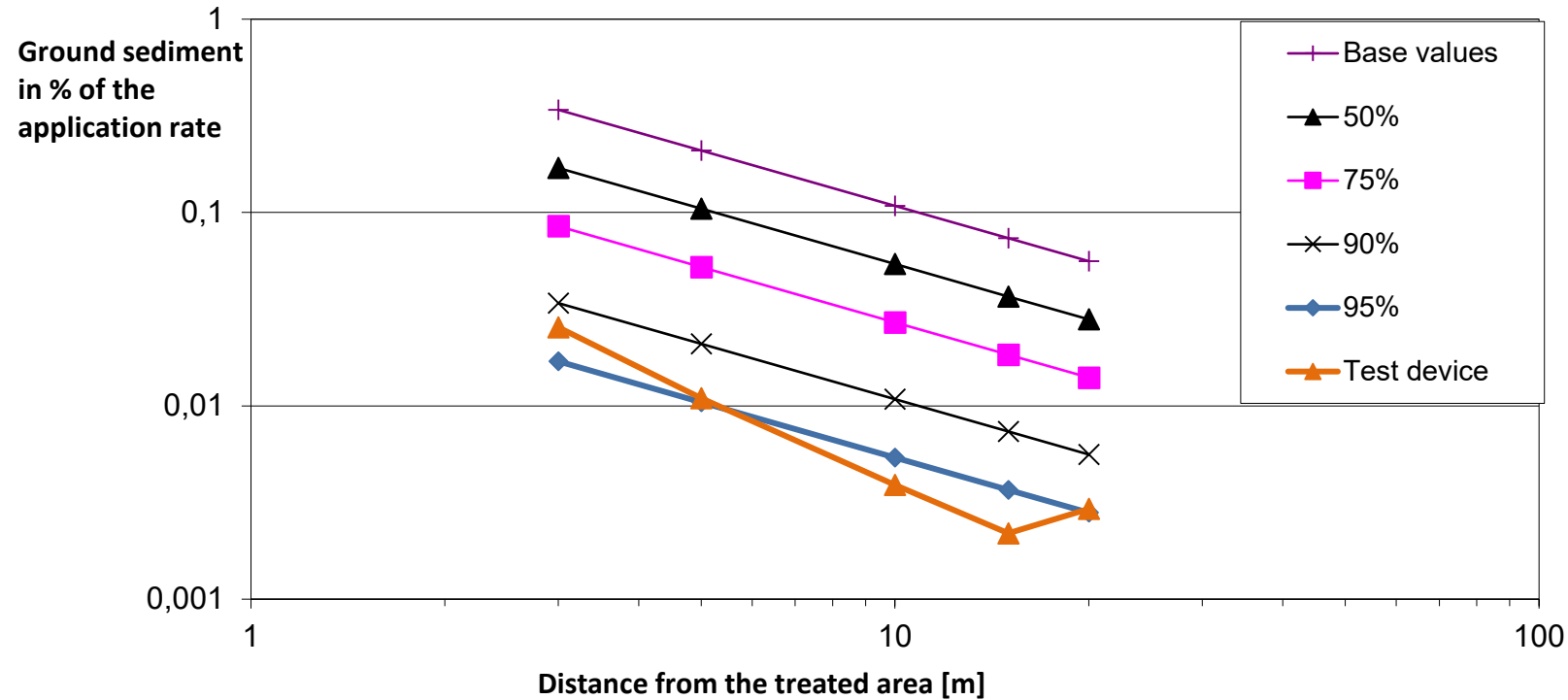
This guideline applied from 1<sup>st</sup> January 2021.

Appendix 1

Table of values for the drift reduction classes																									
Ground sediments in % of application rate calculated on the base of medians																									
(State: 27 <sup>th</sup> May 2009)																									
Distance [m]	Arable farming					Fruit growing early					Fruit growing late					Viticulture					Hop growing				
		50%	75%	90%	95%		50%	75%	90%	95%		50%	75%	90%	95%		50%	75%	90%	95%		50%	75%	90%	95%
3	0,34	0,17	0,08	0,03	0,02	18,96	9,48	4,74	1,90	0,95	6,96	3,48	1,74	0,70	0,35	5,25	2,63	1,31	0,53	0,26	9,95	4,97	2,49	0,99	0,50
5	0,21	0,10	0,05	0,02	0,01	11,69	5,85	2,92	1,17	0,58	3,73	1,86	0,93	0,37	0,19	2,32	1,16	0,58	0,23	0,12	5,91	2,95	1,48	0,59	0,30
10	0,11	0,05	0,03	0,01	0,01	6,07	3,03	1,52	0,61	0,30	1,60	0,80	0,40	0,16	0,08	0,77	0,38	0,19	0,08	0,04	2,91	1,46	0,73	0,29	0,15
15	0,07	0,04	0,02	0,01	0,00	3,02	1,51	0,76	0,30	0,15	0,85	0,42	0,21	0,08	0,04	0,40	0,20	0,10	0,04	0,02	1,08	0,54	0,27	0,11	0,05
20	0,06	0,03	0,01	0,01	0,00	1,36	0,68	0,34	0,14	0,07	0,47	0,24	0,12	0,05	0,02	0,25	0,13	0,06	0,03	0,01	0,50	0,25	0,13	0,05	0,03

Appendix 2

**Drift classes and test device classification in comparison with the base drift values (medians) in the table in Appendix 1**



The test device is listed in the class whose limit values according to Appendix 1 are above the median of the measured values for the test instrument in the entire measured range (here 90 %).