Host plant affiliation of xylem-feeders within Central Europe

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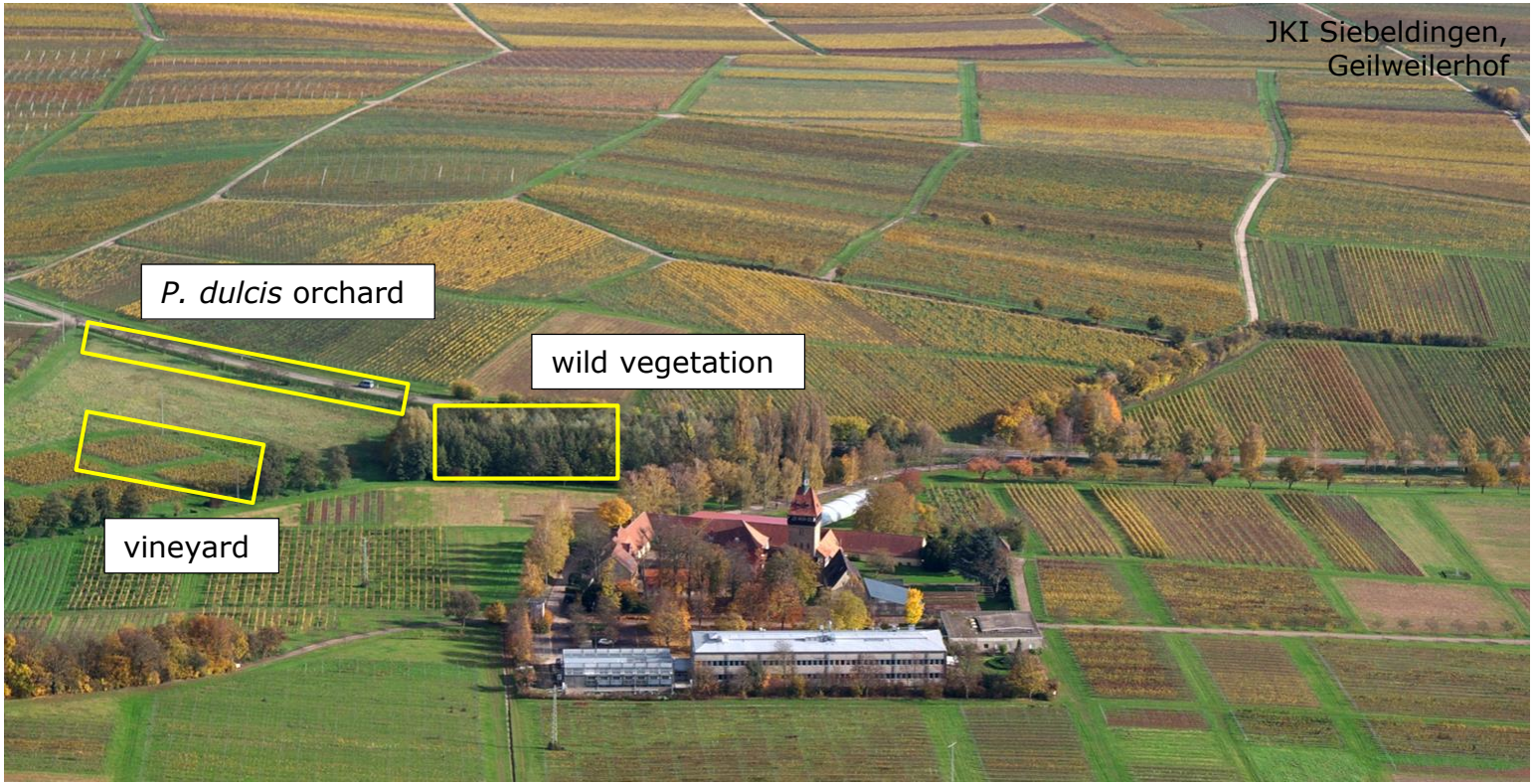
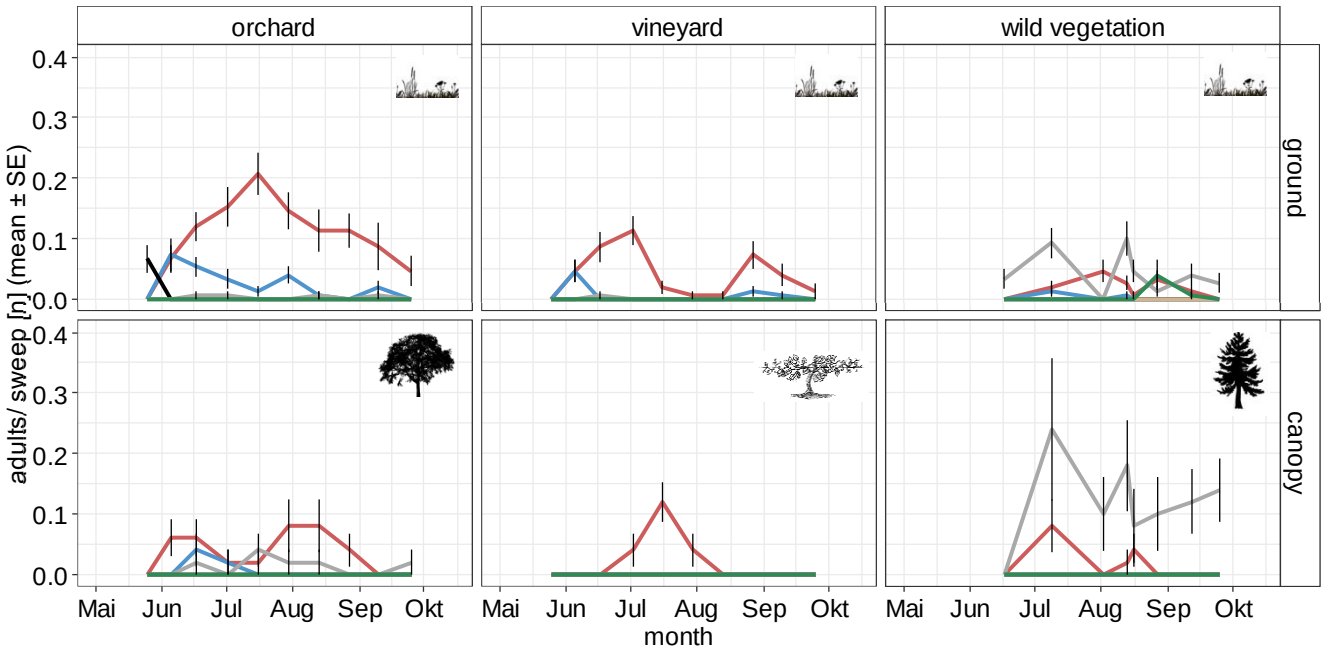
SITUATION IN WINEGROWING AREAS
PALATINATE, DE



