

# Nicht-ernährungsbedingte Risikobewertung von Pflanzenschutzmitteln

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Abteilung: Sicherheit von Pestiziden

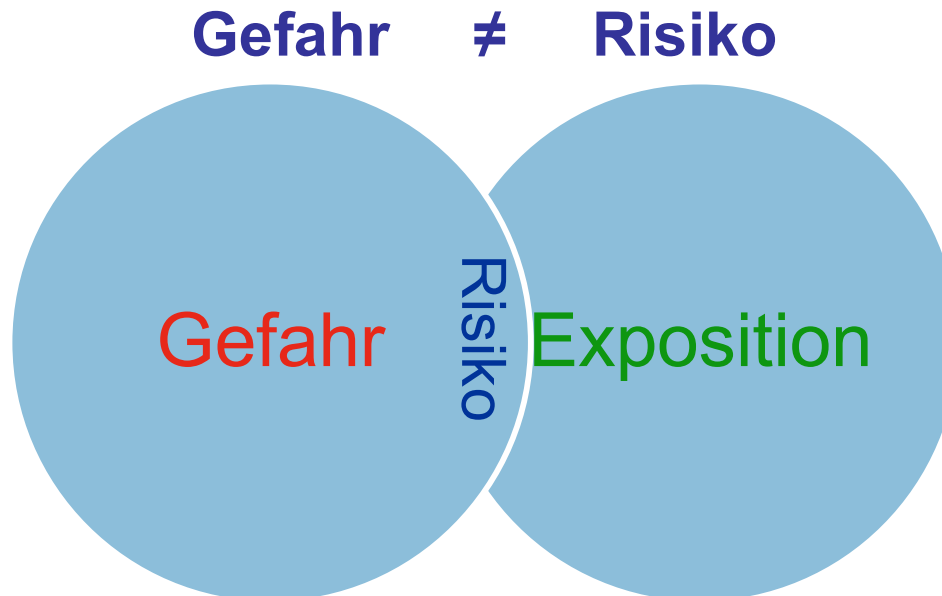
