

CANADIAN Geographic

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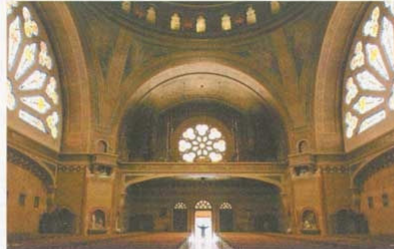
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Discovery



FOOD FIT FOR A QUEEN

ENTOMOLOGY

There is a point in early spring when temperatures climb just enough to wake honeybees that have survived the winter, but not quite enough to arouse the flowers that sustain them. Environmental pressures, such as pesticide use and urban sprawl, can deplete flower populations, making those food sources scarcer. But a new Canadian-made pollen substitute may help beekeepers cheat nature by establishing stronger hives early in the season.

Pollen substitutes have long been used by apiarists but have paled in comparison with the real thing. In developing them, researchers have focused on using proteins that are cheap and plentiful, such as soy, rather than addressing the bees' nutrient requirements and taste preferences. But environmental biologist Abdolreza Saffari at the University of Guelph in Guelph, Ont., discovered that soy not only impedes

the absorption of the proteins needed to maximize honey production but also shortens the bees' lifespan.

"It's like stopping at the first fast-food restaurant you see," he says. "That burger is easy to get, but [eventually,] it's going to kill. You have to look at what's good for you."

So Saffari developed a substitute made with ingredients that, to a bee, are nutritious and tasty.

In the 1990s, Saffari began testing 200 different ingredients, including grains, such as wheat and rice, and plant materials, like petals, seeds and roots. In 2002, as a graduate student, he teamed up with pollen expert Peter Kevan and animal nutritionist James Atkinson at Guelph to hone the recipe. And by 2003, they were beginning field trials.

"My bees just ate it up," says beekeeper Les Simonffy of Hamilton, Ont., who fed his bees a powder that contained the proprietary pollen recipe. "I had very strong hives early on."

The honeybee relies on energy-rich nectar and protein-rich pollen for its sustenance. Before flowers bloom, apiarists feed their bees pollen substitutes to kick-start healthy hives.

The substitute, called Feedbee, was tested in 100 hives of the European honeybee (*Apis mellifera*) over three years, and the result was a doubling of bee population and honey production compared with typical soy-based substitutes. It equalled the results for natural pollen feed.

This year, Feedbee is being mass-produced by a Toronto-based company, Grain Process Enterprises Ltd., and beekeepers in Canada, Spain, Australia and the United States are starting to place orders.

"If you care about your bees," says Saffari, "you can't sacrifice quality." After all, even the smallest creatures deserve a good meal.

Cynthia Reynolds