

# *DEVELOPMENT OF RESIDUE PRIMA FACIE EVIDENCE*

171st Meeting Indiana Pesticide Review Board

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Office of Indiana State Chemist

# *Indiana Definition of Drift*

## 357 IAC 4121 (1)

- "Drift" means the physical movement of a pesticide through the air at the time of application from the target site to a nontarget site.
- The term shall not mean the movement of a pesticide, at a time after the application has been made, by any of the following:
  - (A) Erosion.
  - (B) Volatility after deposition on the target site.
  - (C) Windblown soil particles.

# *Residue Levels Suggesting Drift*

How can we determine significant residue levels?

- Looking for a tool to help us interpret the significance of off-target pesticide residue levels in OISG collected samples.
- Not based on toxicity of the active ingredient; leave that to EPA's risk assessment process for product registration.
- Tool to assist in addressing:
  - *Applicator concerns*
    - OISC can now analyze at the ppb & ppt level, is that fair?
    - Does OISC account for environmental background levels?
  - *Complainant concerns*
    - You found it on my property, how did it get there?
    - How is that legal?

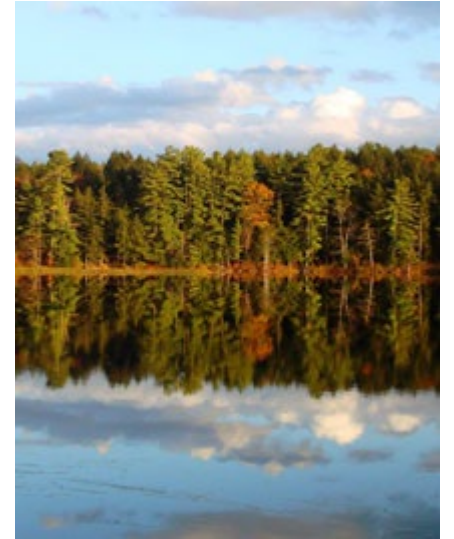
# Maine Drift Regulation

01-026-22 Me. Code R§ 4(B) II

## II. Prima Facie Evidence .

Pesticide residues in or on an off-target area resulting from off-target drift of pesticides from a nearby application that are **1% or greater** of the residue in the target area are considered prima facie evidence that the application was not conducted in a manner to minimize drift...

For purposes of this standard, the residue in the **target area** and the residue in the **off-target area** may be adequately determined by evaluation of one or more **comparable** soil, foliage or other samples, or by extrapolation or other appropriate techniques.



# *Prima Facie Evidence*

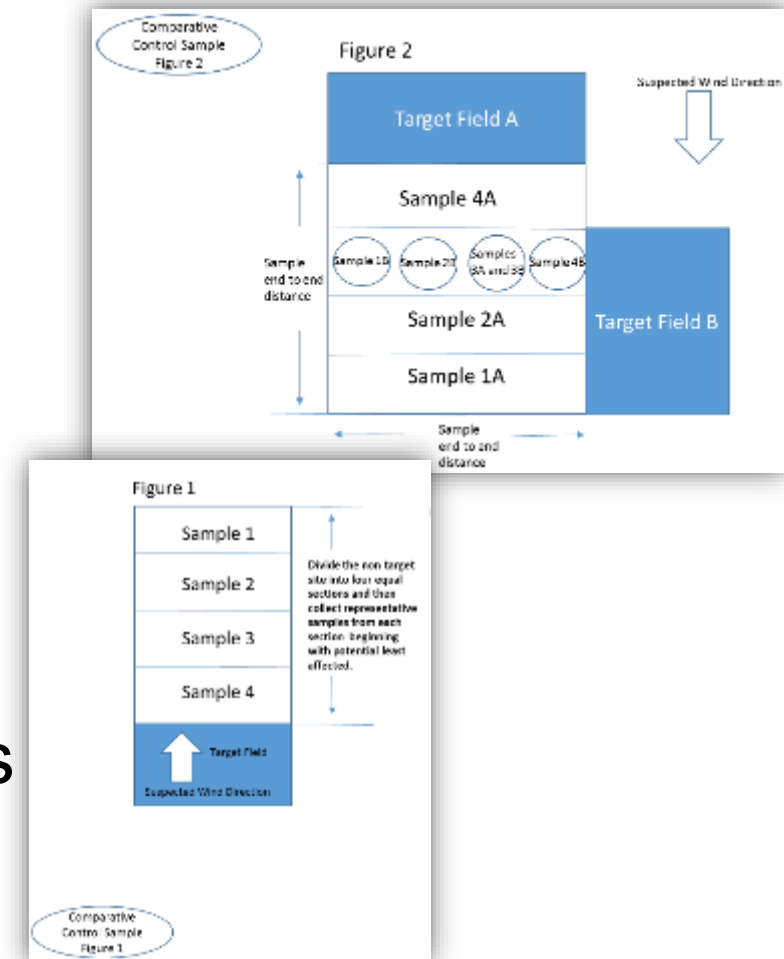
## What does it mean?

