Interreg
North-West Europe
MiteControl
European Regional Development Fund

EUROPEAN UNION

Water trap protocol for red mite monitoring

The province of Antwerp
EXPERIMENTAL POULTRY CENTRE

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Trapping

Material

- Large electric wire (3mm large ; copper + plastic sheathing)

  /!\ a thinner cable reduces or eliminates the effectiveness of the trap

- Sample bottle (40 or 60 ml)
- Water
- Surfactant (fragrance-free liquid dishwasher for example)
- Plastic piercing tool

Trap fabrication

- Make seven 3mm diameter holes in the plastic lid of the vial
- Insert the wire through a central hole in such a way to hang it from any farm structure
- Fill to the 4/5ths he vial with water
- Add a drop of surfactant
- In case of transport, put a non pierced lid on the filled vial and keep the pierced one on the side

The water Trap :
40/60 ml vial
Cap with 7 holes
(3mm diameter)
A wire of 15cm long

Setting up the trap in the farm

- Hang the trap with the wire :
  - Near PRM agregates (or where they usually are)
  - Out of reach from hens (ex : for cage systems, outside of the cage)
  - If not possible (aviairy/single tier), fix the trap with a plastic-tie

    /!\ avoid faeces (or other) falling into the trap.
  - Try fixing it just below a crossroad of bars of perches. The vertical bar allows the fixation with plastic tie while the horizontal protects the trap from faeces and dust

Example of set up in a farm with no protection

Crossroad of bars to place the trap

Collecting the trap

- Define your trapping rhythm (intervals of from 1 week to 1 month) accordingly to the effort you are able to put in, the precision you want and the mite population level in the building
- At the end of the defined trapping interval, carefully unscrew the pierced lid of the trap in order to remove the vial (leave the wire and pierced lid in place)
- Close the vial with a non pierced lid
- Replace the vial with a new one filled with water and surfactant

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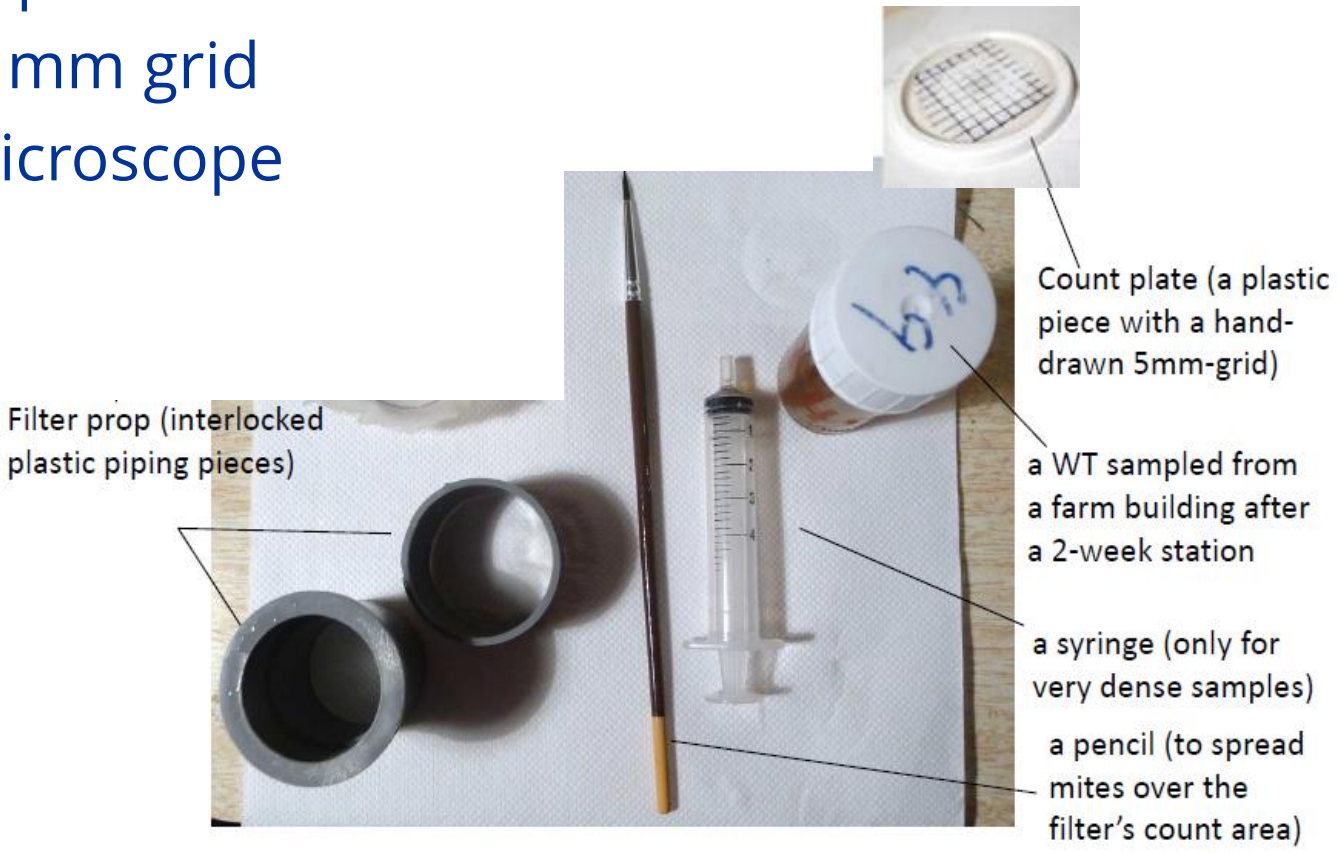
Counting

