Transmission dynamics of European stone fruit yellows on thirteen *Prunus* species in controlled conditions

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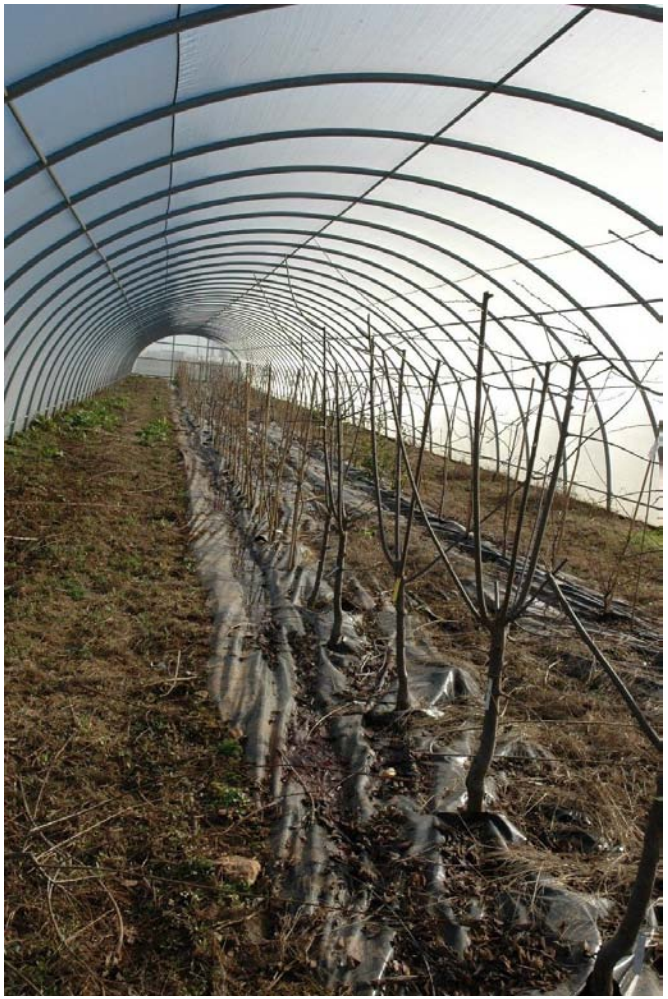
Aim of the study

Improve knowledges about susceptibility and sensitivity of several *Prunus* species to ESFY infection, by using the vector *Cacopsylla pruni* in semi-controlled conditions and analyzing theirs host-feeding preference

Materials and Methods

130 test plants belonging to 13 different *Prunus* species



Materials and Methods

Prunus amygdalus (Almond)

***P. armeniaca* (Apricot)**

P. avium (Sweet Cherry)

P. cerasifera (Myrobalan Plum)

P. cerasus (Sour cherry)

***P. domestica* (European plum)**

P. mahleb (Mahaleb cherry)

P. laurocerasus (Cherry laurel)

P. padus (Bird cherry)

P. persica (Peach)

***P. salicina* (Japanese plum)**

P. spinosa (Blackthorn)

P. tomentosa (Nanking Cherry)

Materials and Methods

C. Pruni capture

- Reimmigrant *C. pruni* were collected in spring 2007 and 2008 in a plum orchard located in a high ESFY disease pressure area in Friuli - Venezia Giulia Region (Italy).
- Samples of insects were submitted to nested PCR
- Insects were immediately released in the screenhouse.

