Supporting document

Fruit, Vegetables, Potatoes: Drift prevention

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Supporting document for drift prevention

1 Introduction

In agricultural practice, the precise application of plant protection products (PPPs) is of central importance. However, the unintentional entry of plant protection products onto non-target areas such as neighbouring fields, water bodies, forests or embankments poses potential risks. Drift occurs when particles, droplets or gases are carried beyond the targeted area of application and can, for example, result in the product no longer being marketable, especially if the drifted active substance is not approved in the neighbouring crop.

There are different types of drift:

- Primary drift: This refers to application errors when applying plant protection products. Common errors are, for example, too high spraying pressure, too fast driving speeds, unfavorable weather conditions, incorrect nozzle selection or too high a nozzle distance to the target area.
- Secondary drift: Describes the transport of active substances from plant protection products, even over long distances. This can occur, for example, through the adhesion and swirling up of soil particles, via the air or through thermal displacement due to the volatilisation of the pesticide active substances when exposed to high temperatures.

In order to avoid drift and produce QS-compliant products, it is important to work according to good agricultural practice, recognise the risks of drift and derive targeted measures from this. This supporting document provides practical tips for implementation.

2 Avoidance of drift through own applications

Acting in accordance with good agricultural practice means that plant protection products are used properly and drift onto non-target areas is avoided. This also includes documenting these measures in detail in order to be covered in the event of damage. The following factors are part of good agricultural practice and documentation, some of which are already fulfilled as part of certification in accordance with QS-GAP / QS production:

- Date & time of treatment
- Device settings
    - Selected machine
    - Nozzle selection and adjustment
    - Pressure setting
    - Spray height and spray angle
    - Use of edge nozzles
    - Driving speed
    - For blower sprayers: Blower type, blower stage, blower speed, air shut-off and air outlet angle
- Weather conditions: Wind direction & speed, temperature
- PPPs: selection, dosage, compliance with application regulations
- Distances to neighbouring areas

3 Avoidance of drift by third parties

Conversely, the actions of neighbouring producers influence possible drift onto your own produce. Preventive measures should be taken to reduce the risk of drift. This includes **seeking dialogue with neighbouring producers** and discussing the timing of plant protection measures and harvest dates. In order to be able to prove such an exchange in the event of an incident, appropriate documentation is recommended. You can use the "protocol of neighbor conversation" (see 6.) for this purpose.

4 Risk assessment drift

The purpose of carrying out a risk assessment is to evaluate your own drift risks in order to be able to take appropriate measures depending on the assessed risk situation. The following table is intended as an aid for preparing a risk assessment and shows examples of low to high risk sources of drift.

Table 1: Overview of possible influencing factors and their categorisation in relation to drift risk

Influencing factor (can be influenced *directly*)	**Low risk**	**Medium risk**	**High risk**
Application technology (of your own and neighbouring areas)	• Modern application equipment with drift-reducing nozzles & associated setting options according to drift reduction class as per JKI	• Partially modernised application technology	• Old application equipment without drift-reducing equipment and technology
Selection of PPPs (physico-chemical properties)	• Less volatile, low-drift formulation of PPPs	• Moderately volatile PPPs	• Volatile PPPs, increased risk of drift
Device settings*: • Nozzle setting • Pressure setting • Driving speed *Values do not apply to blower sprayers Observe the list of loss-reducing devices from JKI	• 350 -550 µm droplets • 1.8 - 2.5 bar • <6 km/h	• 100 - 350 µm droplets • 2.5 - 3 bar • 6-8 km/h	• < 100 µm droplets • > 3 bar • > 8 km/h
Weather conditions • Wind direction • Wind speed • Temperature	• Favourable wind direction • < 2 m/s • < 20°C	• 2-3 m/s • 20-25°C	• Unfavourable wind direction • > 3 m/s • >25°C

Influencing factor (*cannot* be influenced directly)	**Low risk**	**Medium risk**	**High risk**
Mounting form/orientation of the application	• Field cultivation on neighbouring areas with horizontal application		• Spatial culture in the neighbourhood with vertical application
Neighbouring crops	• Same neighbouring culture		• Different culture • Different authorisation situations for active substances • With drift: Authorisation problem
Topographic location	• Flat surface with slopes and barriers	• Mixed landscape with hills & plains	• Hills • Mounds • Valleys
Distance between crops	• Distance between crops > 3m • Distance between room cultures > 15m	• Distance between crops = 3m • Distance between room cultures = 15m	• Distance between crops < 3m • Distance between room cultures < 15m
Drift history	• Long-term cultivation without drift problems	• Minor drift problem known from a few years ago	• Frequent problems with drift
Neighbourhood	• Open and regular exchange, coordinated cultivation and PPP measures	• Unknown neighbourhood	• Poor neighbourly situation without consideration and communication

