

Imaginal phenology of *Cacopsylla picta* and *C. melanoneura* in Belgian apple orchards and hawthorn hedges

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INTRODUCTION

The two psyllids *Cacopsylla picta* (Foerster) (syn. *C. costalis*) and *Cacopsylla melanoneura* (Foerster) were identified as principal vectors of 'Candidatus Phytoplasma mali' for the first time in Italy, respectively in Trentino (Frisinghelli *et al.*, 2000) and in Val d'Aosta (Tedeschi *et al.*, 2002). Since this first discovery, these psyllids have seen their role confirmed repeatedly in other European countries. *C. picta* is considered as the main vector currently in Germany, northern Italy, France and the Czech Republic, and *C. melanoneura*, mainly in the Val d'Aosta.

In order to verify the presence and to determine the relative abundance of 'Ca. P. mali' potential psyllid vectors in Belgian apple orchards, weekly beatings of branches were carried out from 2007 to 2009, throughout the year, in 4 commercial apple orchards (one dessert and 3 cider) and in one untreated repository apple orchard, as well as in 2 adjacent hawthorn hedges.

MATERIALS and METHODS

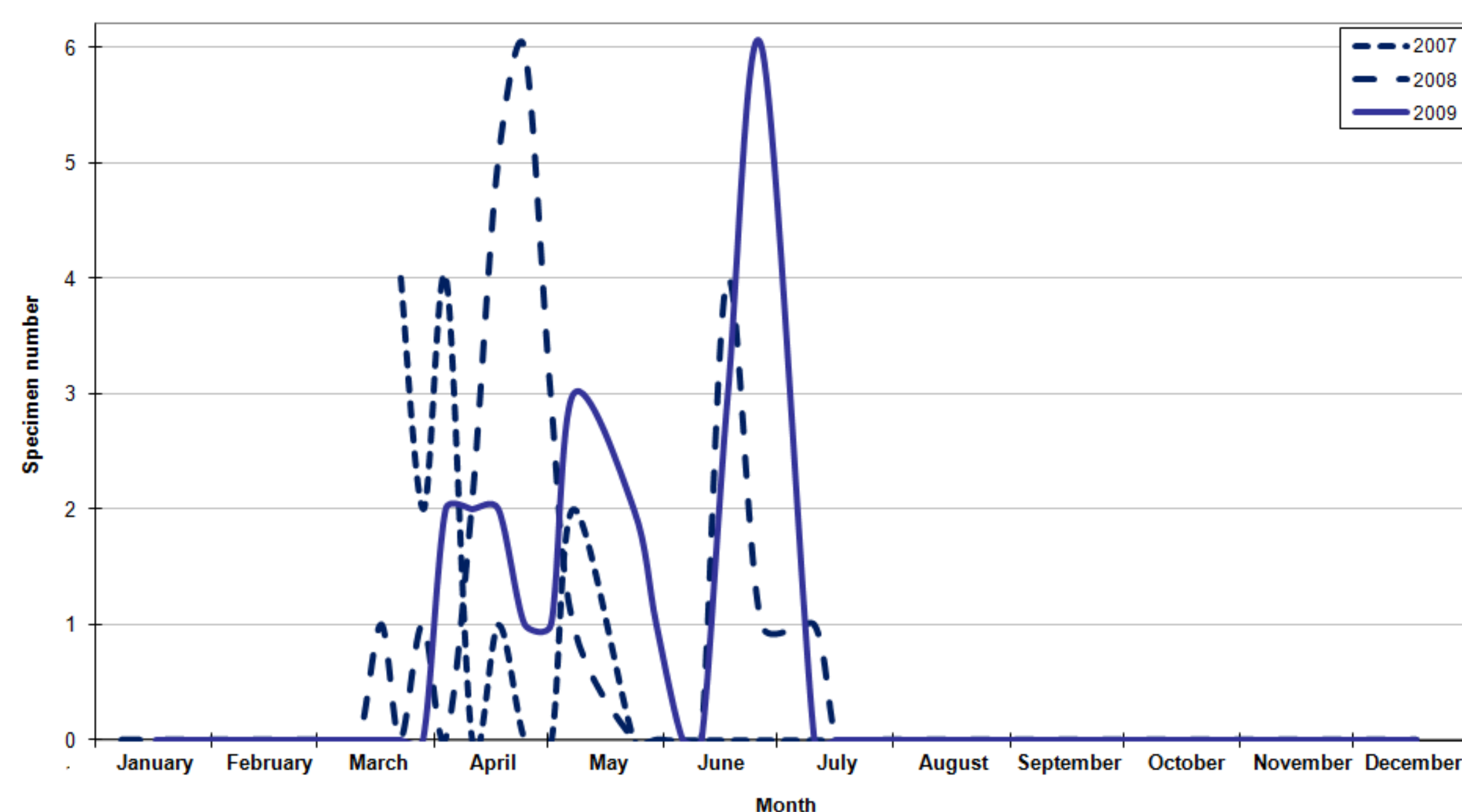
Weekly insect captures in the 5 apple orchards selected in different locations in the southern Belgium were conducted since March 2007 to December 2009 through the year using the beating method to assess the population dynamics of psyllids. Samplings were carried out in the 2 hedges of *Crataegus monogyna* Jacquin in the vicinity of apple orchards. During this inventory, numerous specimens of psyllids were caught, counted and identified to species level.

