

Mass trapping - should it be included within scope of biopesticide regulations?

Garry Pease



Outline

Mass trapping - should it be included within scope of biopesticide regulations?

- Semiochemical uses / plant protection
- Applicable guidance
- Applied uses – exposure based comparison (monitoring / mass trapping)
- In or out of scope? – grey areas for decision making.

Semiochemical uses

Low load lures and trapping devices



Monitoring

- Semiochemical lure (low load) and trapping device
- Typical densities 1-2 (20) / Ha
- Purpose - lure and trap individuals for monitoring population density and activity



Mass trapping

- Semiochemical lure (low load) and trapping device
- Typical density 8 – 50 / Ha
- Purpose - lure and remove individuals for population control
 - Simple concept: trap as many insects as you can
 - Key is to attract and trap females



Semiochemical uses

Low load lures and trapping devices

Lure & kill

- Semiochemical lure (low load) and killing agent
- Typical density – closer to mass trapping than monitoring
- Purpose - lure and remove individuals – population control
 - Again a simple concept: bring the insects to the insecticide and not the insecticide to the insect
 - Key is to attract females





Semiochemical uses

Higher load dispensing device / formulation

Mating disruption

- Semiochemical emitting device (comparatively higher loading)
- Typical density range 250 – 1000
- Purpose - interrupt adult mating cycle for population control

Passive retrievable examples used



Semiochemicals guidance

Existing and new draft guidance

- Existing guidance (OECD 12)

Guidance for Registration Requirements for Pheromones and Other Semiochemicals Used for Arthropod Pest Control, (OECD Environment, Health and Safety Publications, Series on Pesticides No.12, (2002)

- Due for an update - experience gained
- Development of new Guidance Document (GD)

*GUIDANCE DOCUMENT ON SEMIOCHEMICAL ACTIVE SUBSTANCES USED IN PLANT PROTECTION PRODUCTS
SANTE/12815/2014 (2015)*

- Under review
- Possibility to replace OECD 12 will be explored



Semiochemicals guidance



What's within scope? – REGULATION (EC) No 1107/2009

- SANTE/12815/2014 - applicable to monitoring / mass trapping
– differentiation

“semiochemicals used in traps to attract only for the purposes of monitoring arthropods are exempt from registration. E.g. a few traps deployed over a unit area for monitoring purposes are exempt from regulation”

“but if the same traps are deployed in large numbers for the purposes of reducing population numbers then they are considered within the scope of the legislation”

- Differentiation
 - Due to trap density
 - Purpose of use – arthropod control or monitoring



Semiochemicals guidance



What's within scope? – REGULATION (EC) No 1107/2009

- SANTE/12815/2014 - applicable to lure & kill

“Semiochemicals, including pheromones are not considered as plant protection product active substances when they are used to only attract insects which subsequently receive a lethal dose of an insecticide or are killed by other means.”



- Semiochemical element of a L & K
 - No Annex I listing required
 - Exempt from risk assessment process
- Regardless of dose and trap density
- “killed by other means” – basic substances / physical M of A



Semiochemicals guidance



What's within scope? – REGULATION (EC) No 1107/2009

- SANTE/12815/2014 - applicable to mating disruption (MD)
- Already established MD systems are within scope
- Used to control crop pest
- Higher density / higher dosing
- Potentially subject to risk assessment
- Products will likely fall into low risk category under new guidance



Semiochemicals guidance

Assessing the risk – (OECD 12)



Comparison with natural background levels (NBL) – OECD 12

A threshold of 375 g ai/ha/yr. is comparable to naturally occurring emissions of pheromones during an infestation, it is expected to have no impact on public health, non-target organisms, or the environment.



