NEWS OF THE WEEK

BIOENGINEERING:
Preliminary Data Touch Off Genetic Food Fight

Martin Enserink

The controversy in Britain over genetically modified food reached a new high on 12 February, when preliminary data from experiments on potatoes made headlines for the second time in 6 months. The latest media frenzy was touched off when 21 European and American scientists released a memorandum in support of Arpad Pusztai, a protein biochemist who was suspended last year by the Rowett Research Institute in Aberdeen, Scotland, after he appeared on a TV show and sounded an alarm about potatoes altered to resist pests (Science, 21 August 1998, p. 1124). After reviewing the case, the scientists said Pusztai's statements were correct and demanded that the Rowett Institute exonerate him.

Their action immediately prompted members of the British House of Commons to urge a moratorium on genetically modified food and triggered allegations that the government or the biotech industry had a hand in suppressing the data. "This raises questions about the extent to which the biotech industry seeks to permeate every level of government," says Labour MP (Member of Parliament) Alan Simpson.

The Rowett affair erupted on 10 August 1998, when Pusztai appeared on Granada's TV show World in Action and declared that transgenic potatoes had stunted growth and suppressed immunity in rats that had eaten them for 110 days. The potatoes contained a gene encoding a lectin, a plant protein that can deter insect pests. The world press immediately besieged Pusztai's institute, which initially supported the claim; Rowett chairman and European Parliament member James Provan urged European Union (EU) President Jacques Santer and British Health Secretary Frank Dobson to require more rigorous testing of transgenic food. Just 2 days later, however, the institute's director, Philip James, said Pusztai's data turned out to be "a total muddle"; the disconcerting conclusions, James said, were based on experiments with nontransgenic potatoes spiked with a lectin. The institute apologized for spreading "misleading information," suspended Pusztai, and turned over his data to a four-member audit committee for investigation.

That committee's report, released on 28 October 1998, didn't mention the alleged mix-up; instead, it acknowledged that experiments with lectin-transgenic potatoes had been carried out, but concluded they did not support the suggestion that the potatoes affected growth, organ development, or immune function in rats. Pusztai, who was forbidden by Rowett to talk to the press, sent copies of the audit report, his
own rebuttal to it, and a transcript from the *World in Action* show to dozens of
scientists who had asked for them, asking them to review the material.

The responses, collected by protein chemist Edilbert Van Driessche of the Vrije
Universiteit in Brussels, were presented along with a statement last week at a press
conference in the House of Commons. The statement contends that Pusztai's data
do suggest that the transgenic potato affected the rats' immune systems, affected
their organs, and slowed their growth. The data in the audit report, it says, “appeared
to be arbitrarily selected and biased towards brushing aside the conclusions of the
experimental findings.”

Pusztai's supporters also point to a follow-up study performed last fall by Stanley
Ewen--a pathologist at Aberdeen Royal Hospitals who has worked with Pusztai for
10 years--who examined the guts of the rats from Pusztai's experiments under a
microscope. Ewen, who presented the results at an EU-sponsored lectin meeting in
Lund, Sweden, in November, found that the animals fed a transgenic diet had
symptoms of infection, with white blood cells accumulating in their gut lining. The
same reaction didn't occur in rats that had been fed a nontransgenic potato diet
spiked with the same lectin. Although it's unclear how the diets could have had
different effects, “they are profound changes,” says Thorkild Bøg-Hansen, a lectin
expert at the University of Copenhagen, “that require further investigation.”

The audit committee's chairman, Rowett senior scientist Andrew Chesson, says he
stands by his report but doesn't want to discuss the reviewers' findings, to avoid a
debate about raw data in the press. Pusztai should publish his results in a scientific
journal, Chesson says: "If the data are sound, I don't think he'd have any problem
publishing them."

The new analyses of Pusztai's data immediately led Simpson to demand a
"complete moratorium" on genetically modified food--a measure British Prime
Minister Tony Blair said he wasn't ready to take, as he strongly believed the new
food was safe. Simpson also says, "If the data are now being corroborated,
someone has to explain the basis upon which his research was suppressed."
Several MPs expressed suspicions about the government's role in the affair, which
were stirred up even further when a newspaper revealed on 16 February that
science minister Lord Sainsbury once had a financial interest in a company that
owns a patent on the cauliflower mosaic promoter, a gene often used in plant
genetic modification. Conservative MPs said Sainsbury was a biotech "advocate"
and demanded his resignation. But Chesson says his institute was not influenced by
the government or the industry and has "never ever" attempted to suppress any
results. "The sooner the data get into the scientific journals, the happier we'll be," he
says.

Whatever the fate of the findings, most parties agree on at least one thing: The affair
has been an outstanding example of how not to communicate scientific findings to
an already confused and worried public.
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