
Pollen from pine plantations generates problems - what if in addition they were transgenic pines?

Plant pollination takes place in different ways. One way is done by bees, butterflies, humming birds and bats. Another type of pollination is caused by wind blowing through plants that have their reproductive cells in open flowers. This happens with coniferous trees (for example, pines). For fecundation to be effective, these trees have to produce an enormous amount of pollen that the wind blows away and distributes, passing it from plant to plant and covering great distances.

Pollen can produce allergic reactions, such as conjunctivitis, hay-fever, asthma and general malaise. The symptoms of irritation and a watery secretion in eyes and nose announce the arrival of spring because in general they appear when the mucous comes in contact with environmental pollen transported by the wind. Seasonal hay-fever is suffered by 1 in 6 of the industrialized world's inhabitants.

Although pine pollen has been considered to cause a low degree of sensitivity, the counts during pollination are usually very high. Allergenic proteins have been found in a study carried out with the pollen from *Pinus radiata*, very abundant in the atmosphere in New Zealand, and tests have been carried out for cross reactivity with the pollen of a species of grass (*Lolium perenne*). Recently, other authors have found a considerable increase in the allergenic properties of this pollen due to the effect of air pollution.

Furthermore, the increase in levels of carbon dioxide associated with the warming of the earth's atmosphere may be causing an increase in allergies. Researchers have affirmed that in an atmosphere with twice the amount of carbon dioxide than there is now, there would be 61 per cent more pollen.

In this scenario two factors further increasing the problem are introduced: large-scale pine plantations and additionally, the project to convert them into transgenic pine plantations.

Regarding large-scale monoculture pine plantations, it may be inferred that the phenomenon related to pollination would be increased, one could say in an exponential way. For example, in Chile, the area covered by pines is over one and a half million hectares. It is not hard to imagine what size the clouds of pollen could be from such an enormous quantity of trees of the same species, generally close together and covering vast spaces. The evidence from neighbours in the Community of Lumaco in the Traiguén Commune, IX Region, reports that "in October, the pollen from the pines leaves the fields all yellow. Health problems arise. The market garden gets covered in yellow and the leaves of the plants have to be watered to enable them to survive." "(...) really nobody knows what happens with pine pollen. Perhaps it is causing us harm. We hear about contamination and how water has to be to be able to drink it, but finally one consumes what one has handy." Last August even the press recorded a phenomenon called "Yellow rain" a layer of yellowish-green powder that covered pavements, streets and cars and turned out to be pine pollen.

Something similar happened in Japan, where since 1950 there has been a policy promoting

plantations of practically a single species of fast growth conifer (*Cryptomeria japonica*), which two years ago covered 10 million hectares. Now, each spring, a great cloud of pollen descends on Japan, leaving 2 out of 6 inhabitants affected by allergy. In Tokyo over the past ten years, the proportion of affected population has increased from 7 to 20 per cent (see WRM bulletin 60).

Furthermore, concerning genetic manipulation of plant varieties, indications of possible cases of allergy to transgenic maize pollen have been observed. In July 2003, in Mindanao in the southern region of the Philippines, various people from a rural population living in the proximity of a transgenic Bt maize plantation (manipulated to exude the *Bacillus thuringiensis* toxin) suffered from fever, headaches, nausea, respiratory and intestinal disorders, general weakness and skin problems. The situation coincided with the flowering season of transgenic maize in the zone and persisted over several weeks. This led the Social Action Centre to ask for help from various organizations and local NGOs, such as Searice and Masipag, to try to identify the cause of the symptoms and to find a solution.

The Director of the Norwegian Institute for Genetic Ecology, Dr. Terje Traavik, carried out blood tests and followed up on the case. Dr. Traavik stated that the antibodies present in the blood showed that the persons affected had been exposed to the Bt toxin over the past few months. That is to say, that the blood tests indicated that the symptoms were the result of having inhaled pollen from GM maize.

In an extrapolation using common sense and prudence, the following question arises: what would happen if, to the already problematic disorders of massive pollen counts from commercial pine plantations are added those of the uncertainty and risk of unknown effects from transgenic pollen from pine trees that have been genetically manipulated for purely commercial purposes? Perhaps this is yet another element to say a resounding NO to transgenic trees?

Article based on information from: testimonials gathered by Ricardo Carrere during a visit to the IX Region of Chile, Comuna Traiguén, Comunidad Lumaco, in June 2004; "Preliminary Results of Study Show Immunological Reaction to Bt Toxin", *Gentech-news* 91, http://www.blauen-institut.ch/Tx/tM/tm_nov/tm0913.html ; "La invasión de las plantaciones forestales en Chile", José Araya Cornejo, Observatorio Latinoamericano de Conflictos Ambientales, <http://www.wrm.org.uy/paises/Chile/invasion.pdf> ; "'Lluvia amarilla" es polen de pino", <http://www.australtemuco.cl/site/edic/20030819023407/pags/20030819025615.html> ; "Pinos", <http://www.uma.es/Estudios/Departamentos/BiolVeg/02Aer/00HAer/PolPin.html> ; "La producción de polen crecerá significativamente en 50 años", <http://www.diariomedico.com/edicion/noticia/0,2458,129561,00.html>