



The 8th Annual Pesticide Stewardship Conference
Asheville, North Carolina

Europe's Application Monitoring and Equipment Verification

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- **Introduction**
- **Thematic strategy in the EU**
- **Sprayer tests and registration**
- **Drift measurements and drift reducing sprayers**
- **Precise and reliable function of sprayers by periodical inspections**
- **Link between pesticide authorisation and application techniques**
- **Conclusions**

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- **Thematic Strategy
on the sustainable use of pesticides
- European Commission**

Thematic Strategy on sustainable use of ppp

Objectives of the Thematic Strategy are:

- to reduce the risks from pesticides to human health and the environment
- to improve controls on the use and distribution of pesticides
- to reduce the levels of harmful active substances through substituting the most dangerous with safer (including non-chemical) alternatives
- to encourage low-input or pesticide-free cultivation
- to establish a transparent system for reporting and monitoring (including the development of indicators)

Thematic Strategy on sustainable use of ppp

Measures of the Thematic Strategy are:

- Establishment of National Action Plans to reduce risks
- Creation of a system of training of professional pesticide users
- Regular and compulsory inspection of application equipment
- Prohibition of aerial spraying
- Enhanced protection of the aquatic environment from pollution by pesticides

Aerial spraying in Europe



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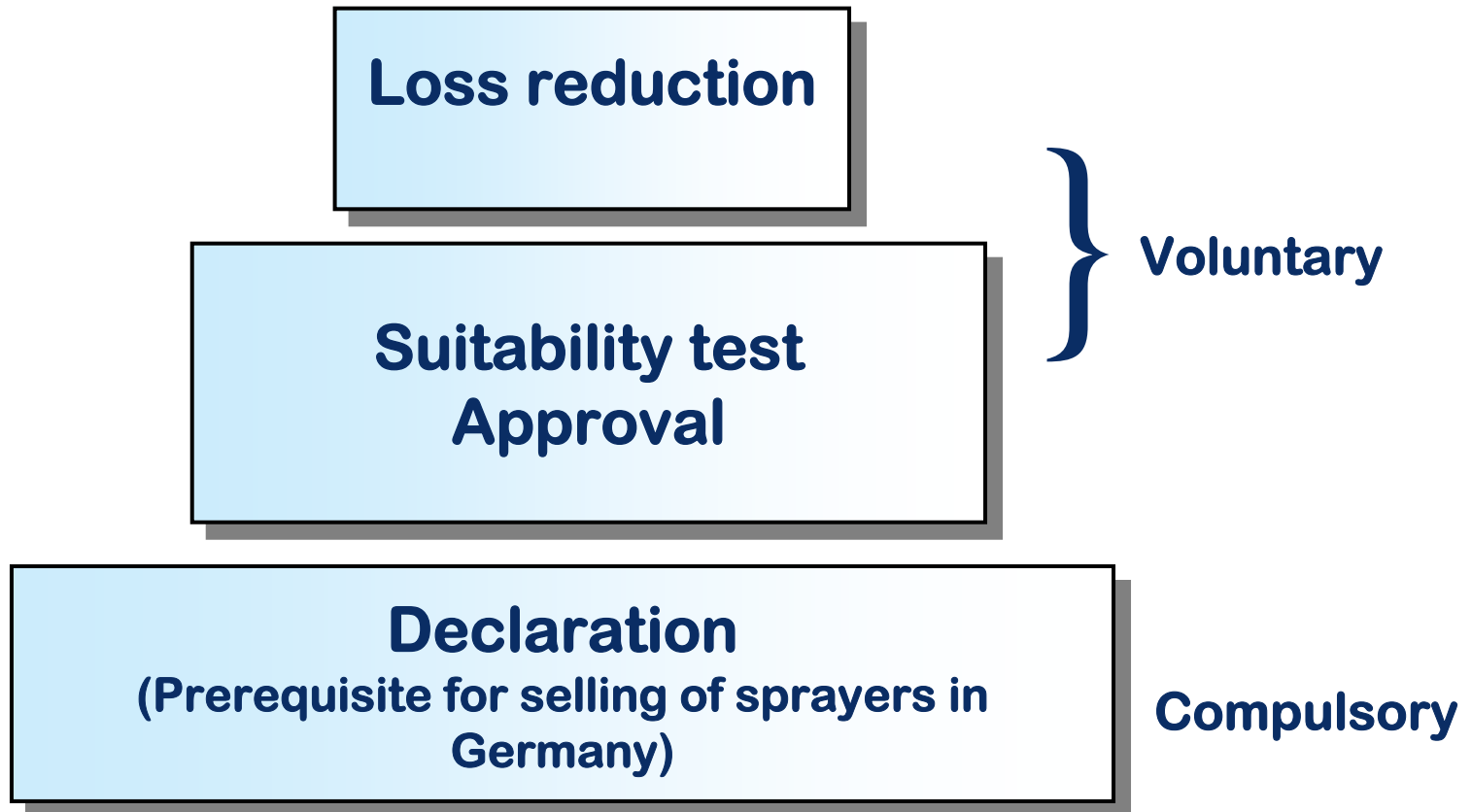
Aerial spraying in Europe



