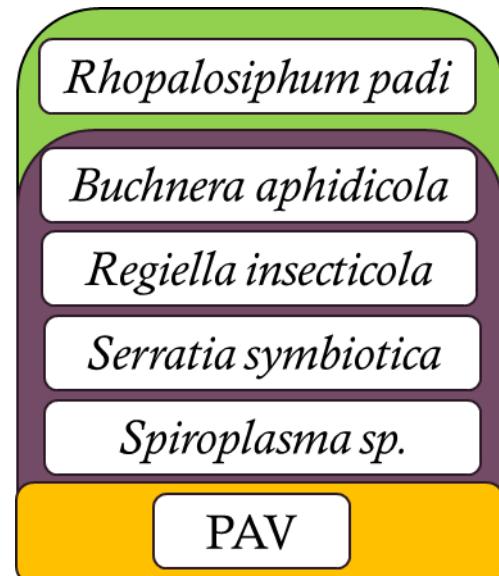
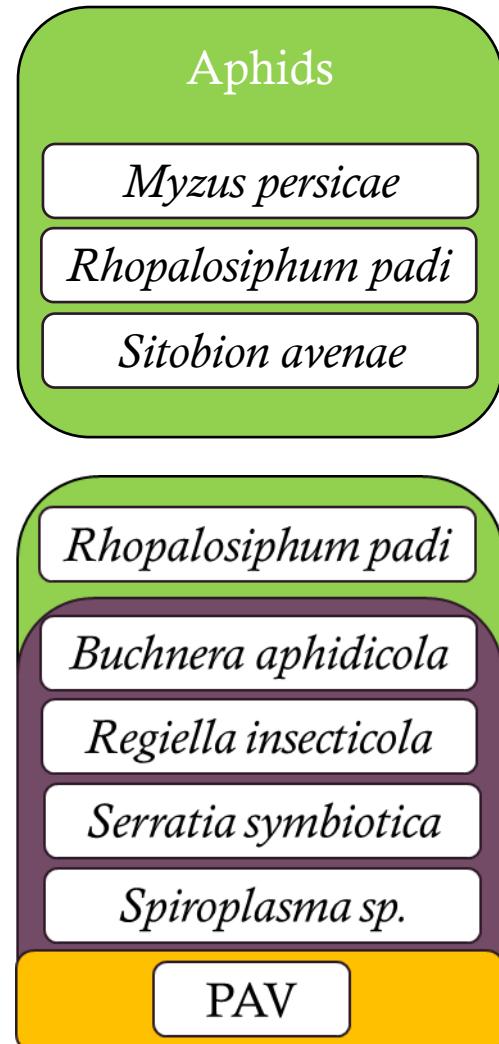
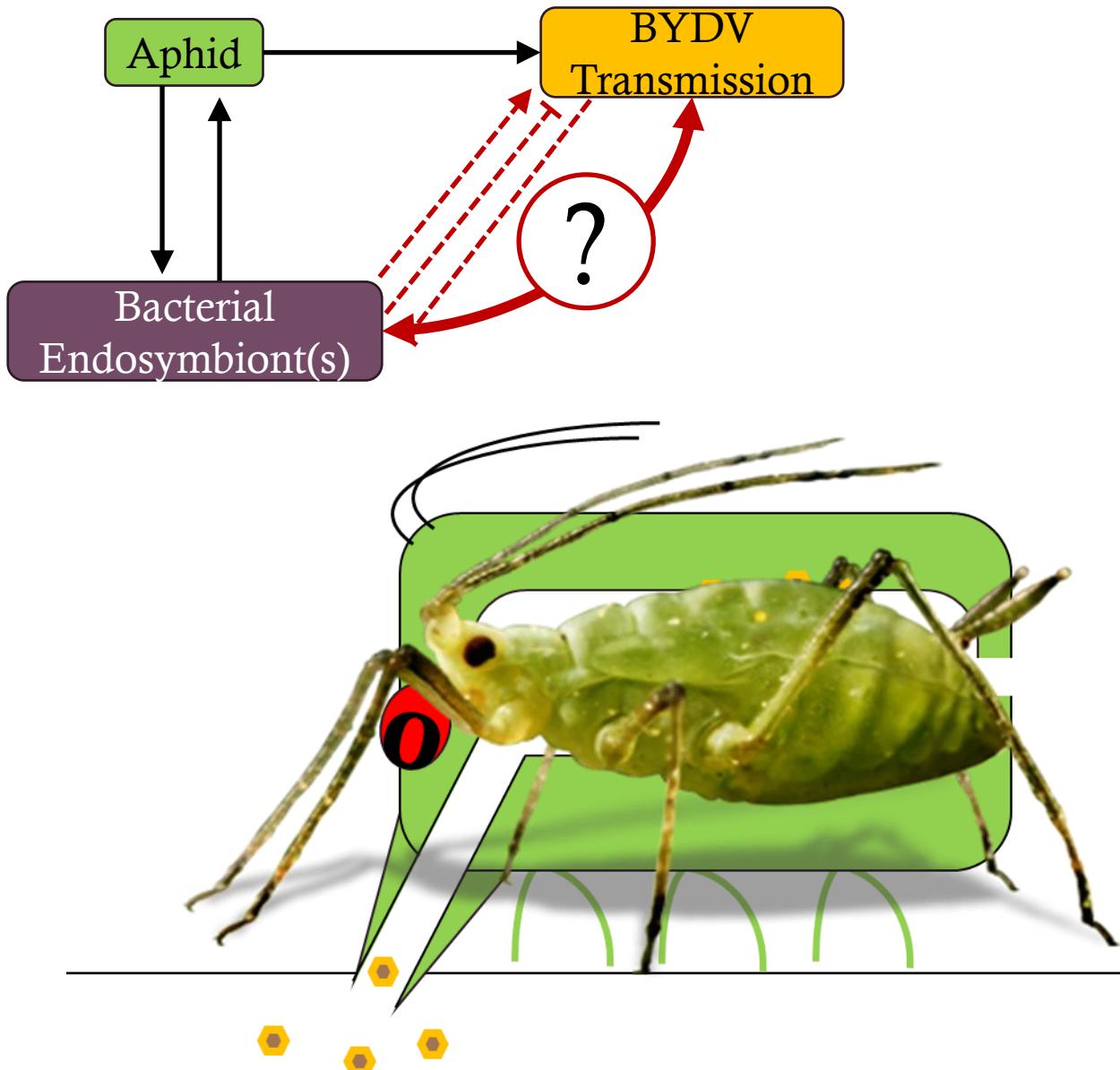




