OPTIMIZING SWATH PATTERN CHARACTERISTICS FOR IMPROVED CONTROL OF THE PLANT PATHOGEN, BLACK SIGATOKA, IN COMMERCIAL CAVENDISH BANANA PLANTATIONS.

• BY UNDERSTANDING THE PLANT PATHOGEN EPIDEMIOLOGY & LEAF PHENOLOGY, IT WAS POSSIBLE TO DEFINE THE INFECTION PROCESS AND SO ADAPT THE SWATH PATTERN CHARACTERISTICS IN ORDER TO ACHIEVE OPTIMUM BIO AVAILABILITY OF THE FUNGICIDE’S ACTIVE INGREDIENTS.
BLACK SIGATOKA IS A PLANT PATHOGEN PANDEMIC ACROSS THE GLOBE- AFFECTING OVER 1,000,000 ACRES OF CAVENDISH BANANA PRODUCTION.
RIGHT NOW- ON AVERAGE X50 AERIAL SPRAY APPLICATIONS ARE MADE TO KEEP THE DISEASE IN- CHECK, IF NOT, THE BANANA PLANTATION CAN BE DESTROYED WITHIN A MATTER OF MONTHS.
BANANA SPRAYING
THE IMPACT OF BANANA LEAF PHENOLOGY: HOW DOES THE LEAF SHAPE INFLUENCE FUNGAL SPORE & SPRAY DROP CAPTURE?
SIGATOKA DISEASE EPIDEMIOLOGY - FORECASTING- ACTIVE SPORE TRAPS
DISEASE INFECTION PATTERN

WHY THESE SPECIFIC INFECTION PATTERNS

04/14/2015 09:44 AM
HOW IS IT POSSIBLE THAT THIS CYLINDRICAL; VERTICAL LEAF CAN CAPTURE FUNGAL ASCOSPORES-15 µm
CP11 nozzle @ 60°  
CP11 nozzle @ 30°  
CP11 nozzle @ 0°
SWATHKIT ANALYSIS:
DROPLET TECHNOLOGIES - USA
Turbo Thrush 32 CP11 TT VERTICAL: Droplet SIZE Distribution

- 0° Nozzle Angle
- 30° Nozzle Angle

Turbo Thrush 32 CP11 TT HORIZONTAL: Droplet SIZE Distribution

- 0° Nozzle Angle
- 30° Nozzle Angle
### DROP SIZE DISTRIBUTION

<table>
<thead>
<tr>
<th>NOZZLE ANGLE</th>
<th>% NO.</th>
<th>% VOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3</td>
<td>30</td>
</tr>
<tr>
<td>30</td>
<td>1.6</td>
<td>10</td>
</tr>
</tbody>
</table>

#### VERTICAL CYLINDERS

Drops > 400

<table>
<thead>
<tr>
<th>NOZZLE ANGLE</th>
<th>% NO.</th>
<th>% VOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>56</td>
<td>21</td>
</tr>
<tr>
<td>30</td>
<td>60</td>
<td>52</td>
</tr>
</tbody>
</table>

#### HORIZONTAL

Drops 100 - 300

<table>
<thead>
<tr>
<th>NOZZLE ANGLE</th>
<th>% NO.</th>
<th>% VOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>56</td>
<td>21</td>
</tr>
<tr>
<td>30</td>
<td>60</td>
<td>52</td>
</tr>
</tbody>
</table>
## VOLUME DISTRIBUTION

<table>
<thead>
<tr>
<th>NOZZLE ANGLE</th>
<th>VERTICAL CYLINDERS</th>
<th>% VOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>DROPS &lt; 300</td>
<td>47%</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>67%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NOZZLE ANGLE</th>
<th>HORIZONTAL</th>
<th>% VOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>DROPS &gt; 450</td>
<td>75%</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>40%</td>
</tr>
</tbody>
</table>
Droplet cumulative distribution on the Vertical and Horizontal Collector: CP11 nozzle- 0° vs. 30°

Turbo Thrush - CP11 - 4020 - 0°

Horizontal DN0.5 = 141 µm
DVO.5 = 495 µm

Vertical DN0.5 = 75 µm
DVO.5 = 261 µm

Turbo Thrush - CP11 - 4020 - 30°

Horizontal DN0.5 = 114 µm
DVO.5 = 294 µm

Vertical DN0.5 = 75 µm
DVO.5 = 261 µm
The results (R-Span) show quite clearly that a 30 Degree increase in nozzle orientation will has not caused any increase in the relative spectra spans so is NOT causing massive amounts of smaller drops!

In terms of increased drift potential, under the correct conditions there will be no increase in drift by changing the Nozzle orientation from 0 to 30 degrees with the CP11 nozzle.
For Fungicides with a Protectant mode of action use a CP11 TT nozzle @ 30°

For Systemic Fungicides in an O/W tank mix use a CP11 TT nozzle @ 0°
MICROEMULSION: HLD TECHNOLOGY