# Grundlagen der Risikobewertung

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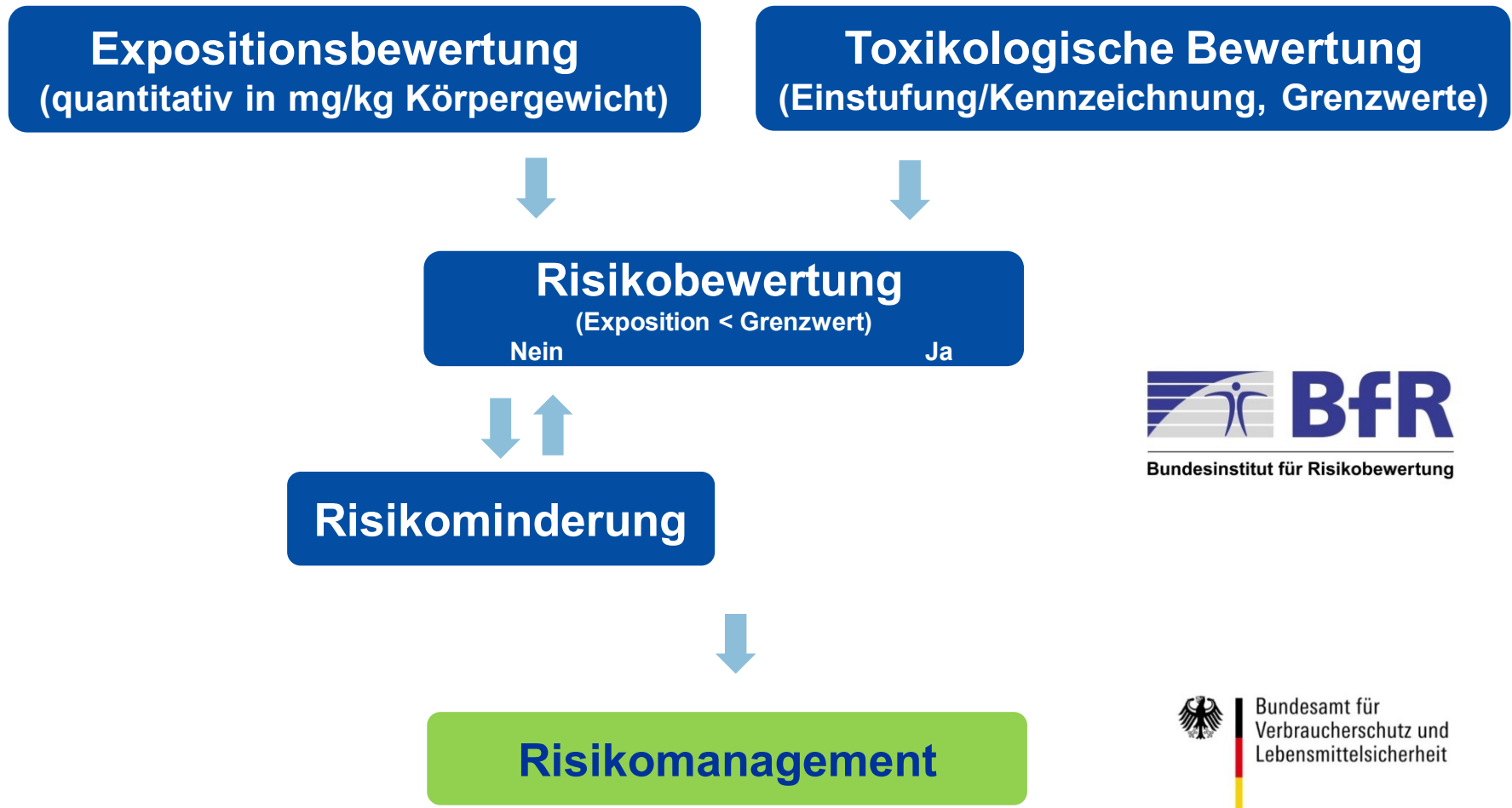
## VO (EU) Nr. 1107/2009 über das Inverkehrbringen von Pflanzenschutzmitteln

...hohes Schutzniveau für die Gesundheit von Mensch und Tier ...