Investigating how aphid genetic diversity and endosymbionts impact plant virus epidemiology

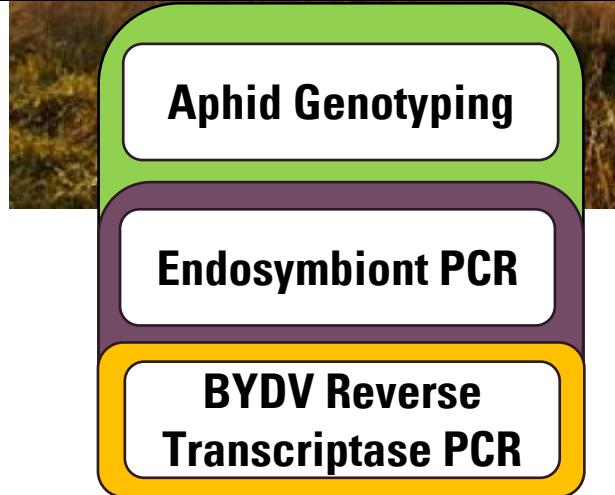
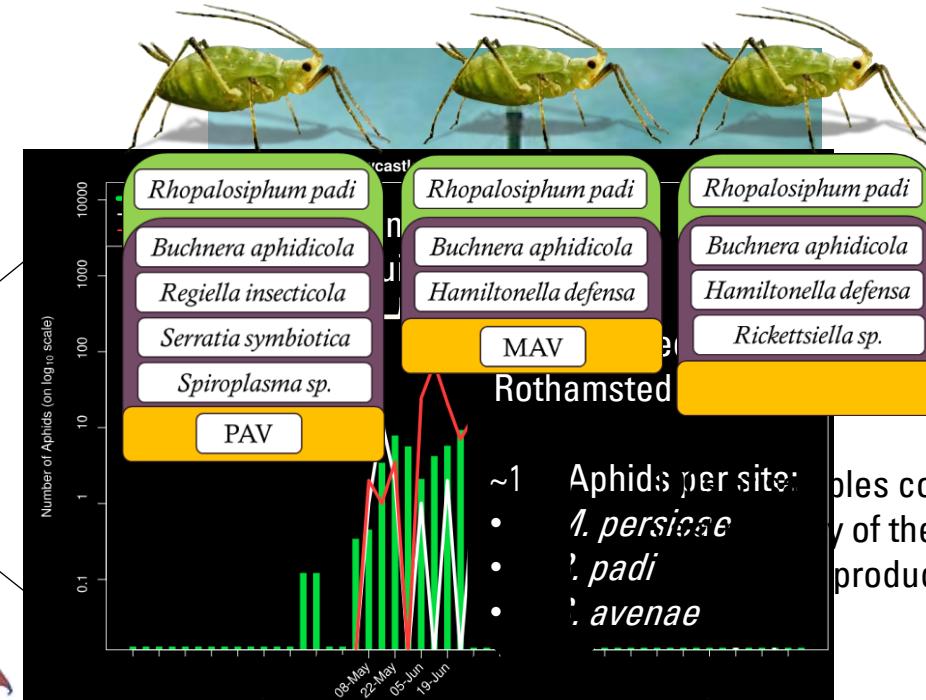
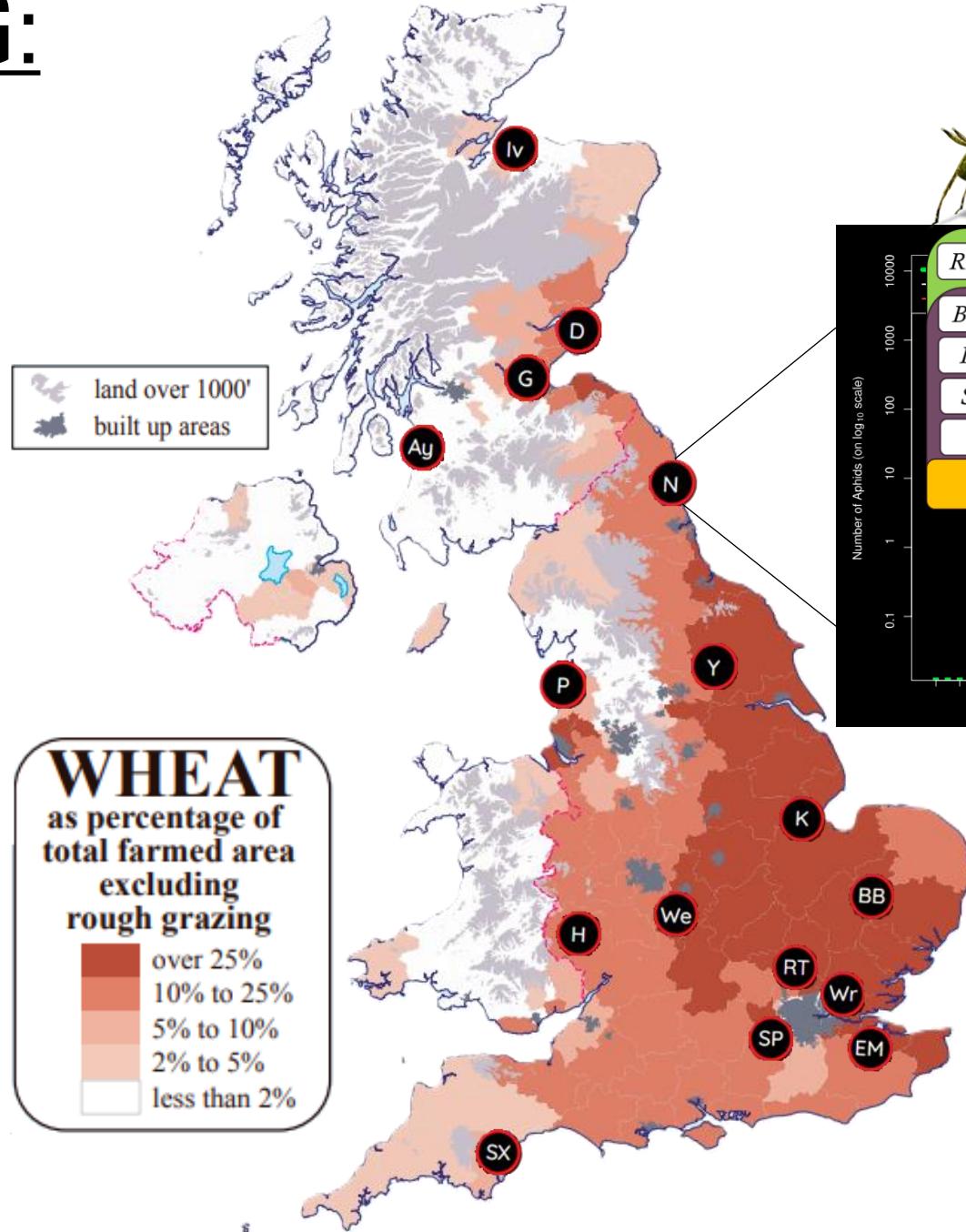
OVERVIEW:



SAMPLING:

16 Suction Trap Sites run by the Rothamsted Insect Survey.

Abbrev.	Location
Ay	Ayrshire
BB	Broom's Barn
D	Dundee
EM	East Malling
G	Gogarbank
H	Hereford
Iv	Inverness
K	Kirton
N	Newcastle
P	Preston
RT	Rothamsted
SP	Silwood Park
SX	Starcross
We	Wellesbourne
Wr	Writtle
Y	York



samples covering the
of the UK's
producing regions.

TIMELINE:

2024

2025

Spring

Summer

Autumn

Winter

Spring

Summer

Optimizing DNA/RNA extraction from Aphids and developing PCR's

Microsatellite-Genotyping, PCR and RT-PCR to sequence aphids

Rothamsted Insect Survey
(RIS) Suction Traps

Aphid sampling:
Offspring of overwintered aphids.

Myzus persicae

Endosymbiont & BYDV diversity mapping

Rhopalosiphum padi

Endosymbiont & BYDV diversity mapping

Sitobion avenae

Endosymbiont & BYDV diversity mapping

Farms with BYDV aphids

BYDV Prevalence analysis

Aphid sampling:
Targeting farms and areas of high BYDV prevalence during peak cereal crop harvest times.

Aphid Capture & Rearing:
Maintaining populations to compare to other aphids

Aphid
Aphids

Aphid sampling:
Going back to same farms to compare overwintered aphids to captive aphids.



Study of persistence of BYDV in select aphid

Endosymbionts

?

Endosymbionts through time

Figure out what's out there...

...and see how it changes with time...

...to begin to understand how this system works.



ANY QUESTIONS?
Thanks for
your time!



