



Technical Aspects of Crop Parameter Measurement

R.-B. Toews ¹; J.-P. Huby ²; B. Pollmann ³; M. Teichmann ⁴; P. Schlotter ⁵; R. Wohlhauser ⁶

¹Bayer AG; ²Du Pont de Nemours S.A.S.; ³Adama Agriculture B.V.; ⁴BASF SE; ⁵Dow AgroSciences ; ⁶Syngenta Crop Protection AG

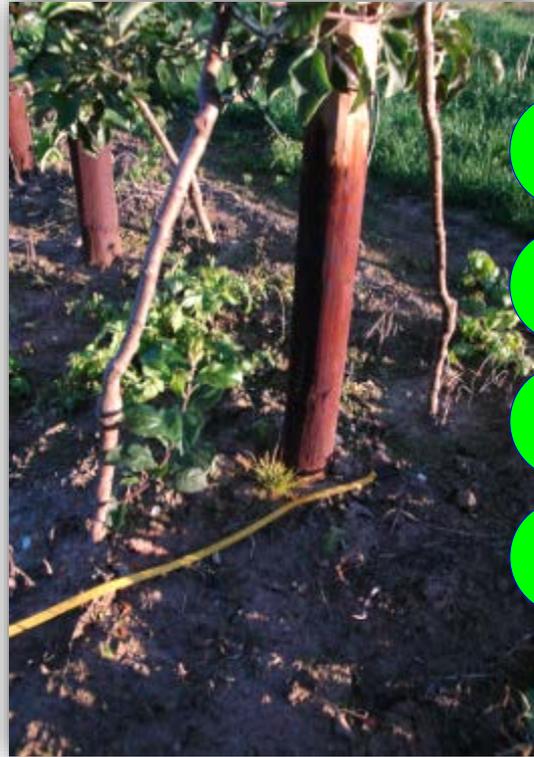
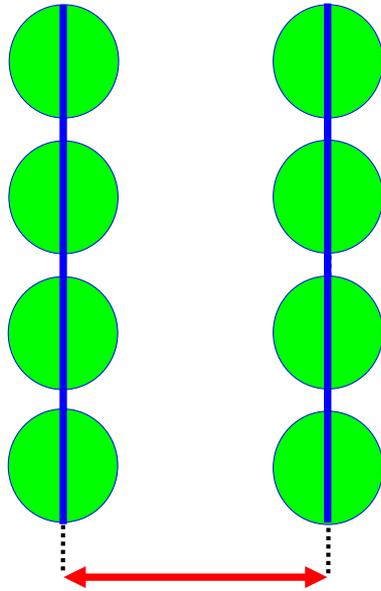


Definition of Terms

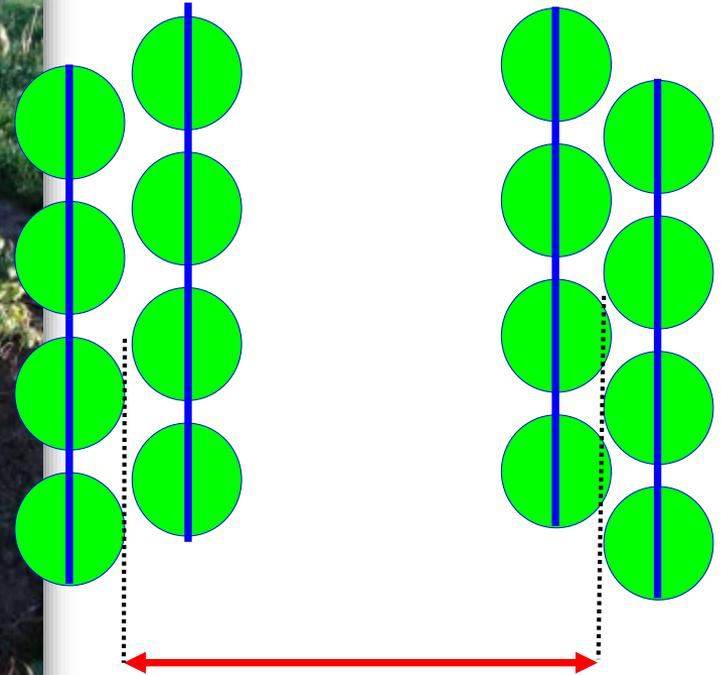
Current Terms	Harmonized Terms
Row spacing, Row distance	Row Spacing
Canopy Height/ Foliage Height/ Plant Foliage Height/ Height of Leafy Surface	Treated Canopy Height
Leaf Wall Application Area, Treated Leaf Wall Area	Treated Leaf Wall Area
Tree Height, Plant Height	Plant Height
Row sides applied	Row sides applied
Spacing within row, Plant Spacing	Spacing within row
Rows per plot	Rows per plot

