Upcoming changes of dose expression for PPP into kg or L/ha leaf wall area (LWA) considered for the evaluation and registration of grapevine uses in Germany
Grapevine training system in DE

... to be considered when changing the dose expression system

- In DE grapevine is cane-trained using vertical trelling structure („Guyot“ system) in single rows → > 95%
- Leaf wall area (LWA) changes during the season

Fig. 1 Guyot system at BBCH 13 (3rd leaves unfolded)

Fig. 2: Guyot system at BBCH 89 (ripe for harvest)
Current dose expression in grapevine uses “factor system”

Application rates according to BBCH-scale per ha

- Basic rate: 0.6 kg/ha (ground area)
- BBCH 61: 2 x basic rate: 1.2 kg/ha (ground area)
- BBCH 71: 3 x basic rate: 1.8 kg/ha (ground area)
- BBCH 75: 4 x basic rate: 2.4 kg/ha (ground area)
Change of dose expression for already authorised uses, for uses of renewal, or only for uses of new applications?

 already authorised uses/ renewal applications:

- „old“ efficacy studies without having data of crop structures acc. to EPPO standard PP1/239(2) Dose expression for PPP

 new applications (new products):

- efficacy studies with data of crop structures acc. to EPPO standard PP1/239(2) Dose expression for PPP
## Change of dose expression

### Current appl. rates recalculated on LWA

<table>
<thead>
<tr>
<th>current “factor system“/ BBCH</th>
<th>appl. rate [kg/ha ground]</th>
<th>LWA [m²/ha ground]</th>
<th>recalculated appl. rate [kg/ha LWA]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic rate</td>
<td>0.6</td>
<td>4,200</td>
<td>1.43</td>
</tr>
<tr>
<td>BBCH 61</td>
<td>1.2</td>
<td>12,650</td>
<td>0.95</td>
</tr>
<tr>
<td>BBCH 71</td>
<td>1.8</td>
<td>15,000</td>
<td>1.20</td>
</tr>
<tr>
<td>BBCH 75</td>
<td>2.4</td>
<td>18,000</td>
<td>1.33</td>
</tr>
</tbody>
</table>

No change for already authorised uses!
Applications (renewals) without data of crop structures acc. to EPPO standard PP1/239(2) – which recalculated rate shall be used for renewal authorisation?

<table>
<thead>
<tr>
<th>current &quot;factor system&quot;/BBCH</th>
<th>appl. rate [kg/ha ground]</th>
<th>LWA [m²/ha ground]</th>
<th>recalculated appl. rate [kg/ha LWA]</th>
<th>appl. rate used in renewal application [kg/ha LWA]</th>
<th>recalculated rates from renewal appl. [kg/ha ground]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic rate</td>
<td>0.6</td>
<td>4,200</td>
<td>1.43</td>
<td>1.33</td>
<td>1.43</td>
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<td>0.5</td>
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<td>0.6</td>
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<td>0.95</td>
<td>1.33</td>
<td>1.43</td>
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<td>1.7</td>
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<td></td>
<td></td>
<td>1.8</td>
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<td>BBCH 71</td>
<td>1.8</td>
<td>15,000</td>
<td>1.20</td>
<td>1.33</td>
<td>1.43</td>
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<td></td>
<td>2.0</td>
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<td></td>
<td></td>
<td></td>
<td>2.1</td>
</tr>
<tr>
<td>BBCH 75</td>
<td>2.4</td>
<td>18,000</td>
<td>1.33</td>
<td>1.33</td>
<td>1.43</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>2.4</td>
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<td>2.6 !!!</td>
</tr>
</tbody>
</table>

Using recalculated value from max. appl. rate/ha ground area at max. LWA
Decisions about what uses should be changed:

- already authorised uses: No
- renewals: Yes, with the help of a LWA standard
- new applications: Yes, with the help of data of crop structures acc. to EPPO standard PP1/239(2)
Needed?

Yes, but which ...
## Crop structure standard

### Max. appl. rate/ha ground area in reference to different sizes of LWA in typical vineyards in DE – effect in practice

<table>
<thead>
<tr>
<th>max. appl. rate [kg/ha ground]</th>
<th>LWA [m²/ha ground]</th>
<th>recalculated appl. rate [kg/ha LWA]</th>
<th>recalculated appl. rate for high LWA situation (18,000 m² LWA/ha ground) [kg/ha ground]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>18,000 (high)</td>
<td>0.56</td>
<td>1.0</td>
</tr>
<tr>
<td>1.0</td>
<td>15,000 (medium)</td>
<td>0.67</td>
<td>1.2</td>
</tr>
<tr>
<td>1.0</td>
<td>12,000 (low)</td>
<td>0.83</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Using low LWA as the standard it results in too high appl. rates per ha ground area when treating vineyards with high LWA!

Using realistic worst case situation as LWA standard ?!
What are crop standards for?

- for recalculation of doses when not having data of crop structures and/or (treated) LWA ("old" efficacy studies)

- comparability of appl. rates/ha ground area between different countries/ within a zone

- realistic evaluation/authorisation
Crop structure standard

Advantages of harmonized standard(s)

• ease evaluation process
• ease zonal authorisation process
• ease mutual recognition

at least knowledge of crop structures of other countries/zones must be available

Disadvantages of not having harmonized standard(s)

• vice versa to advantages
Necessary information of dose in the GAP

Different types are necessary:

- For the risk assessment (max. application rates per ha ground area)
- Efficacy evaluators (rate/ ha LWA + max. rates/ ha ground area)
- Dose for the farmer (rate/ ha LWA + max. rates/ ha ground area)
Necessary information of dose in the GAP

GAP after changing dose expression

crop: grapevine (VITVI)
target: powdery mildew (UNCINE)
local of application: open field
max. number of applications
  in the use: 5
  in the crop: 5
appl. technique: spraying

application rate: 1.33 kg/10,000 m² LWA in
  200 - 500 L water/10,000 m² LWA

max. single appl. rate: 2.4 kg/ha (ground area)

max. total dose in the crop: 9.0 kg/ha (ground area)

appl. rate per 10,000 m² LWA as an additional information in the GAP
What is still to be done?

- EPPO workshop, Vienna, Oktober 2016
- Definition of standards (national or zonally harmonized?)
- Implementation concept to be published (incl. LWA development during the season acc. to BBCH) for changing dose expression with timelines
- Concepts for other high growing crops will follow
Thank you very much for your attention!

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