Jelkmann, 2014

SITUATION IN WINEGROWING AREAS

PALATINATE, DE (SIEBELDINGEN, 2019)



species

- *Philaenus spumarius*
- *Neophilaenus campestris*
- *Aphrophora alni*
- *Cercopis vulnerata*
- *Evacanthus interruptus*
- *Cicadella viridis*

n=30x5 (ground)
n=10x5 (tree canopy)
n=30x5 (vine canopy)

P. spumarius

N. campestris

A. alni

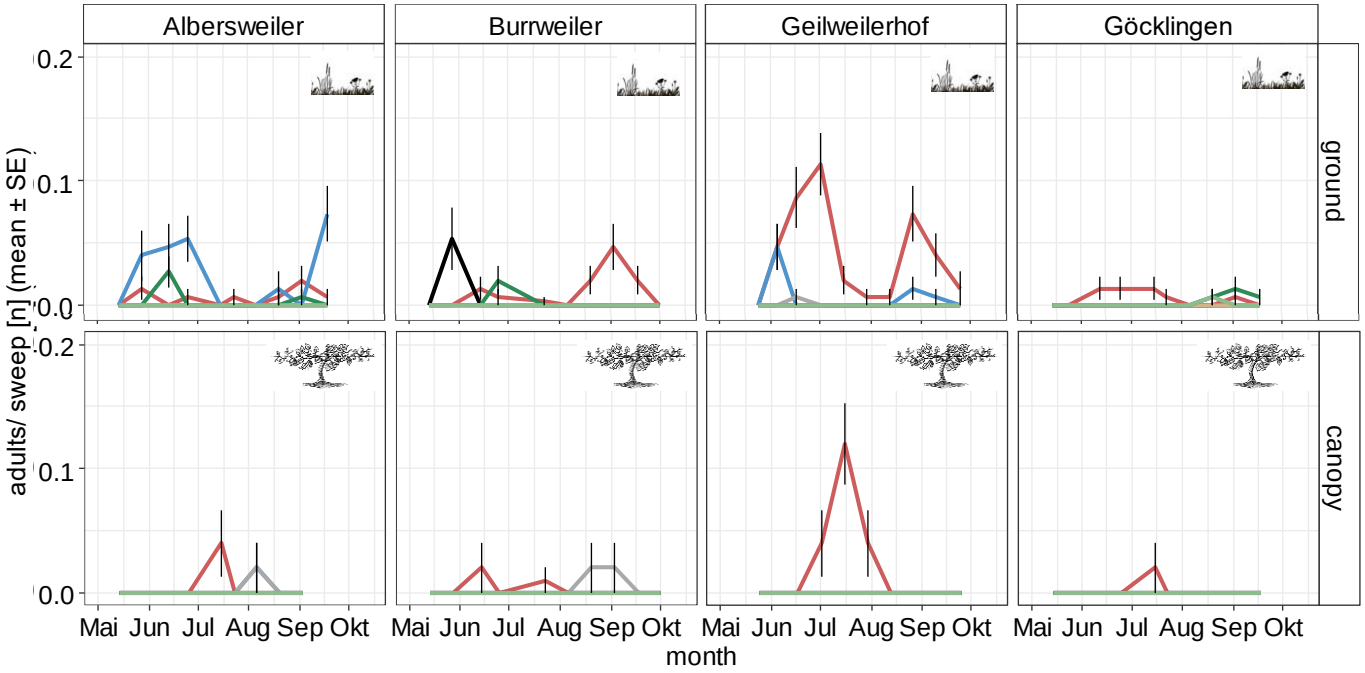
C. vulnerata

E. interruptus

C. viridis

Images: Maixner, Markheiser

XYLEM-FEEDER DIVERSITY IN DE VINEYARDS, PALATINATE (2019)



species
- *P. spumarius*
- *N. campestris*
- *A. alni*
- *C. vulnerata*
- *E. interruptus*
- *C. viridis*
- *C. viridis* nymphs

n=30x5 (ground)
n=30x5 (vine canopy)