Aerial spraying in Europe



Testing of new plant protection equipment in Germany



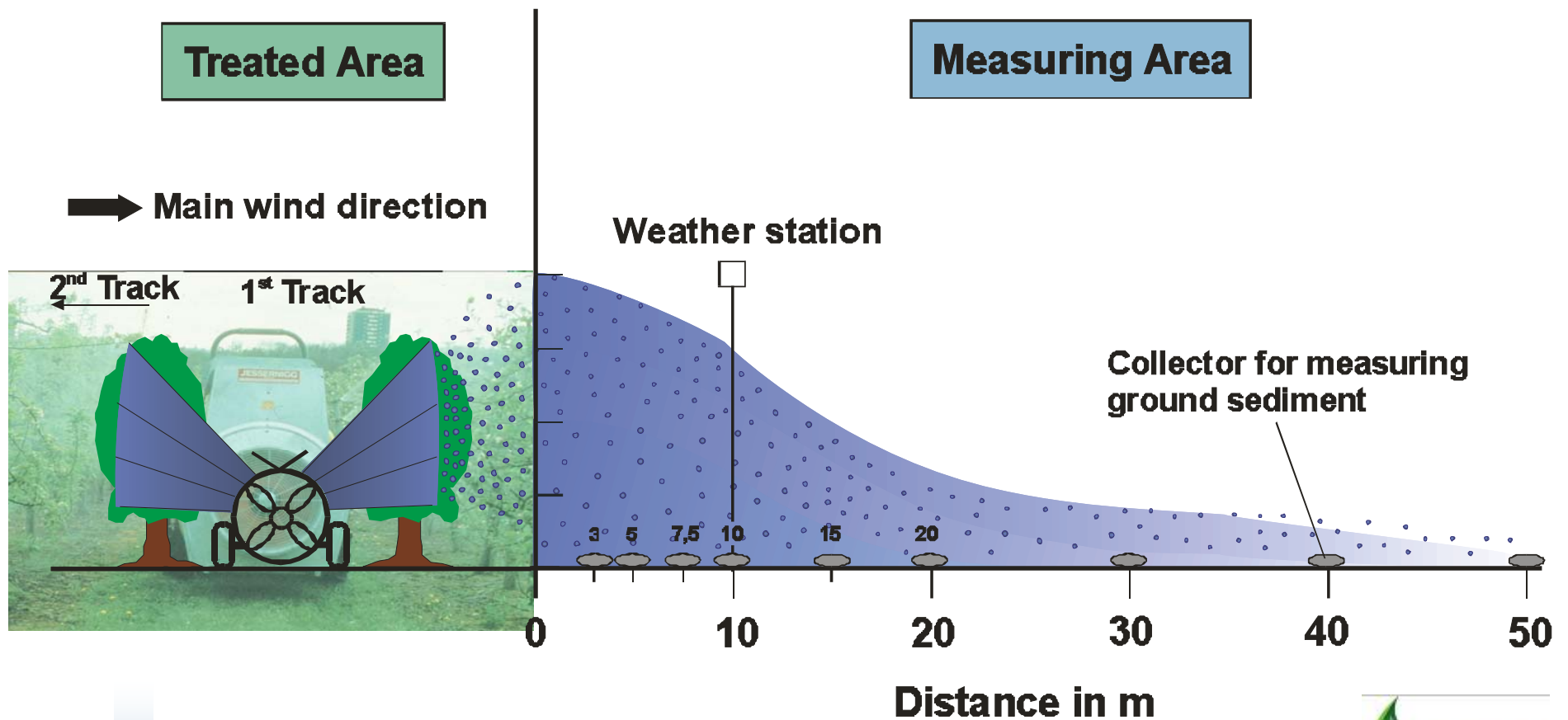
Drift Trials to evaluate Basic Drift Values