RESULTS and DISCUSSION

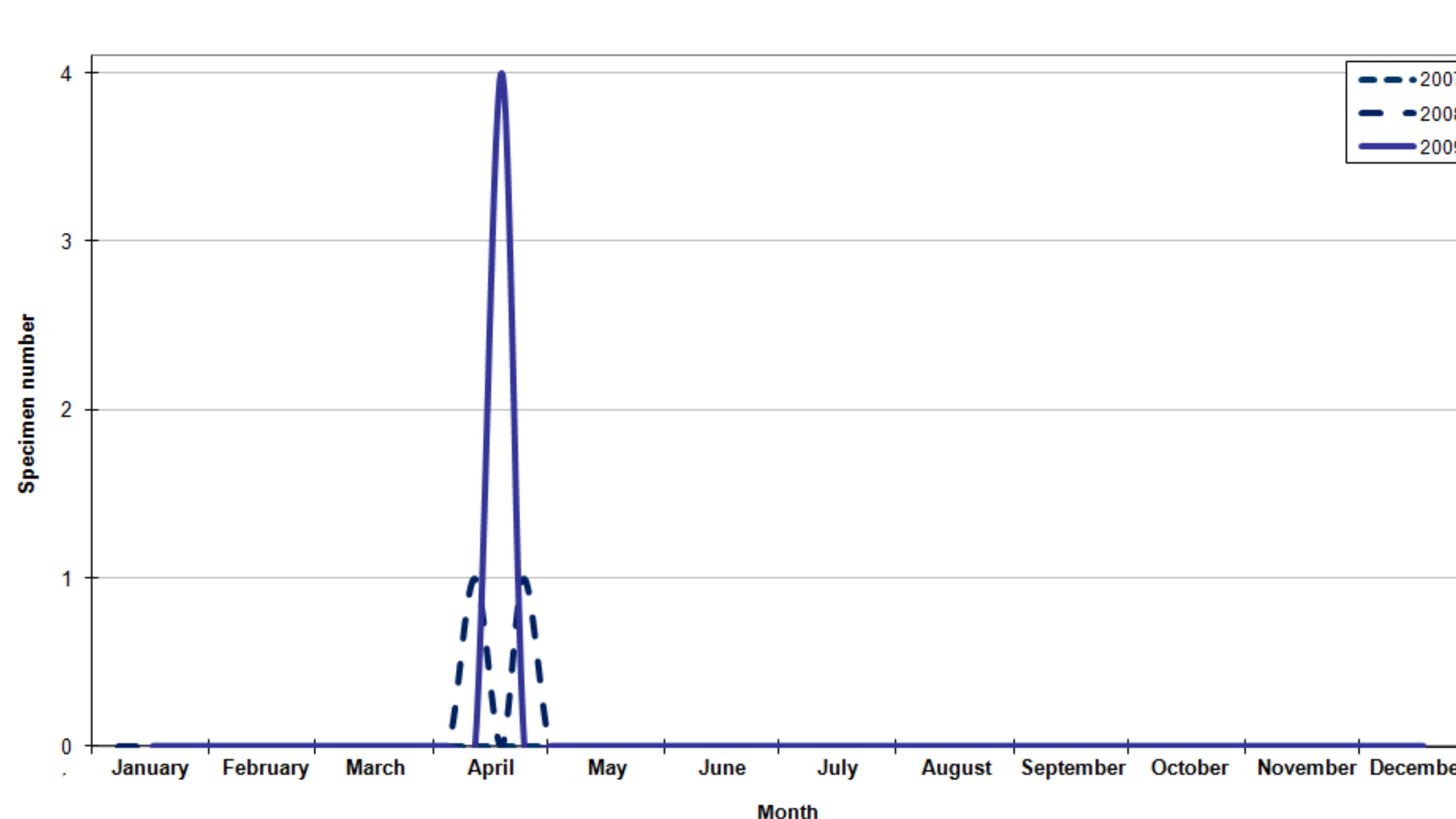
A total amount of 17142 specimens of psyllids were collected, belonging to 23 different species (with some undetermined taxa).

