



# **ISOCLAST™ ACTIVE**

**as a new tool for managing virus vectors and virus transmission in oilseed rape**



**Dow AgroSciences**

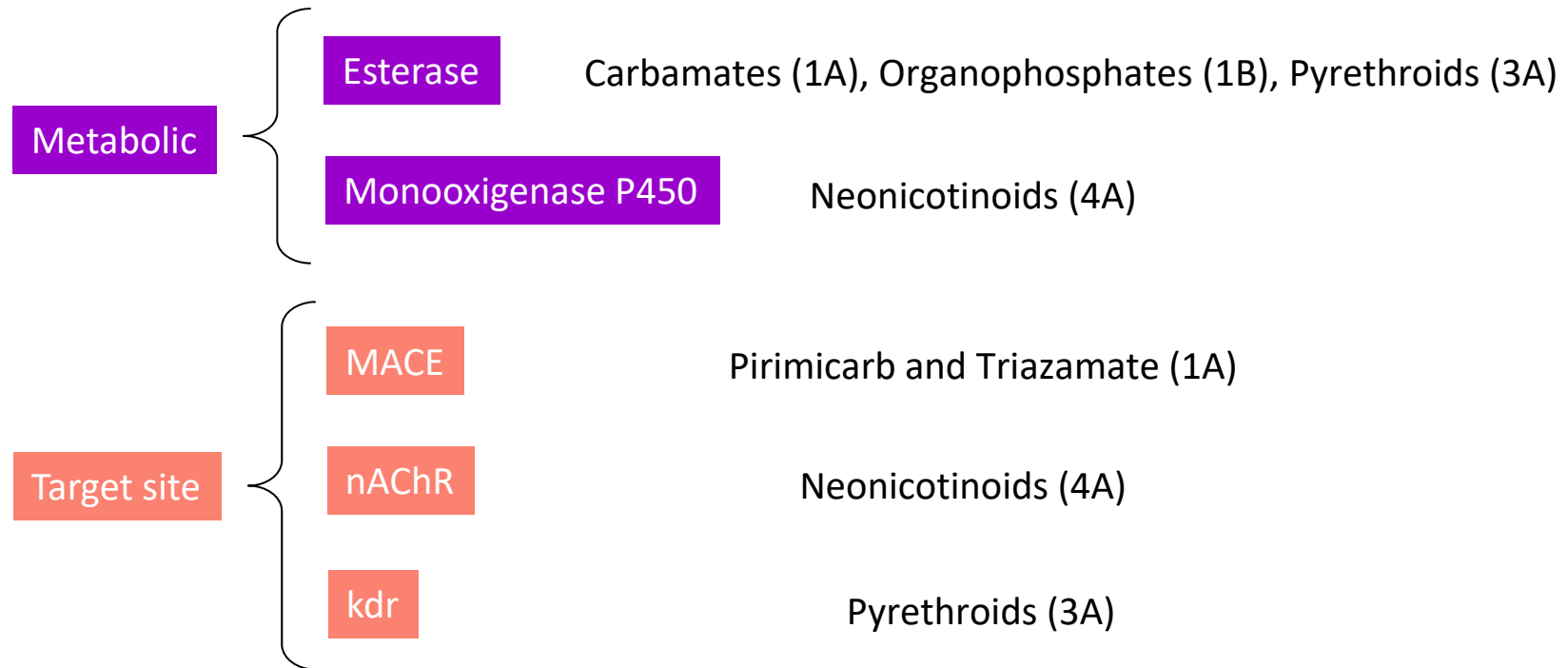
Imre Mezei, Luis E. Gomez,  
Maria Torne

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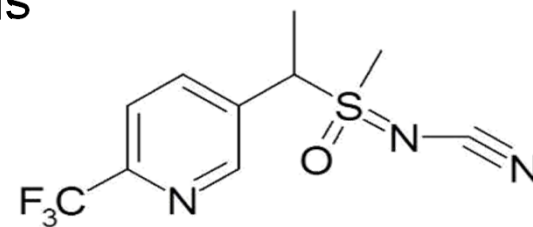
- Oilseed rape is grown on 6% of arable land in Europe
- Important pests of OSR in EU: MELIAE, CEUTSS, PSYICH, DASYBR, BRCVBR, MYZUPE, TuYV, SCLESC and many others
- High scrutiny in EU pesticide registration makes farmers' toolbox smaller and smaller...
- Resistance issues and difficulties in control causes significant yield losses (growing)