- Reasoned case for reduced/no risk assessment data

EFSA review – SCLP's (2014)

“reliable observations or measurements of natural background levels were not provided”



- Data gap set
 - to address NBL's with field measurements
 - Demonstrate uses as PPP's does not exceed NBL's



Semiochemicals guidance

Assessing the risk – (SANTE 12815/2014) DRAFT

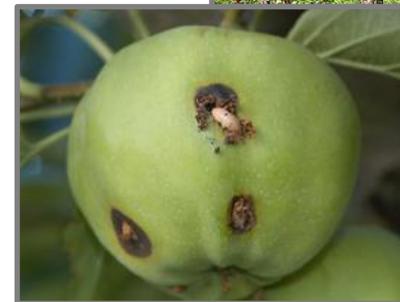
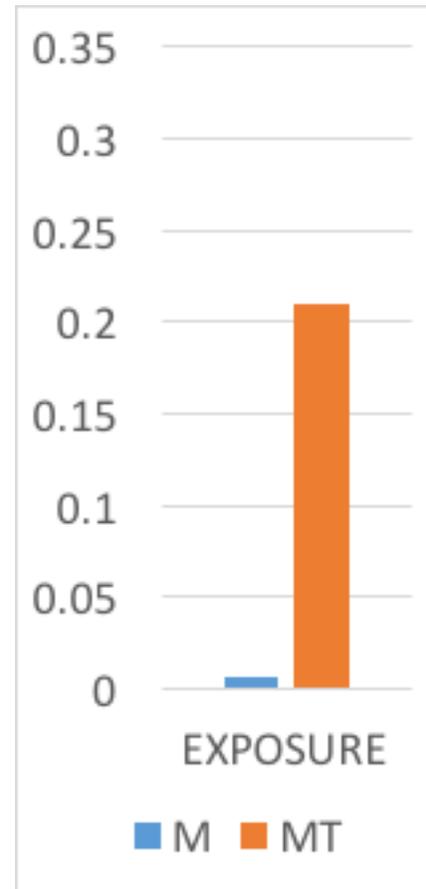
- Continues to compare with natural background levels
- Methods for determination based on field collected data
 - Estimation of natural exposure levels - high density population
 - Modelling to predict the final concentrations derived from the application of semiochemical based plant protection products
- Low risk category
 - within one order of magnitude to natural exposure levels
 - *“No further information is needed with the exception of identity, characterisation and analytical methods”*



Comparative uses

Codling Moth – *Cydia pomonella* in pomme fruit

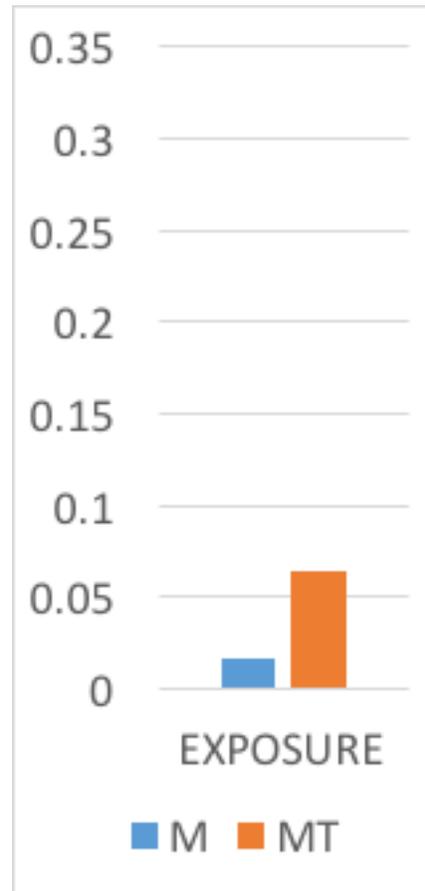
- Monitoring 1 trap /Ha
- Mass trapping 5 - 35 /Ha
- 1 mg loading
- 4-6 applications
- Exposure (g / Ha / Yr.) worst case
- Monitoring exposure – 0.006
- Mass trapping exposure – 0.21
- MD typical exposure – 200 -300
 - (M x 50, 000, MT x 1429)