LinkedIn



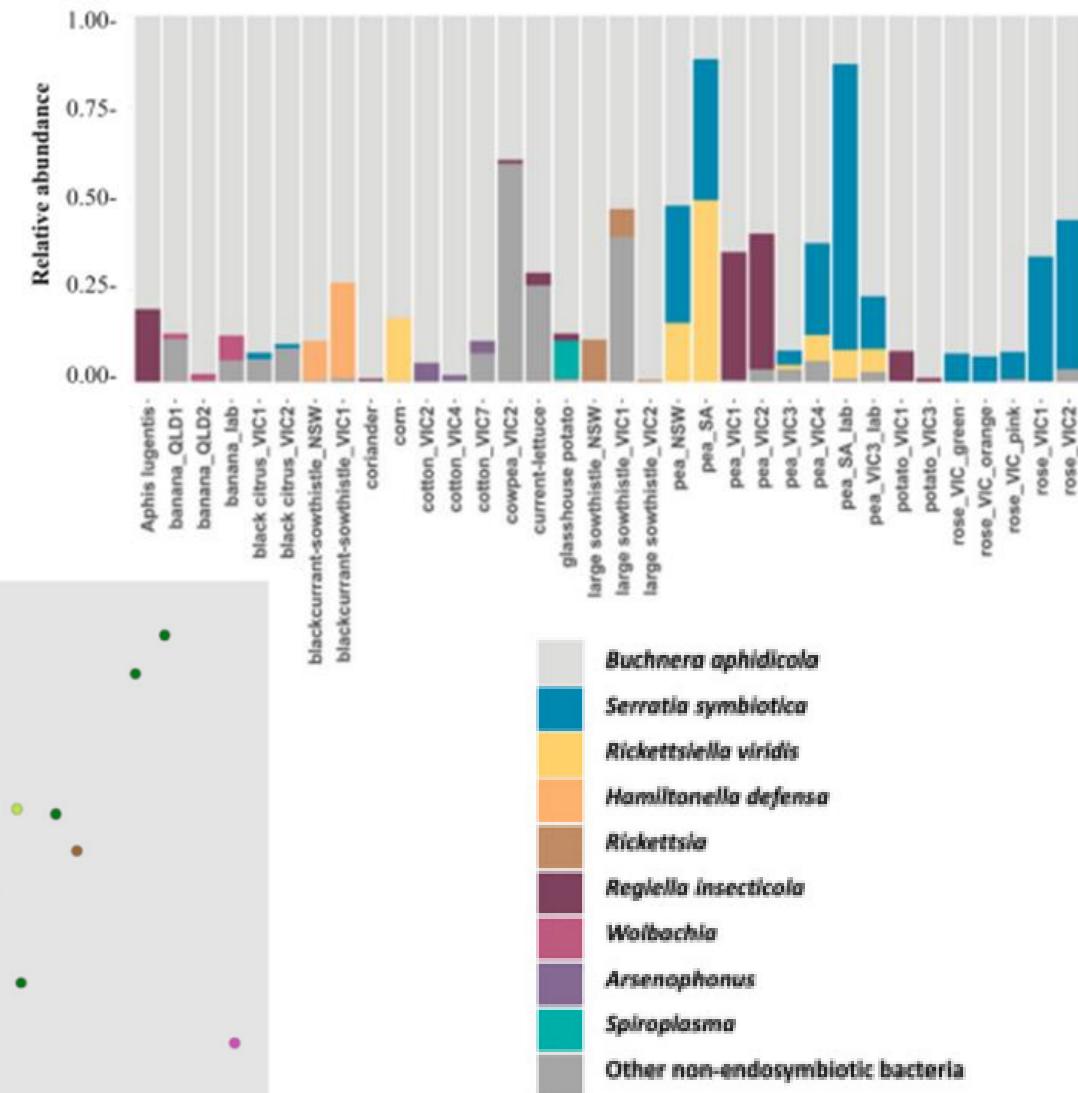
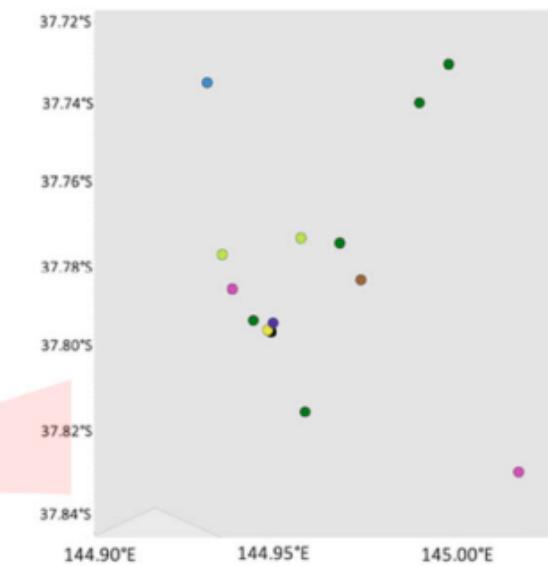