Material

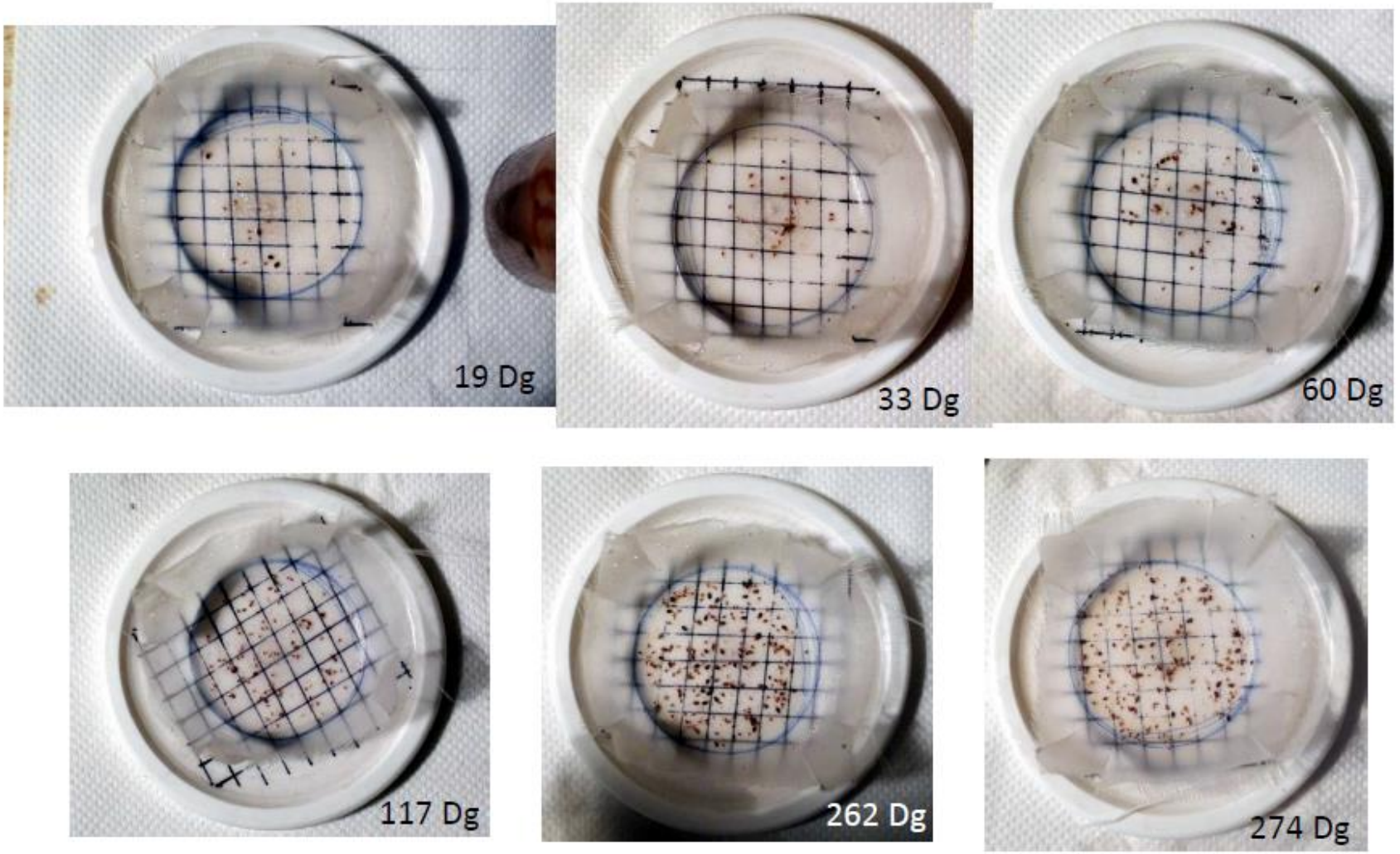
- Nylon Filter (mesh width: 150 µm)
- Filter prop
- Plastic 5 mm grid
- Stereomicroscope
- Syringe
- Brush