P. spumarius


N. campestris


A. alni

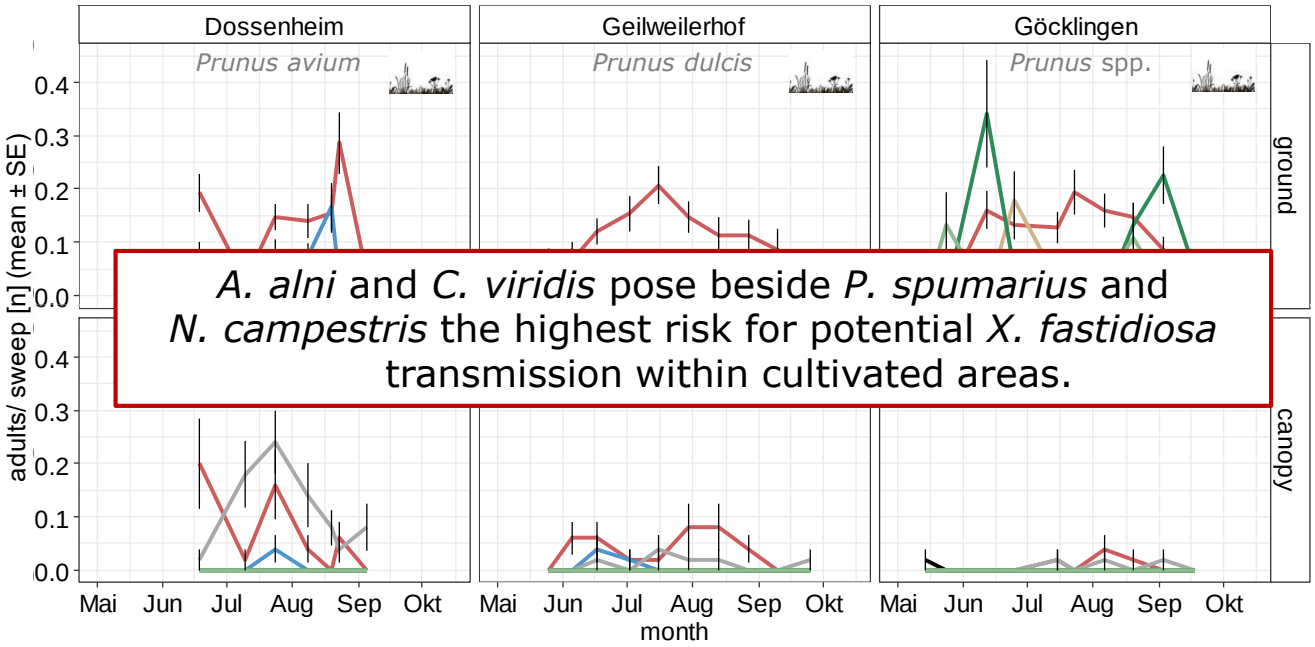

C. vulnerata


E. interruptus


C. viridis

Images: Maixner, Markheiser

XYLEM-FEEDER DIVERSITY IN DE
PRUNUS SPP. ORCHARDS, PALATINATE (2019)



A. alni and *C. viridis* pose beside *P. spumarius* and *N. campestris* the highest risk for potential *X. fastidiosa* transmission within cultivated areas.

species
- *P. spumarius*
- *N. campestris*
- *A. alni*
- *C. vulnerata*
- *E. interruptus*
- *C. viridis*
- *C. viridis* nymphs

n=30x5 (ground)
n=10x5 (tree canopy)