Measurement of the Row spacing

Single Row



Double Row



Distance between the middles of planted rows

Classification of Growing Systems

Characteristics in ARM :

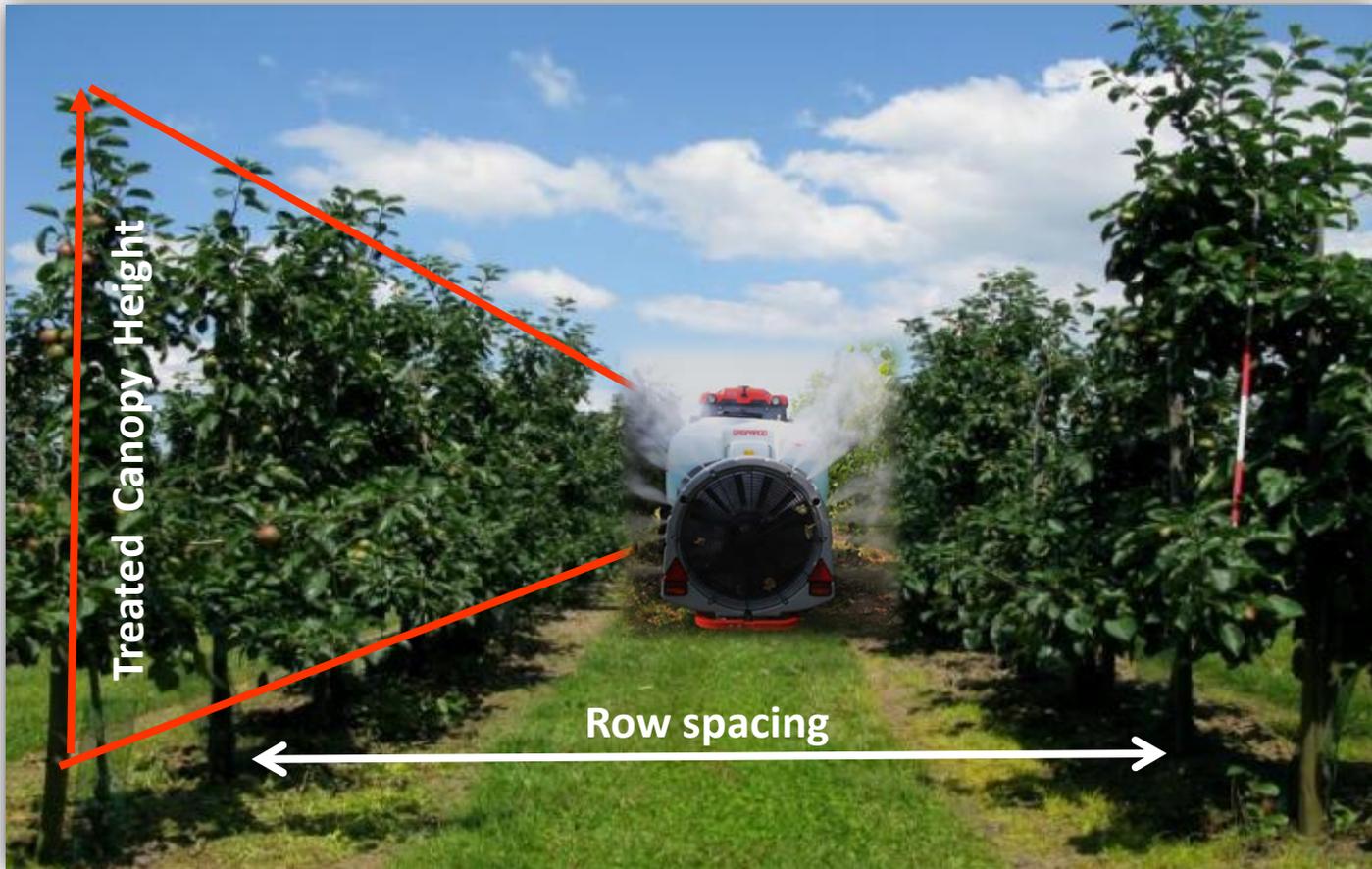
Pome Fruits:	Vertical Canopy
Stone Fruits:	Vertical Canopy V-Shape Canopy
Grapes:	Vertical Trellised Goblet Pergola/ Tendone