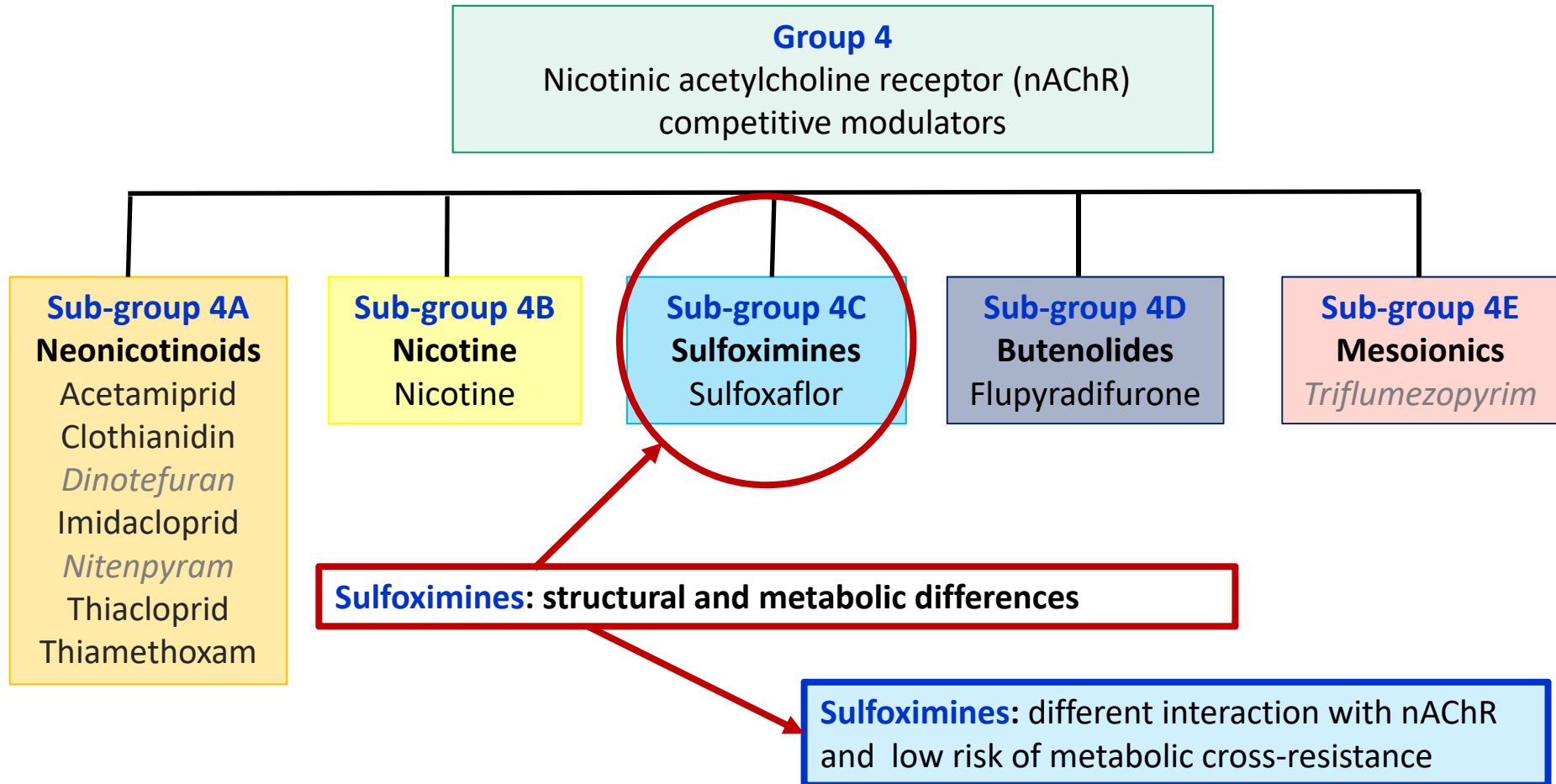
## Major resistance mechanisms in *Myzus persicae*