Amongst these collected psyllids, the two species *C. picta* and *C. melanoneura*, known as Apple proliferation (AP) vectors were recorded, respectively with 67 and 8087 individuals. Both species have already been detected in Belgian orchards in previous inventories (Haleng, 1991; Baugnée *et al.*, 2002).

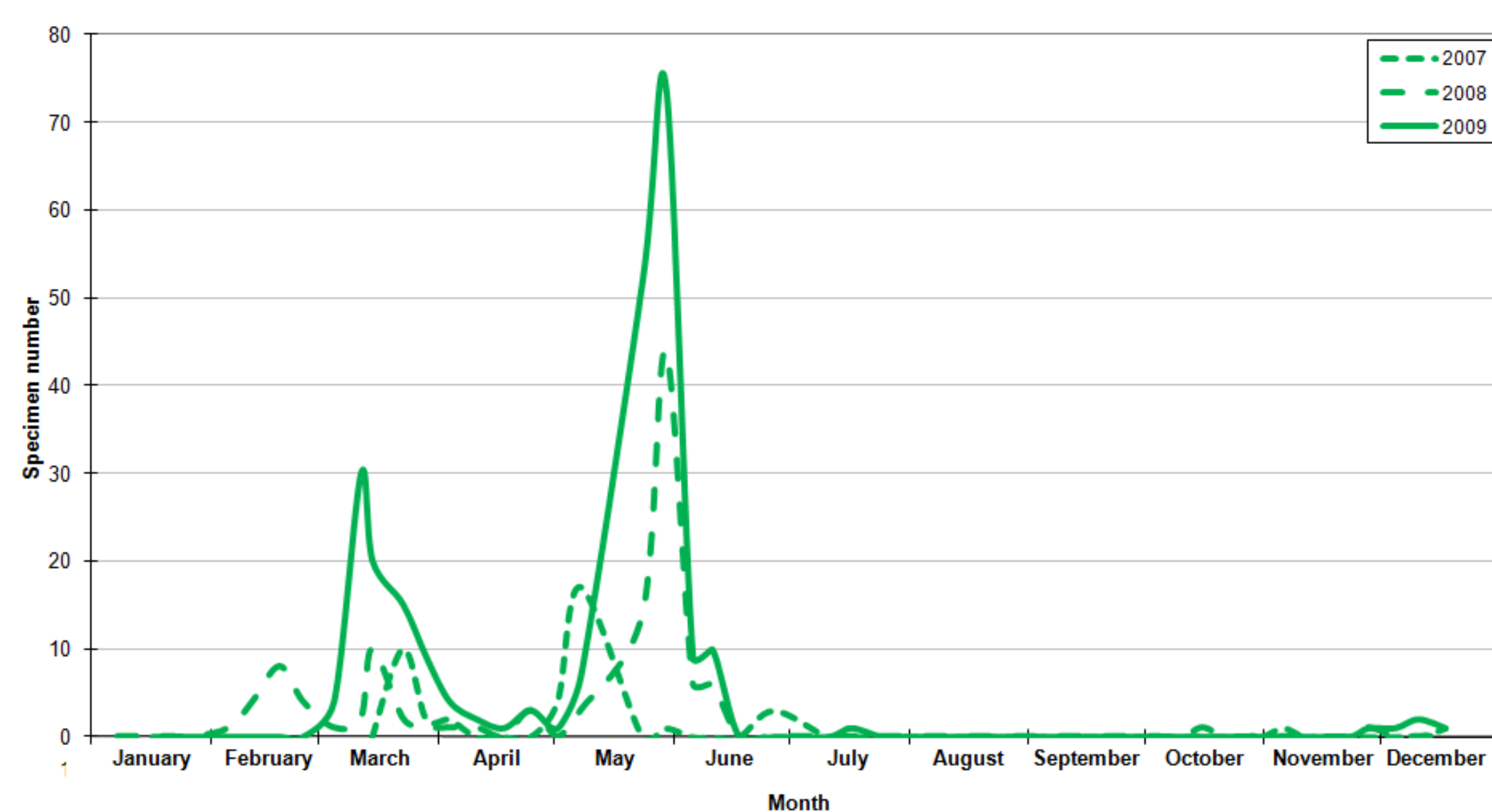
Imaginal phenology and abundance of *Cacopsylla picta* in 5 apple orchards during 3 years (2007 to 2009) of survey in Belgium