	Number of trials	
	until 2000 ¹⁾	today ²⁾
Field crops	16	50
Grape vine	21	21
Fruit crops	61	71
Hops	21	21
in total	119	163

1) Published in „Mitteilungen der Biologischen Bundesanstalt für Land- und Forstwirtschaft, Berlin-Dahlem, Heft 305, 1995

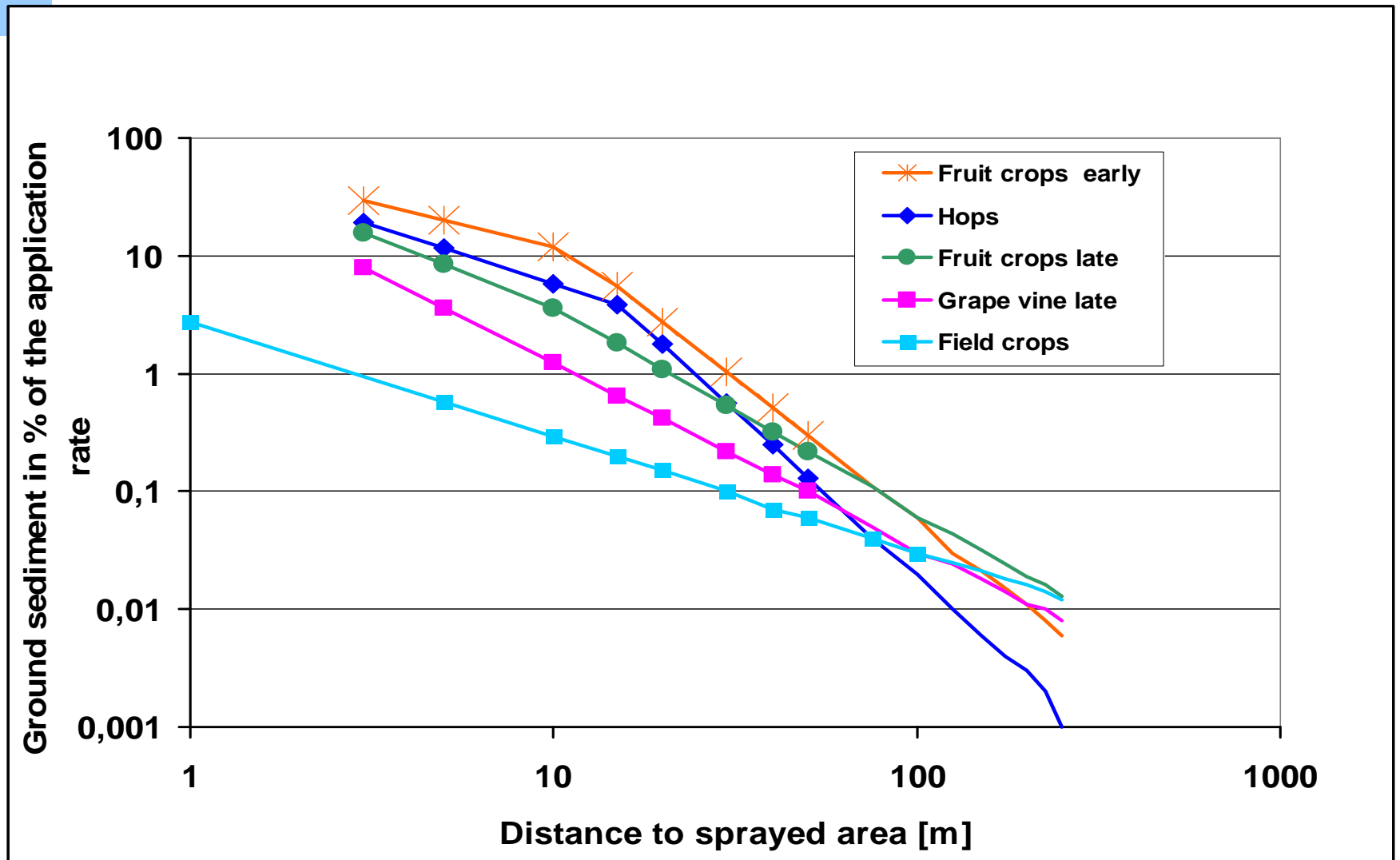
2) Published in Federal Gazette, 26.05.2000