- ❖ New insecticide discovered by and proprietary to Dow AgroSciences
- ❖ Controls major sap-feeding insect pests
  - Aphids, whiteflies, scales, mealybugs, leafhoppers
  - Effective against insect pest populations resistant to other insecticides
  - Valuable rotation partner with insecticides with other modes of action
  - Systemic product
  - Excellent knockdown and residual control via both contact and ingestion
- ❖ Minimal impact on beneficial arthropods



## Mode of action



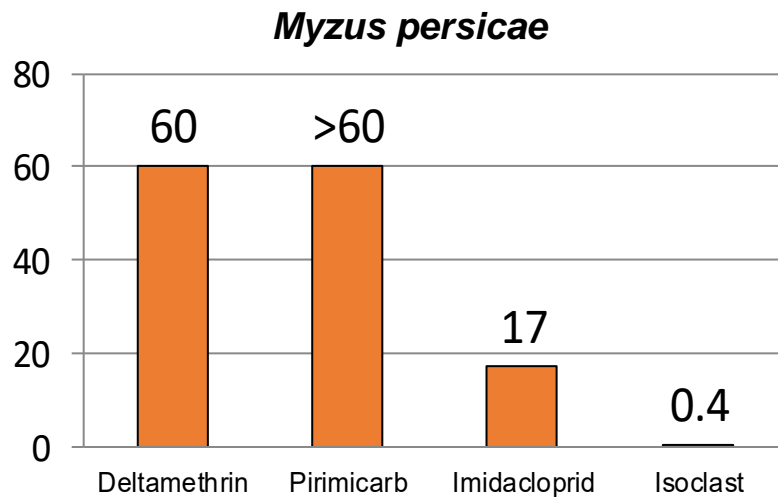
- IRAC materials refer to Isoclast™ Active by its ISO common name (sulfoxaflor)



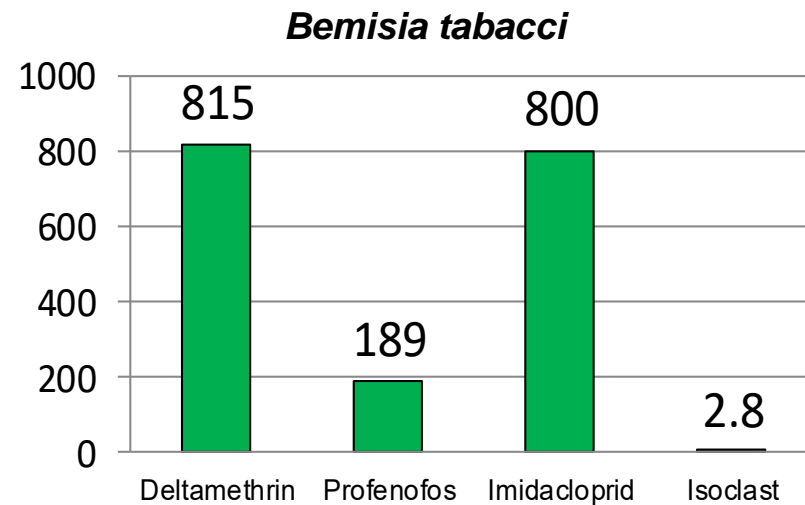
## Resistance management

Resistance ratio: populations insect pests resistant to multiple insecticides

Isoclast: Lack of cross-resistance on pests resistant to multiple insecticides



(Rothamsted Research, UK)



(Rothamsted Research, UK)

Isoclast: “Valuable rotation partner with other chemistries”



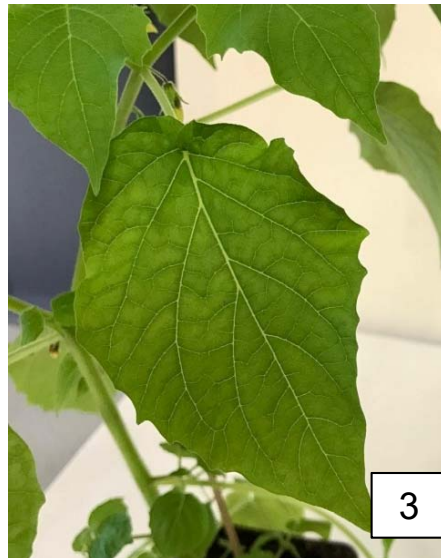
## Turnip yellows virus acquisition experiments

