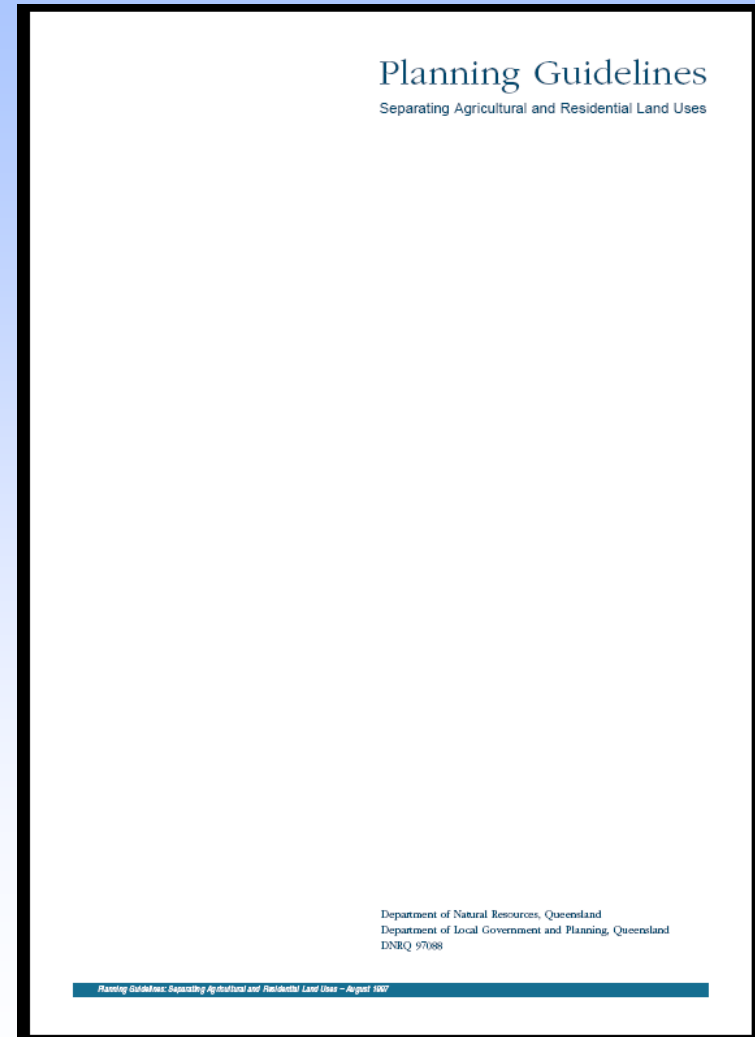




Australia's Spray Drift Mitigation Measures

Andrew Hewitt (CPAS)
And
David Loschke (APVMA)

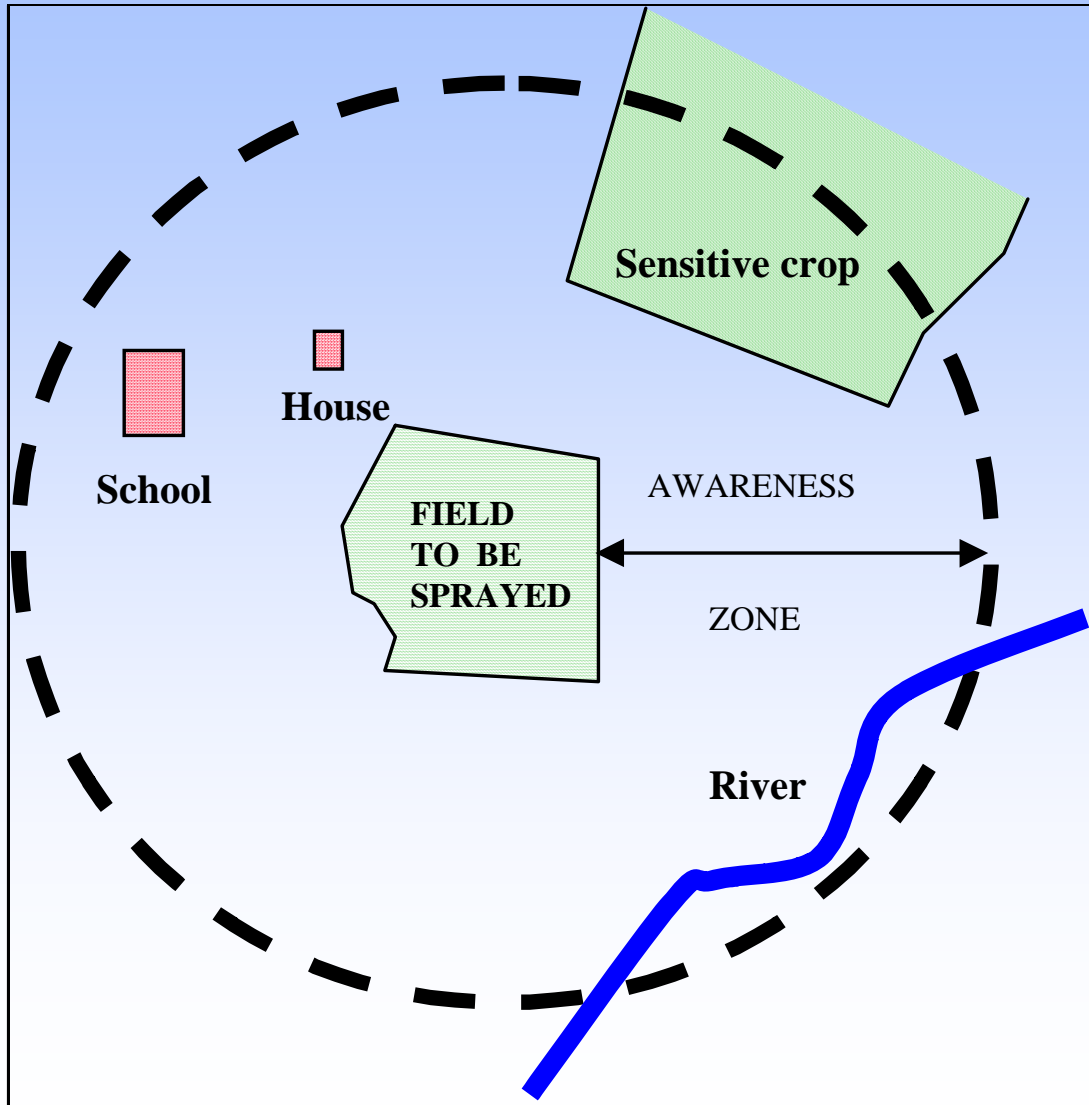
Background Documents



<http://downloads.publish.csiro.au/books/download.cfm?ID=3452>

New Draft APVMA Drift Management Guidelines

http://www.apvma.gov.au/new/public_consultation.shtml



Consider chemical exposure to:

Humans

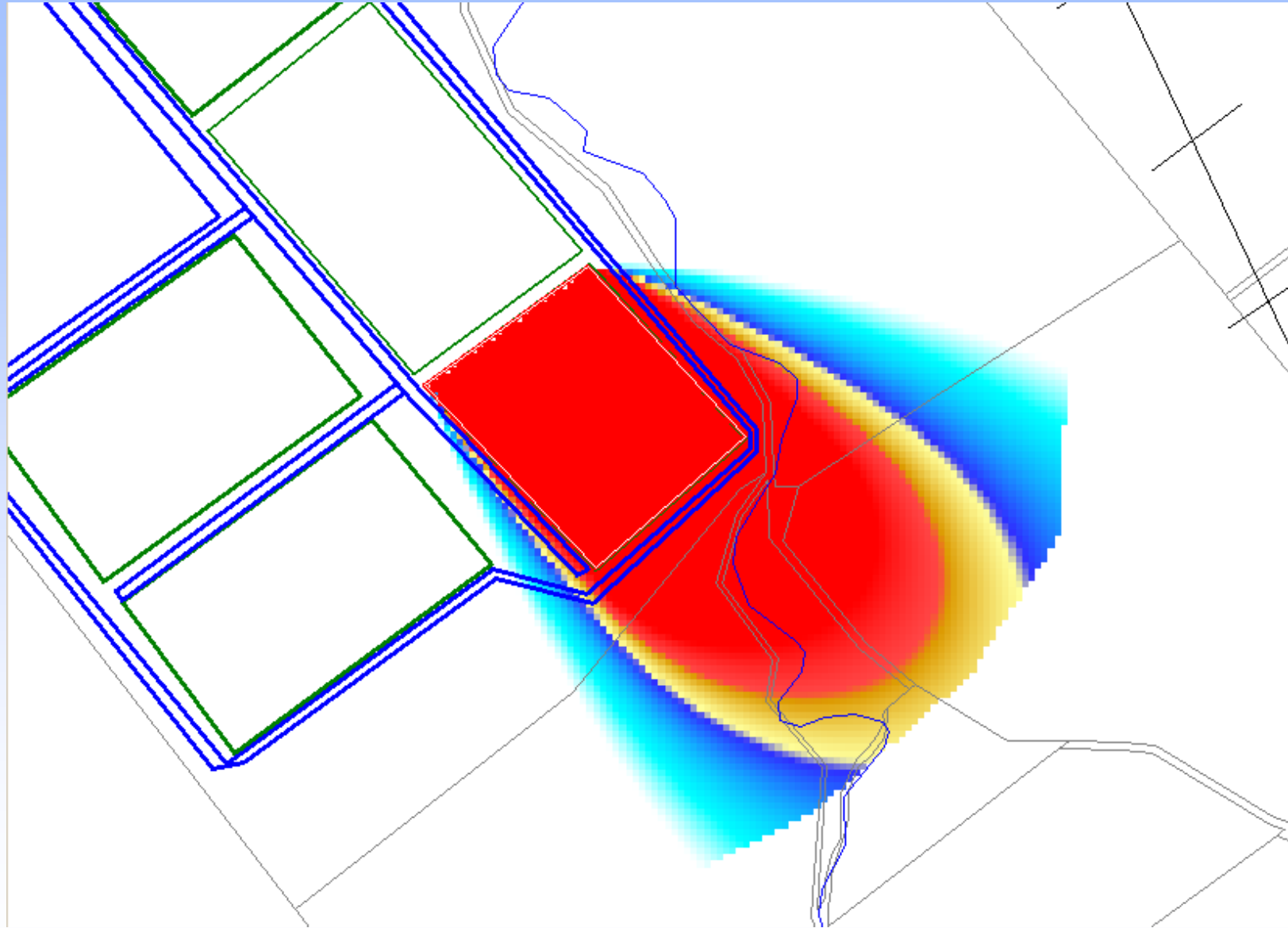
Sensitive terrestrial areas

Sensitive aquatic areas

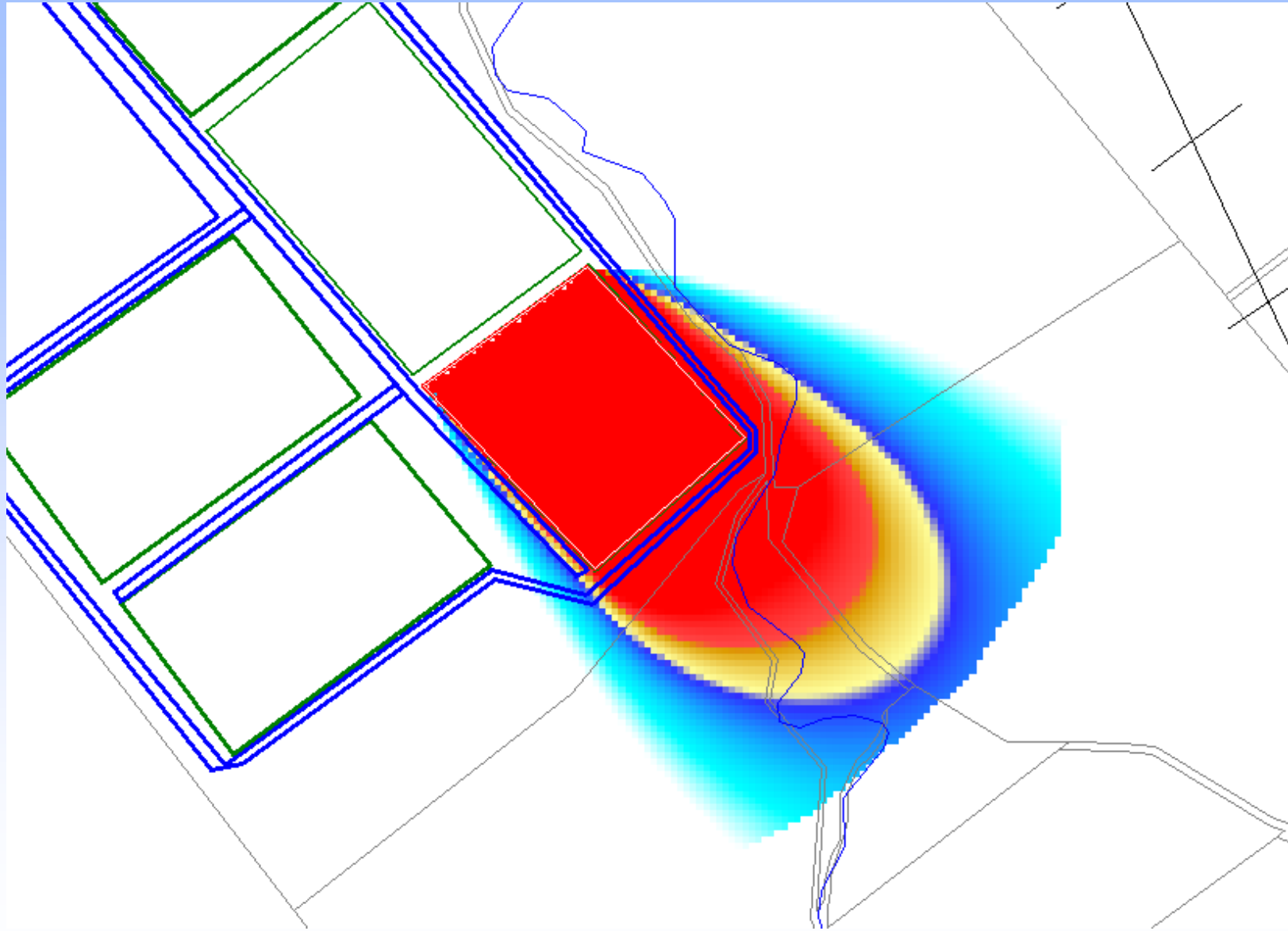
Current Major Approaches to Spray Drift Risk Management

- Control of Droplet Size
- Wind speed limits for use
- Spray release height
- Equipment type and arrangement
- Protective buffer zones

