IN-WIND AND CROSS-WIND IMPACTS ON SWATH PATTERNS

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FIELD STREAKING

IN-WIND VS CROSS-WIND
AND STRING VS WATER SENSITIVE PAPER

TESTING
- AirTractor 502B at 400 ft
- Straight streams, 40°, 25°
- In-wind and Cross-wind conditions
- String and Water Sensitive Paper for pattern testing

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SETUP

3 KEY POINTS
- Deposition and droplet size uniformity
- String versus Water Sensitive Paper (WSP)
- Setup needed for good resolution
IN-WIND VERSUS CROSS-WIND

TYPICAL PATTERN TESTING SETUP

• Reasons for In-wind setup:
  • Less impact of wind on spray pattern allowing for discerning pattern aberrations due to nozzle placement, structural interferences, etc.
  • Repeatable results, as compared to cross-wind effects.
  • Carries spray material back to sampling stations providing for good coverage.

TYPICAL PATTERN TESTING SETUP

ANTICIPATED EFFECTS OF CROSS-WIND

• Displaced material across the swath, perpendicular to the flight line,
• Shifting deposition rates on the upwind and downwind edges,
• Filling holes seen on in-wind patterns,
• Shifting droplet size of deposits across the swath – larger droplets move < smaller droplets
EFFECTIVE SWATH WIDTH
STRING VS WSP

Across all treatments
• String ESW ~ 65% > than WSP ESW

Why?

STRING ESW 75'
WSP ESW 65'
USING WSP FOR PATTERN TESTING

WSP PATTERNING

Number of cards and spacing to get sufficient resolution to adjust pattern.
Let’s compare patterns from multiple spacing intervals 1, 2, 3, 4, and 5 m spacing for same flight pass.

1 M 18 CARDS

2 M 14 CARDS

3 M 10 CARDS

4 M 8 CARDS
SUMMARY

- Nozzle to nozzle variation masked
- Loss of droplet size uniformity across the swath (large to small going downwind)

WSP vs Cross-Wind

- WSP ESW < String (typically)
- String “sees” the finer droplet on the outer edges

String vs WSP

- 1 m (too much?)
- 3+ m (too little?)
- 2 m = Just Right

WSP for Patterning

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