Dose rate expression

Basic Formula LWA

Kg/or L per 10.000 m² Leaf Wall Area

$$\text{Treated Leaf Wall Area TLWA (m}^2\text{)} = 2 \times \text{Treated Canopy Height (m)} \times \frac{\text{Ground Area (m}^2\text{)}}{\text{Row Spacing (m)}}$$



Standardized measurement of crop parameter



?



?



?

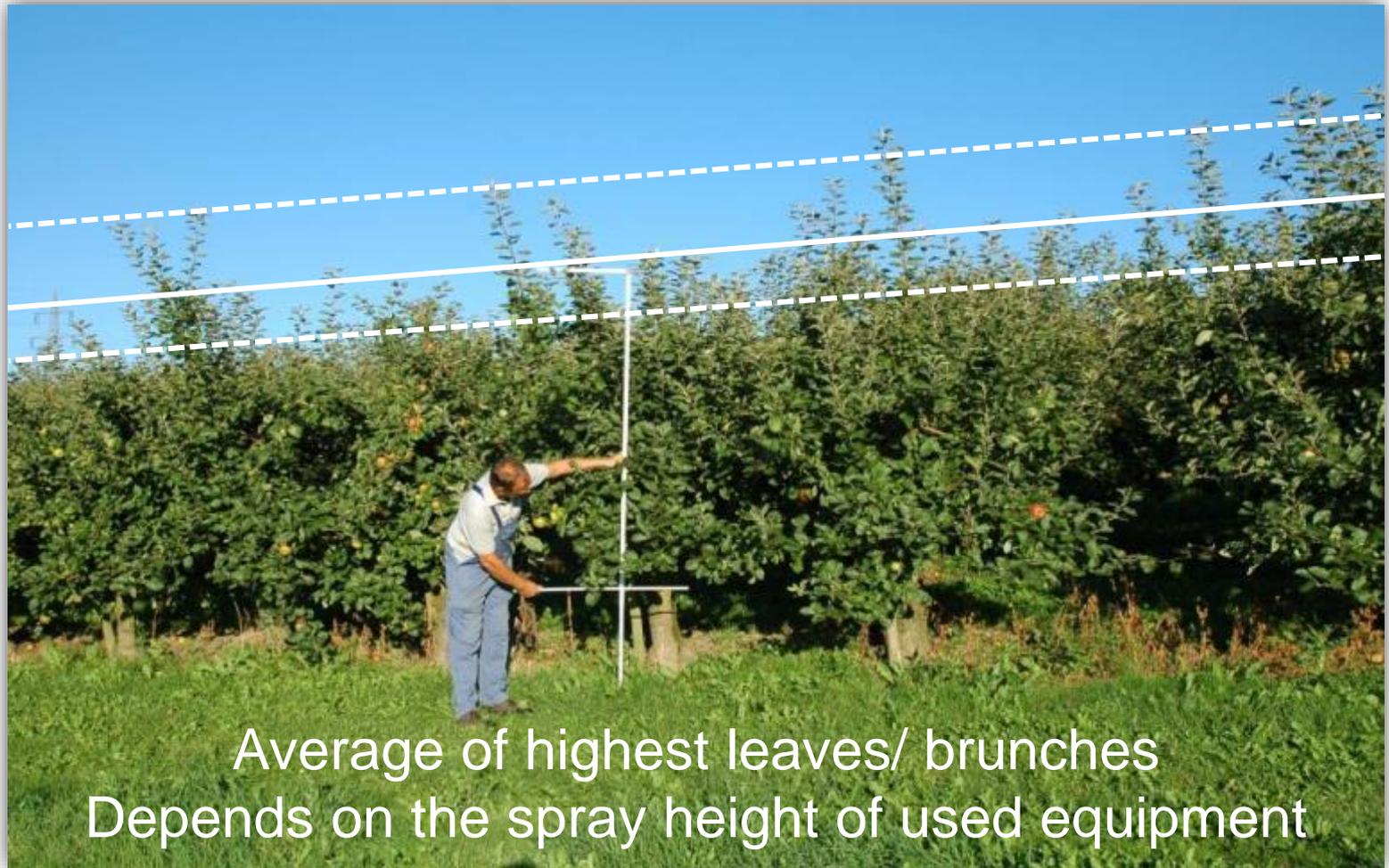


Measurement of the Treated Canopy Height- lower limit



Subtract in general 50 cm for the untreated trunk

Measurement of the Treated Canopy Height- upper limit



Definition of the Treated Canopy Height

Height / Area which is actually sprayed
(can be $<$ or $>$ LWA, depending on application equipment)