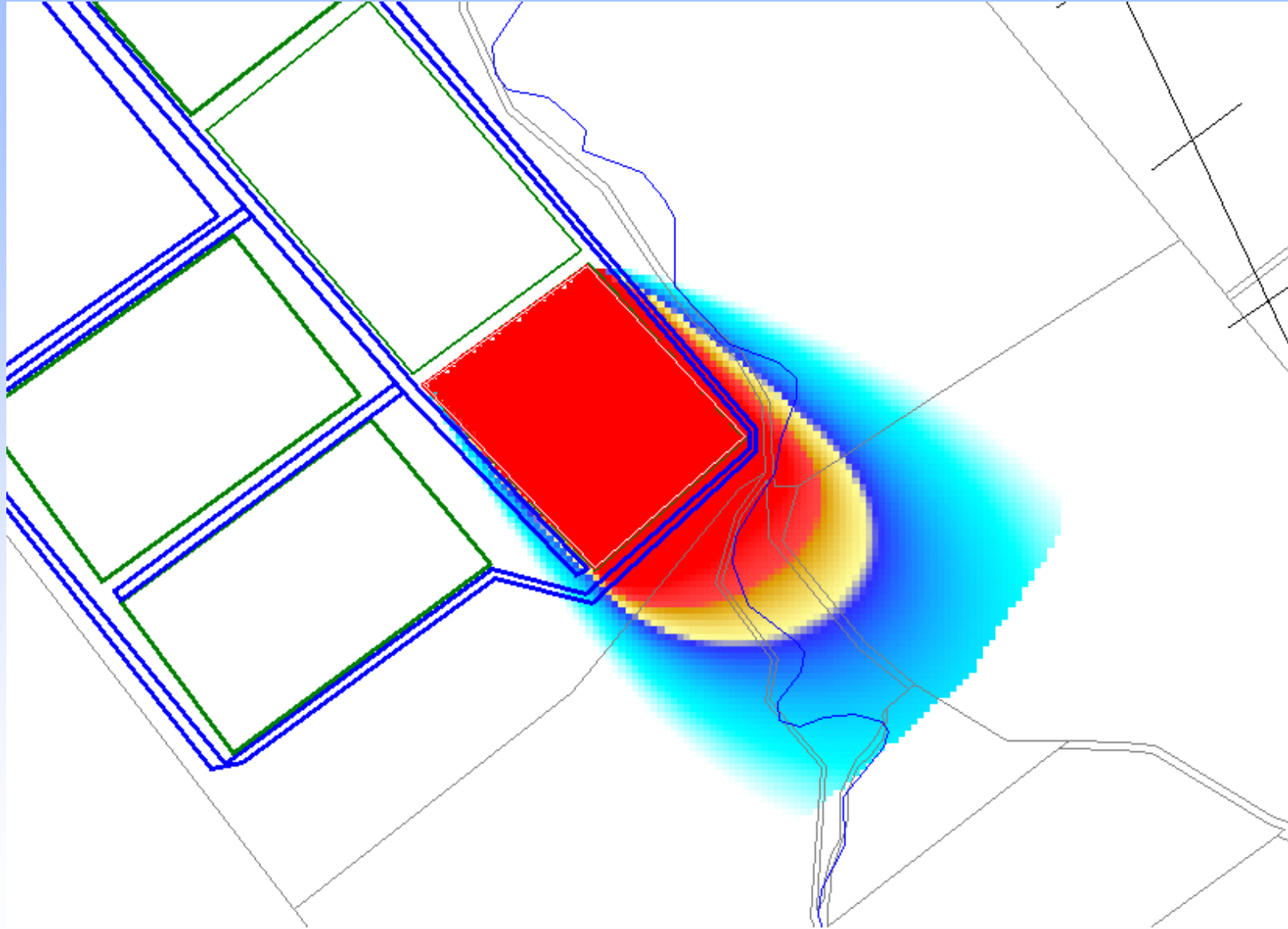
Very Fine Spray Quality



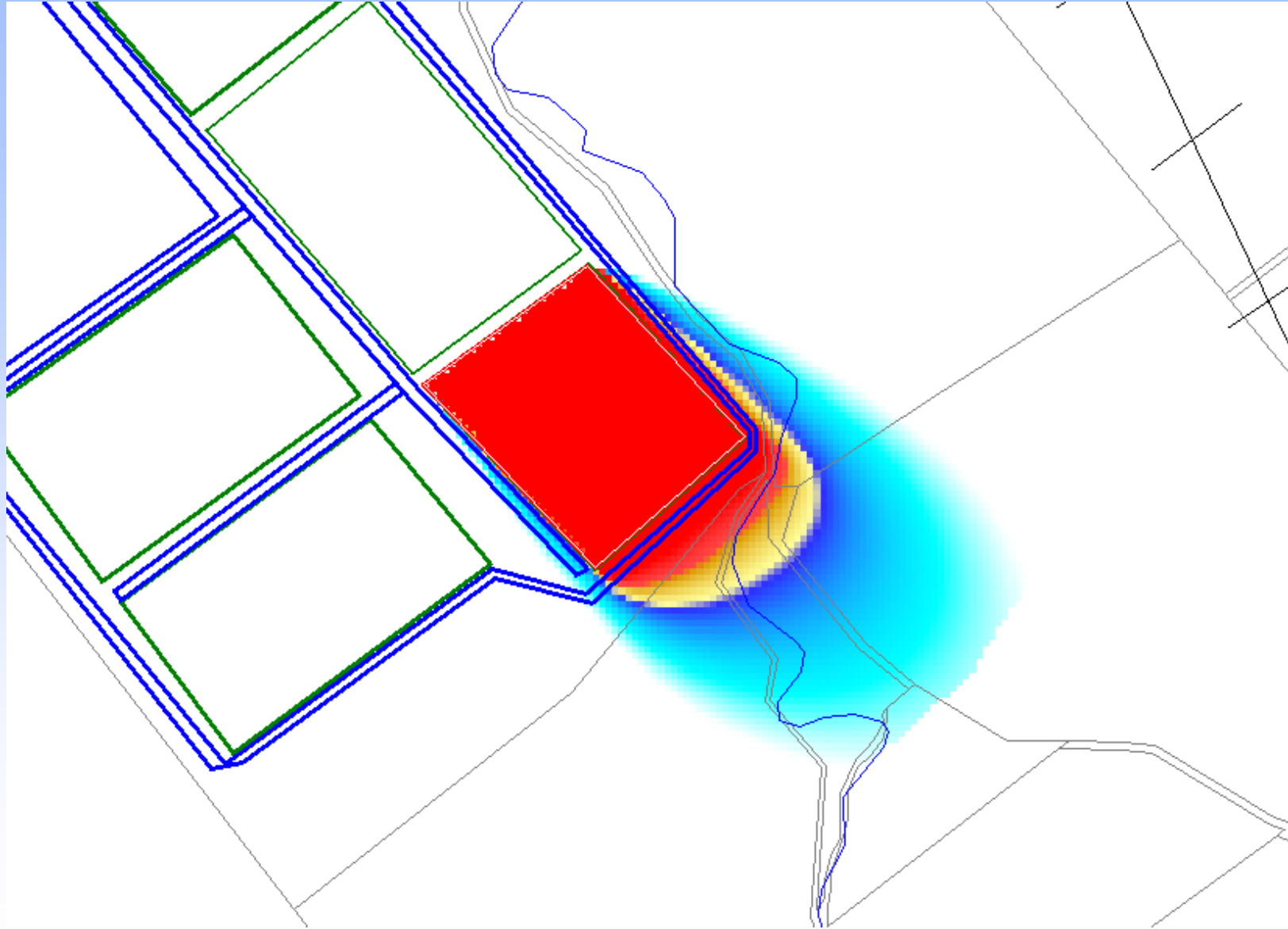
Fine Spray Quality



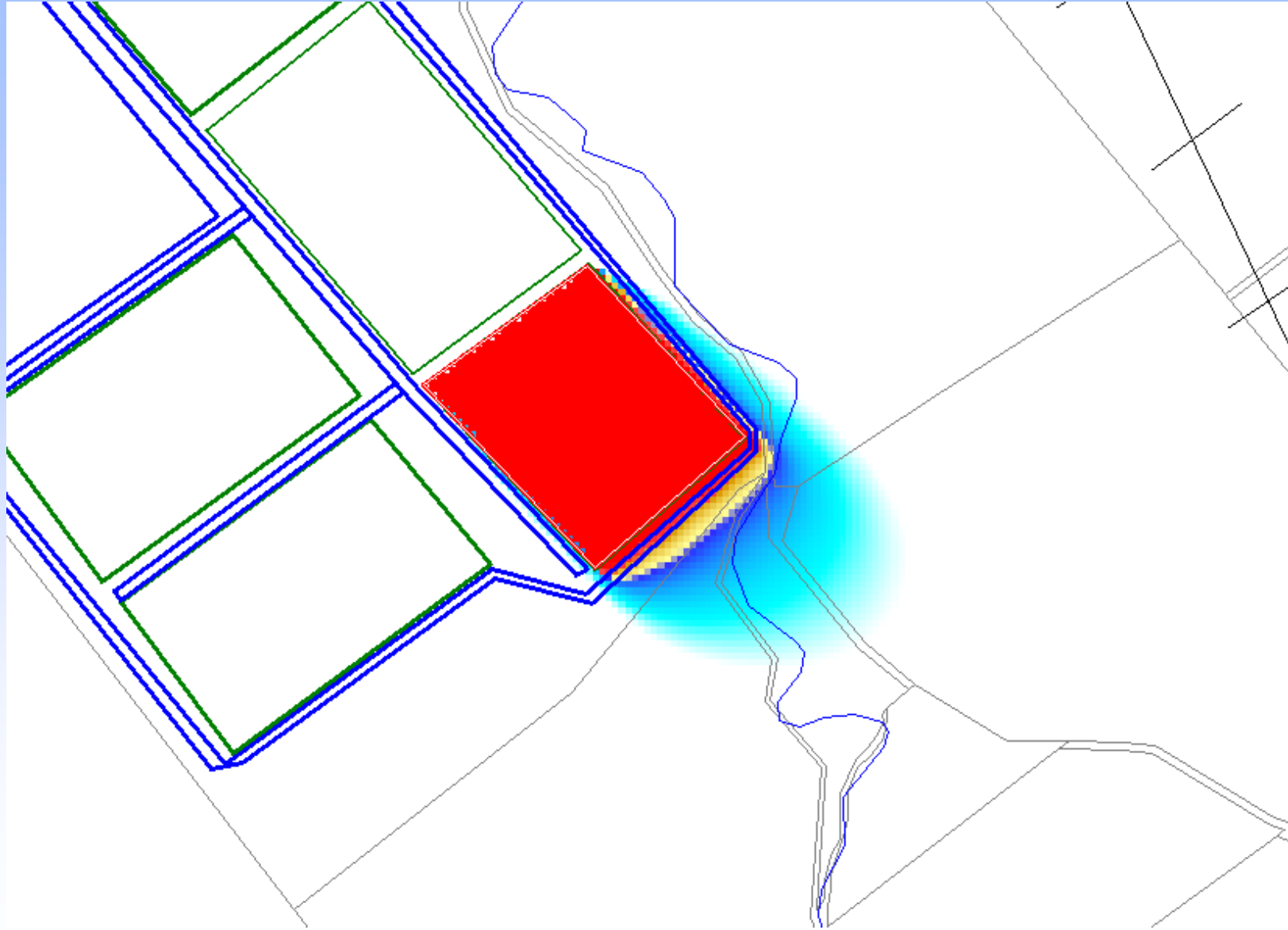
Medium Spray Quality