- “Based on the first impression; accepted as correct until proved otherwise.”
- “Sufficient to establish a fact or raise a presumption unless disproved or rebutted.”
- “On first appearance but subject to further evidence or information.”
- Essentially prima facie evidence is the “burden of proof” needed by the party bringing the claim

# Other Applicable Evidence

Off-target residues would be considered with all evidence collected

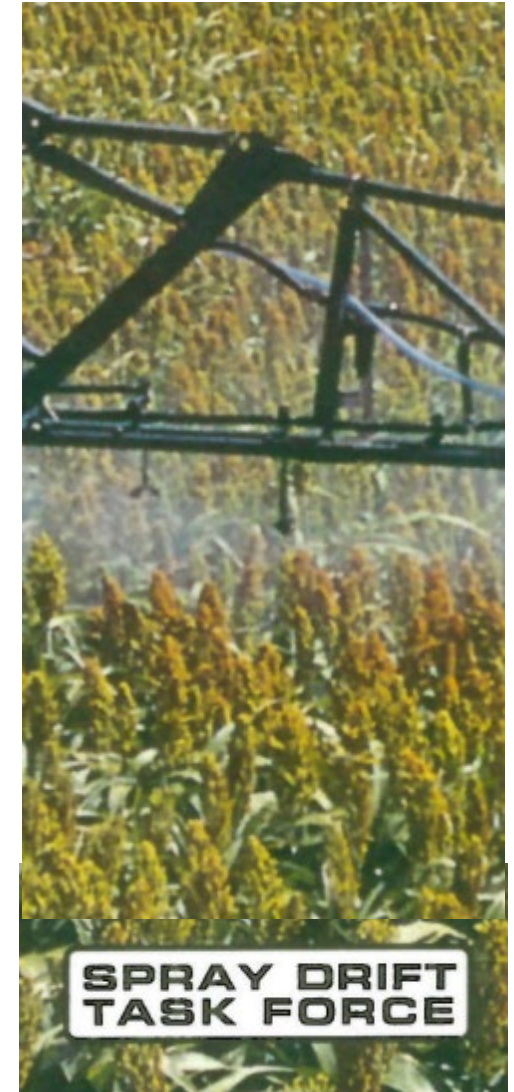
- Wind direction
- Wind speed
- Equipment used
- Exposure/damage symptomology
- Exposure/damage gradients
- Multiple different application sources
- Eye-witness testimony
- Environmental loading or background levels
- Levels found in control samples



# *Spray Drift Task Force (SDTF)*

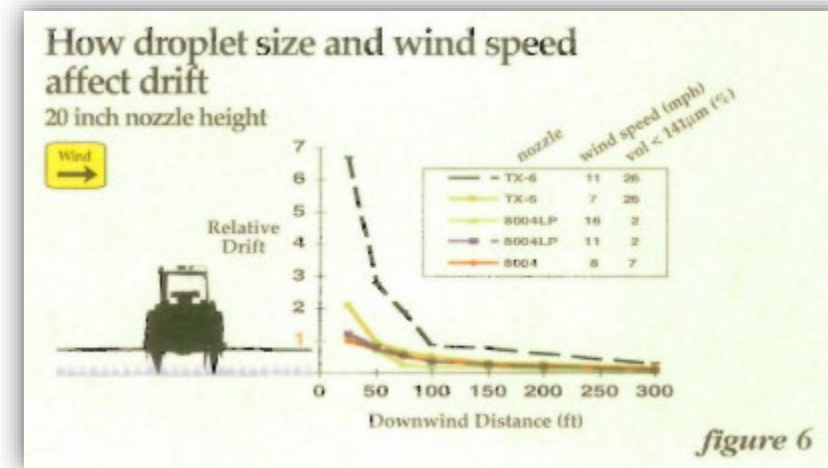
## Use Spray Drift Task Force (SDTF) Data as a Baseline

