

Application
Technology Center



Harmonisierung der Dosiereinheiten in Obst- und Weinbau- Aktueller Stand und Herausforderungen

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Science For A Better Life

Bayer

by: m L.ropScience

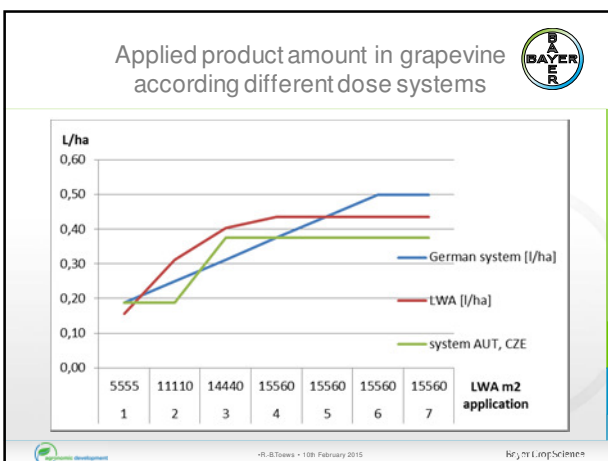
Aktuelle Dosiereinheiten für Raumkulturen in Europa

	Obst	Wein
Austria and Germany	Kg/ha/m CH, max. kg/ha	% Eichhorn, max. kg/ha
Belgium	Kg o. L /10.000m ² LWA, max.kg o. l /ha	Kg o. L /10.000m ² LWA, max.kg o. l /ha
France	Kg/ha	Kg/ha
Netherlands	%, max. sprayvol / ha	---
Switzerland	Kg/10'000 m ³ TRV	%, max. sprayvol / ha
Norway	Kg/100m Reihenlänge	---
Greece, Italy, Portugal; Spain	%, max. sprayvol / ha	%, max. sprayvol / ha


CH: Canopy Height LWA: Leaf Wall Area TRV: Tree Row Volume

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Considered crop parameter of dose expression units



	Field Surface	Canopy Height	Row spacing	Plant width
G /Ha	✓	-	-	-
G/Ha/mch	✓	✓	-	-
G/10000 m ² LWA	✓	✓	✓	-



 -R.-B.Toews - 10th February 2015 

"3-D Crop Working Group"




LWA implemented in EMEA trial work for pome fruits and grapes



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Ron Wohlhauser	Syngenta
Frank Meier-Runge	Syngenta
Martin Teichmann	BASF
Peter Schlotter	Dow Agrosience
Jean-Pierre Huby	Du Pont
Robert Matysiak	Du Pont

 -R.-B.Toews - 10th February 2015 

LWA implementation in industry trial work



- Syngenta, BASF, DuPont and Bayer CropScience have implemented the LWA concept into EMEA trial work
- For all new compounds in pome fruits and in grapes
- First stone fruit trials are expressed in LWA
- BASF, DuPont and Bayer are using the Belgium conversion factors to transfer
- First LWA dossiers are submitted by SYN and DOW, BASF is in progress

 -LWA status -R.-B.Toews - 26th February 2015 

Dose rate expression in high crops Formula for LWA



$$\text{Leaf Wall Area (LWA) m}^2 = 2 \times \text{Canopy height (m)} \times \frac{\text{ground area (m}^2\text{)}}{\text{row distance (m)}}$$



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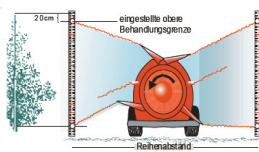
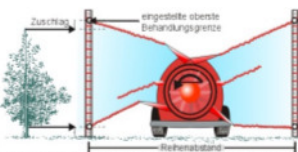
for, not L. imp. Science

Adjustment of Spray height- calculation base fro product amount ?



Kronenhöhe, Zuschlag von 20cm

Kronenhöhe, Abschlag von 20cm



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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
Tree Height	Tree Height
Row sides applied	Row sides applied
Spacing within row, Plant Spacing	Spacing within row
Rows per plot	Rows per plot



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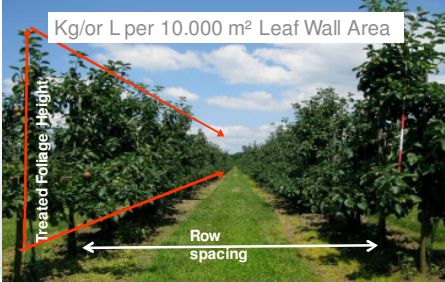
Leaf Wall Area Basic Formula





Ground Area (m²)


Leaf Wall Area (LWA) m² = 2 x Treated Canopy Height (m) x Row Spacing (m)


Row Spacing (m)








