Apivar® leaves no significant residues in honey

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Summary of results from:
Amitraz residue transfer into honey from *Apis mellifera* hives treated with Apivar®
Jeff Pettis, USDA-ARS, Beltsville, MD USA – 2013

Amitraz is a non-systemic insecticide favored by beekeepers around the world as a miticide to treat against Varroa destructor. Amitraz degrades quickly into 2,4-dimethyl aniline (DMA) and 2,4-dimethylphenylformamide (DMPF). These two breakdown residues could be incorporated into honey and pose a risk to humans in honey as food.

Beekeepers need a miticide such as amitraz that is proven to be effective, non-toxic and does not result in residues or residues that present health concerns or that contribute to resistance.

To prove Apivar® safety, this study is undertaken to determine the extent to which amitraz and its metabolites move into surplus honey when hives are treated with Apivar®.

Methods:

Sixteen uniform hives chosen and randomly assigned to the four treatment groups; control and 1X, 2X, 10X amitraz doses. Colonies were of near equal strength and pest and disease levels.

All colonies were housed in simple langstroth body. Honey supers were inserted on each hive 2 weeks after strips removal.

Negative control
No strip

Positive control
Honey spiked with Amitraz 200 µg/kg

Apivar label dosage (2 strips)

X2 Apivar label dosage (4 strips)

X10 Apivar label dosage (20 strips)

TIMELINE

April 2012 — *D 0* — *October 4th* — *D 97*

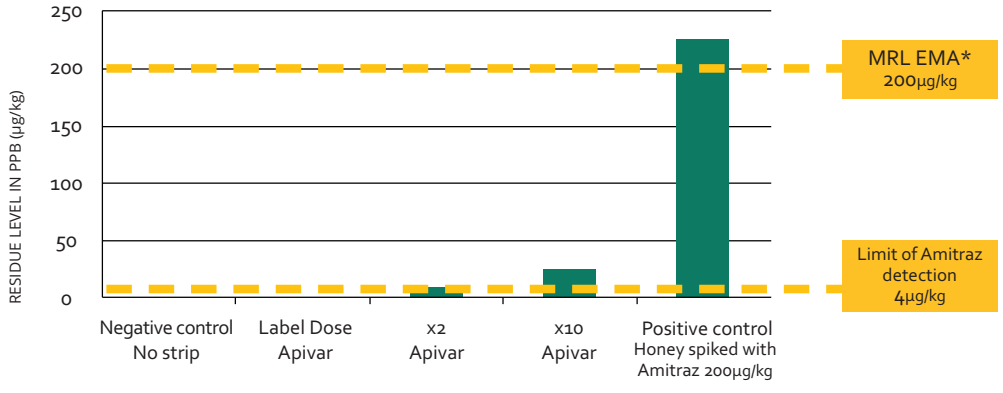
2-months buildup period → **6-week Apivar® treatment** → **2-week interval before super placing** → **41 days honey production**

- D97 honey sample taken from capped honey frames in the supers,
- Analysis for amitraz and its major degradates was made with a limit of detection (LOD) for amitraz of 4µg/kg), DMA (LOD=50µg/kg), and DMPF (LOD= 4µg/kg).
- An independent observer, not vested in the study, was present and noted all strip applications, removals and honey sampling.

> RESULTS

- None of the parent compound, amitraz was detected in honey, even in colonies treated with X10 Apivar label dosage.
- For metabolites, amounts of residues were very limited and detectable only for the groups treated at 2 or 10 fold the recommended dosage, and always far below the acceptable MRL's.

Metabolites of amitraz in honey



MRL EMA : Maximal limit of residues that are tolerated in the UE for amitraz and residues and its metabolites in honey for human consumption.
All values are in µg/kg

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