Coarse Spray Quality



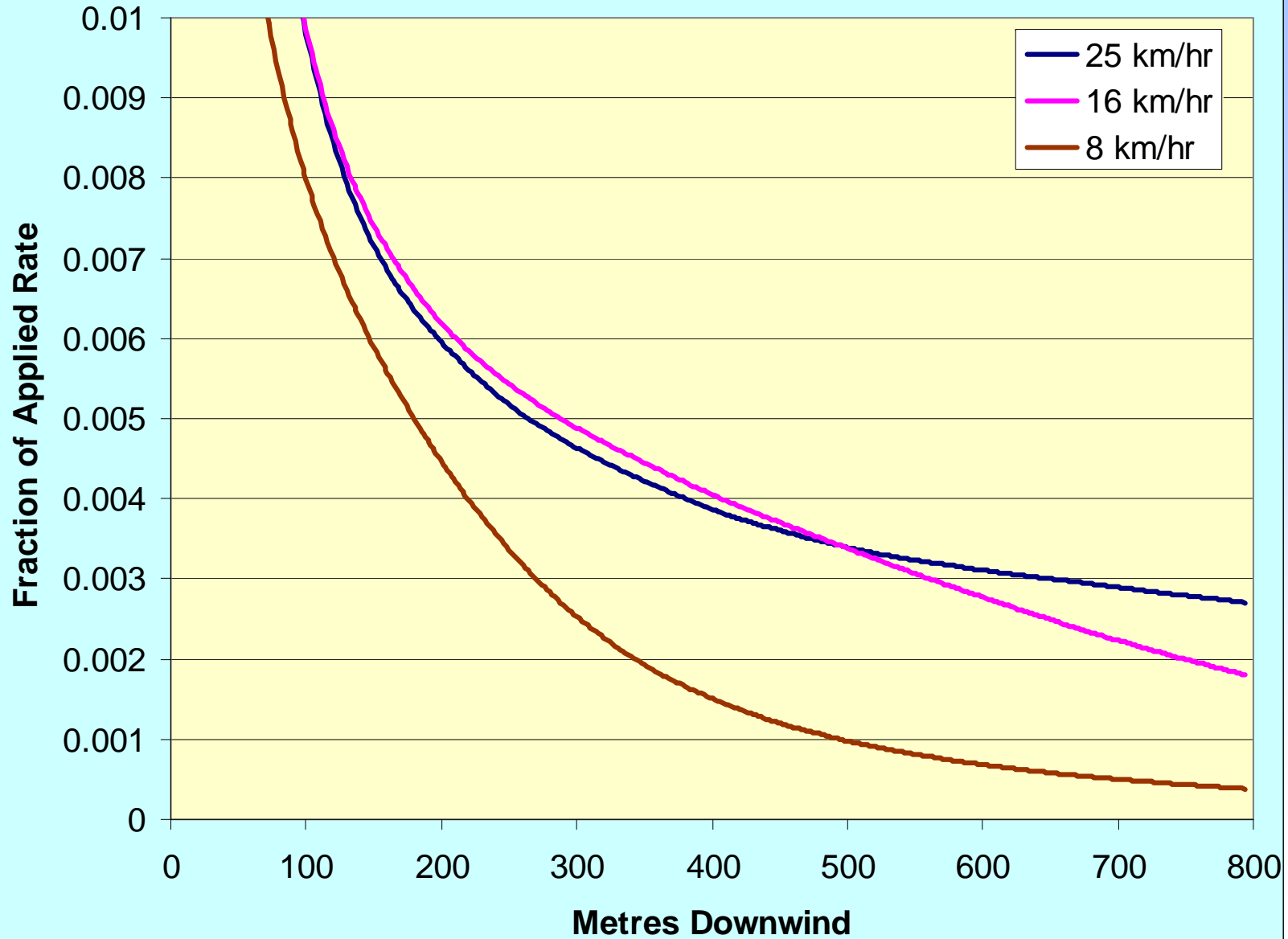
Coarse Spray Quality with further adjustments



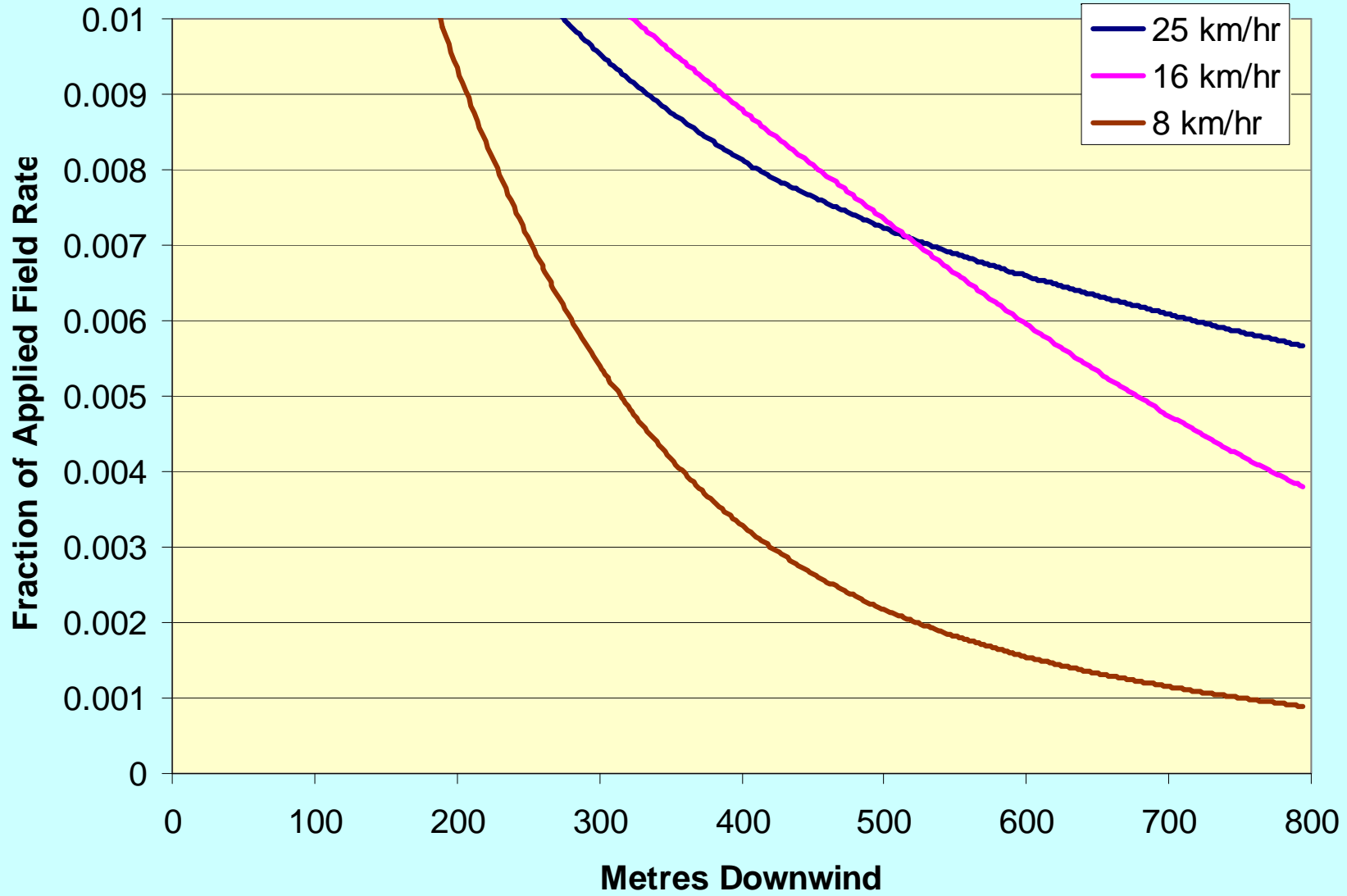
Current Major Approaches to Spray Drift Risk Management

