STRAIGHT TALK ABOUT MINIMIZING SPRAY DRIFT

1. Drift abuse may result in:
    1. Loss of crop protection tools
    2. _____ on popular products
    3. Loss of _____
    4. Insurance claims
    5. Hard feelings
    6. Mistrust
    7. Loss of economic opportunities
    8. Undermining the health of the _____ _____

2. Responsible spraying on the other hand:
    1. Provides improved control
    2. Prevents _____
    3. Saves _____
    4. Creates trust
    5. Contributes to the economic well being of the community

3. Match the term with the definition:
    1. physical drift — Occurs briefly following application.
    2. Vapor drift — Occurs as product is applied.

4. The factors which affect physical drift are:
    1. Droplet _____
    2. Height of _____ _____ from target
    3. Wind _____

5. The _____ the spray droplet, the more likely physical drift will occur.

6. Droplet size is determined by:
    1. Nozzle orifice
    2. Spray _____ / volume
    3. _____ of application.

7. As boom _____ and / or wind _____ increase, so does the potential for physical drift.

8. Factors which affect vapor drift are:
    1. Volatility
    2. Air _____ / humidity
    3. Wind speed.

9. What you can do to reduce vapor drift:
    1. Assess weather and wind conditions
    2. Select the correct product and _____

10. Managing physical drift, however, is in your hands.
    1. Proper equipment set up and _____

    2. Spray droplet _____

11. How can you produce droplets that are 250-500 microns?

    1. Choose the right _____
    2. Setting ideal pressure
    3. Achieving the most effective volume

    4. Setting proper boom _____

12. The Turbo flood jet nozzle produces larger, more consistent droplets in a

    uniform pattern by directing the spray _____ rather than on an angle (45 degree to the rear).

13. The Rain Drop Hollow Cone nozzle is more susceptible to _____ wind drift

14. Worn or _____ nozzles will equal drift.

15. Larger orifices and _____ spray pressure reduce wear and tear on nozzles and further reduce drift.

16. Correct boom height depends on:
    1. Nozzle type

    2. _____
    3. Spray pattern angle

17. The closer to the target, the less drift. The recommended height to best reduce

drift for foliar application is _____ to _____ inches above the target.

18. When winds are above _____ MPH do not apply near sensitive crops, water, or people.

19. When wind is blowing toward _____ areas, do not spray at all.

20. Wind speed is lowest in the _____ morning and late

    _____. Wind is highest just after mid-day.

21. The following affect drift potential:
    1. Temperature

    2. _____
    3. Atmospheric inversion

22. Dry warm air equals _____ which equals drift.

23. In summary:
    1. Careful choice and adjustment of spray equipment
    2. Proper spray volume

    3. Proper spray _____

STRAIGHT TALK ABOUT MINIMIZING SPRAY DRIFT
A GUIDE FOR APPLICATORS
THE NATIONAL COALITION FOR DRIFT MINIMIZATION
Notes on the Video

Drift abuse may result in:
- loss of crop protection tools
- restrictions on popular products
- loss of crops
- insurance claims
- hard feelings
- mistrust
- lost economic opportunities
- undermining the health of the local economy.

Responsible spraying on the other hand:
- provides improved control
- prevents waste
- saves money
- creates trust
- contributes to the economic well being of the community.

The Spray Drift Task Force was formed to satisfy spray drift data requirements imposed by EPA. The Task Force provides generic data bases and models to represent all current and future products.

The Principles of Drift Management

Physical Drift
- Occurs as product is applied.

Vapor Drift
- Occurs briefly following application.

Factors Affecting Physical Drift:
- Droplet Size
- Height of spray nozzle from target
- Wind Speed.

The smaller the spray droplet, the more likely physical drift will occur.

Droplet size is determined by:
- Nozzle orifice
- Spray/ pressure/ volume
- Angle of application

As boom height and/or wind speed increase, so does the potential for physical drift.

Factors Affecting Vapor Drift:
- Volatility
- Air temperature/ humidity
- Wind speed

What you can do to reduce vapor drift:
- Assess weather and wind conditions, but
- Vapor drift can only be controlled by product or formulation selection.

Managing physical drift, however, is in your hands.
- Proper equipment set up and operation
- spray droplet size
  - The larger the droplet, the less physical drift.

Example with 2 droplet sizes:

3 MPH wind	under 100 microns
	Drift hundreds of feet off target
3 MPH wind	over 150 microns
	Move less than 20 feet down wind

Myth: larger droplets fail to provide satisfactory coverage for control.

Example:
- size: 200 microns
- drops: 3000/ sq. Inch
- application: 20 gal/ acre

more than adequate coverage for product effectiveness

250-500 microns ideal

How can you produce droplets this size?
- Choosing right nozzle
- setting ideal pressure
- achieving most effective volume
- setting proper boom height

Example with small orifice extended flat fan:
- Myth: high pressure is needed for effective penetration of product into target zone.
  - 5 MPH wind at 40 psi — small droplets and lots of drift reduces coverage.
  - 5 MPH wind at 20 psi — larger droplets & reduced drift.

Example with low pressure/ high volume:

reduced speed
greater orifice size
larger flow rates/ minute
reduces small droplets

5 MPH wind large orifice extended range flat fan spray nozzle
Less drift

5 MPH wind small orifice XR flat fan spray nozzle
More drift

Example Spray Pattern Shape:

110 degree		80 degree
XR flat fan		XR flat fan
	20 psi	
	0 MPH, no drift	
	But at	
	50 psi	
	5 MPH	
Drift		Less drift
110 degree		80 degree

New generation of nozzles designed to reduce drift.

Turbo flood jet nozzle
20 psi
5 MPH
produces larger, more consistent droplets in a uniform pattern by directing spray downward rather than on an angle (45 degree to the rear).

Conventional flood = drift
Turbo flood jet = less drift
with 20 psi, 5 MPH wind

flat fan XR-110		turbo flat fan
drift		Little drift
	30psi	
	5 MPH wind	

When need a variety of sprayer speeds, need nozzle design less sensitive to pressure valiance.

Turbo drop/ Venturi Air Inducted		XR Flat Fan 8003
less drift at higher spray pressure		more drift
	40 psi	
	5 MPH wind.	

Angle of orientation

Rain drop hollow cone nozzle is more susceptible to side wind drift
40 psi
5 MPH

Worn or damaged nozzles = drift
check before each application
Larger orifices and lower spray pressure reduce wear and tear on nozzles and further reduce drift.

Spray Boom Height
correct boom height depends on:
- nozzle type
- spacing
- spray pattern angle

Closer to target = less drift. 18-20 inches above target recommended to best reduce drift for foliar application.

Wind above 5 MPH
Do not apply near sensitive crops, water, people.

When wind blowing toward sensitive areas, do not spray at all.

Wind speed low early morning and late evening.
Highest just after mid day.

Affect Drift Potential:
- temperature
- humidity
- atmospheric inversion

Dry worm air = evaporation = drift

In summary:
careful choice and adjustment of spray equipment
proper spray volume
correct spray pressure.