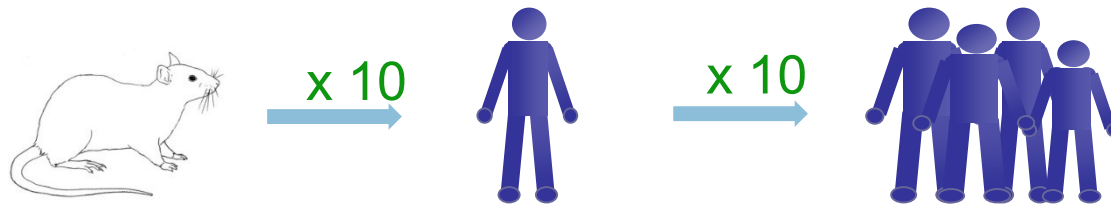
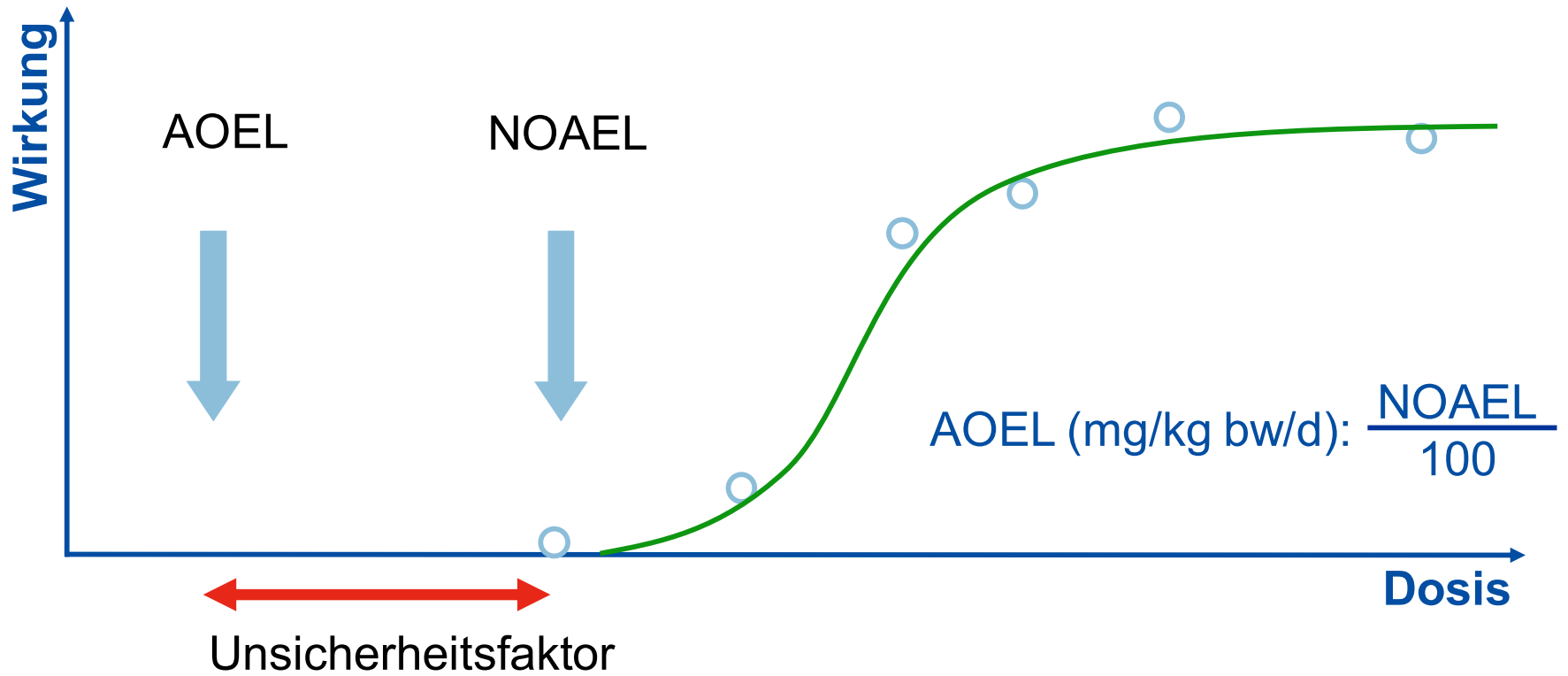
... keine schädlichen Auswirkungen auf die Gesundheit von Menschen, einschließlich der besonders gefährdeten Personengruppen...



# Grundlagen der Risikobewertung



# Ableitung von toxikologischen Grenzwerten



# Exponierte Personengruppen



Anwender



Quelle: iStockphoto

Arbeiter



Quelle: iStockphoto / Fertig

Nebstehende



Anwohner



# Exposition durch Pflanzenschutzmittel

## Harmonisierte EU-Leitlinie zur Expositionsabschätzung

<http://www.efsa.europa.eu/de/efsajournal/pub/3874>

- ✓ Anwender von Pflanzenschutzmitteln
- ✓ Arbeiter bei Nachfolgearbeiten
- ✓ Anwohner, Nebenstehende



European Food Safety Authority

EFSA Journal 2014;12(10):3874

### GUIDANCE OF EFSA

#### Guidance on the assessment of exposure of operators, workers, residents and bystanders in risk assessment for plant protection products<sup>1</sup>