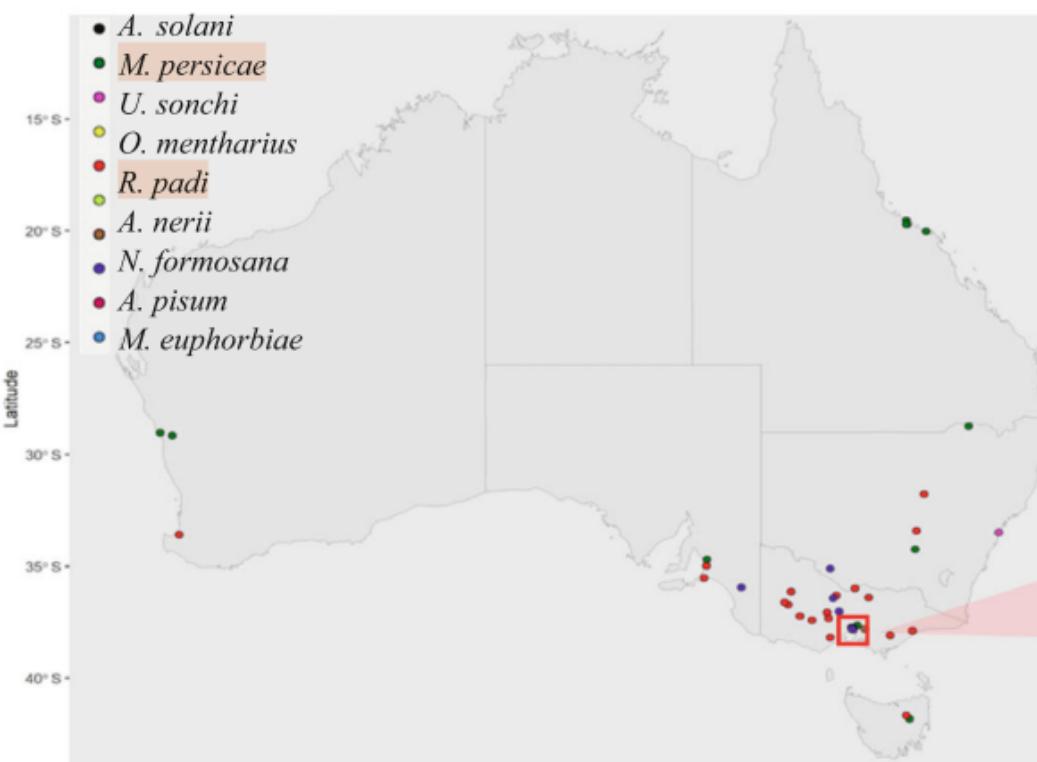
t.foster@keele.ac.uk