Materials and Methods

‘*Candidatus* Phytoplasma prunorum’ detection

Sampling: 1g of leaf midribs collected in September

DNAs extraction according Doyle & Doyle protocol

Direct PCR: P1/P7 primers

Nested PCR: f01/r01 primers

Agarose gel electrophoresis and ethidium bromide staining

RFLP with *Bsa* I, *Ssp*I

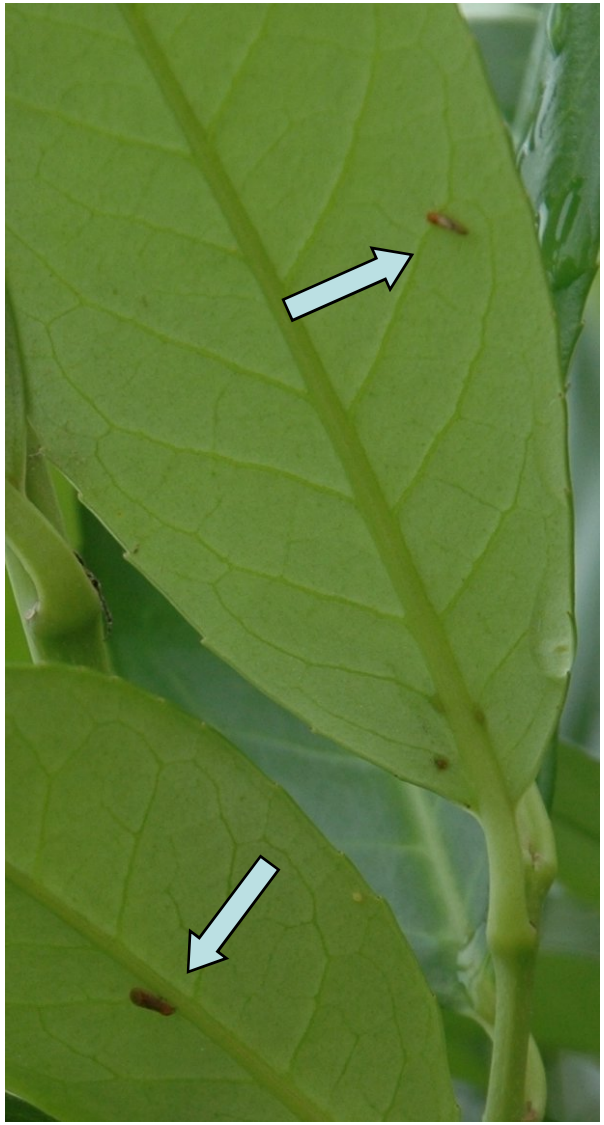
Results

C. Pruni capture and infectivity

- 2400 reimmigrant adults of *C. pruni* captured and released in 2007 and 4700 in 2008.
- In 2007, 16% of insect samples tested positive in PCR
- In 2008, 21% of insect samples tested positive in PCR

Results

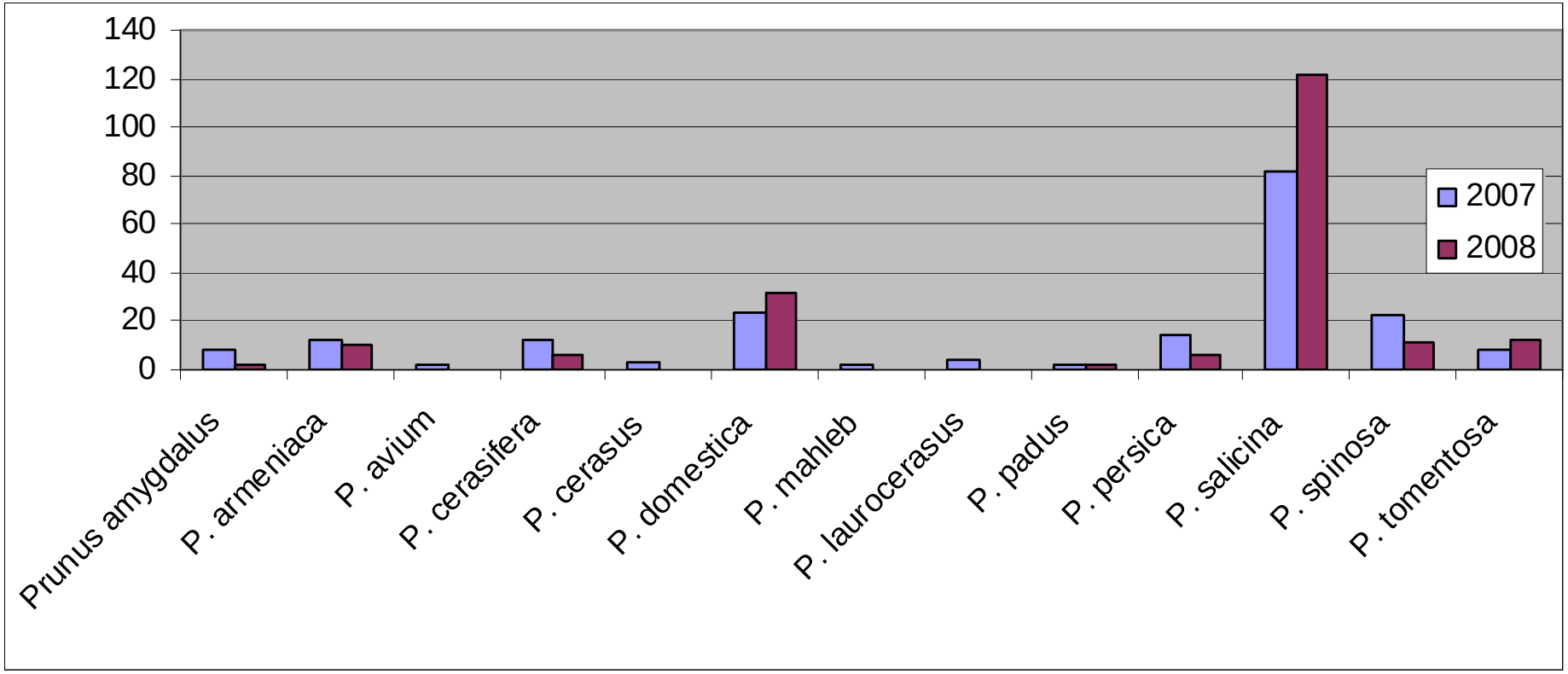
Reimmigrant *C. pruni* distribution on *Prunus* spp.