European Food Safety Authority<sup>2,3</sup>

European Food Safety Authority (EFSA), Parma, Italy

This scientific output, published on 24 April 2015, replaces the earlier version published on 23 October 2014.\*

#### ABSTRACT

Regulation (EC) No 1107/2009 ensures that the residues of plant protection products (PPPs), consequent to application consistent with good plant protection practice and having regard to realistic conditions of use, shall not have any harmful effects on human health. In 2010, the EFSA Panel on Plant Protection Products and their Residues (PPR) prepared a Scientific Opinion on "Preparation of a Guidance Document on Pesticide Exposure Assessment for Workers, Operators, Residents and Bystanders", which highlighted some inconsistencies between the approaches adopted by regulatory authorities. Therefore, the PPR Panel proposed a number of changes to those practices in use (e.g. routine risk assessment for individual PPPs should continue to use deterministic methods, and a tiered approach to exposure assessment remains appropriate; there is a need to introduce an acute risk assessment for operators, workers and bystanders where PPPs are acutely toxic; for acute risk assessments, exposure estimates should normally be based on 95<sup>th</sup> percentiles of relevant datasets, whereas, for longer term risk assessments, the starting point should be a 75<sup>th</sup> percentile). To prepare a Guidance Document, an *ad hoc* working group was established to revise all available data and procedures to perform the operator, worker, resident and bystander risk assessment. In addition to the data reported in the PPR opinion, further data were made available to the working group which were analysed and considered. The opinion also identifies those scenarios for which exposure estimates are least satisfactory, and makes recommendations for further research that would reduce current uncertainties. An exposure calculation spreadsheet, reflecting the Guidance content, is annexed to this Guidance Document, to support stakeholders in performing the assessment of exposure and risk.

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#### KEY WORDS

exposure, operator, worker, bystander, resident, plant protection products, estimation, guidance, calculator

<sup>1</sup> On request from European Commission, Question No EFSA-Q-2011-01062, approved on 17 October 2014.

<sup>2</sup> Correspondence: [pesticides.ppr@efsa.europa.eu](mailto:pesticides.ppr@efsa.europa.eu)

<sup>3</sup> Acknowledgement: EFSA wishes to thank the members of the Working Group on the operator, worker, resident and bystander exposure assessment: Claudia Grosskopf (as of September 2013), Paul Y Haney, Kyriaki Machera, Sabine Martin, Walter Steurbaut for the preparatory work on this scientific output, the hearing expert: Georgina Downs, and EFSA staff: Lena Elisabeth Jacobi (until October 2012), Jane Richardson, Istvan Sebestyen (until May 2012), Hans Steinkellner (until April 2014) and Manuela Tiramami for the support provided to this scientific output.

\* In the Excel calculator, the AOEM values for 95<sup>th</sup> percentile Operator mixing/loading head exposure were corrected, resident and bystander exposure for manual applications was included in the summary, and Cell B78 in Resident exposure worksheet was corrected to C22 (previously DC22).

Suggested citation: EFSA (European Food Safety Authority). 2014. Guidance on the assessment of exposure of operators, workers, residents and bystanders in risk assessment for plant protection products. EFSA Journal 2014;12(10):3874, 55 pp., doi:10.2903/j.efsa.2014.3874

Available online: [www.efsa.europa.eu/efsajournal](http://www.efsa.europa.eu/efsajournal)

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# Anwender

Szenarien

Anwendungsbereich

z.B. Freiland, Gewächshaus

Kulturgruppe

z.B. Wein, Obst usw.