P. spumarius


N. campestris


A. alni


C. vulnerata

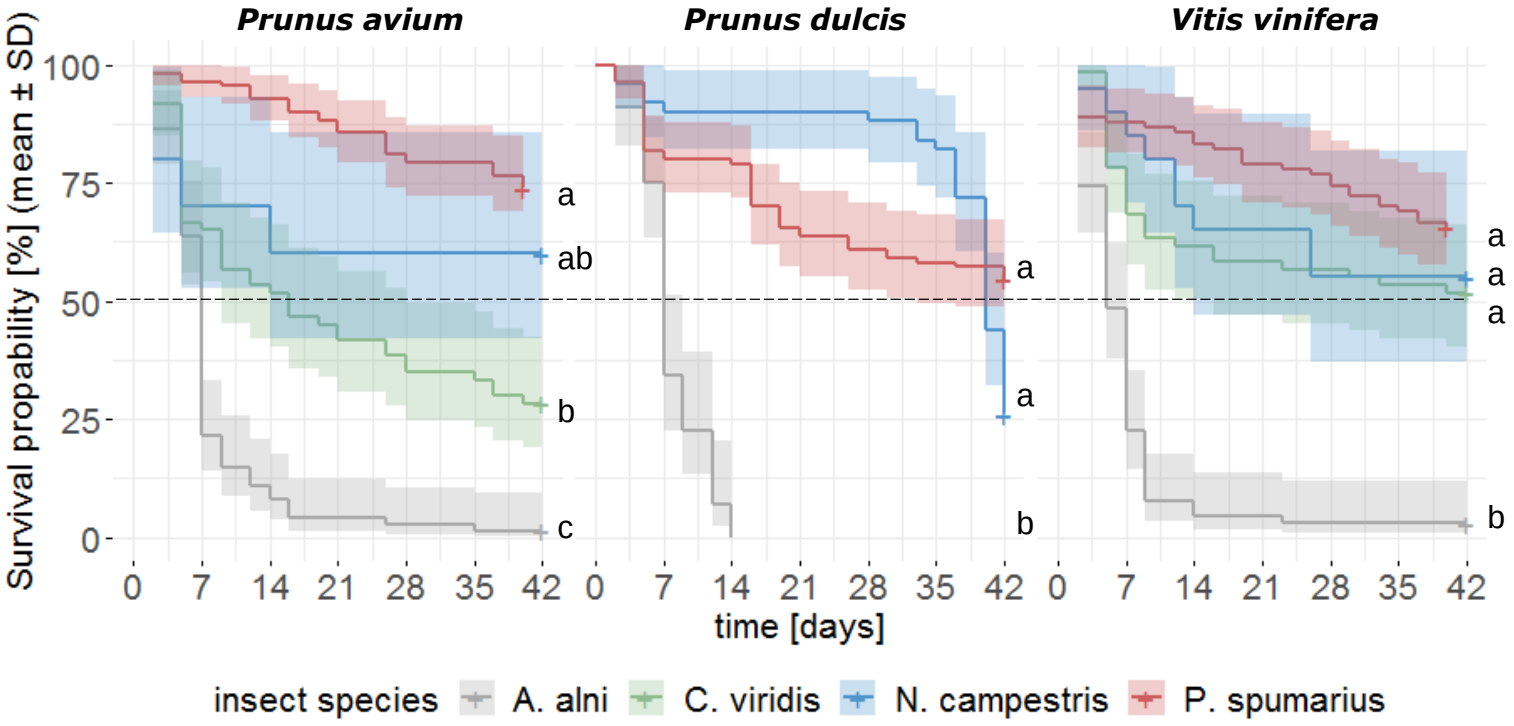

E. interruptus


C. viridis

Images: Maixner, Markheiser

HOST PLANT ACCEPTANCE OF CANDIDATE VECTORS

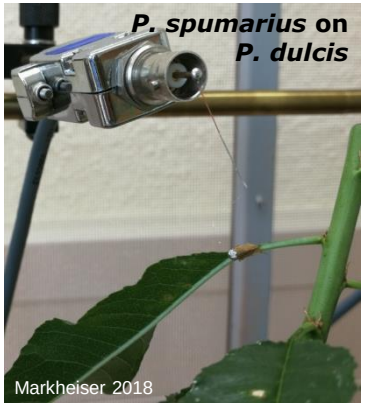
SURVIVAL ON *X. FASTIDIOSA* HOST PLANTS



a,b,c: signifikant differences between insect species according to Cox Proportional hazard model

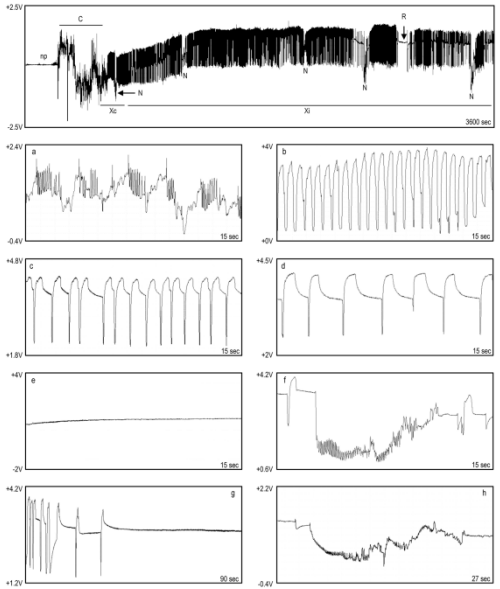
FEEDING-ACTIVITY OF CANDIDATE VECTORS
ELECTRICAL PENETRATION GRAPH (EPG)

Quantification of xylem-ingestion:
P. spumarius, *N. campestris* and *C. viridis*



Differences in duration of Xi among host plants observed for *P. spumarius*
(Markheiser et al. 2019, Entomologia Generalis)