At the lab

- Insert a clean filter between the 2 filter props and firmly interlock the two prop pieces
- Place the device above a sink or bassin
- Shake the trap, open it and pour its content on the filter
- In a case of foam, rince delicatelly the filter
- Carefully take the pieces of the filter prop apart and put the filter on the plastic grid
- Count mites using the stereomicroscope

Examples of filters before mite counting (different mite loads from differently infested points)



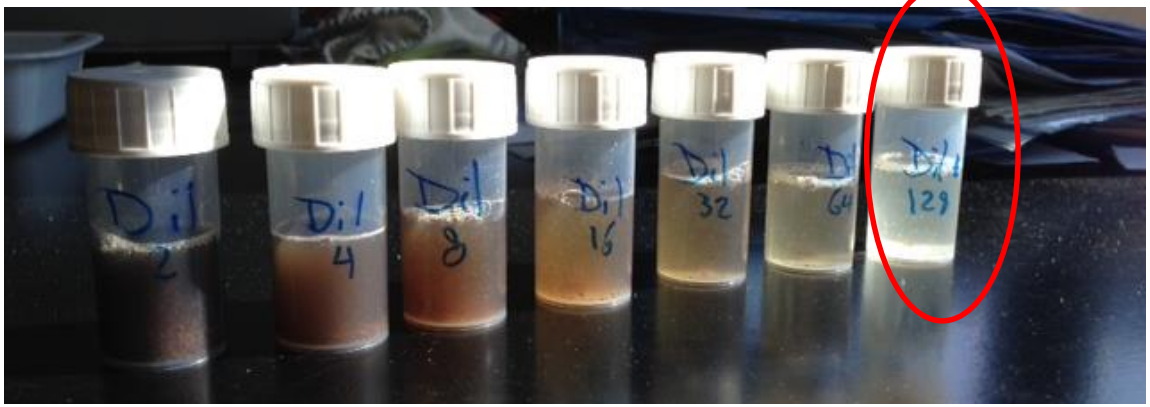
Traps with a lot of mites…

- In case of very dense samples (several hundreds or thousands PRM), add the following step **before** pouring the content of the trap on the filter (2 options)
- 1st option : Dilution
  - Open the trap and fill up the trap with water (if the water level has lowered due to evaporation)
  - Close the trap
  - Shake it to have a homogenous content and immediately empty half the trap in an empty tube.
  - Fill last tube up with water
  - Repeat this untill you have a translucid content
  - Count the mites in the diluted content and multiply the result by 2^n where n=number of dilutions

Dilution

Trap collected

Translucid content → dilution to use for counting



Dilutions : X2 X4 X8 X16 X32 X64 X128

Traps with a lot of mites…

- 2nd option : Sampling
  - Open the trap and fill up the trap with water (if the water level has lowered due to evaporation)
  - Close the trap
  - Shake it to have a homogenous content, open it again quickly and sample 10ml with a syringe (before mite sedimentation)
  - Pour the sampled water on the filter and count the mites
  - Multiply the result accordingly to your dilution (if its a 40ml vial, the result must be multiplied by 4)