Trial arrangement for drift measurements - Fruit crops -

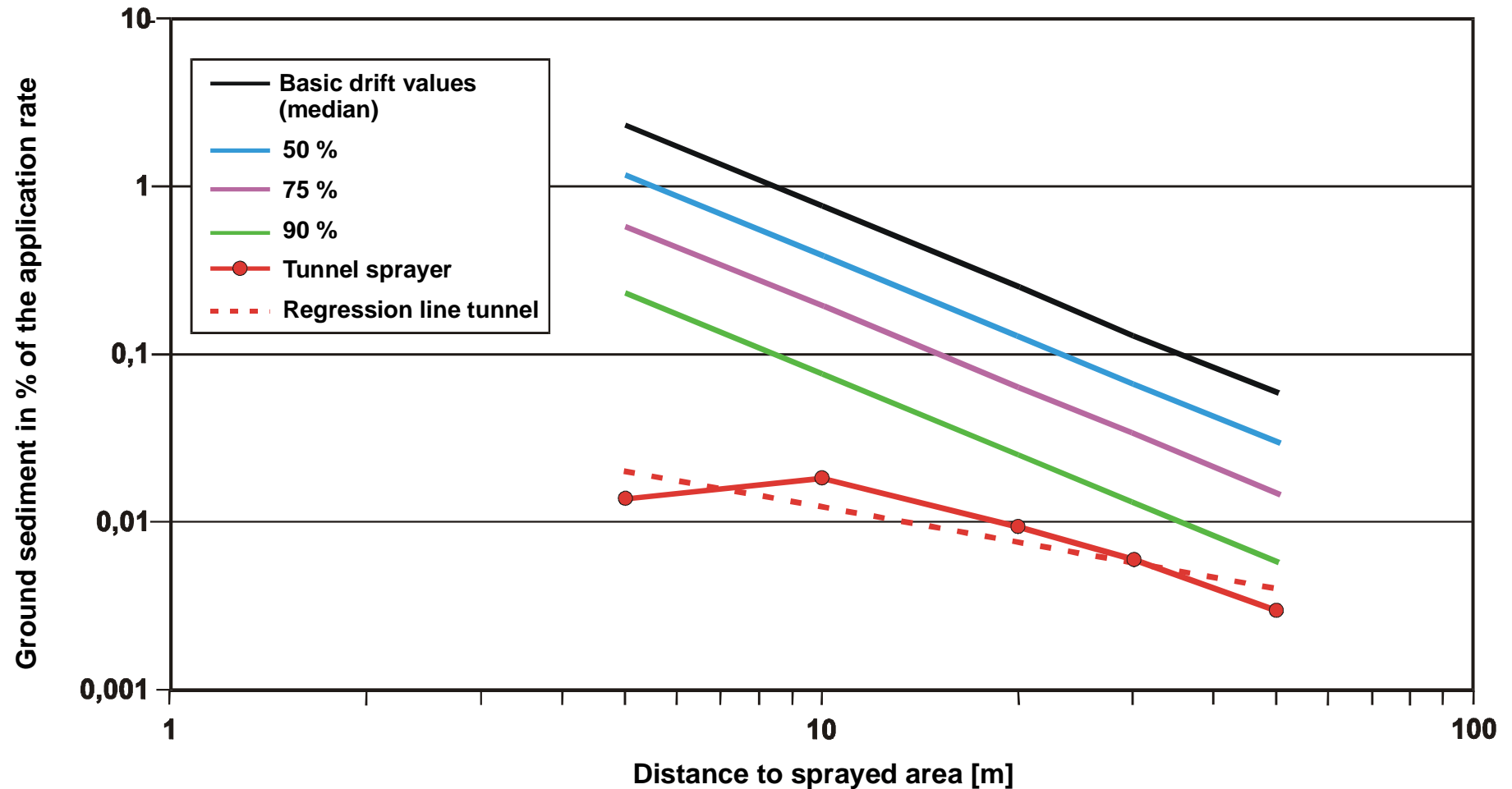


Basic Drift Values

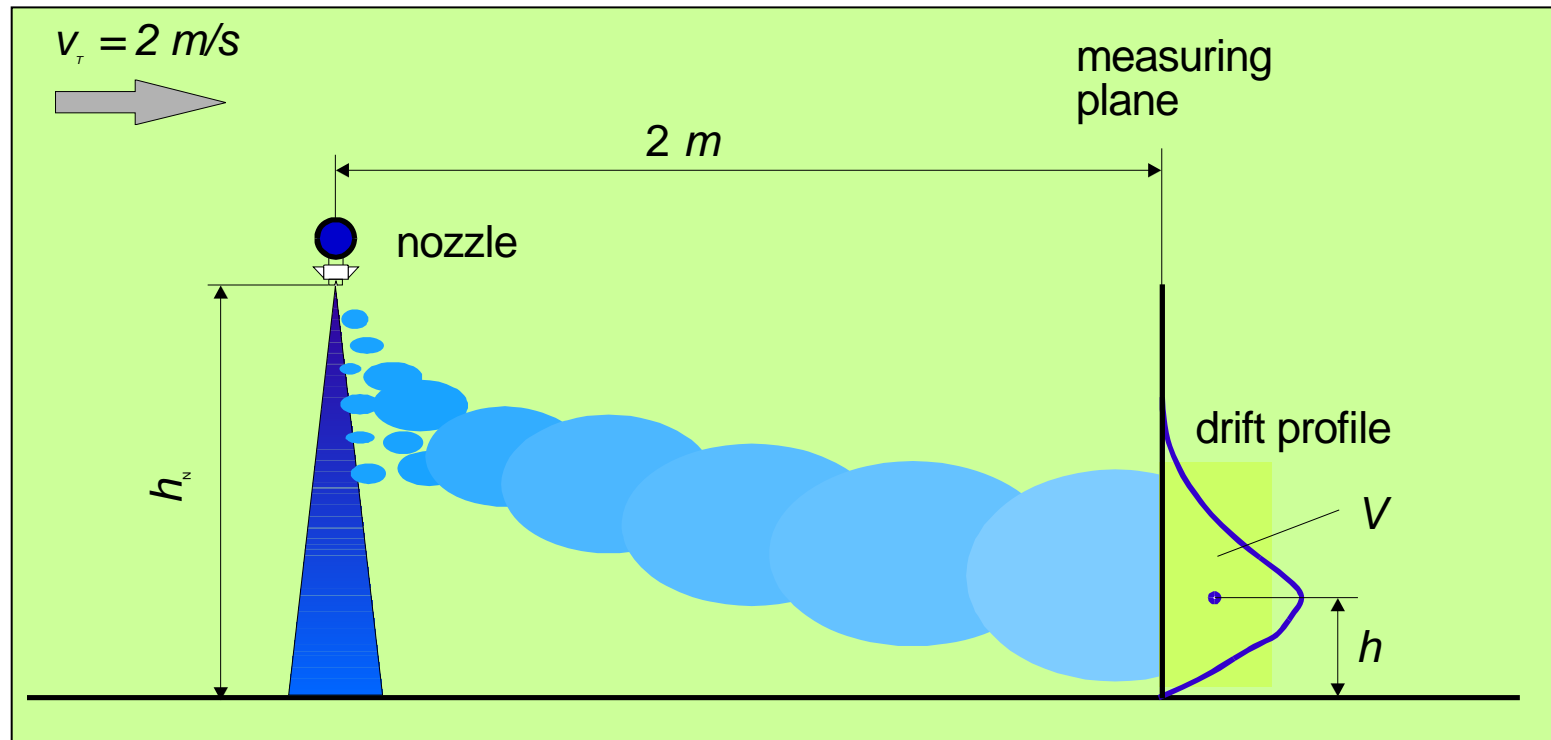
- 90th Percentiles -



Classification of drift reducing sprayers - grape vine -



Wind tunnel method - experimental arrangement



Drift Potential Index

$$\text{DIX} = h^a V^b \frac{100}{(h_{st}^a V_{st}^b)}$$