- Control of Droplet Size
- Wind speed limits for use
- Spray release height
- Equipment type and arrangement
- Protective buffer zones

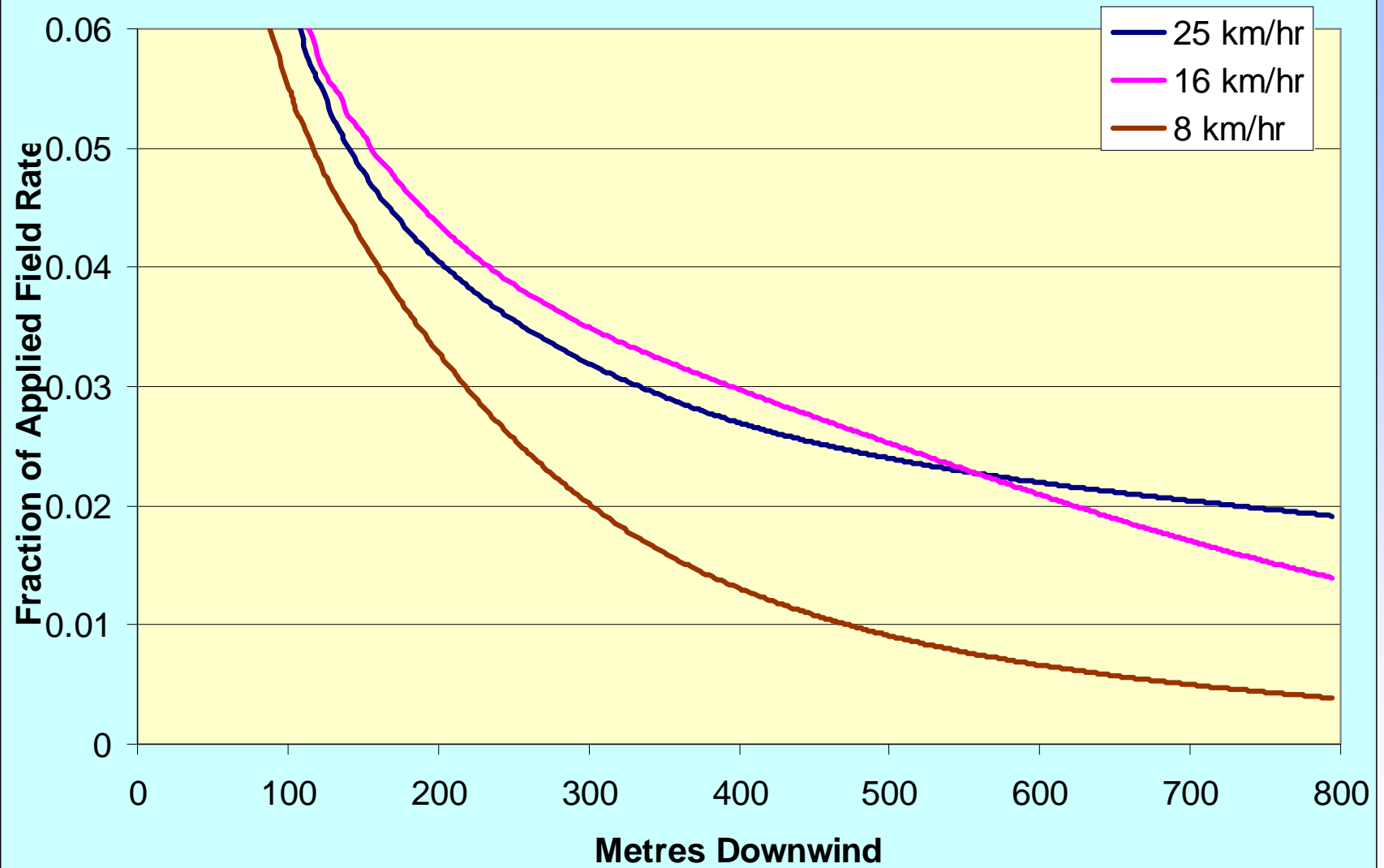
Compare Windspeeds - AT802 Coarse



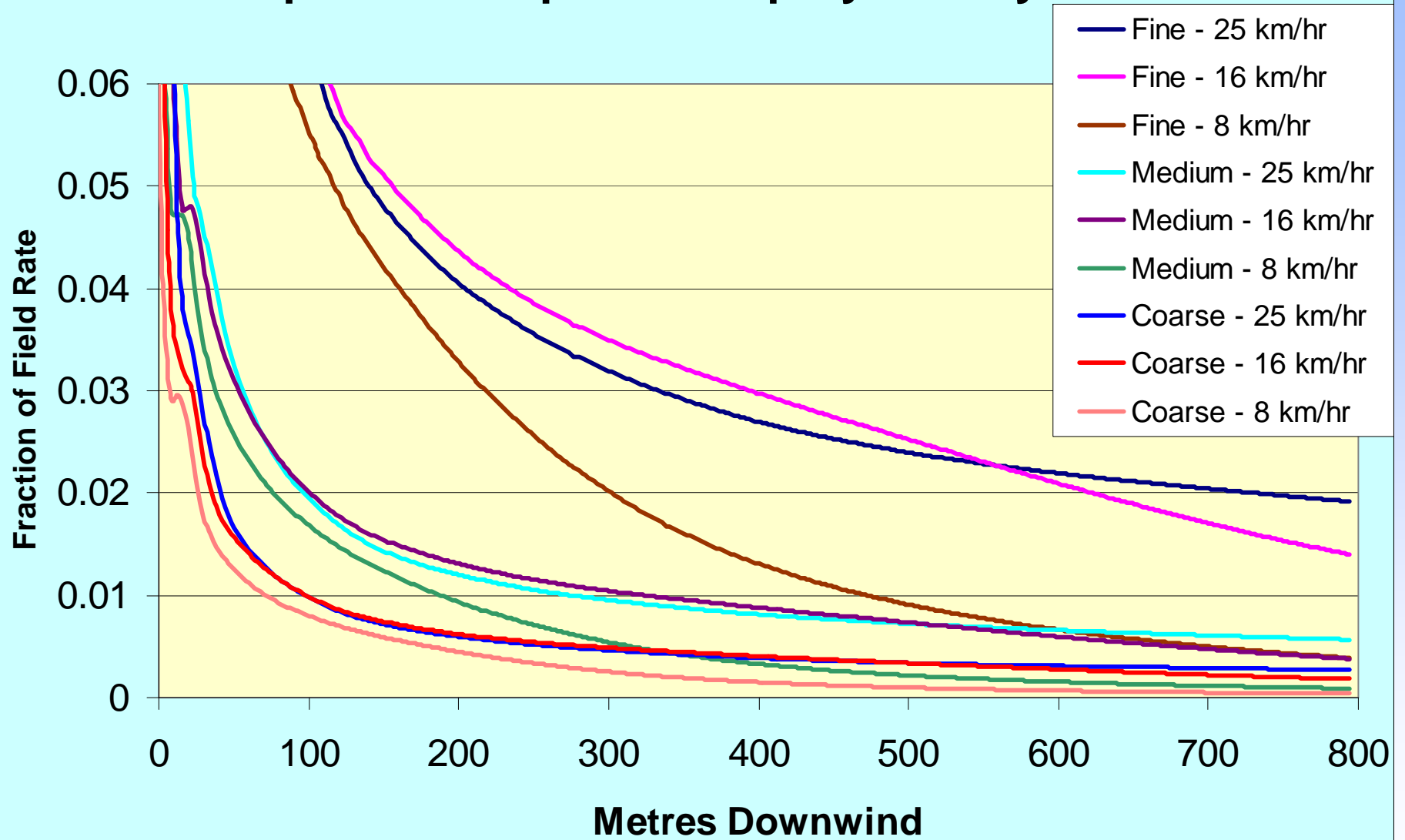
Compare Wind Speeds - AT802 Medium



Compare Wind Speeds - AT802 Fine



Compare Windspeeds & Spray Quality - AT802



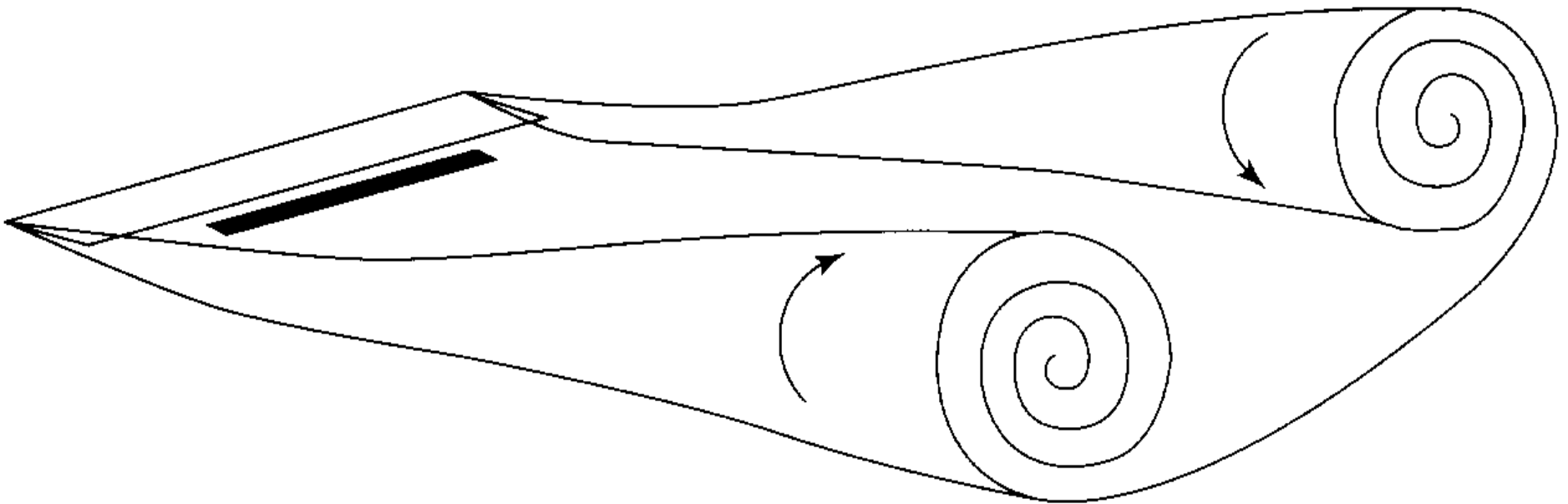
Current Major Approaches to Spray Drift Risk Management