Note: The factors influence each other and the values given are only approximate guidelines

5 Overview of preventive measures

Table 2: Preventive measures for drift reduction

Influencing factor	**Preventive measures to reduce drift**
Application technology (of our own and neighbouring areas)	• Modern appliances with drift-reducing technology
Selection of PPPs (physico-chemical properties)	• Slowly evaporating PPPs • If possible, add drift-reducing additives to the spray liquid
Device settings: • Nozzle setting • Pressure setting • Driving speed	• Check nozzle selection • Drift-reducing nozzles with drift reduction class 90% and/or reduce pressure to generate large droplets • Reduce speed • For blower sprayers: Observe the requirements according to the JKI list for drift-reducing device settings with regard to air pressure settings
Weather conditions • Wind direction • Wind speed • Temperature	• Align applications according to favourable weather conditions • Wind speed measurement (mobile device)
Mounting form/orientation of the application	• If necessary, coordinate the timing of PPP application with neighbours
Neighbouring crops	• Coordinate with neighbours regarding the use of PPPs and harvest time • If necessary, increase distances, build barriers (e.g. hedges, drift nets in fruit growing) • Selection of less volatile PPPs
Topographic location	Pay special attention to • good agricultural practice for drift prevention • communicating with your neighbour • If necessary, taking pre-harvest samples
Distance between crops	• If necessary, increase distances/establish buffer zones • Build barriers if necessary
Drift history	• If drift problems are known, always take pre-harvest samples; if necessary, talk to the neighbours • In the event of an acute drift problem: blockage of areas and observe chapter 4
Neighbourhood	• If there are known neighbourhood problems, take pre-harvest samples if necessary

⇨ **If an increased risk of drift is identified in the Risk assessment, a pre-harvest sample is also recommended in your own interest in order to obtain an overview of the residue situation in the product before harvesting /marketing.**

6 Sample: protocol of neighbor conversation

Neighbour: _____ Date: _____

Subject: Discussion note on drift risks

I spoke to my neighbour about

- Planned and maybe necessary crop protection applications
- Planned harvest periods
- Contamination risks of plant protection products due to drift

on the following areas:

Cultivated areas:

District/ parcel/ parcel number	Cultivated crop	Neighbouring crop	Planned PPP application of the neighbour (optional)

_____ _____

Name Signature

_____ _____

Neighbour Signature

7 Collection of links with helpful information

- Brochures of the NRW Chamber of Agriculture
  https://www.landwirtschaftskammer.de/landwirtschaft/pflanzenschutz/ackerbau/pdf/abdrift.pdf
- FiBL brochure
  https://www.fibl.org/fileadmin/documents/shop/1138-abdrift-vermeiden.pdf
- Brochure of the Hesse State Farm
  https://cdn.llh-hessen.de//pflanze/pflanzenschutz/anwendungshinweise-fuer-pflanzenschutzmittel/abdrift-llh-und-psd-veroeffentlichen-neue-broschuere/Broschuere%20Abdrift%202017-03-30.pdf
- Information from the Julius Kühn Institute on drift minimisation and application technology
  https://wissen.julius-kuehn.de/at-dokumente/pruefung-und-listung/themen/abdrift
- List of loss-reducing devices - Drift reduction
  https://wissen.julius-kuehn.de/mediaPublic/AT-Dokumente/03-Abdrift/Verzeichnis-Verlust-mindernde-Geraete.xlsx
- JKI brochure on drift-reducing technology https://wissen.julius-kuehn.de/mediaPublic/AT-Dokumente/02-Pflanzenschutztechnik/PraktischeHinweise/Driftmindernde-Technik-2017.pdf
- Obstbau - das Fachmagazin 05/ 2024, p. 216 ff., *Protect neighbouring areas from drifting*

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Gender Disclaimer
For reasons of better readability and easier comprehension, QS uses the generic masculine form commonly used in the German language in relevant texts. Hereby we explicitly address all gender identities without judgement.

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