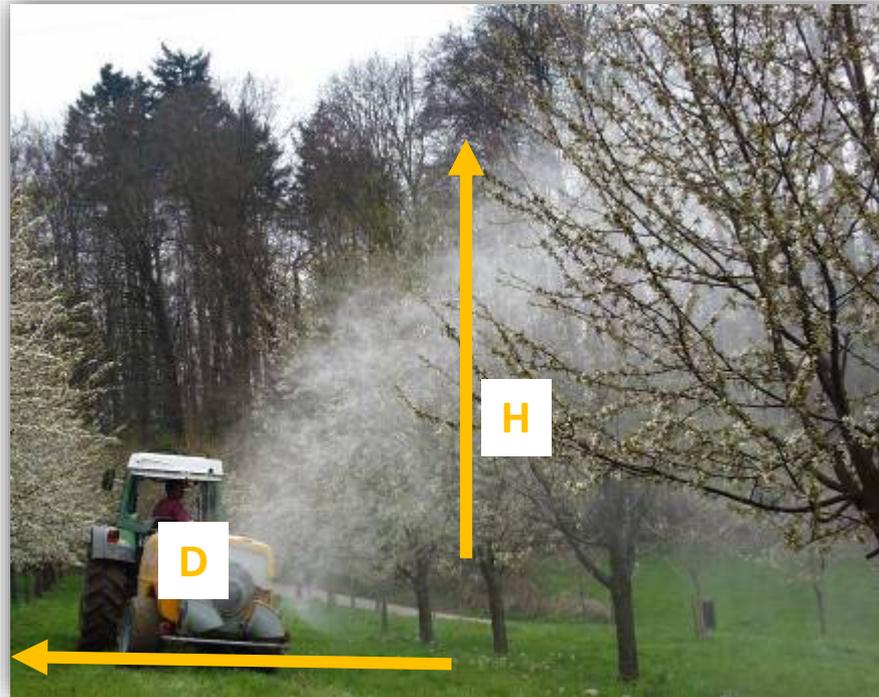
Definition of the Treated Canopy Height



Definition of the Treated Canopy Height



Standardized measurement of crop parameter in Stone Fruits - Vertical shape



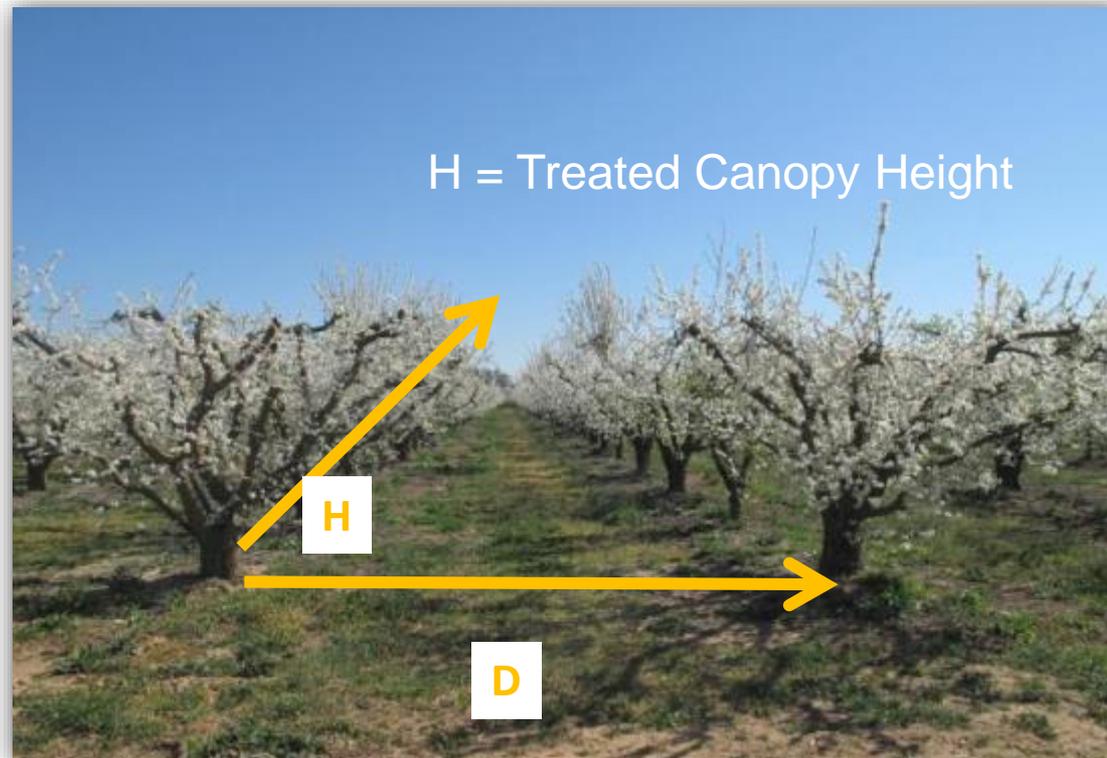
H = Treated Canopy Height

