Technical Aspects of Crop Parameter Measurement

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## Definition of Terms

<table>
<thead>
<tr>
<th>Current Terms</th>
<th>Harmonized Terms</th>
</tr>
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<tbody>
<tr>
<td>Row spacing, Row distance</td>
<td>Row Spacing</td>
</tr>
<tr>
<td>Canopy Height/ Foliage Height/ Plant Foliage Height/ Height of Leafy Surface</td>
<td>Treated Canopy Height</td>
</tr>
<tr>
<td>Leaf Wall Application Area, Treated Leaf Wall Area</td>
<td>Treated Leaf Wall Area</td>
</tr>
<tr>
<td>Tree Height, Plant Height</td>
<td>Plant Height</td>
</tr>
<tr>
<td>Row sides applied</td>
<td>Row sides applied</td>
</tr>
<tr>
<td>Spacing within row, Plant Spacing</td>
<td>Spacing within row</td>
</tr>
<tr>
<td>Rows per plot</td>
<td>Rows per plot</td>
</tr>
</tbody>
</table>
Measurement of the Row spacing

Distance between the middles of planted rows
Classification of Growing Systems

Characteristics in ARM:

<table>
<thead>
<tr>
<th>Fruit Type</th>
<th>Typical Canopies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pome Fruits</td>
<td>Vertical Canopy</td>
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<tr>
<td>Stone Fruits</td>
<td>Vertical Canopy, V-Shape Canopy</td>
</tr>
<tr>
<td>Grapes</td>
<td>Vertical, Trellised, Goblet, Pergola/Tendone</td>
</tr>
</tbody>
</table>
Dose rate expression

Basic Formula LWA

Kg/or L per 10,000 m² Leaf Wall Area

Treated Leaf Wall Area TLWA (m²) = 2 x Treated Canopy Height (m) x \(\frac{\text{Ground Area (m}^2\text{)}}{\text{Row Spacing (m)}}\)
Standardized measurement of crop parameter
Measurement of the Treated Canopy Height-
lower limit

Subtract in general 50 cm for the untreated trunk
Measurement of the Treated Canopy Height-
upper limit

Average of highest leaves/brunches
Depends on the spray height of used equipment
Definition of the Treated Canopy Height

Height / Area which is actually sprayed
(can be < or > LWA, depending on application equipment)
Definition of the Treated Canopy Height

Area which is actually sprayed
(can be ≤ or ≥ LWA, depending on application equipment)
Definition of the Treated Canopy Height

Area which is actually sprayed
(can be < or > LWA, depending on application equipment)
Standardized measurement of crop parameter in Stone Fruits - Vertical shape

H = Treated Canopy Height

Only sprayed canopy height is relevant should reflect the height of treated area (trunk to be disregarded)
Average of 10 most representative trees of the trial is recorded

D = Row Spacing

Photo: B. Toews

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Standardized measurement of crop parameter
Stone Fruits - V-shape

H = Treated Canopy Height

D = Row Spacing

H = Treated Canopy Height

Only sprayed canopy height is relevant
should reflect the height of treated area (trunk to be disregarded)

D = Row Spacing

photo: Agroscope viti 2005/6
Standardized measurement of crop parameter in Grapes “Trellised”

H = Treated Canopy Height

- Only sprayed canopy height is relevant
- Should reflect the height of treated area (trunk to be disregarded)
- Average of 10 most representative grapevines of the trial is recorded

D = Row Spacing

photo: B. Toews
Standardized measurement of crop parameter in Grapes “Goblet”

H = Treated Canopy Height

Only sprayed canopy height is relevant should reflect the height of treated area (trunk to be disregarded)

Average of 10 most representative grapevines of the trial is recorded

D = Row Spacing

photo: DuPont
H1+H2 = Treated Canopy Height

D = Row Spacing

Only sprayed canopy height is relevant should reflect the height of treated area.

photo: M. Troisi
Standardized measurement of crop parameter in Grapes “Pergola”
Definition of the Treated Canopy Height
Early Growth Stages
Definition of the Treated Canopy Height
Early Growth Stages
Definition of the Treated Canopy Height
Early Growth Stages
Conclusion

- Standardized Measurement of crop parameter is really necessary
- SOP don’t cover every case
- Further discussion and agreement
- SOP needed for a reliable compilation of data