- Control of Droplet Size
- Wind speed limits for use
- **Spray release height**
- Equipment type and arrangement
- Protective buffer zones

Current Major Approaches to Spray Drift Risk Management

- Control of Droplet Size
- Wind speed limits for use
- Spray release height
- Equipment type and arrangement
- Protective buffer zones

Wingtip Vortices



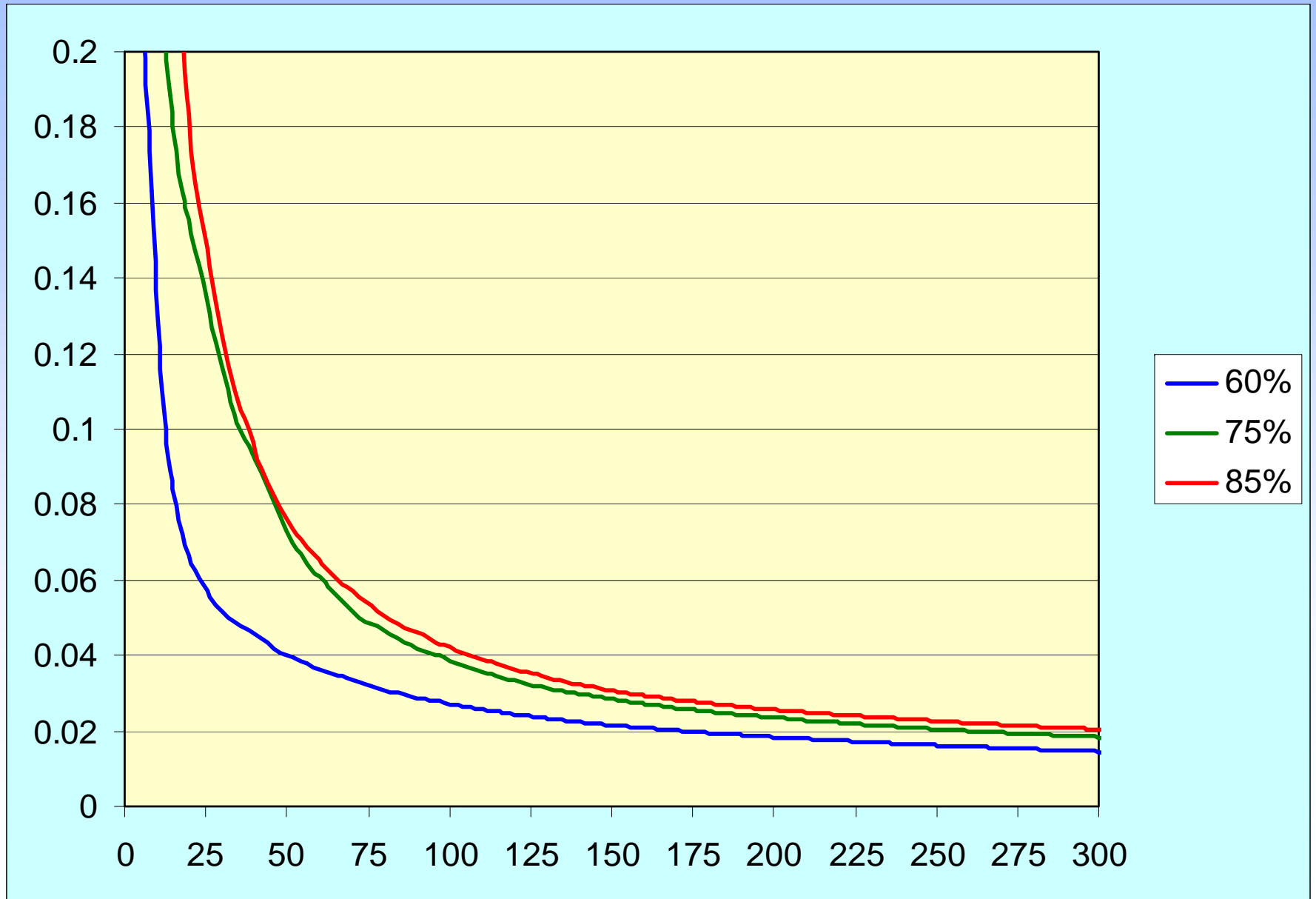
80% Boom Width

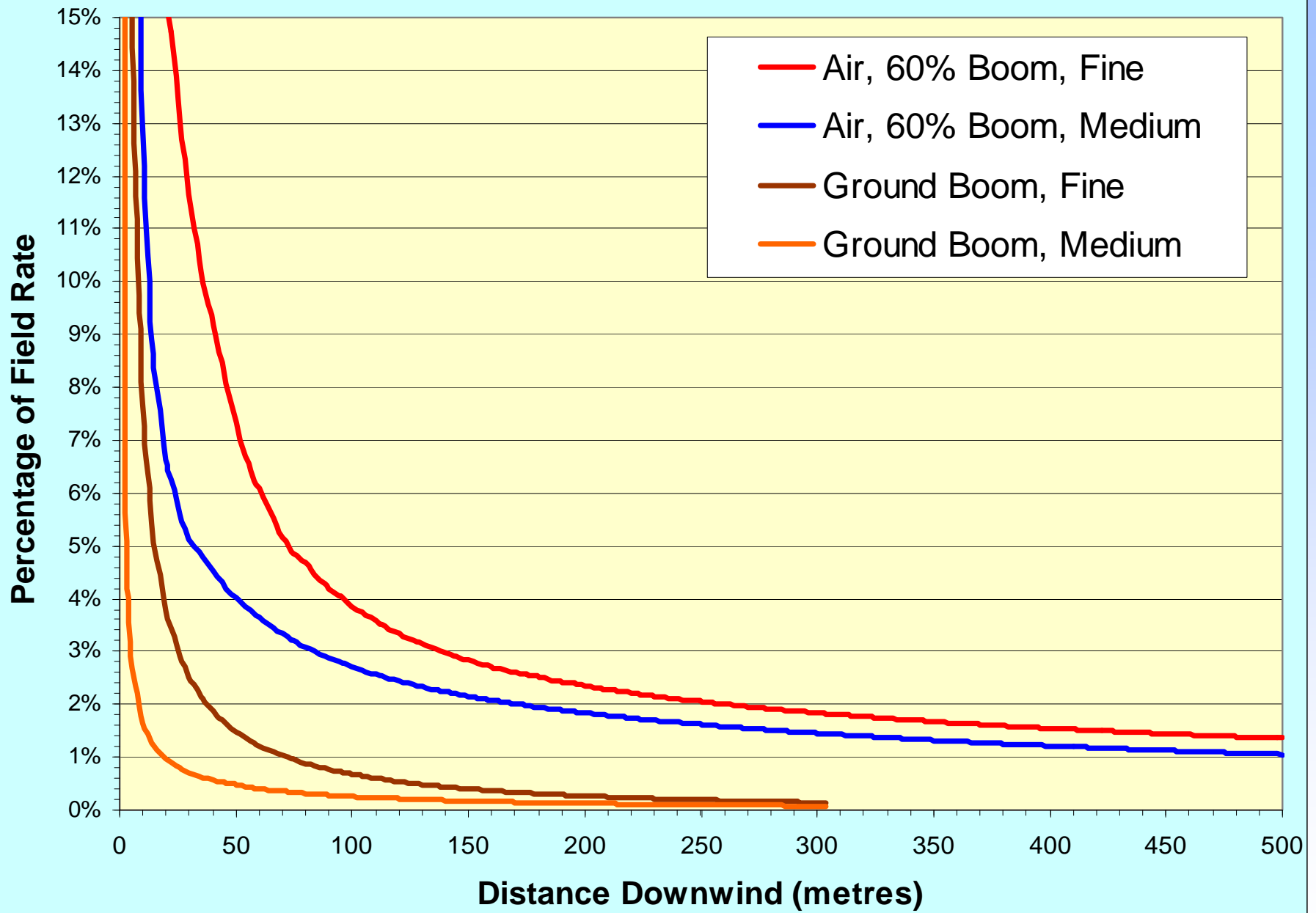


60% Boom Width



Compare Boom Width

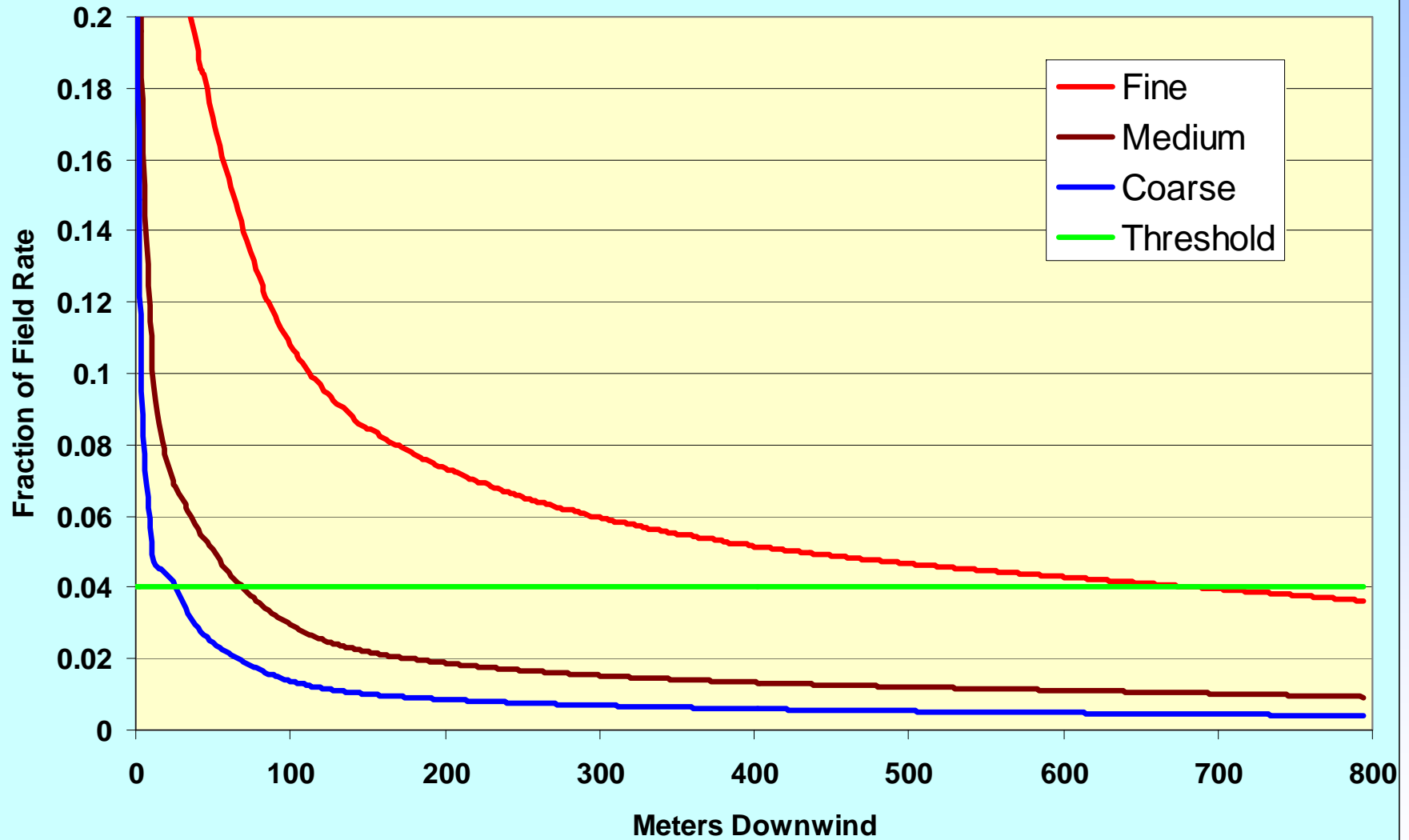




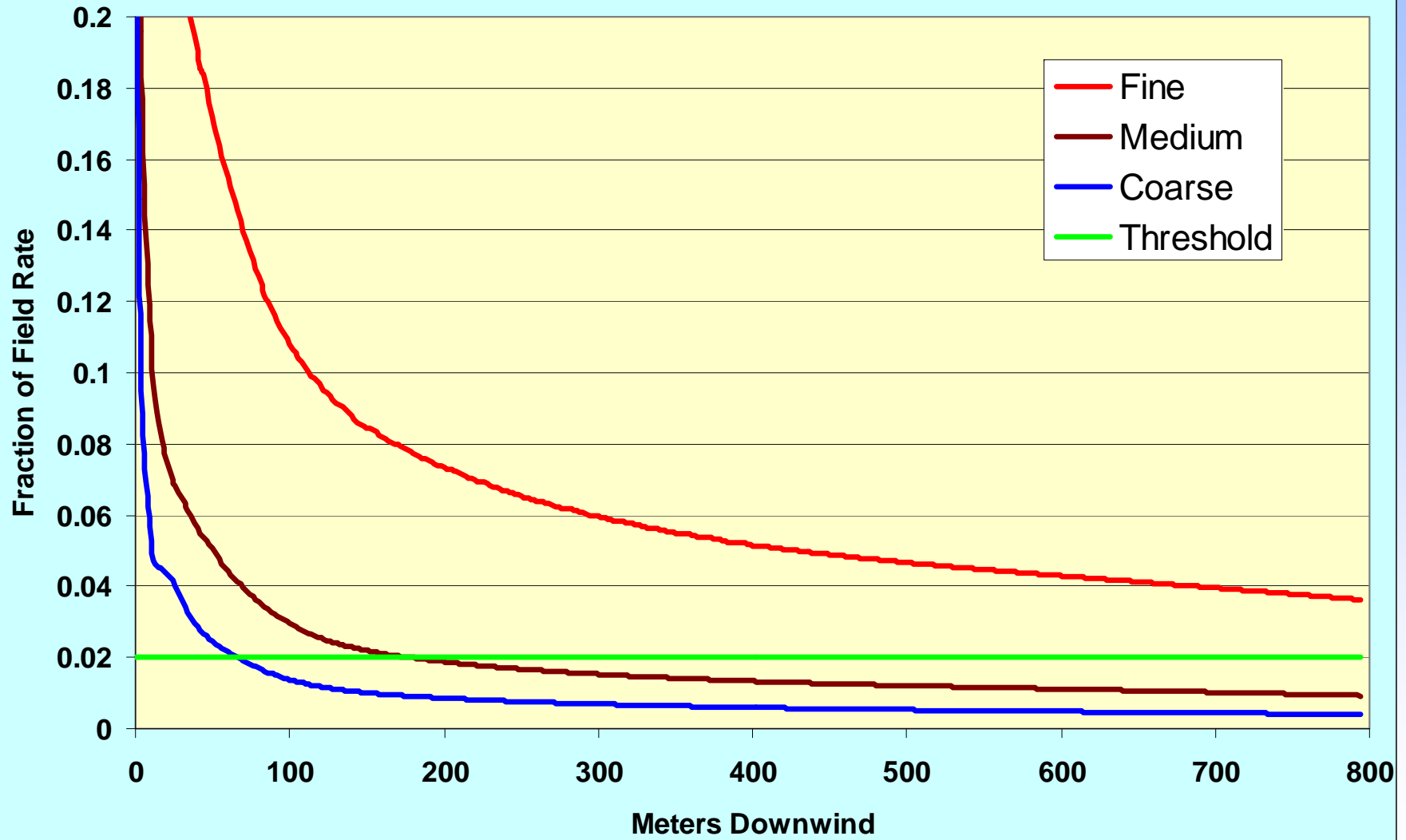
Current Major Approaches to Spray Drift Risk Management

- Control of Droplet Size
- Wind speed limits for use
- Spray release height
- Equipment type and arrangement
- Protective no spray zones