Spray until run-off: 24 hours before assay



1

TuYV-infected *Physalis* source plants



3

AAP: 6h

AAP: acquisition access period  
IAP: inoculation access period

IAP: 72h

10 aphids/*Physalis* test plant



4

Plants treated with Imidacloprid after the IAP

20 plants/treatment.  
3 replicates (assays)

2

Aphids are transferred to TuYV-infected plants



Evaluation: 4 weeks after assay by ELISA

5

Non-viruliferous  
*Myzus persicae*



## Turnip yellows virus acquisition trial results

Insecticides	Concentration applied	Transmission rate (%)
Control		51.67% (31/60) a
Isoclast	24 ppm ai	8.33% (5/60) b
Flonicamid	60 ppm ai	0% (0/60) c
Spirotetramat	75 ppm ai	58.33% (35/60) a

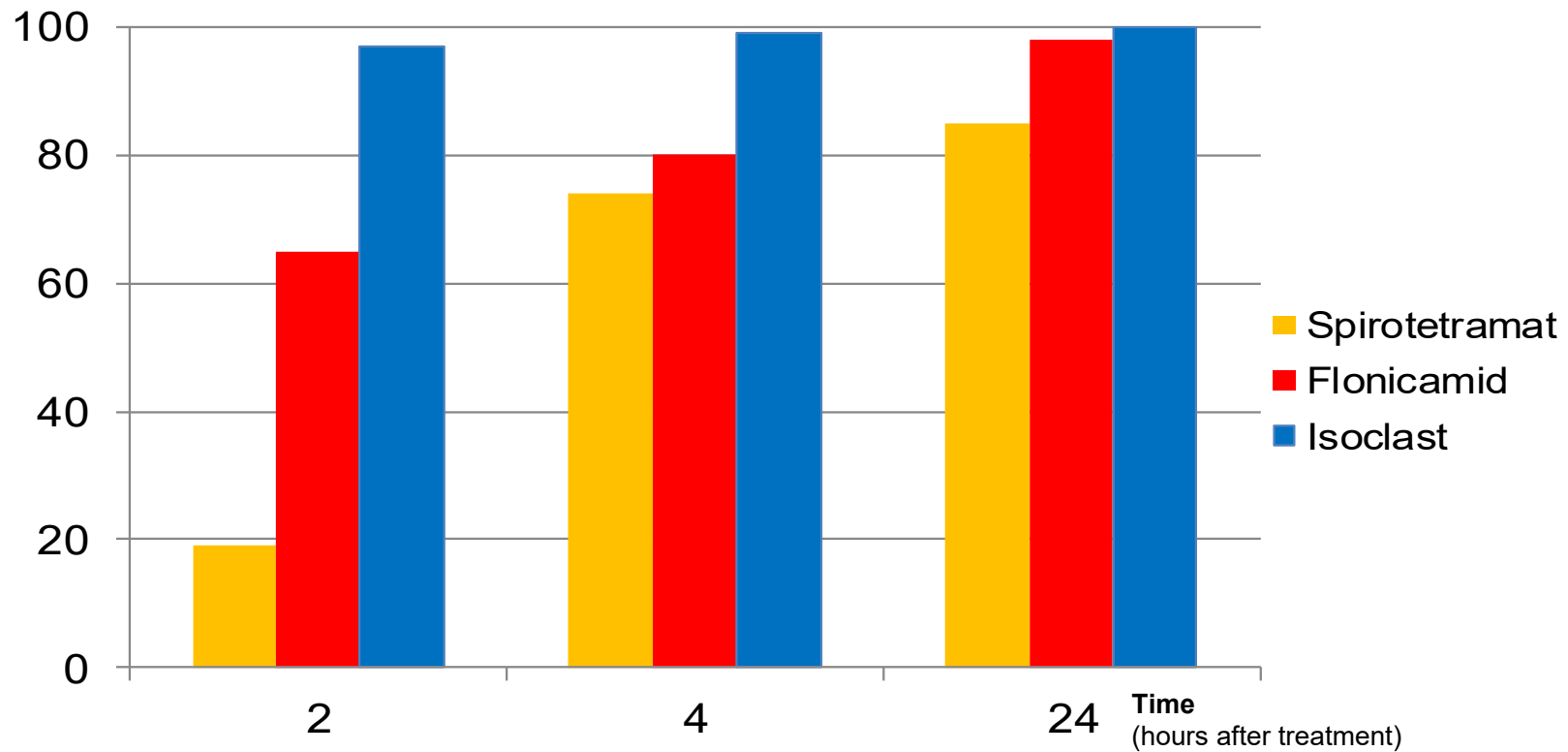
- Isoclast and flonicamid were effective in reducing the acquisition of TuYV, not like spirotetramat.