Comparative uses

Cotton leafworm - *Spodoptera littoralis* in field water cress

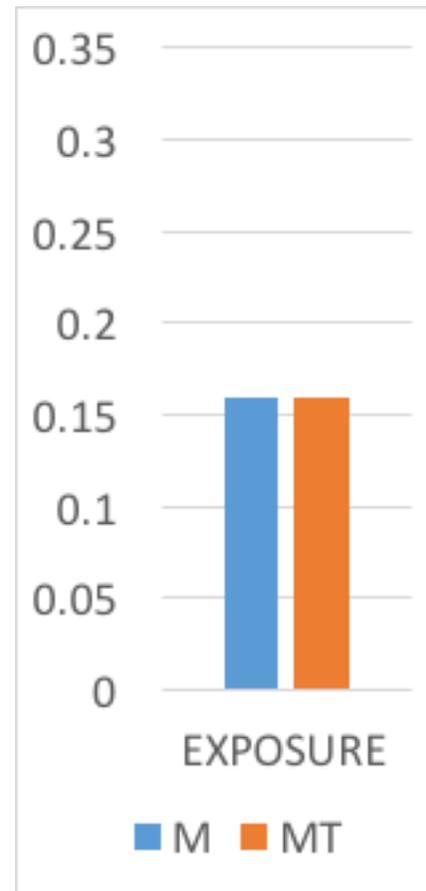
- Monitoring 1-2 traps /Ha
- Mass trapping 8 /Ha
- 1 mg loading
- 8 applications
- Exposure (g / Ha / Yr.) worst case
- Monitoring exposure – 0.016
- Mass trapping exposure – 0.064
- MD exposure – 7-10
 - (M x 625, MT x 156)



Comparative uses

Cotton leafworm - *Spodoptera littoralis* in protected crop

- Monitoring 1-2 / 1000 m²
- Mass trapping 2 / 1000 m²
- Loading 1 mg
- 8 applications
- Exposure (g / Ha / Yr.) worst case
- Monitoring exposure – 0.16
- Mass trapping exposure – 0.16
- MD exposure – 7-10
 - (M x 31, MT x 31)