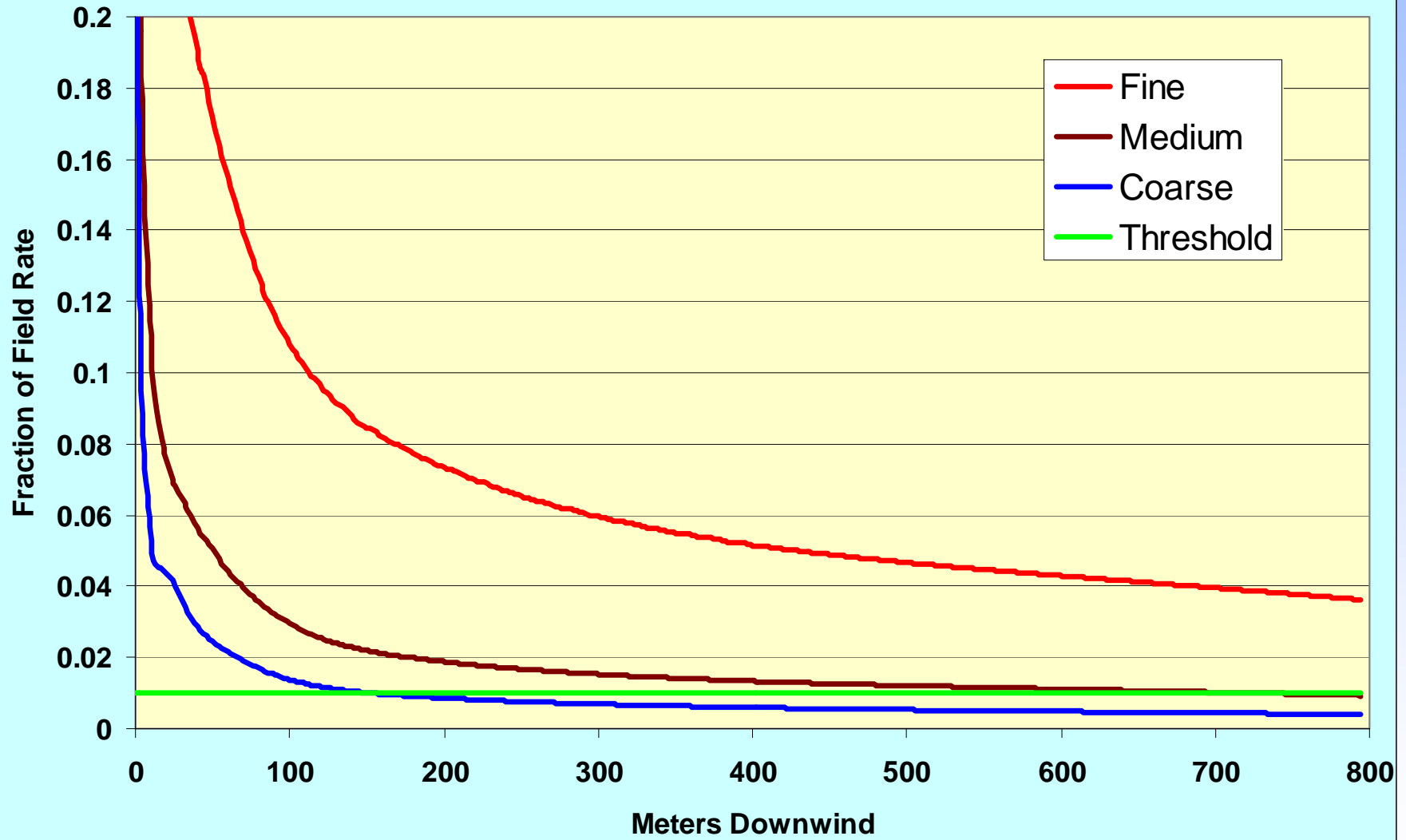
AT 802 - 20 km/hr Wind



AT 802 - 20 km/hr Wind



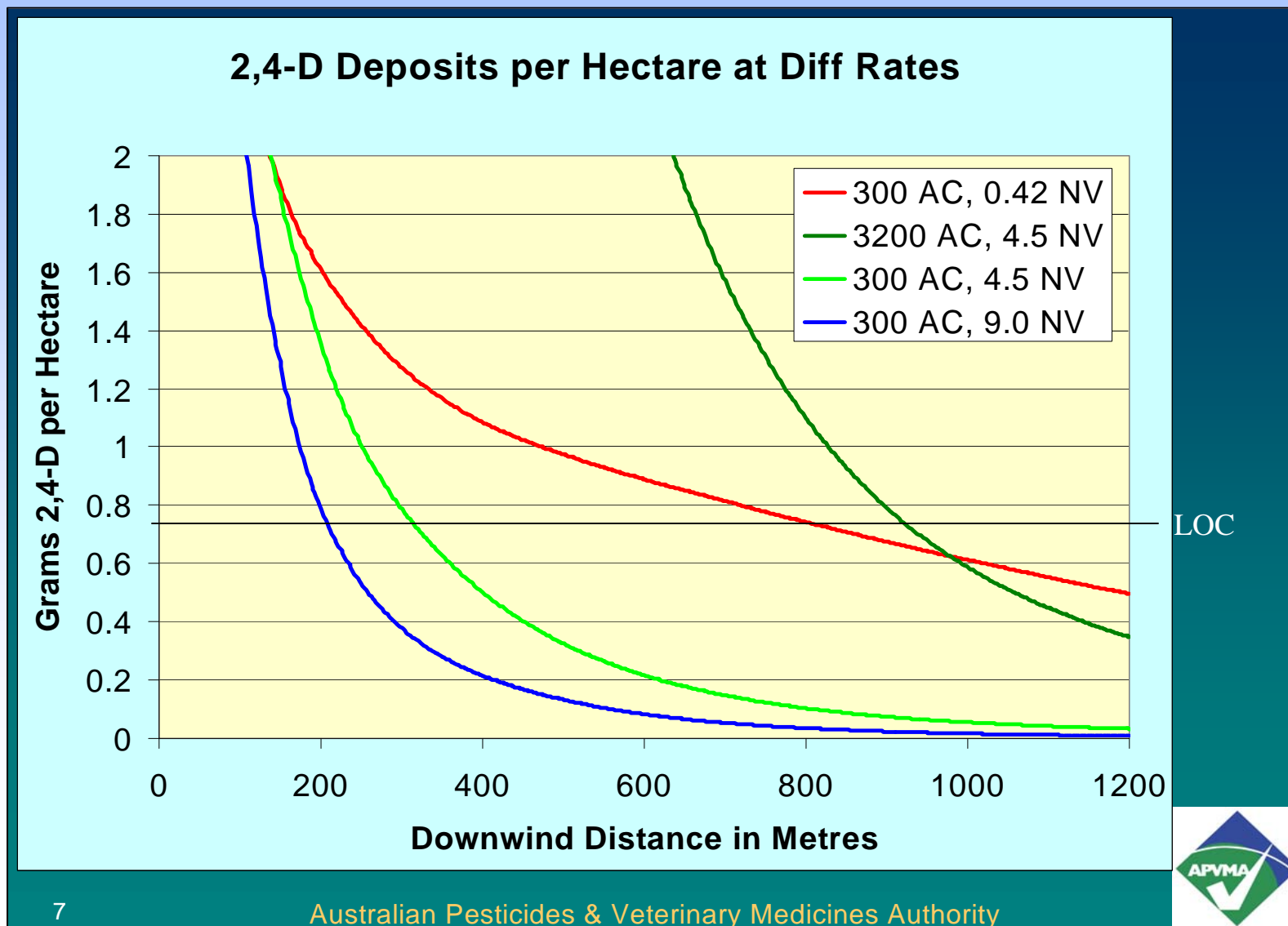
AT 802 - 20 km/hr Wind



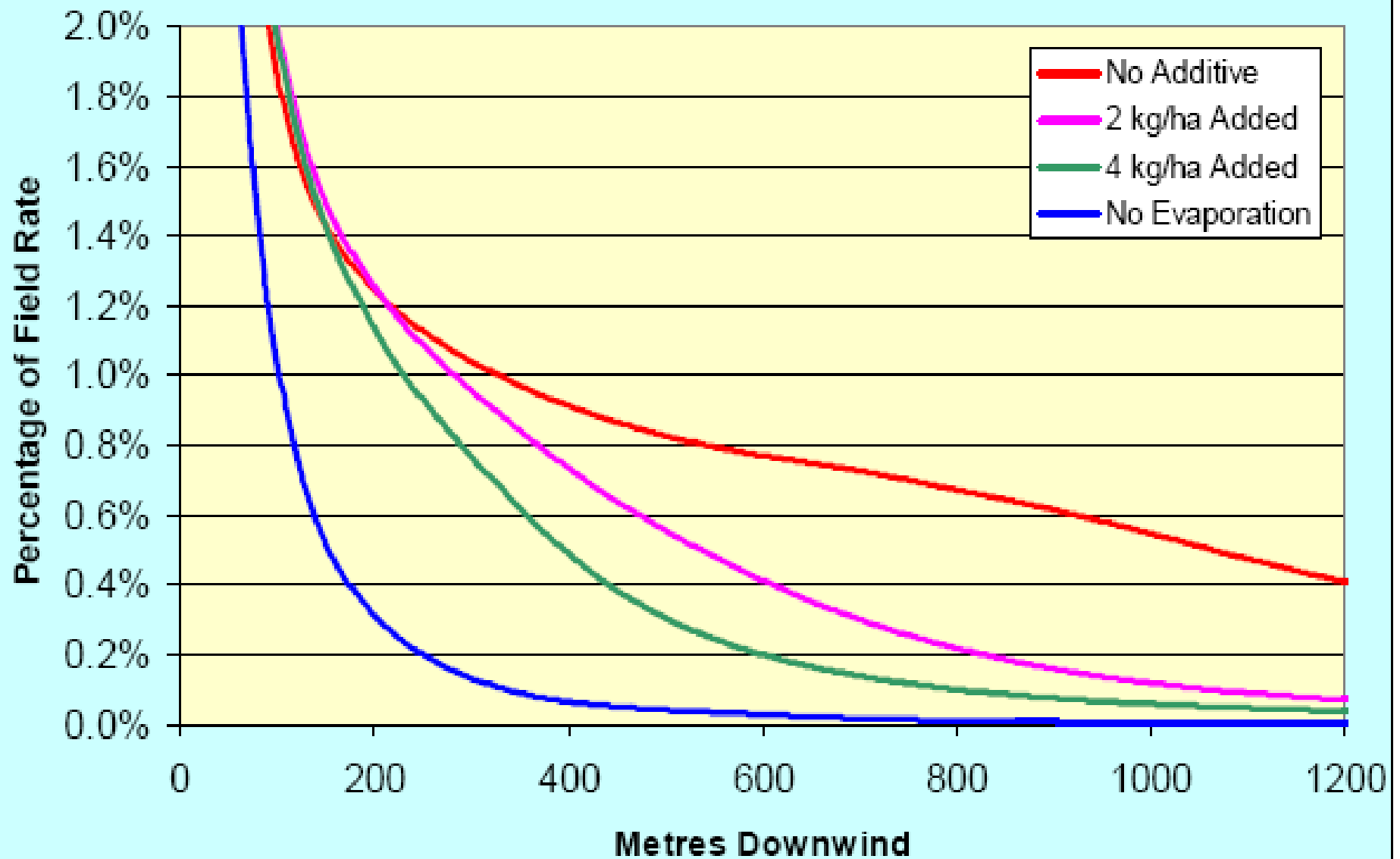
Droplet capture with vegetative barriers – reduces drift by 60-90%, so might in some areas be considered as a major drift management strategy

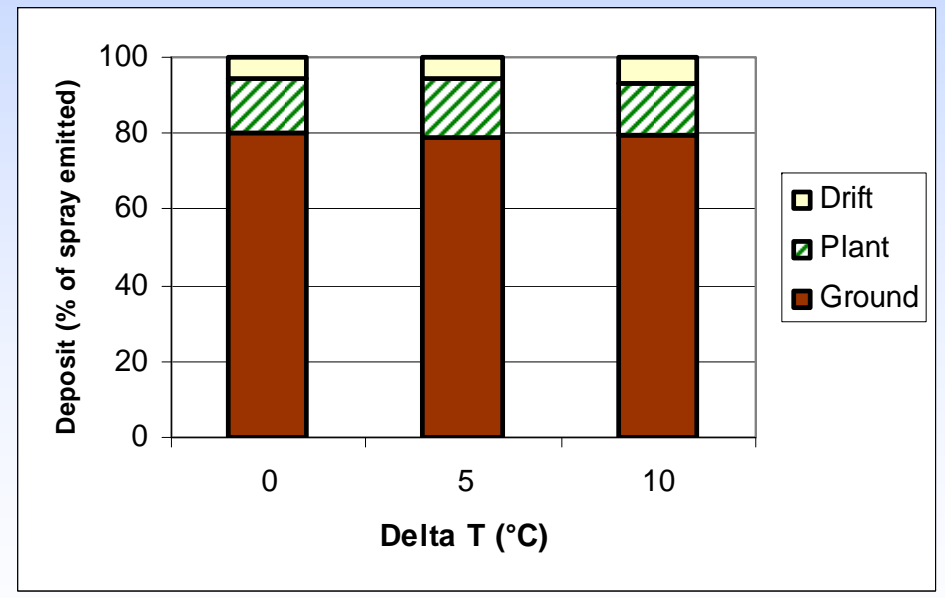
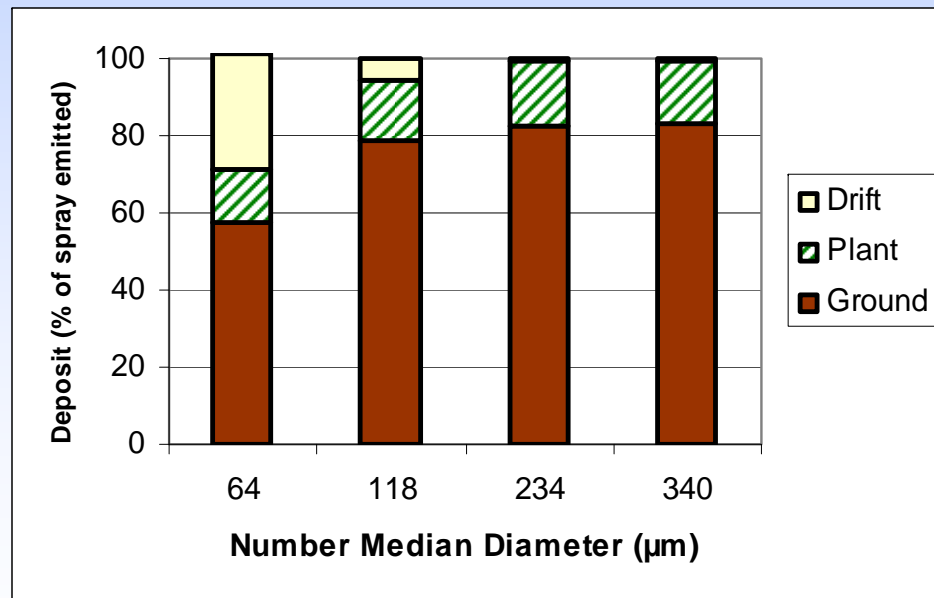
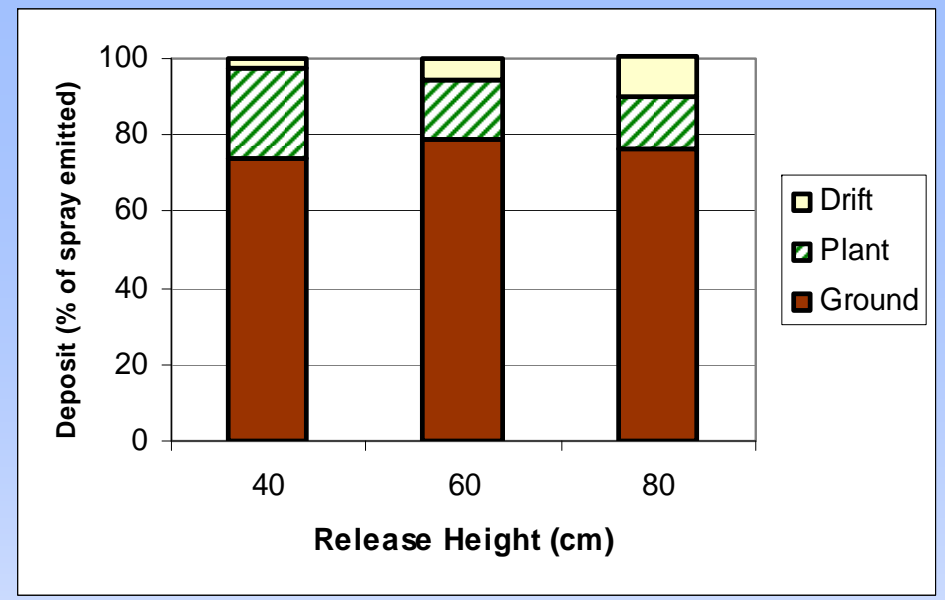
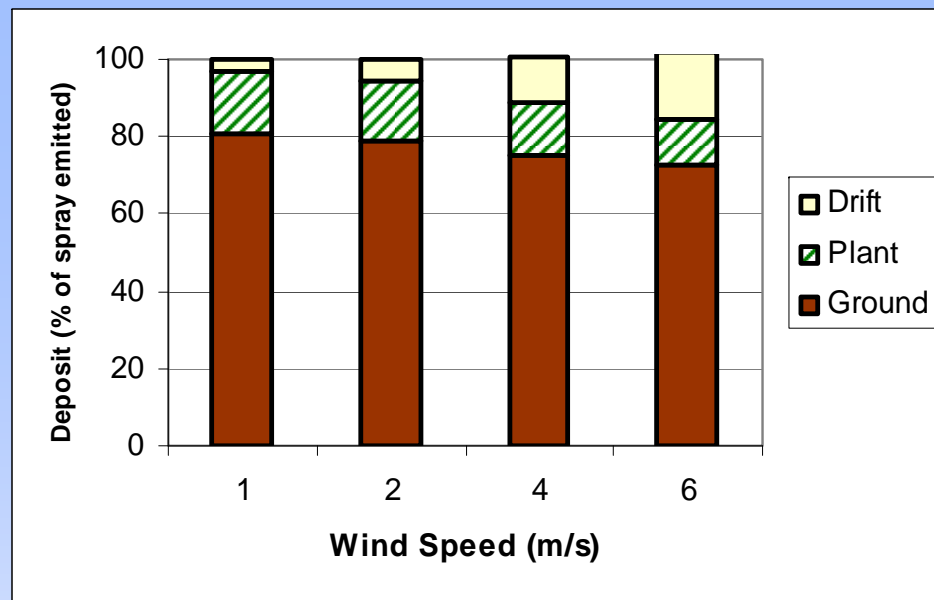


