

# Oak has secret weapon against caterpillar

May 31 2010, by Hans Wolkers

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A plague of caterpillars is munching its way through the leaves on our trees. Oak forests are suffering the most, reports the Nature Calendar. Cause for concern? Not according to entomologist and expert on insect pests, Leen Moraal of Alterra, part of Wageningen University (The Netherlands).

'The caterpillar plague that we are seeing now is caused by three species of butterfly that we call the Spring Trio: the large and the small winter butterflies and the green [oak](#) leaf roller moth. The eggs of these species overwinter on the buds of trees, and the caterpillars come out in early spring.'

'Oaks are the biggest favourite because they have very few digestibility-reducing substances in their leaves so early in the season. Only during the month of June is there enough tannic acid in the oak leaves to deter the insects. So the [larvae](#) are racing against the clock in order to come out before the tannic acid spoils their dinner. Most of the caterpillars emerge from their pupae by mid-June.'

'The oak has invested in a secret weapon so as not to be annihilated by the caterpillars: it has reserve buds that come out in a second round later in the summer. So the trees don't die. The caterpillars are a stress factor, though: the trees lose energy to them. And you can see that from the growth rings, which are narrower in years when more leaves were eaten. If you get another stress factor on top of the [caterpillars](#), such as drought for instance or so much rain that soils get waterlogged, the trees are weakened. Then the oak splendour beetle takes advantage of the tree's

lowered resistance and bores its way in. And that can be the death of the tree.'

'Since we started keeping records of insect plagues in 1946, they have kept shifting. Some species have disappeared completely, while others are thriving. Wetter, warmer winters are bad for many insects because fungi and bacteria get more of a chance to infect the larvae. Species that lay eggs before the winter stand a bigger chance of surviving, because eggs are not susceptible to fungi or bacteria.

Spraying with insecticides is pointless. Under normal circumstances, the tree has nothing to fear from the caterpillars' depredations. What is more, many bird species are benefitting at the moment from the abundance of proteins.'

Provided by Wageningen University

Citation: Oak has secret weapon against caterpillar (2010, May 31) retrieved 12 September 2024 from <https://phys.org/news/2010-05-oak-secret-weapon-caterpillar.html>

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