- In the 1980s, EPA was concerned about predicting and reducing off-target drift from pesticide applications, so they required registrants to submit product-specific spray drift data.
- It was recognized that drift was predominately a function of application parameters such as droplet size, application height, and wind speed rather than the actual product (active ingredient) being sprayed.
- Therefore, the SDTF was formed in 1990 to generate generic drift data applicable to all similarly applied pesticide products; 38 product registrants; over 2000 products.



# SDTF General Conclusions (1997)

- Although drift cannot be eliminated totally with current application technology, there are many ways to minimize drift to levels approaching zero.
- When good application practices are followed, all but a small percentage of spray is deposited on target.





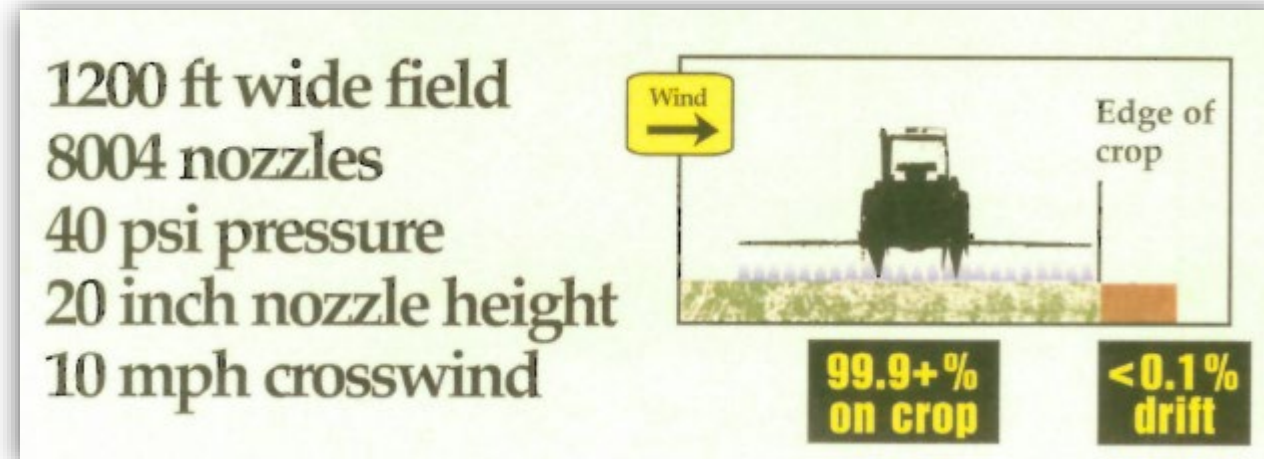
# *Aerial Application Study*

- Droplet size & wind speed, most significant factors.
- Drift only occurs downwind, not upwind.
- Using good application practices:
  - 98% of AI stays on target
  - 2% of AI drifts (within 300 ft.)



# Ground Application Study

- Droplet size & wind speed, most significant factors.
- Drift only occurs downwind, not upwind.
- Using good application practices:
  - 99.9% of AI stays on target
  - <0.1% of AI drifts (within 300 ft.)



# *Airblast Application Study*

- Droplet size, canopy density & space between trees, most significant factors.
- Wind speed effects increase with more space between trees.
- Using good application practices:
  - 99.9% of AI stays on target
  - <0.1% of AI drifts(within 300 ft.).

# *Chemigation Application Study*

- Higher application pressure & release height, most significant factors.
- Using good application practices:
  - 99+% of AI stays on target
  - <1% of AI drifts(within 300 ft.).