h_{st} , V_{st} - parameters from reference nozzle Lurmark 31-03-F110 @ 3 bar

Drift reducing equipment - fruit crops -



LIPCO OSG-N

with nozzle

Agrotop TD 80-02 Keramik

Albuz AVI 80-015; max. 5 bar

Albuz AVI 80-02; max. 5 bar

Albuz AVI 80-03

Lechler ID 90-015 C; max. 5 bar

Lechler ID 90-02 C

Lechler ID 90-025 C

Lechler ID 90-03 C

Lechler AD 90-02 C; max. 3 bar

Lechler AD 90-03 C; max. 3 bar

Lechler AD 90-04 C; max. 4 bar

TeeJet DG 80 02 VS; max. 3 bar

TeeJet DG 80 03 VS; max. 3 bar

TeeJet DG 80 04 VS; max. 4 bar

TeeJet DG 80 05 VS



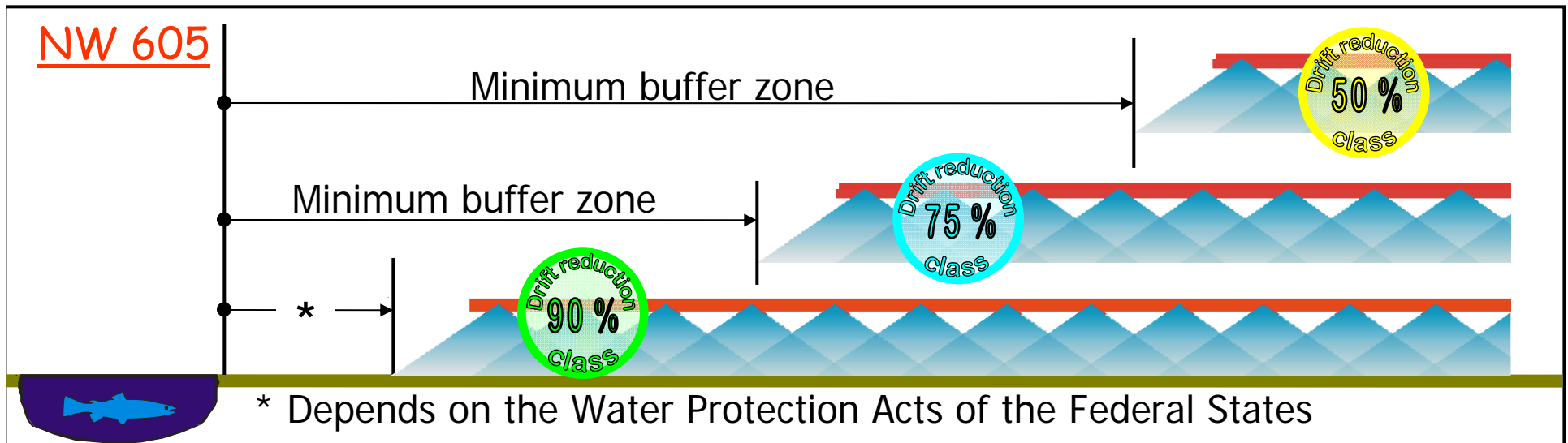
Link between pesticide authorisation and application techniques