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

Standardized measurement of crop parameter Stone Fruits - V-shape



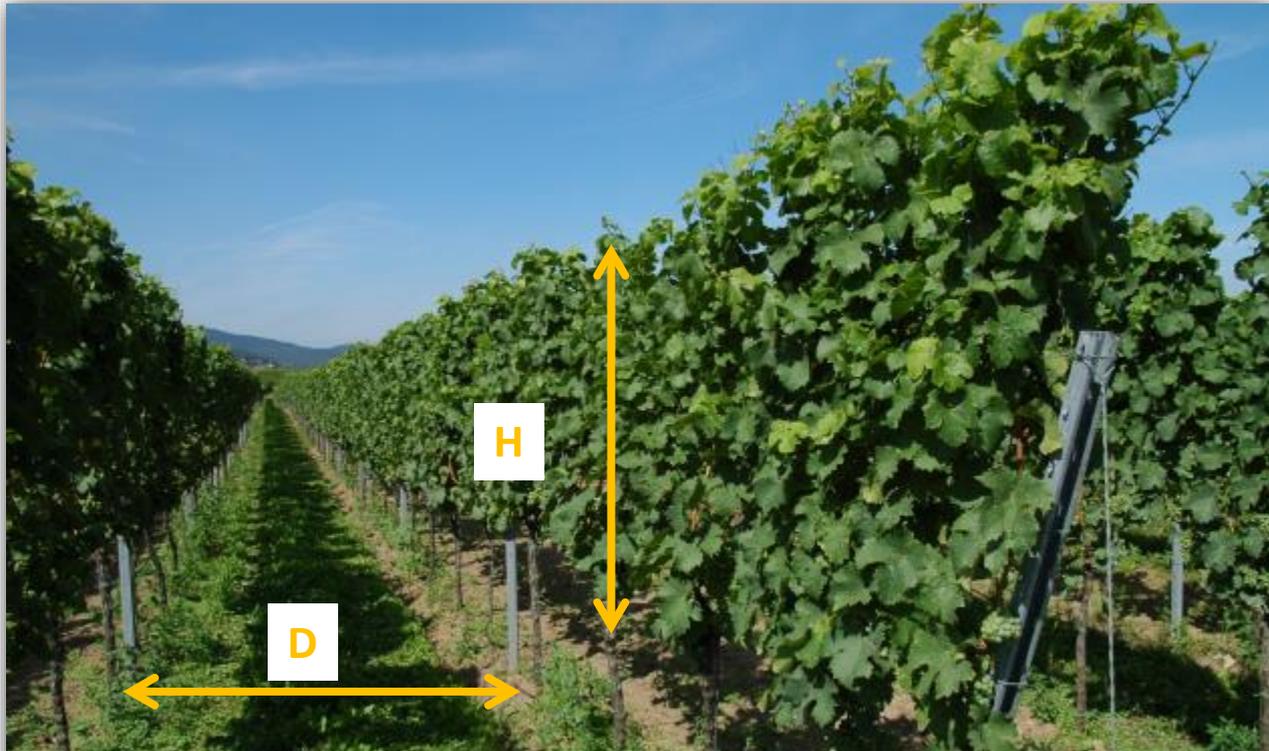
H = Treated Canopy Height

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”