(%) Reduction in honeydew production vs untreated in an artificial feeding bioassay with *Myzus persicae* (DAS internal data)



**Rapid cessation of feeding resulting a „knockdown effect”**

# ISOCLAST™ ACTIVE Electrical Penetration Graph Experiment



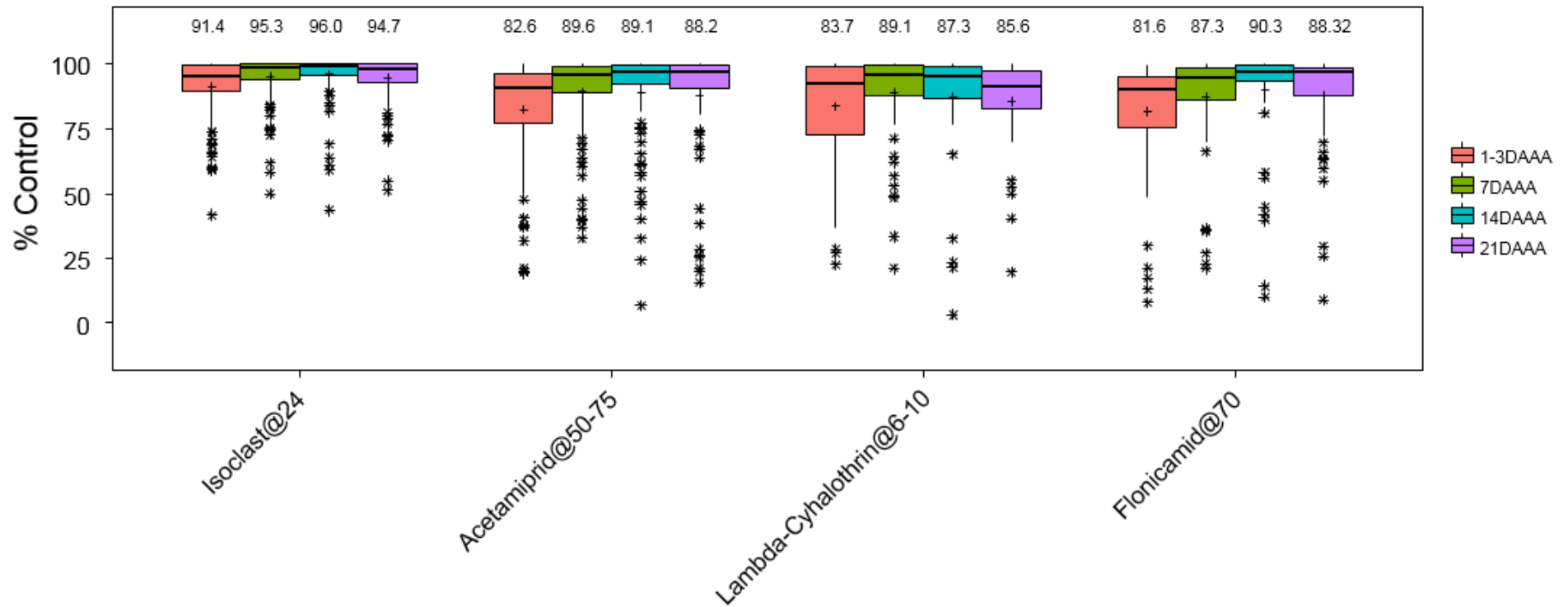
8 channel DC-Amplifier / 8 h EPG recordings on MYZUPE feeding on *Physalis floridiana* plants

- Duration of non-probing events was much longer than on the untreated control
- The duration of phloem-related activities was shorter (aphids have less probability to transmit phloem-restricted viruses)
- Aphids exposed to Isoclast significantly reduced their ingestion time (E2)