Flexible buffer zones are possible through consideration of application conditions:

Use of drift reducing sprayers

Link between pesticide authorisation and application techniques in Germany



When applying the product on areas adjacent to surface waters the product must be applied with equipment which is registered in the index of 'Loss Reducing Equipment'. Depending on the drift reduction classes stated below, the following buffer zones must not be sprayed.

Field crops:	10 m	Reduced buffer zones	50%: 5 m,	75%: *,	90%: *
Hops:			50%:20 m,	75%:10 m,	90%: 5 m
Fruit crops:			75%:20 m,	90%:10 m	

Risk mitigation measures in Europe

Member State	Spray drift			Surface runoff	Drainflow
	No-spray buffer zone	Drift-reducing techniques	Other		
Austria	Up to 50 m	Yes	Bankside vegetation; application type		
Denmark	By crop (up to 20-50 m)				Application window
Finland	10-25 m				
France	Mitigation devised and implemented based on local conditions			Mitigation devised and implemented based on local conditions	Mitigation devised and implemented based on local conditions
Germany	Up to 20 m	Yes		Grassed buffer zones; minimum tillage; detention ponds	Application window; soil type
Greece	Up to 20 m		Dry ditch		
Ireland	By crop (up to 5-50 m)				
Italy	Up to 50 m	Yes			
Netherlands	0.25 - 14 m	Yes	Windbreak		
Portugal	By crop (up to 5 - 40 m)	Yes		Grassed buffer zones; minimum tillage	
Spain	Up to 5 - 50 m	Yes		Application window; grassed buffer zones	
Sweden	By water body (1 - 10 m)	Yes	Wind speed and direction; field size; temperature		
UK	By crop (up to 5 - 50 m)	Yes	Water body type and size; windbreak		Application window

Inspection of sprayers in use

- An initial European Workshop about the Standardised Procedure for Inspection of Sprayers in Europe (SPISE) was held in Braunschweig in April 2004 which showed that
 - most European countries started to inspect sprayers
 - quality and extend of the inspections differs significantly.
- The second SPISE workshop took place from 10 to 12 April 2007 in Straelen(D)
Significant progress was made concerning the establishing and the quality of inspections in the member states.

Inspection of field sprayers



Inspection of air-assisted sprayers





Conclusions (1)

- Drift reducing sprayers are the key factor for the mitigation of risks and allow to minimise distances to surface waters and biotopes.

Therefore plant protection equipment is tested by the JKI regarding drift reduction (wind tunnel, field testing).

At present there are 377 sprayers listed with 50, 75, 90 or 99 % drift reduction.

List of loss reducing equipment is established as part of the German authorization procedure for plant protection products.

Other European countries established mitigation systems that also depend on drift reducing sprayers.



Conclusions (2)

- A permanently precise and reliable function of sprayers can only be ensured by periodic inspections of plant protection equipment.
A growing number of european states establish compulsory periodic inspection systems for sprayers in use.

Thank you for your attention

