

Relevant concentrations were observed also outside the home, and mainly in the driver's seat. Our data do not support other findings about the relevance of cockroach (4, 5). According to our results, the microfiber fabric was able to block the majority of the allergens detected during the test. Because results are expressed as μg of allergen/g dust, the use of the microfiber fabrics specifically reduced the amount of allergens in the dust sampled, and this result was not due merely to a reduction of the amount of dust released into the environment. Vinyl covers are commonly used to encase pillows and mattresses, but because they are impermeable to air, they are often uncomfortable. These preventive measures cannot be applied to easy chairs, office chairs, and driver's seats. However, a microfiber fabric with adequate technical features, like that used by us, is comfortable, because of its permeability to air (10.8 ± 0.1 l/min, mean permeability 90.6 ± 1.0 mm/s), and is also an effective barrier to cat and HDM allergens.

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Pollens in Parma 1995 to 2000

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Key words: aerobiology; airborne pollen; northern Italy; trend.

● IN Italy, aerobiologic monitoring has been extended to all types of pollens, and in this way new aeroallergens have been taken into consideration, as well as pollens previously considered minor or underestimated.

We report a study on the airborne pollen grains of increasing importance in the last 6 years in Parma (180 000 inhabitants, 100 km from the Tyrrhenian coast and 200 km from the Adriatic coast at 52 m above sea

The increase seems to be "man-made".

level). Air samples were analyzed in accordance with the Italian Aerobiology Association methods. The seasonal totals, pollen count mean/period, and start, end, and duration of season pollination trends were calculated (1, 2). The start and end of the pollen season were defined as the period when 2.5% of the total pollen census for each family pollen in the years was trapped (Fig. 1).

- 1) Corylaceae have shown a mean concentration and total pollen count increase trend.
- 2) Cupressaceae have shown an increased trend of the mean concentration and total pollen related to the delayed start and advanced end with reduction of the pollination period.
- 3) Oleaceae have shown an anticipation of pollination start and increase of pollination duration.
- 4) Aceraceae, Platanaceae, and Salicaceae have shown an increased trend of mean concentration and totals; Aceraceae and Platanaceae have shown a delayed pollination period, and Salicaceae have shown anticipation of the pollination period.
- 5) Corylaceae, Graminae, and Urticaceae anticipate the start and/or end of pollination period related to reduction of pollination duration.
- 6) Urticaceae have shown an increased trend of total and mean concentration pollens.
- 7) *Ambrosia* data have shown, apparently, slight positive modifications.
- 8) Meteorological data have shown a slight trend of variation on mean weekly temperature ($+0.1$ °C) and of rainfall ($+0.2$ mm).

The intensified volumetric observation of airborne pollen presence in Italy has led to a better documentation of the pollination periods of the most important allergenic plants.

In Parma, it is of relevance to consider the data about *Ambrosia* in relationship to its importance in allergology. This pollen was not trapped at the beginning of our observation. But its positive trend of the last years requires much more attention to the presence of *Ambrosia* pollen in Parma. At the moment, *Ambrosia* pollen could

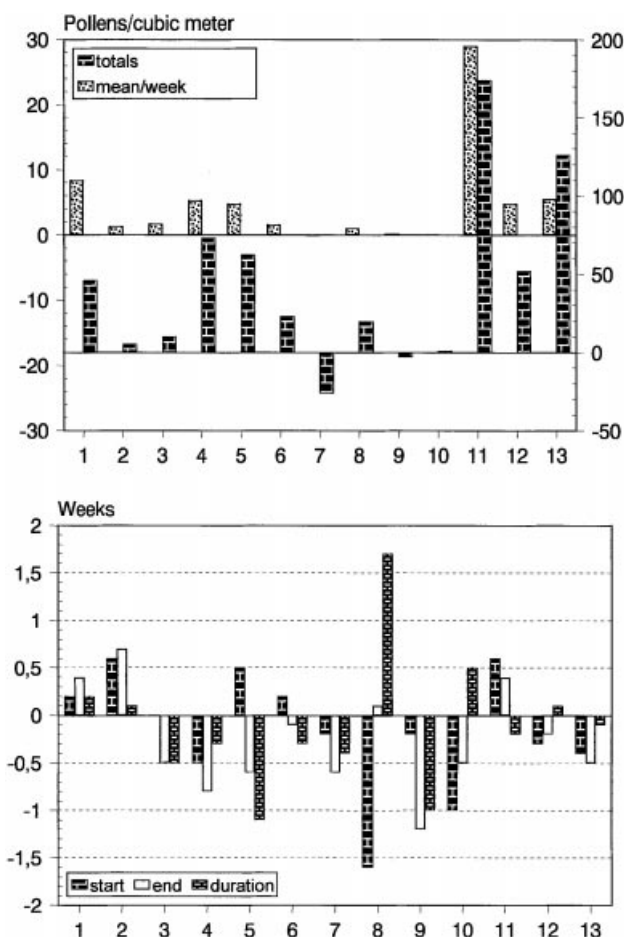


Figure 1. Top: total pollen count and mean pollen/week pollination trends for grasses and trees. Bottom: weeks trend of start, end and duration of pollination for grasses and trees. 1) Aceraceae, 2) *Ambrosia*, 3) Betulaceae, 4) Corylaceae, 5) Cupressaceae, 6) Fagaceae, 7) Graminae, 8) Oleaceae, 9) Pinaceae, 10) Plantaginaceae, 11) Platanaceae, 12) Salicaceae, and 13) Urticaceae.

come from neighboring regions (Lombardy) (3). The trapping of this pollen in Parma, when the wind blows prevalently from the north-northeast, could confirm our hypothesis.

The earliness of Oleaceae pollens probably means that new essences have been introduced; we have to consider the success of some essences in private/public gardens. Fagaceae, Aceraceae, Platanaceae, and Salicaceae are probably increased in number or have increased their pollen output.

The behavior of Corylaceae and Cupressaceae pollens could be produced either by the increase by man of the tree presence in the region or by conditions that support more pollen production.

We have considered a short period of 6 years that should be a limit to understand the results, but we think that observations over a longer time could hide changes on pollen distribution and concentration in a certain period.

It is evident that not only nature but also man plays an important role in plant distribution (4–6). It is also important to plan cities with particular attention to the arboreal essences used, with deliberate choice after a careful evaluation of researchers' suggestions (7).

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