# *Impact on OISC Cases*

How does the 1% standard relate to historic OISC cases?

- Look at historical cases where we can compare target and offtarget residue levels
  - Exclude cases where target and offtarget are different matrix
- Determine impact if 1% rule had been in place at the time of the investigation

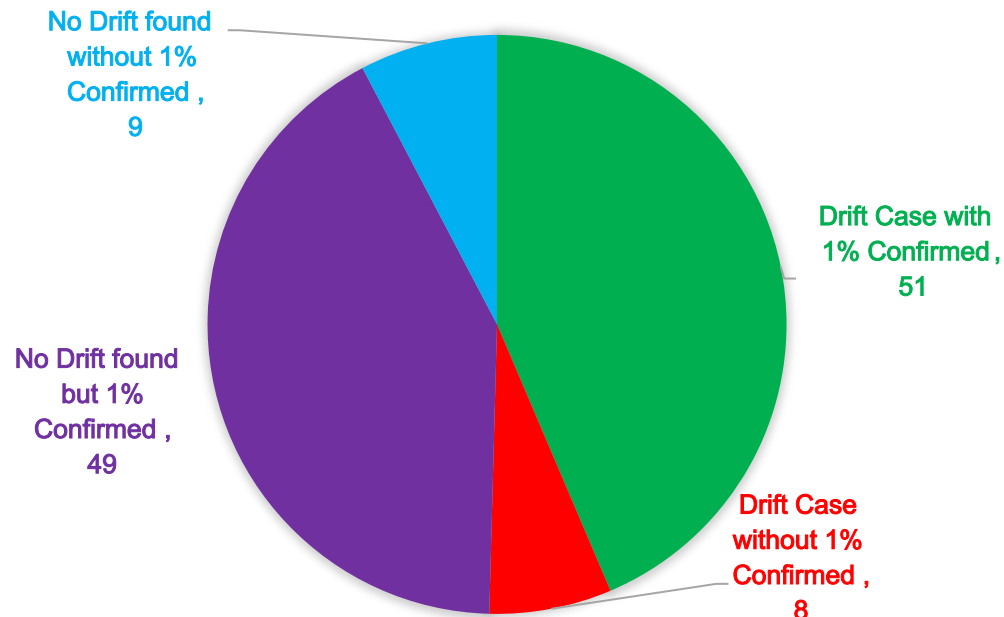


# Impact on OISC Cases

## Historical Case Summary

- 117 cases identified for investigation by Pesticide Laboratory Supervisor, including both drift and non-drift.
- 754 sample results

### DRIFT CASE ANALYSIS



Drift Case with 1% Confirmed	51
Drift Case without 1% Confirmed	8
No Drift found but 1% Confirmed	49
No Drift found without 1% Confirmed	9

# Impact on OISC Cases

## Results

- 8 cases without 1% level
  - 4 cases had very high target levels, along with high but not 1% nontarget residue levels
  - 3 cases had lower levels, but were supported by suspected analytes, gradient data, wind data and/or PII results
  - 1 case was unusual (greenhouse)
- 49 cases were supported by 1% rule but we did not determine a drift violation
  - Runoff, no label violation found, insufficient supporting evidence, etc.
- 60 cases aligned with the 1% rule

## Average Residue % Nontarget/Target

2,4-D	55%
Glyphosate	42%
Atrazine	140%
Metolachlor	56%
Metribuzin	31%
Dicamba	32%
Pyroxasulfone	85%
Acetochlor	755%
Propiconazole	219%
AMPA	123%
Sulfentrazone	168%



# OISC Complaint Investigations

Current as of September 8, 2022

	Total Complaints	Total Drift Complaints	Dicamba Drift	2,4-D Drift	Cat. 1 Drift	PA Drift
2005		30				
2006		35				
2007		54				
2008		95				
2009		62				
2010		69				
2011		64				
2012		68				
2013		108				
2014		100				
2015		83				
2016		90	5			
2017		233	134			
2018		231	158			
2019	455	344	197	60	82	219
2020	316	231	85	50	58	101
2021	299	200	70	47	51	68
2022	288	226	81	51	50	90



# OISC Residue Samples