Anwendungstechnik

z.B. schleppergekoppelt,  
handgetragen



Produkt

Anwendungsmenge

Wirkstoff- /  
Produkteigenschaften

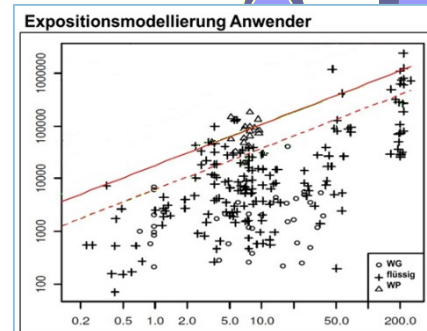
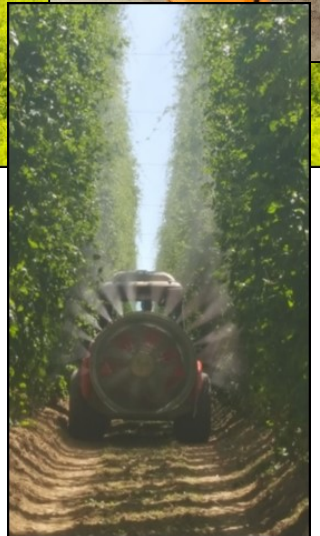
Grenzwert, dermale  
Aufnahme

Formulierung

Granulat, Pulver,  
Flüssigkeit

# Expositionsbestimmung - Anwender

## Messung der Exposition



Kopfexposition  
(Mütze, Abwischen)

Persönlicher  
Luftsammler

Äußere  
Körperexposition  
(Arbeitskleidung)

Äußere  
Handexposition  
(Handschuhe)

Innere  
Handexposition  
(Hände waschen)

Innere  
Körperexposition  
(Unterwäsche)

**EU-weit harmonisierte Modelle**  
(basierend auf real gemessenen Daten)



# Arbeiter

Szenarien

Kulturgruppe

z.B. Wein, Obst usw.