Results

***Reimmigrant C. pruni* distribution**

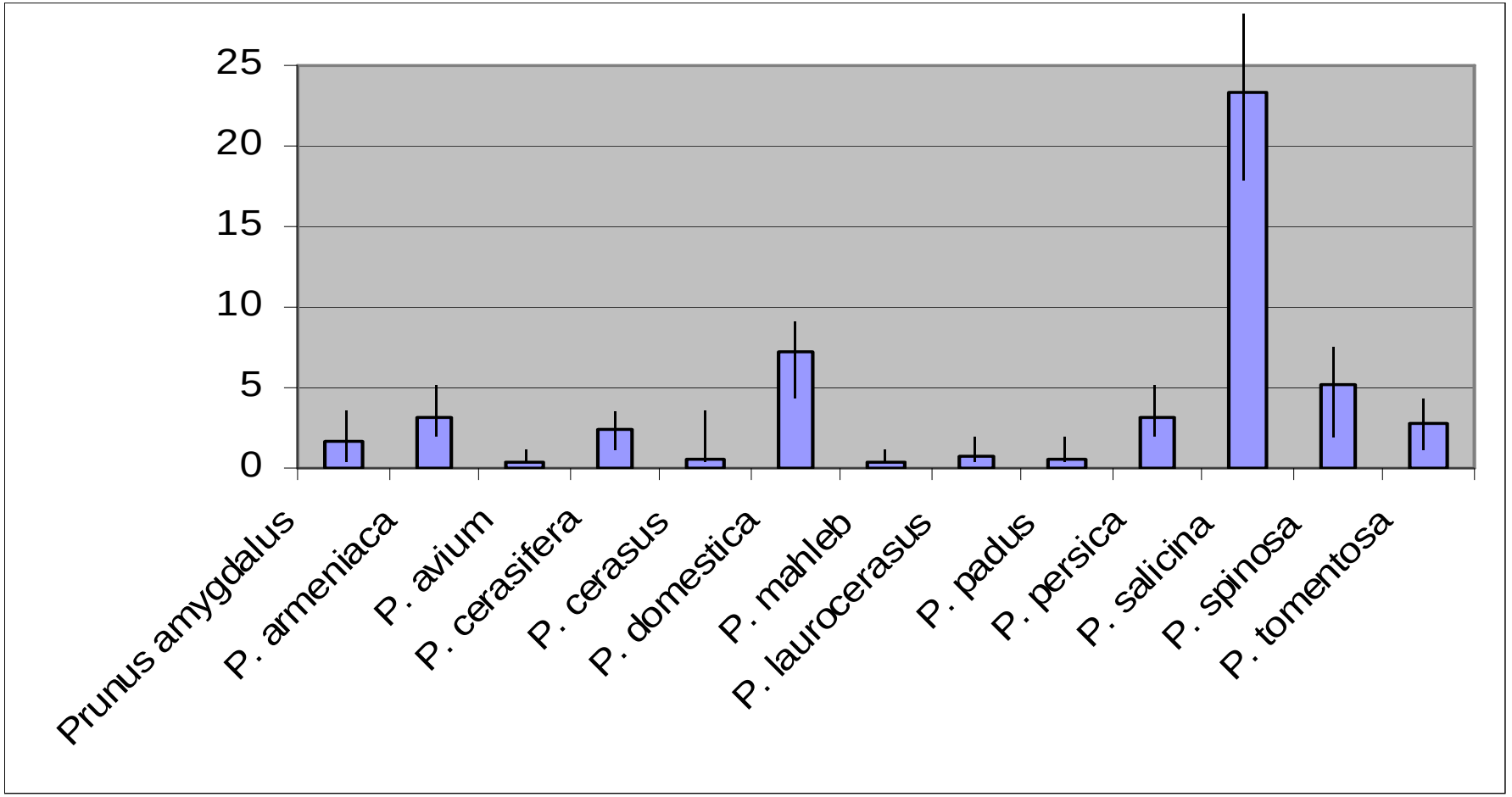
Total number of visual detected *C. pruni* on the 10 plants of each *Prunus* spp. in 2007 and 2008



Results

***Reimmigrant C. pruni* distribution**

Mean number of *C. pruni*/plant 2007/2008



Results

Disease progression

	Number of positive plants by using PCR		
	September 2007	**September 2008**	**September 2009**
Prunus amygdalus	**0**	**2**	**0**
P. armeniaca	**2**	**5**	**4**
P. avium	**0**	**0**	**0**
P. cerasifera	**1**	**2**	**2**
P. cerasus	**0**	**0**	**0**
P. domestica	**0**	**1**	**0**
P. mahleb	**0**	**1**	**0**
P. laurocerasus	**0**	**0**	**0**
P. padus	**0**	**0**	**0**
P. persica	**0**	**0**	**3**
P. salicina	**5**	**10**	**10**
P. spinosa	**0**	**0**	**0**
P. tomentosa	**0**	**3**	**3**

Conclusions

Prunus salicina is the most attractive species for C.pruni

P. salicina: 100% of plants are infected

P. armeniaca: 40% of plants are infected

Work in progress

Experiments by using olfactometers and fly-tunnels

Chemicals involved in host-vector interaction

Behaviour of the infected plants to a re-infection