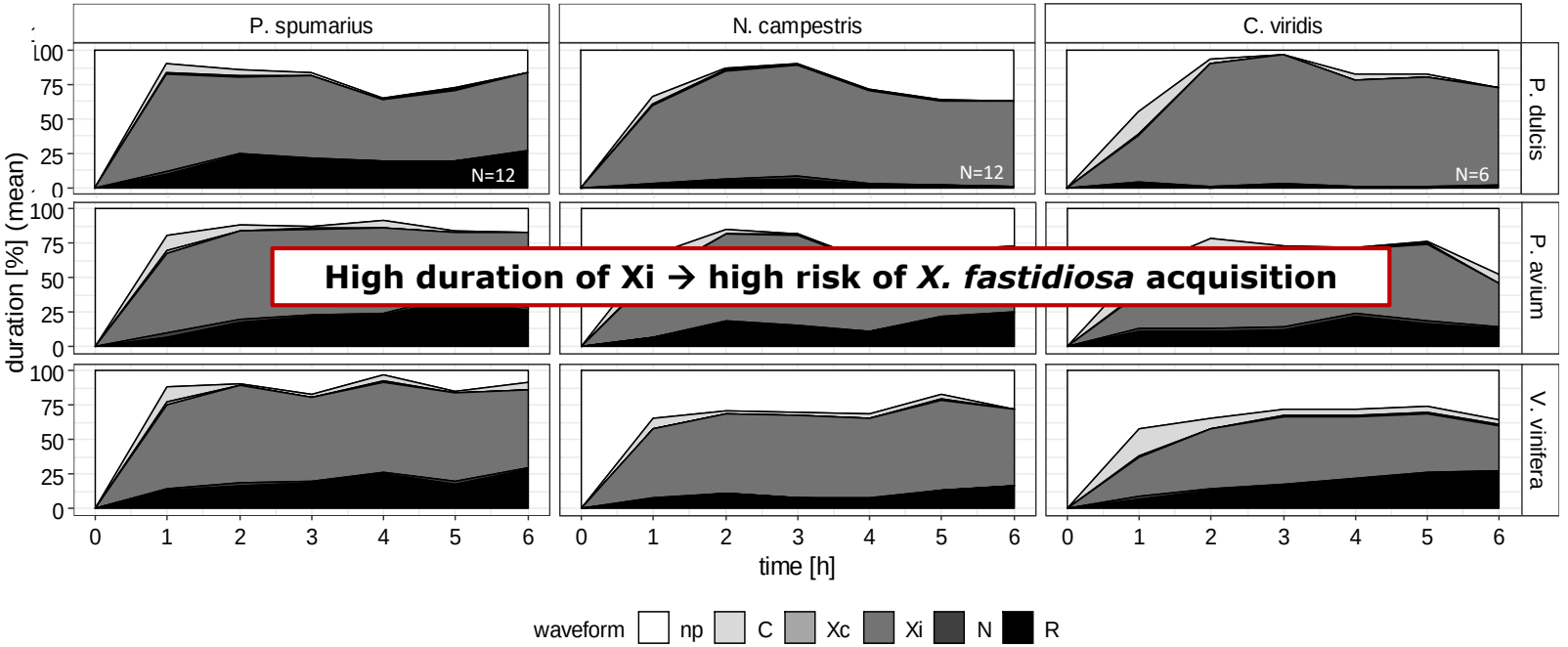
6 waveforms characterized for *P. spumarius*



Cornara *et al.* 2018, PlosOne

FEEDING-ACTIVITY OF XYLEM-FEEDERS
ELECTRICAL PENETRATION GRAPH (EPG)





CONCLUSION –
RISKS FOR VINEYARDS AND *PRUNUS* ORCHARDS IN DE

- ***P. spumarius, N. campestris, A. alni* and *C. viridis* show the highest potential to spread *X. fastidiosa***

  → Random inspection of these candidate vectors for presence of *X. fastidiosa*

spittlebugs							froghoppers			sharpshooters				
P. spumarius	*N. campestris*	*N. lineatus*	*L. coleoptrata*	*A. alni*	*A. salicina*	*A major*	*C. vulnerata*	*C. sanguinolenta*	*H. dorsata*	*E. accuminatis*	*E. interuptus*	*C. viridis*	*G. fennahi*	
X	X	X	(X)	X	(X)	(X)	X	X	(X)	(X)	X	X	(X)	**wild vegetation**
X	X			X			X				X	X	(X)	***Prunus* sp. orchard**
X	X	X		X	(X)		X	(X)	(X)			X		**vineyard**

- ***C. viridis* is in contrast to *A. alni* associated to the ground level**

  → Feeding activity in xylem vessel confirmed

  → May rather act as a vector of *X. fastidiosa* for suckers/seedlings

Thank you …

… for your attention!

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… Dr. Daniele Cornara

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XF ACTORS
Xylella Fastidiosa Active Containment Through a multidisciplinary-Oriented Research Strategy

European Commission

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