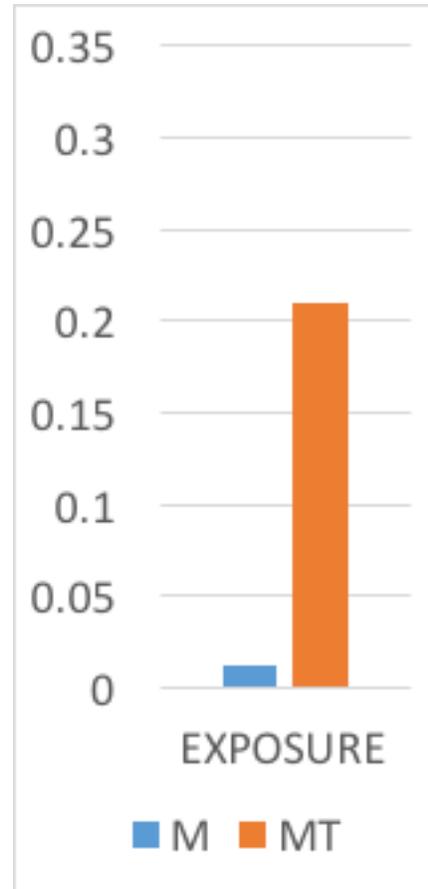




Comparative uses

Tomato leaf miner - *Tuta absoluta* field tomatoes

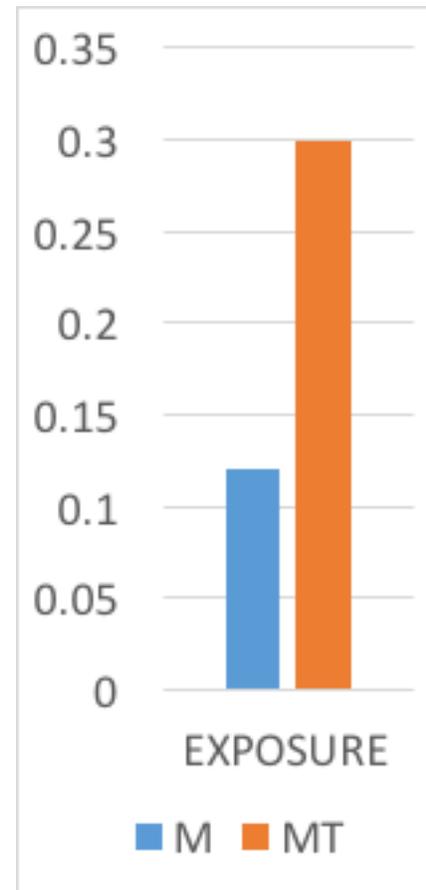
- Monitoring 1-2 Ha
- Mass trapping 25 - 35/Ha
- 0.5 – 3.0 mg loading
- 2-5 applications (4 month crop)
- Exposure (g / Ha / Yr.) worst case
- Monitoring exposure – 0.012