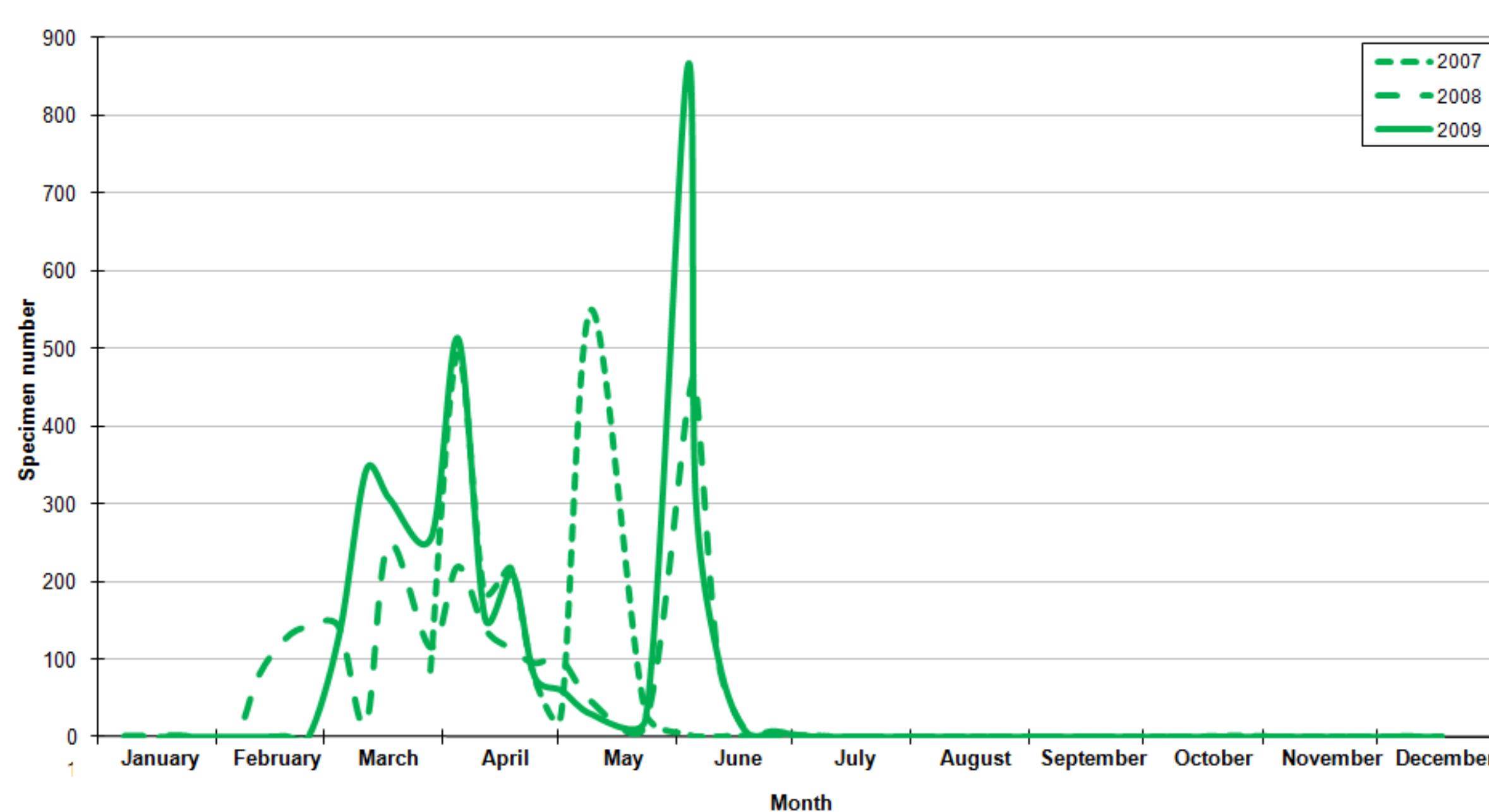
Imaginal phenology and abundance of *Cacopsylla picta* in 2 hawthorn hedges during 3 years (2007 to 2009) of survey in Belgium



Imaginal phenology and abundance of *Cacopsylla melanoneura* in 5 apple orchards during 3 years (2007 to 2009) of survey in Belgium



Imaginal phenology and abundance of *Cacopsylla melanoneura* in 2 hawthorn hedges during 3 years (2007 to 2009) of survey in Belgium



The periodic sampling of adult insects in the orchards and hedges showed for both species (see figures above):

- the absence during all the winter (except for some erratic *C. melanoneura* captures in October, November and December inside the orchards);
- the beginning of the imaginal activity just at the end of the dormant season, namely in February or in March;
- the occurrence of the first activity period until the end of April or even until the end of May;
- the end of the second activity period at mid-July, beginning at the earliest in May for *C. melanoneura* and in June for *C. picta*;
- the variable phenology from one year to another, with sometimes a shift of several weeks between the peaks (but *C. melanoneura* was always the earliest species).

Both species were represented in nearly all kinds of apple orchards but always with a low number of individuals, reaching a total of 61 *C. picta* and 403 *C. melanoneura* for the 5 locations and the 3 years. *C. melanoneura* was very abundant (7684 individuals) only in the hawthorn hedges adjacent to the orchards. *C. picta* was always rare as well in the 5 orchards (61) as in the 2 hedges (6 specimens).

These data can be used as a first approach to manage these potential 'Ca. P. mali' vectors in the Belgian apple orchards, taking into account the annual psyllid phenology.

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