Effect of A.I. and Non-Volatile Rate on Modeled 2,4-D Drift

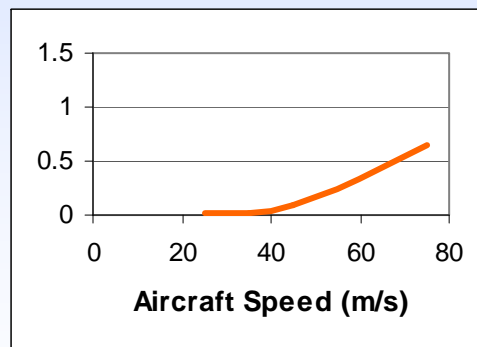
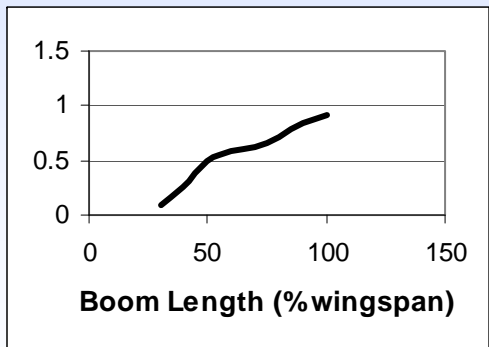
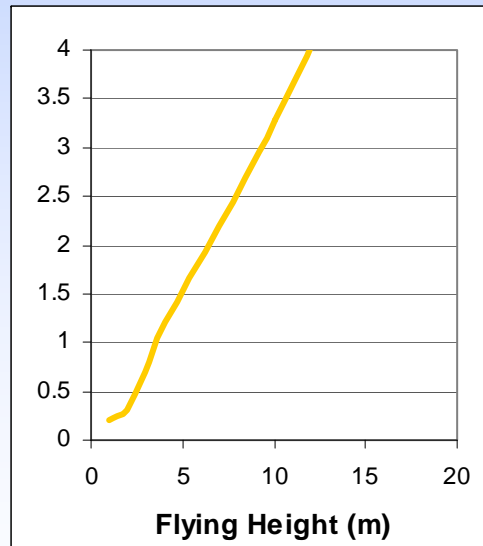
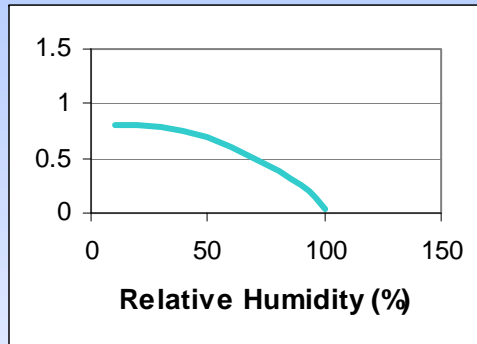
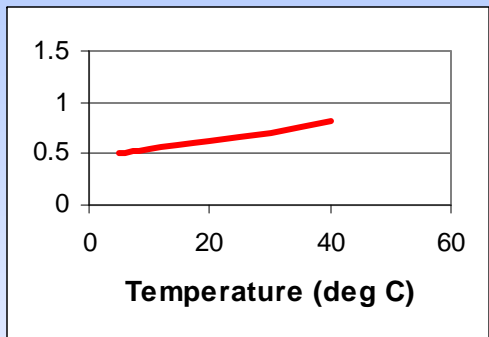
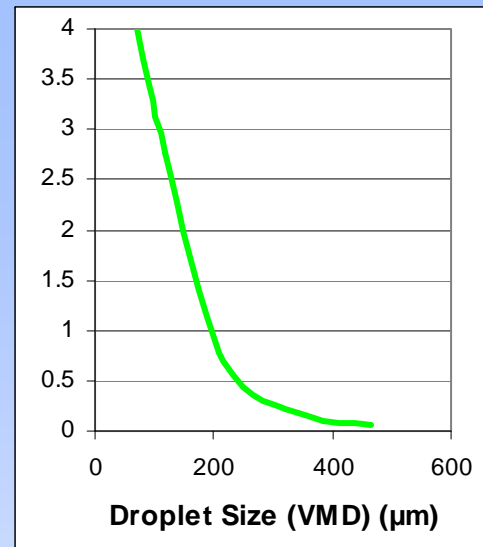
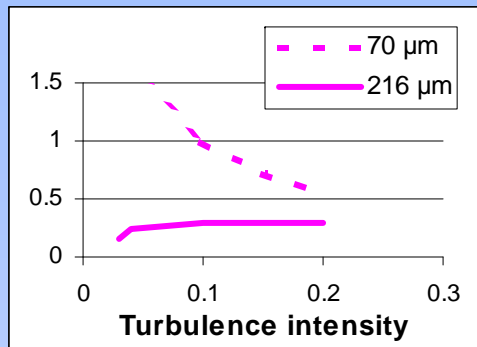
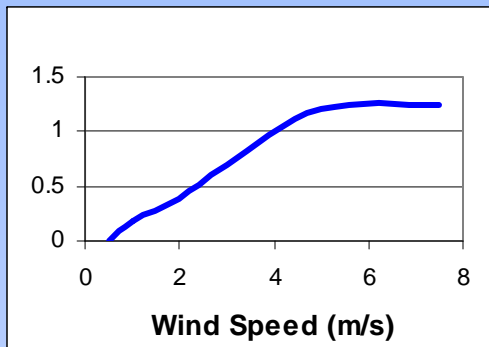


Effect of Non-Volatile Additives





Source: Gary Dorr, ARC Project, CPAS



AgDRIFT Sensitivity analysis - effect of application parameters on aircraft spray drift deposition at 500m downwind

Tier I Label Example

Take all necessary steps to reduce spray drift. Information on how to reduce spray drift can be found at (website and published sources to be developed).

Use nozzles and pressures to obtain larger droplet sizes whenever possible that will still achieve control. Further information on choosing nozzles for reduced spray drift can be found at (website and published sources to be developed)

DO NOT apply when wind speed is less than 3 and greater than 20 kilometres per hour or during weather conditions when surface temperature inversions can develop.

Tier II Label Examples

DO NOT apply when wind speed is less than 3 or more than 20 kilometres per hour at the application site.

DO NOT apply in orchards or vineyards when the wind speed is less than 3 or more than 20 kilometres per hour as measured 15 metres outside of the orchard/vineyard on the upwind side.

DO NOT direct the spray above trees or vines during airblast applications.

TURN OFF outward pointing nozzles at row ends and outer rows during airblast applications.

USE ONLY medium spray droplet classification according to ASAE S572 definition for standard nozzles.

USE ONLY coarse spray droplet classification according to ASAE S572 definition for standard nozzles.

DECLARED SPRAY DRIFT RISK AREA — Spray drift deposits that can cause residue violations in livestock feeding on pasture and forage can result from typical applications out to distances downwind from the application area as shown in the table below.

FOR AERIAL APPLICATION

Wind Speed Range at Time of Application	Downwind Risk Area
3 to 8 kilometres per hour	XXX metres
9 to 14 kilometres per hour	YYY metres
15 to 20 kilometres per hour	ZZZ metres

FOR GROUND APPLICATION

Wind Speed Range at Time of Application	Downwind Risk Area
3 to 20 kilometres per hour	WWW metres

DO NOT allow the risk area to extend onto neighbouring land without the written consent of the adjoining landholder. These deposits can persist for a period of at least xx weeks. Users should manage risk by moving livestock away from affected areas or by feeding livestock on residue free feed for at least yy weeks prior to slaughter.

Tier III Examples

MANDATORY NO-SPRAY ZONES

DO NOT apply when there are people, structures that people occupy or parks and recreation areas downwind from the application area and within the mandatory no-spray zones shown in the table below.

DO NOT apply when there are aquatic and wetland areas including aquacultural ponds or surface streams and rivers downwind from the application area and within the mandatory no-spray zone shown in the table.

DO NOT apply when there are livestock, pasture or any land that is producing feed for livestock downwind from the application area and within the mandatory no-spray zone shown in the table below.

DO NOT apply from aircraft unless the active boom width is less than or equal to 60% of the wingspan or 80% of the rotary blade length.

Questions?