Measurement of Treated Canopy Height- upper limit




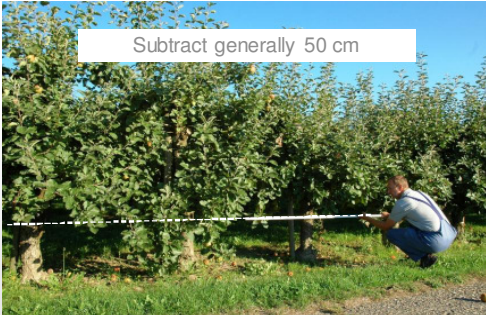


Average of highest leaves/ branches
Depends on the spray height of used equipment,
see slide 10 and 11




• SOP LWA - R. S. Toews 9th February 2015



Measurement of Treated Canopy Height- lower limit





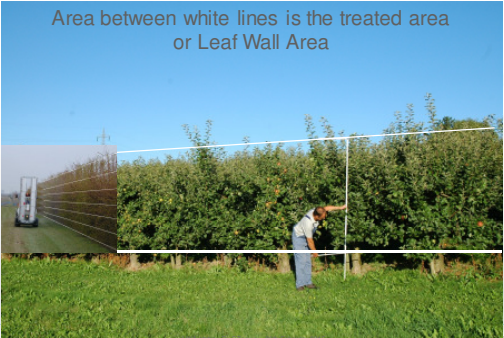
Subtract generally 50 cm




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Definition of the Treated Canopy Height


Area between white lines is the treated area or Leaf Wall Area






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Definition of Treated Canopy Height



Area between white lines is the Treated Canopy Height




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Classification of Growing Systems

Characteristics in scout:

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


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Standardized measurement of crop parameters in Pome Fruits - Vertical Canopy

H = Treated Canopy Height
D = Row Spacing

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

photo: B. Toews

Standardized measurement of crop parameters in Stone Fruits - V-shape

H = Treated Foliage Height
D = Row Spacing

W = Width Medium Crown
D = Row Spacing

Only sprayed canopy height is relevant should reflect the height of treated area (trunk to be disregarded)
 Average on 10 most representative grapevines of the trial is recorded
 clear definition of measurement will follow

photo: Agroscope vitil 2005/6

Standardized measurement of crop parameters in Grapes "Vertical" and "Trellised"

Trellised
H = Treated Canopy Height
D = Row Spacing

Vertical
H = Treated Canopy Height
D = Row Spacing

Standardized measurement of crop parameters 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 on 10 most representative grapevines of the trial is recorded

D = Row Spacing

photo: B. Toews

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Standardized measurement of crop parameters 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 on 10 most representative grapevines of the trial is recorded

D = Row Spacing

photo: Agroscope vit 2005/6

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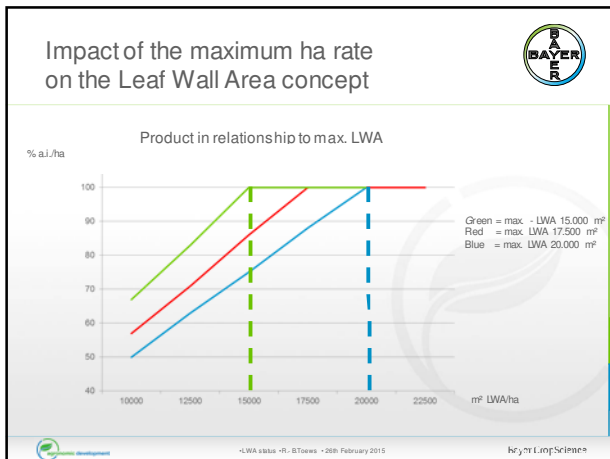
Standardized measurement of crop parameters in Grapes "Pergola"

H1+H2 = Treated Canopy Height
Only sprayed canopy height is relevant, should reflect the height of treated area (trunk to be disregarded)
Average on 10 most representative grapevines of the trial is recorded

D = Row Spacing

photo: M. Troisi

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Critical Aspects

Assumption: Effective dose is 600 g/10,000 m² LWA

The critical GAP rate is 1080 g/ha ground. (based on factor 1.8)

Belgium conversion factor is 1.5, the label will be 900 g/ha ground standard orchard

Austria assumes a conversion factor of 1.7, the label will be 1020 g/ha ground


Conversion factor are not defined homogeneously across Europe.


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LWA-model Demands

- Max LWA of 15,000 m² in pome and stone fruits
- Max LWA of 18,000 m² seems to be acceptable in Germany due to traditionally high dose rates
- Max LWA of 15,000 m² in grapes
- Survey of cropping systems in grapes and their share in the market
- Survey of LWA in pome and stone fruits and their share

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