Tätigkeit

z.B. Pflegearbeiten, Ernte

Zeitpunkt

z.B. zur Ernte



Produkt

Anwendungsmenge

Wirkstoff- /  
Produkteigenschaften

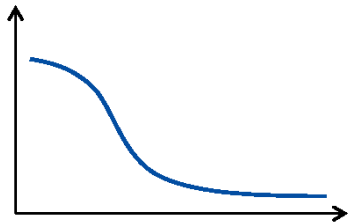
Grenzwert, dermale  
Aufnahme

Anzahl Applikationen

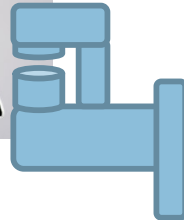
Rückstände auf den  
Pflanzen

# Expositionsbestimmung - Arbeiter

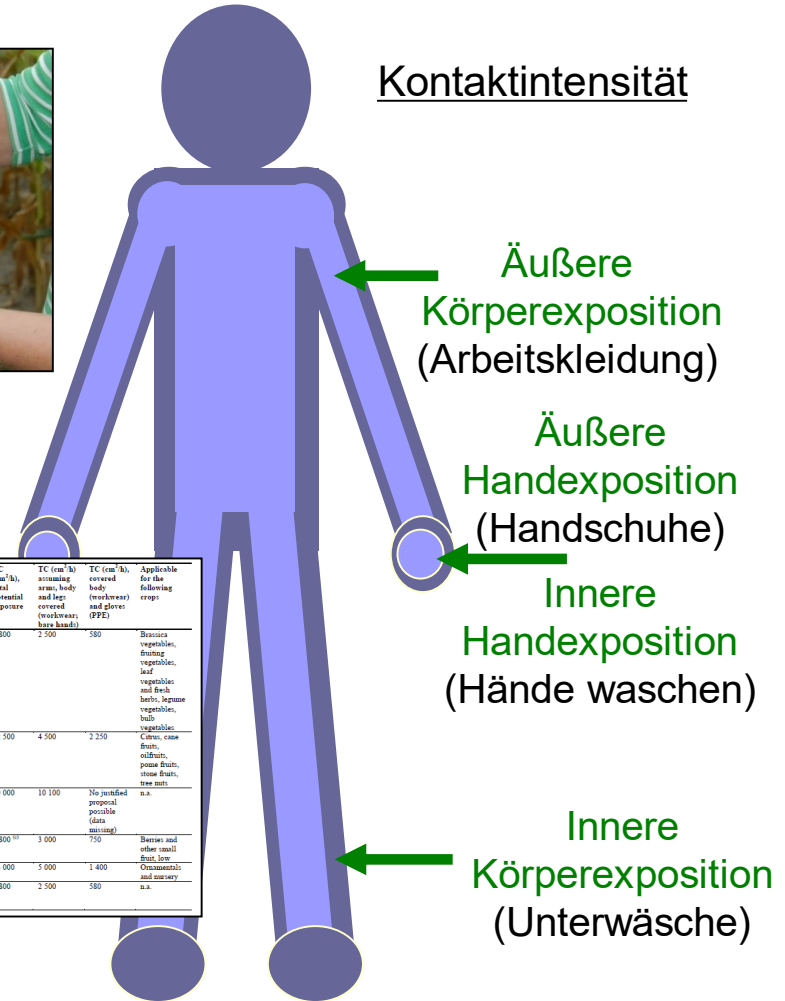
## Messung der Exposition



Restreifiable Rückstände  
im Zeitpunkt der  
nachfolgearbeiten



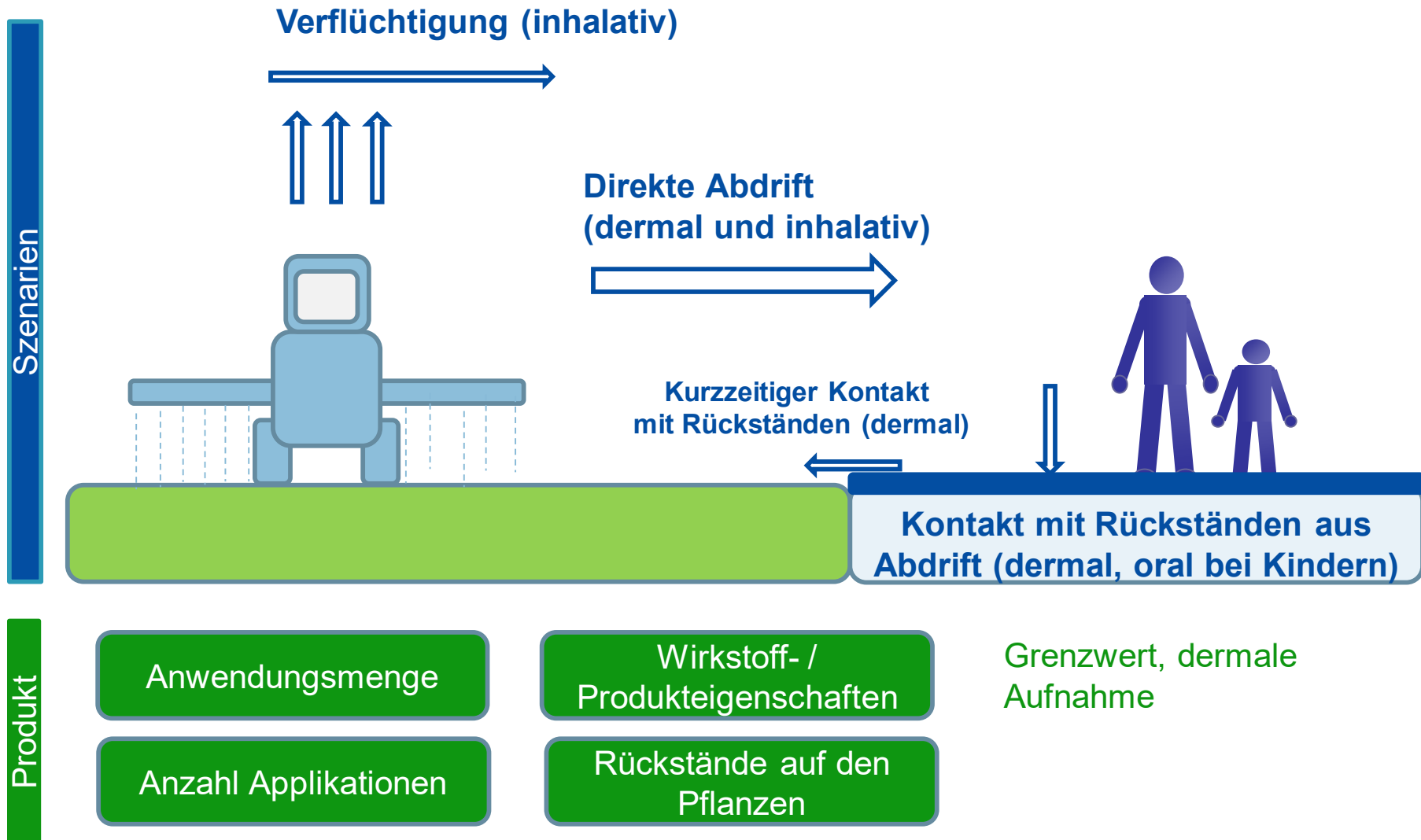
## Kontaktintensität



Crop	Nature of task <sup>(1)</sup>	Main body part in contact with foliage	TC (cm <sup>2</sup> /h), total potential exposure	TC (cm <sup>2</sup> /h) assuming arms, body and legs covered	TC (cm <sup>2</sup> /h) covered body and gloves (PFPE)	Applicable for the following crops
Vegetables	Reach/pack	Hand and body	5 800	2 500	580	Basics vegetables, fruiting vegetables, leaf vegetables and fresh herbs, legume vegetables, bulb vegetables
Tree fruits	Search/reach/pack	Hand and body	22 500	4 500	2 350	Citrus, cane fruit, oilfruit, pome fruit, stone fruit, tree nuts
Grapes <sup>(2)</sup>	Harvesting and other activities (e.g. leaf pulling and tying)	Hand and body	30 000	10 100	No justified proposal possible (data missing)	n.a.
Strawberries	Reach/pack	Hand and forearm	5 800 <sup>(3)</sup>	3 000	750	Berries and other small fruit, low
Ornamentals	Cut/soil handling/carry	Hand and body	14 000	5 000	1 400	Ornamentals and nursery
Golf course, turf or other sports lawns	Maintenance	Hand and body	5 800	2 500	580	n.a.

