EPPO WG pome fruits

19th Oct 2016
EPPO WG pome fruits

- 26 experts
- NZ 1, CZ 16, SZ 9
- Reg. Authorizies 6
- Research Institutes 5
- Industry 6
- Consultant 9
Glossary of terms

- Important to have clear definitions
- See tracking changes of glossary of terms
Measurement of parameters in the field

• TODAY
  • Actual treated height
  • Actual treated length
  • Actual spray volume
  • Actual spray concentration
  • Nb of treated rows, nb of treated sides
  • Conversion in /ha LWA
  • Sprayer type – plus additional parameter
  • Nozzle brand, type, seize and model
  • Pressure at the manometer
  • Description of the vertical boom (nb of nozzles, spacing of the nozzle)
  • BBCH growth of the crop
  • Distance between tows
  • Distance in the rows

• FUTURE
  • Spray of the entire canopy/ or not: exclude trunk, spray the bunch zone
  • Describe the target of the protected plant (see above)
  • Speed of travel of sprayers
  • Quality and uniformity of spray coverage – long term objective
  • Crop porosity, leaf canopy density – long term objective
  • LAI – long term objective
  • Maximum height of the plant, height and mid-with of the treated canopy- see the proposed SOP or appendix EPPO 239
  • Pruning and training system – see the proposed SOP or appendix EPPO 239
  • Arrangement in in rows: single, double or single plants/trees
Examples of field trial reports

- How do you calculate the dose/LWA when the dose is given per ha ground?
  - Need all parameters for perfect conversion
- How to calculate plot size in the individual trial reports and the dose to be applied per plot? (calculation based upon dose/ha and dose/10,000 m² LWA)
  - to answer this question you need treated height, the length of the plot and width of the plot
- Does the spray volume need to be adjusted to the LWA (since it is predominantly depending on the application technique)?
  - Two expressions: spray volume/LWA + spray volume/ha
- Which dose expression may currently be the best choice for a harmonized European evaluation procedure for pome fruit?
  - Recording of the parameters needed to calculate Treated LWA and recording of spray volume are allowing the delivery of all other dose expressions:
    - g/ha for cGAP (used in tox, fate, ecotox risk assessment)
    - % concentration
    - Recording of the parameters needed to calculate TTRV(width) could be useful for future (e.g. CH)
Example of data reported in BAD

<table>
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<tr>
<th>Country</th>
<th>GEP (Yes/No)</th>
<th>EPPO Zone</th>
<th>Crop</th>
<th>Variety</th>
<th>Distance [m]</th>
<th>Plant Dens. [plants per ha]</th>
<th>CH [m]</th>
<th>LWA_{calc} [m^2/ha]</th>
<th>Dose rate [L/ha LWA] (10 000 m^2)</th>
<th>Dose rate [L/ha CH]</th>
<th>No. of appl.</th>
<th>BBCH at appl.</th>
<th>Water Vol. [L/ha]</th>
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Conversion between models of dose expression for new developments

- Fix rate (rate/ha)
- Canopy height (kg ha\(^{-1}\) m\(^{-1}\))
- Concentration (%) (spray volume is needed)

Agreed on Conversion factors and TLWA/EPPO Zone
- Residues – max dose/ha
- Efficacy – adjust EPPO - define TLWA/Eppo Zone (Industry + Institute data)
Industry Data - LWA PER EPPO ZONE and BBCH (apple & pear)

One data point per application, data from 2009 to 2015

Classification: INTERNAL USE ONLY
## Industry Data - LWA PER EPPO ZONE and BBCH (cherry & plum)

One data point per application, data from 2009 to 2016

### LWA/ground (m²/ha)

<table>
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<th>BBCH</th>
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Classification: INTERNAL USE ONLY
Future questions

- Does the LWA approach fit to orchards with plant in double rows?  Yes
- Does the LWA approach fit to orchards with isolated trees?  Not always

- If harmonized approaches for crops such as pome fruits, grapevine, citrus fruits and/or vegetables are agreed is it possible to extrapolate to other crops?
- For pome fruit to stone fruits it can be applied, but probable not the best solution. Fits for young orchards than for the old. Should be reflected while preparing the new guideline.

- How should trials be assessed when “home and garden” is applied only?  When assessing home and garden only, the LWA is not relevant.

- Would be acceptable to have more than one dose expression on your label -yes
Conclusion

- Agreed Glossary of terms
- Listing of parameters today and in the future
- **Agreed on dose expression in TLWA (Treated Leaf Wall Area)** with dose also expressed as rate/ha (cGAP) and following additional information is necessary:
  - Spray volume to convert to other systems

- dRR/BAD: tabular summary of presented trials is necessary. Example BASF summarized 45 trials
- Guideline to measure all type of parameter of crops

- Excell tool for conversion between different dose expression reviewed for member states post registration
Actions

- Update the glossary of terms with input of all WGs
- Include the listing of required parameters in the EPPO standard
- Establish an overview of the types of plantations/ training systems (pictures to explain how to measure the parameters) – to be added to the EPPO standard
- Make minor adaptations of the EXCEL conversions sheets (include spray volume) – CF factors are useful as post-registration adjustments
- Compile and analyse industry and research institute data in a database for dose adjustments
- Continue to collect parameters of other crops: stone fruits
Conversion between models of dose expression
For historical trials

- Concentration (%)
  - (kg/L)
- Liquid volume (L ha\(^{-1}\))
- Crop area
  - (kg ha\(^{-1}\))
- Tree Row Volume
  - (kg ha\(^{-1}\)) / (m\(^3\) ha\(^{-1}\))
- 1 / Treated height (m)
- Canopy height
  - (kg ha\(^{-1}\) m\(^{-1}\))
- Distance between rows (m) / 2
- Leaf Wall Area
  - (kg ha\(^{-1}\)) / (10^3 m\(^2\) LWA ha\(^{-1}\))

Canopy height (m) * Canopy width (m) / Distance between rows (m)
Conversion between models of dose expression

DOSA3D (L ha\(^{-1}\))

- **Crop factor (CF)**
  - BBCH / LAI / Leafiness (m\(^2\)/m\(^3\))
- **Spraying factor (SF)**
  - Efficiency

Concentration (%)
(%) (kg/L)

Liquid volume (L ha\(^{-1}\))

Crop area
(kg ha\(^{-1}\))

1 / Canopy height (m)

Canopy height (kg ha\(^{-1}\) m\(^{-1}\))

Distance between rows (m) / 2

2 / Canopy width (m)

Tree Row Volume
(kg ha\(^{-1}\)) / (m\(^3\) ha\(^{-1}\))

Leaf Wall Area
(kg ha\(^{-1}\)) / (10\(^9\) m\(^2\) LWA ha\(^{-1}\))

1 / Canopy height (m)

Canopy height (kg ha\(^{-1}\) m\(^{-1}\))

Distance between rows (m) / 2

2 / Canopy width (m)