- Mass trapping exposure – 0.21



Comparative uses

Tomato leaf miner - *Tuta absoluta* protected tomatoes

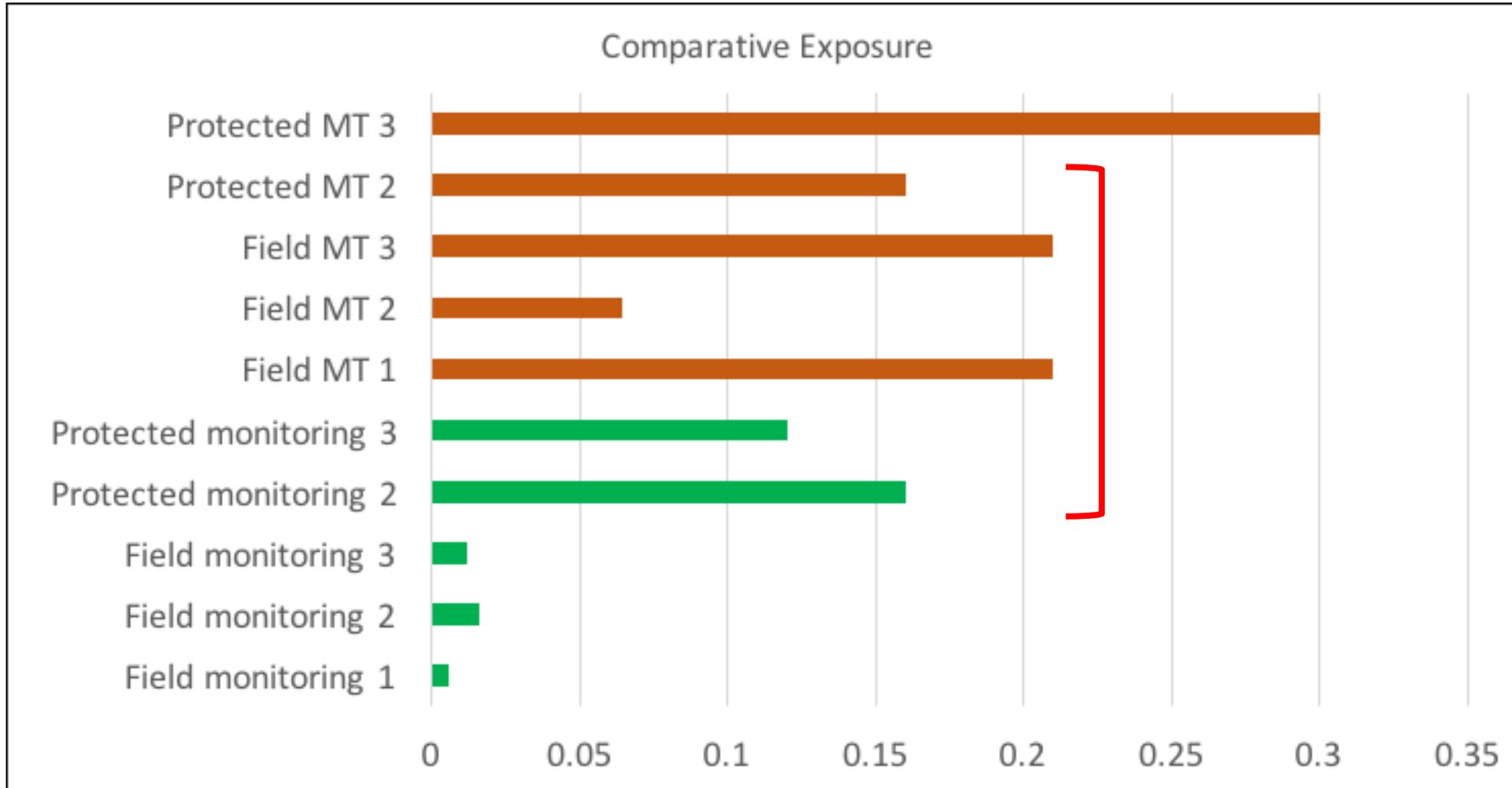
- Monitoring 1 – 20/ Ha
- Mass trapping 20 - 50/Ha
- 0.5 – 3.0 mg loading
- 2-7 applications (6 month crop)
- Exposure (g / Ha / Yr.) worst case
- Monitoring exposure – 0.12
- Mass trapping exposure – 0.3