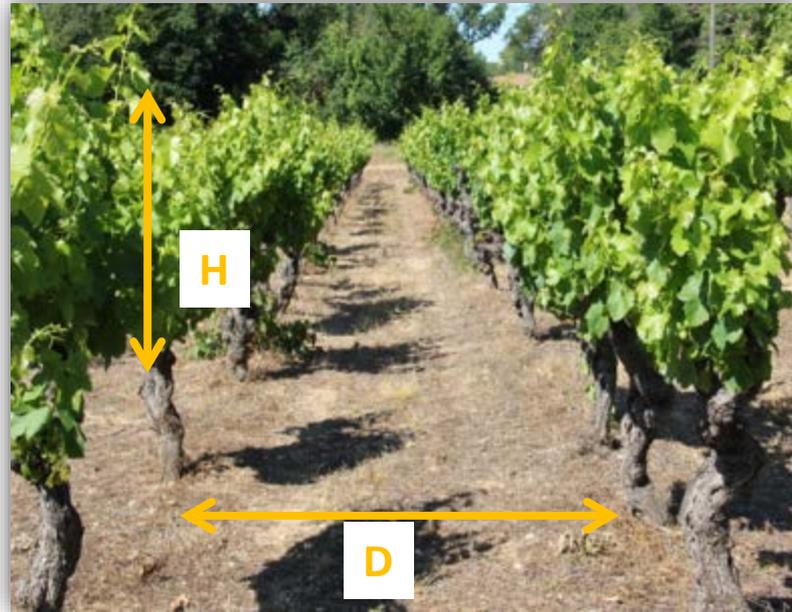
H = Treated Canopy Height

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”



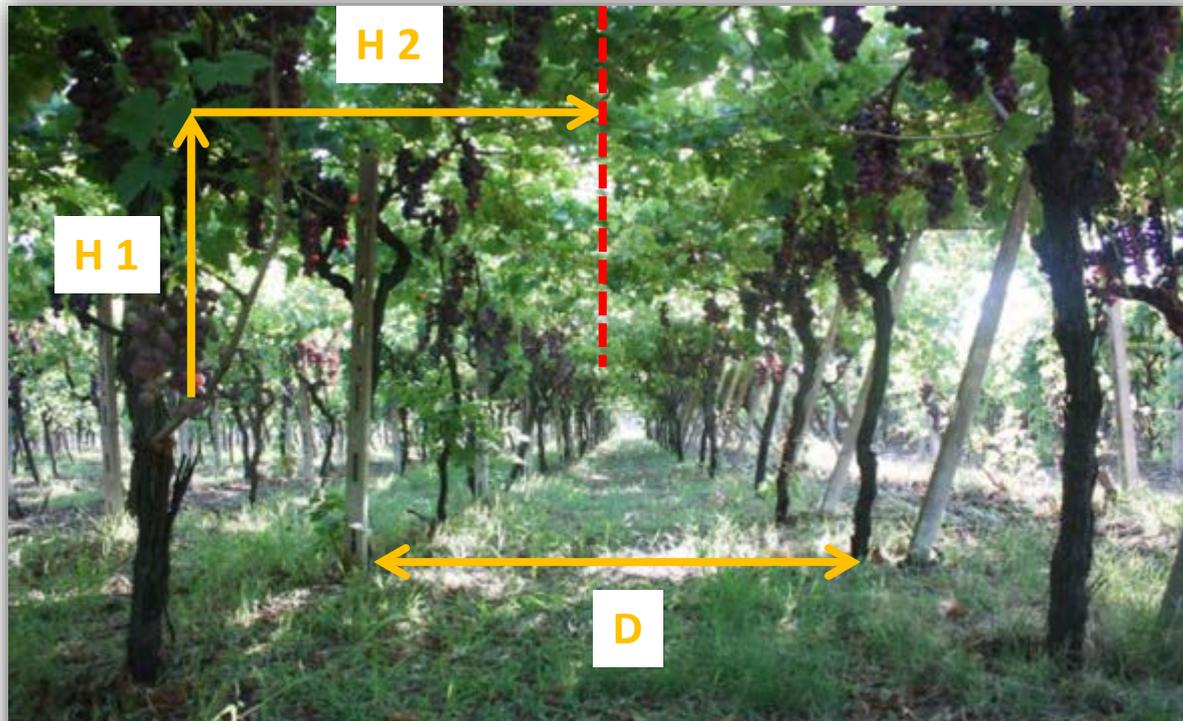
H = Treated Canopy Height

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

Standardized measurement of crop parameter in Grapes “Pergola”