**EU-weit harmonisierte Modelle**  
(basierend auf real gemessenen Daten)

# Anwohner und Nebenstehende



# Expositionsbestimmung - Anwohner und Nebenstehende

## Messung der Exposition

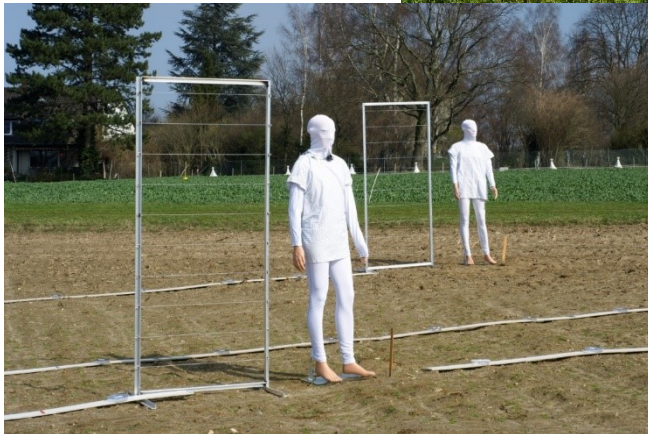


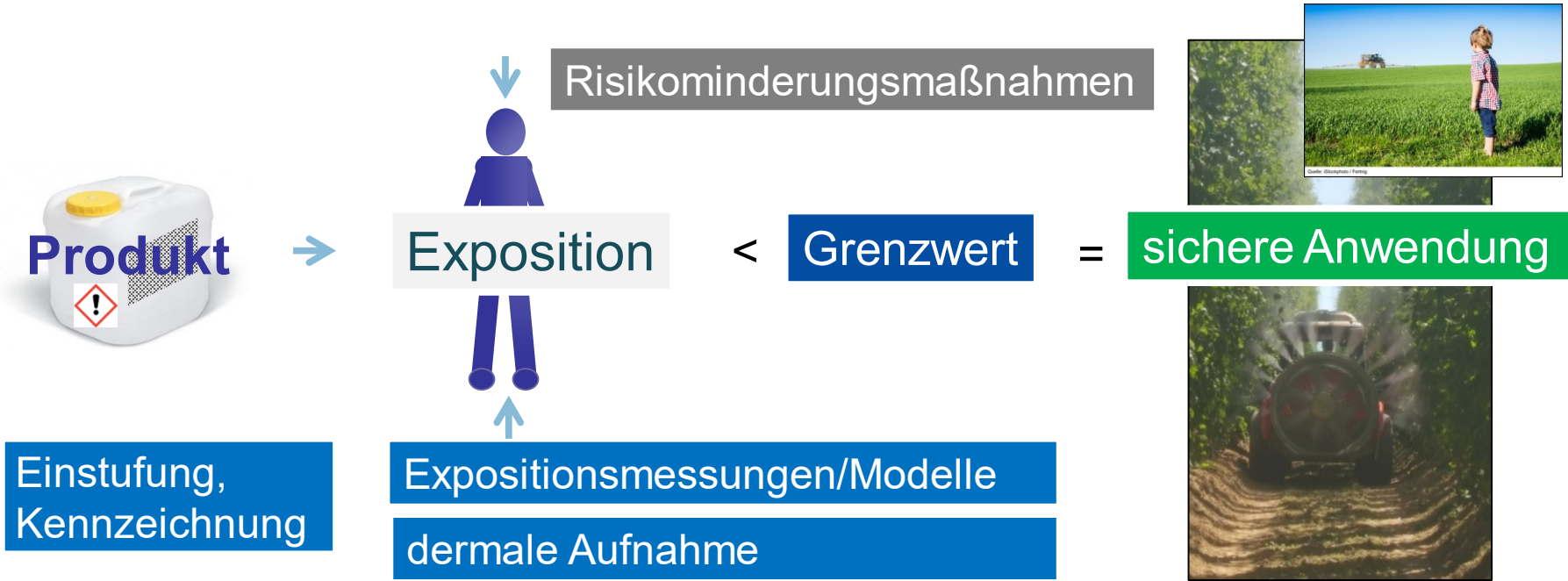
Table 16: Dermal and inhalation exposures for residents (75<sup>th</sup> percentile from data on potential dermal and inhalational exposures) (adapted and amended from EFSA PPR Panel, 2010)

Method of application (distance from sprayer)	These values are the 75 <sup>th</sup> percentiles for residents (assuming average breathing rates for inhalation exposures)			
	Dermal (mL spray dilution/person)		Inhalation (mL spray dilution/person)	
	Adults	Children	Adults	Children
Arable/ground boom sprayer				
2 m	0.47	0.33	0.00010	0.00022
5 m	0.24	0.22	0.00009	0.00017
10 m	0.20	0.18	0.00009	0.00013



**EU-weit harmonisierte Modelle**  
(basierend auf real gemessenen Daten)

# Risikobewertung



**Nur bei sachgerechter und bestimmungsgemäßer Anwendung und bei Einhaltung weiterer vorgegebener Risikominderungsmaßnahmen kann eine sichere Anwendung gewährleistet und der Gesundheitsschutz sichergestellt werden!**



Vielen Dank für ihre  
Aufmerksamkeit

Sabine Martin

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