Comparative uses - summary



Monitoring vs. Mass trapping - field and protected crop exposure

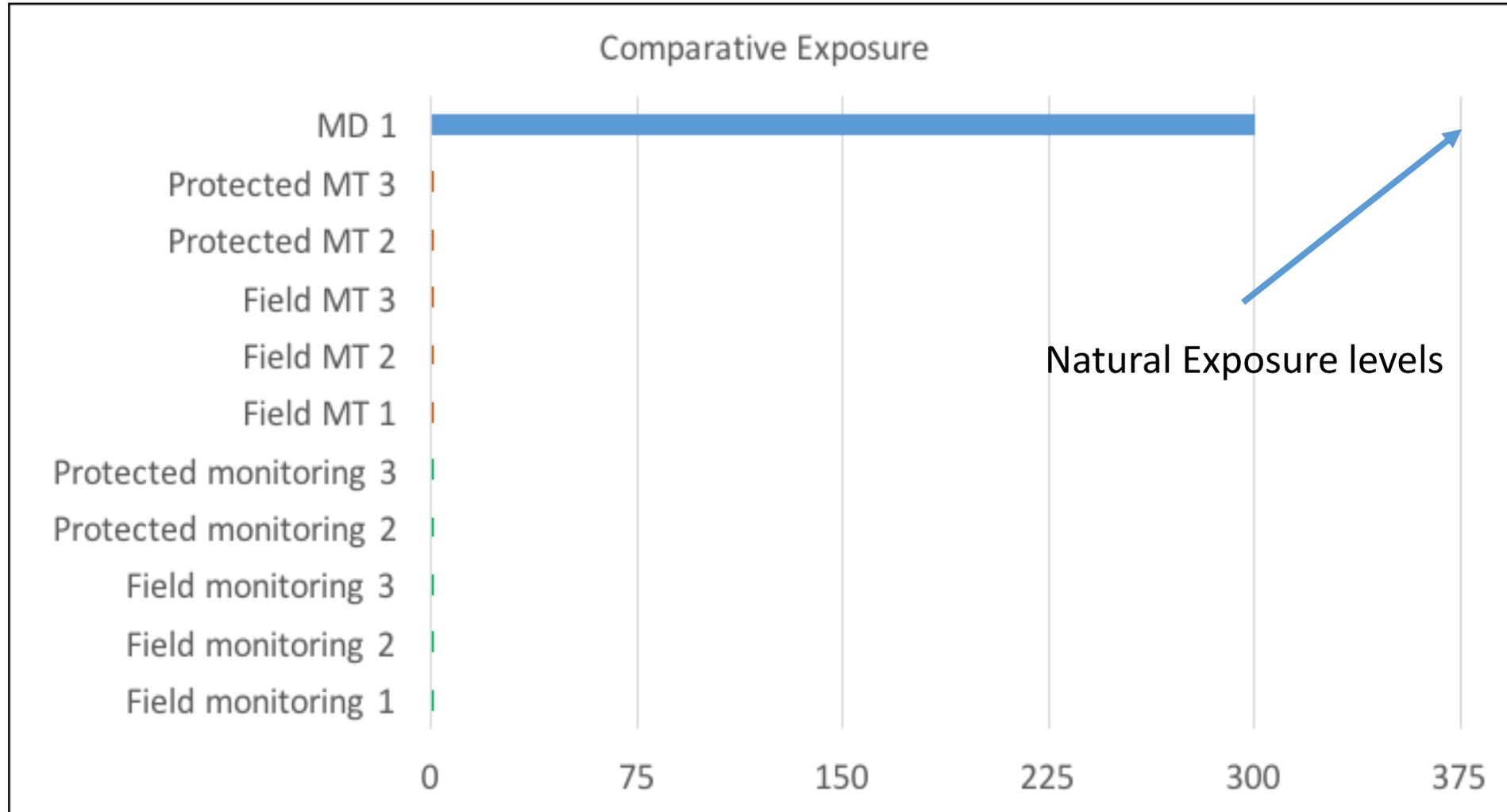


Range
0.006 – 0.3
G / Ha / Yr.

Comparative uses - summary



Monitoring / Mass trapping vs. MD – should there be a concern?





One more example

Semiochemicals use - food processing / storage

Regulation

- Biocides BPR
- Overlap with PPP – similar approach

Practical application

- Detailed monitoring essential – treatment timing and as audit trail / due diligence.
- Monitoring is used at higher trap densities (up to equiv. 100 / Ha) 2 X Mass trapping in agri.
- Population control– can be first line of defence e.g. organic warehouses (mass trapping).



Biocidal product or exempt?



Amateur uses - home and Garden

Should it be regulated in the same way?

- Same traps / lures as commercial use
- Same density as monitoring (1 trap)
- Same exposure levels to monitoring
- Same reduction on population
- Between definitions (scope)



CODLING MOTH

Control the moths organically by hanging codling moth traps in the tree-one trap per 5 trees

Safe, effective, organic, chemical free control

“for the purposes of monitoring arthropods”

“deployed in large numbers for the purposes of reducing population numbers”

PLUMB MOTH

Lures plum moths, the major cause of maggot damage in plums, gages and damsons.

Protects up to 3 trees





In or out of scope?

The grey areas for decision making

Exposure based differences

- Relatively similar for M, MT & LK and extremely low compared to MD
 - Trap density – potential for overlap between uses
 - Particularly for protected crop and amateur use products
- M, MT & LK – all significantly less than natural exposure levels

Use differences – definition based

- Monitoring with small trap density (out) or controlling with higher trap density (in)
- Overlap with monitoring and mass trapping due to trap densities
- Mass trapping at low trap densities doesn't fit either?
- By definition why then regulate mass trapping and not lure & kill?





In summary

- Estimating risk remains largely based on comparison with natural exposure levels which will now be quantifiable and comparable with product data.
- Little change to what's in and out of scope for regulation
- Several grey areas exist when trying to understand the inclusion of mass trapping as in scope.
- Exposure / risk is extremely low for semiochemicals used for monitoring / mass trapping and L & K.
- Should in scope decision making be more risk based than use based?
- There seems no clear justification or explanation for mass trapping being within scope – should we remove it??

Special thanks;

Owen Jones - Lisk & Jones Consultants Ltd.

...for sharing thoughts and data.

Thanks for listening!