$H1+H2$ = Treated Canopy Height

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

D = Row Spacing

photo: M.Troisi

Standardized measurement of crop parameter in Grapes “Pergola”



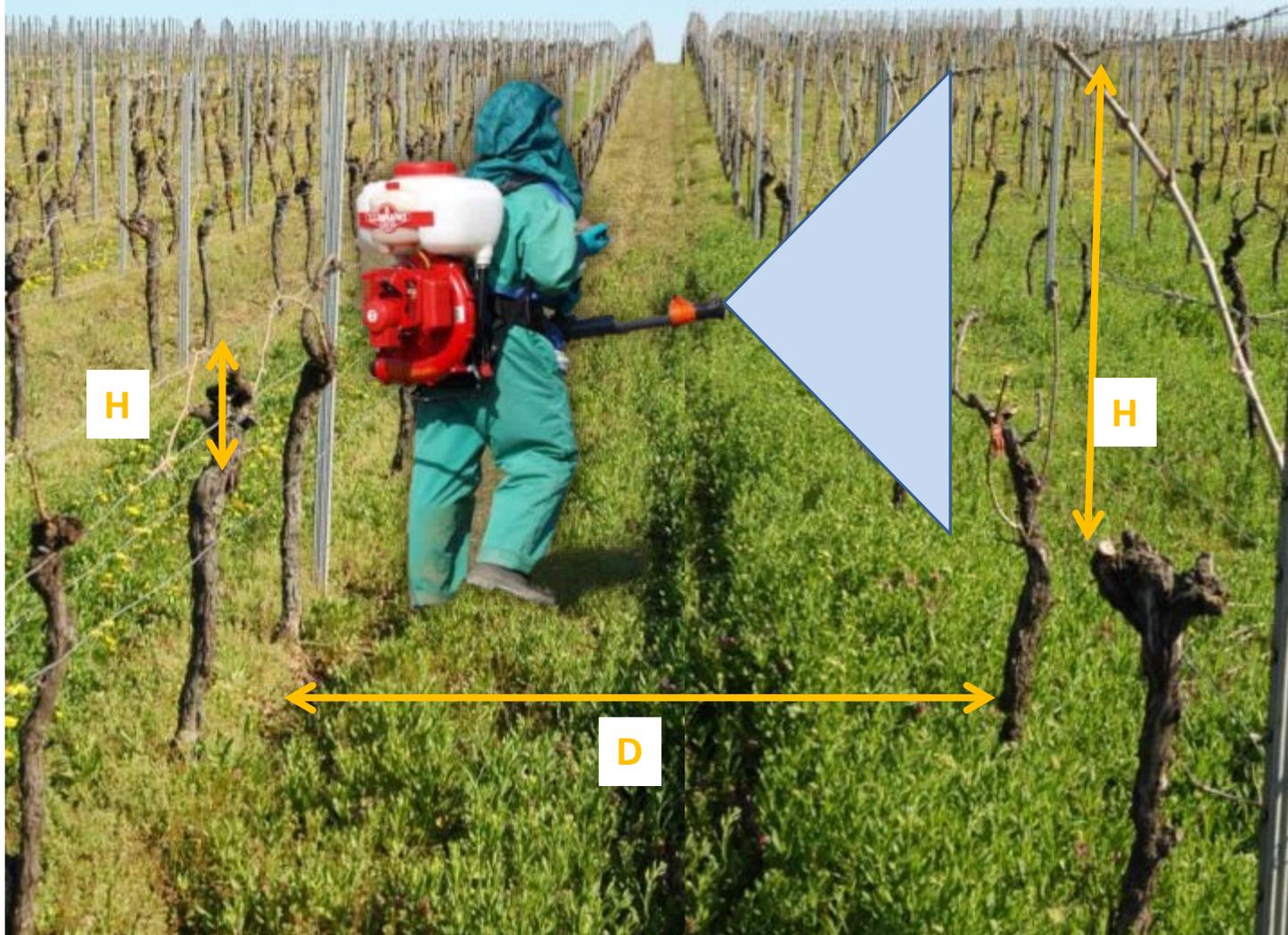
Definition of the Treated Canopy Height Early Growth Stages



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