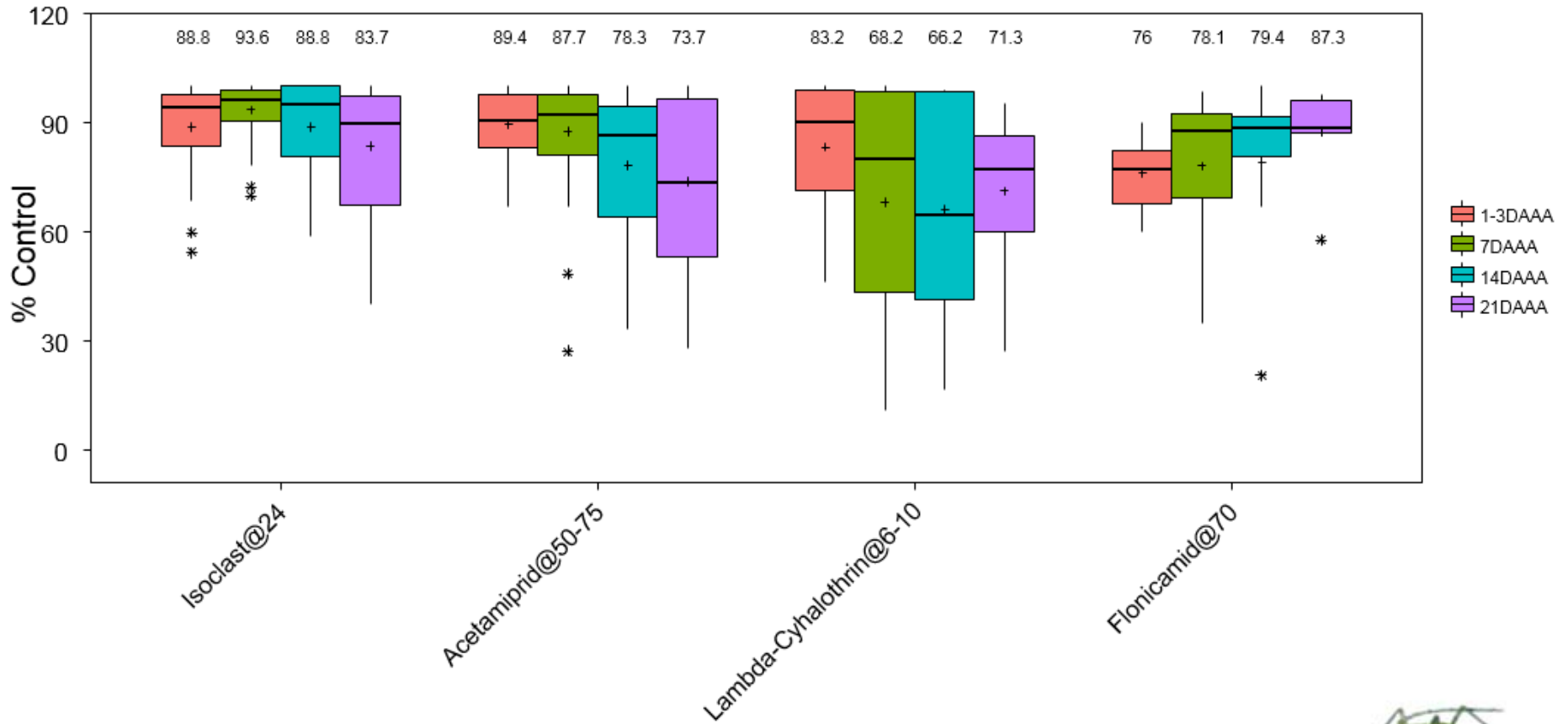
(%) Control of *Brevicoryne brassicae* across 31 trials carried out in OSR and other brassica during 2008-2016 in AT, ES, FR, DE, GB, IT & PL (DAS internal data)

Oil seed rape or brassica crop - BRVCBR



(%) Control of *Myzus persicae* across 13 trials carried out in OSR and other brassicas during 2008-2016 in FR, DE, GB, IT & RO (DAS internal data)

Oil seed rape or brassica crop - MYZUPE



## Conclusions

- Isoclast is a unique member of the sulfoximines class of chemistry (IRAC Group 4C), it controls aphids and other sap feeding pests resistant to other classes of chemistry.
- Isoclast has demonstrated high levels of aphid control (*Myzus persicae* and *Brevicoryne brassicae*) in many crops including oilseed rape as well as sufficient level of decreasing virus transmission.





# **ISOCLAST™ ACTIVE**

**Thank You for Your Attention**



**Questions ?**

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