WhatsApp

A diversity of endosymbionts across Australian aphids and their persistence in aphid cultures

Qiong Yang  | **Alex Gill**  | **Katie L. Robinson**  | **Paul A. Umina**   | **Perran A. Ross**  | **Dongwu Zhan**  | **Courtney Brown**  | **Nicholas Bell**  | **Ashley MacMahon**  | **Ary A. Hoffmann** 





Article

Barley Yellow Dwarf Virus Influences Its Vector's Endosymbionts but Not Its Thermotolerance

Evatt Chirgwin^{1,*†}, Qiong Yang^{2,*†}, Paul A. Umina^{1,2}, Joshua A. Thia², Alex Gill², Wei Song³, Xinyue Gu², Perran A. Ross², Shu-Jun Wei³ and Ary A. Hoffmann²

Interactions between a luteovirus and the GroEL chaperonin protein of the symbiotic bacterium *Buchnera aphidicola* of aphids

Sophie Bouvaine,^{1,2} Neil Boonham³ and Angela E. Douglas^{1,2}

Roles of Bacterial Symbionts in Transmission of Plant Virus by Hemipteran Vectors

Wei Wu, Hong-Wei Shan, Jun-Min Li, Chuan-Xi Zhang, Jian-Ping Chen* and Qianzhuo Mao*

In Vitro Interactions of the Aphid Endosymbiotic SymL Chaperonin with Barley Yellow Dwarf Virus

S. A. FILICHKIN,* S. BRUMFIELD, T. P. FILICHKIN, AND M. J. YOUNG