

Winner 2008



## MUSHROOMS TO THE RESCUE!

*Ecovative | Eben Bayer*

Eben Bayer grew up on a maple farm in Vermont (USA). To fire up the boiler, they'd use wood chips, which is how Bayer first learned about mycelium or "nature's glue". Heaps of wood chips would – as you can imagine – start to sprout mushrooms when left exposed to the elements, and when it was time to move the wood chips into the boiler, chunks would stick together due to the mycelium in the mushrooms. At the time, Bayer probably didn't think he would ever use this knowledge to transform the packaging industry, but that is exactly what happened.

During his college years at Rensselaer Polytechnic Institute in Albany, New York, Bayer teamed up with Gaven McIntyre for an assignment where they needed to come up with a patentable idea. Their professor, Burt Swersey, was unimpressed by their initial thoughts, telling them they weren't ambitious enough. That's when Bayer remembered about mycelium.

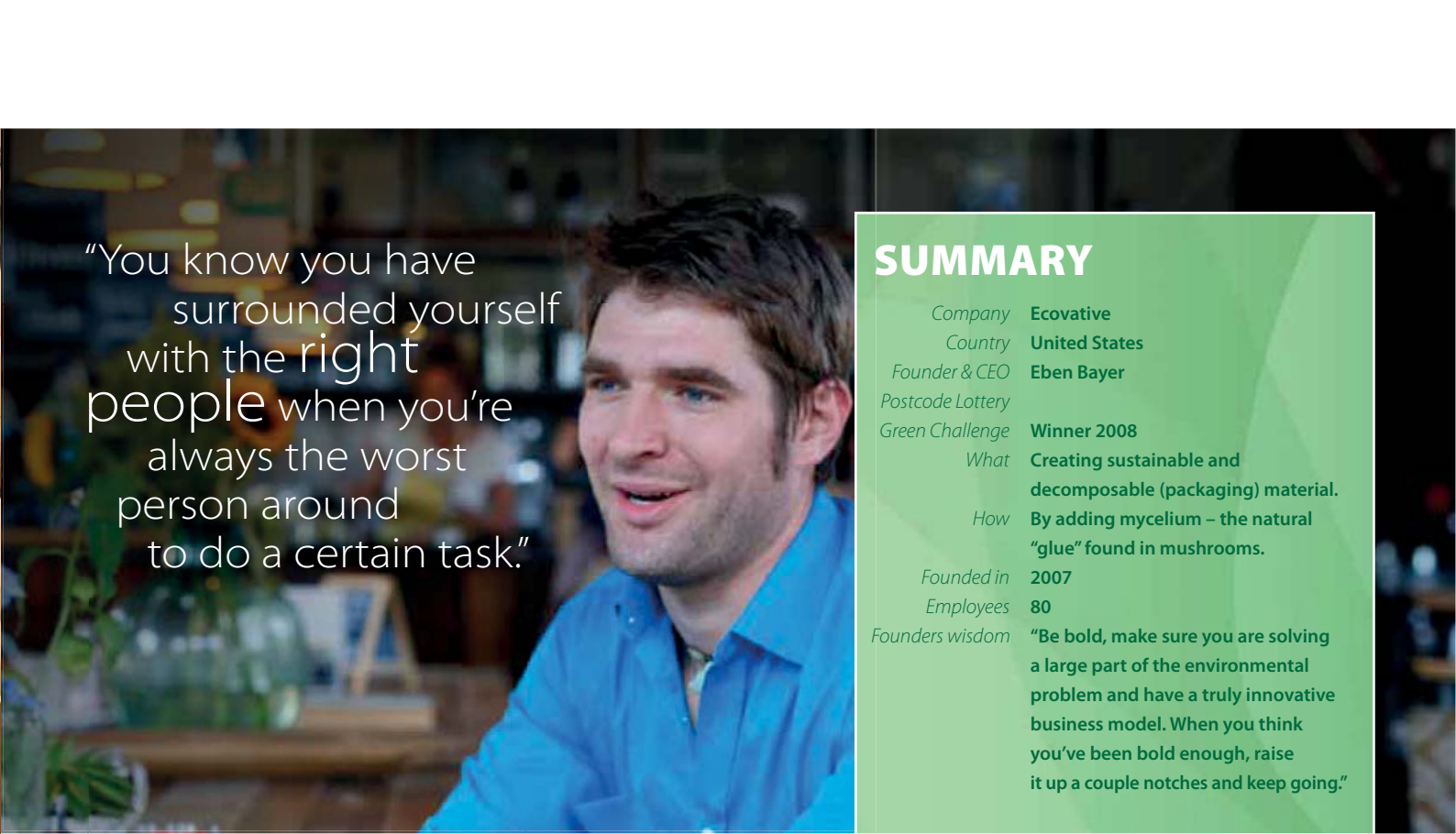
### **From students to start-up**

Both Bayer and McIntyre had jobs lined up after college, and trading security for the uncertainties of their own start-up was definitely not easy. In fact, Bayer didn't actually quit his "real" job until the very day he was supposed to start. He went home that day and together with his father he built a small bio lab on their farm where he'd work all summer on their technology. The inherent insecurities of a start-up

weren't the only worries Bayer had, as questions about the scalability and cost-competitiveness of the product were real and still unanswered. That first summer, Bayer and McIntyre would call companies day after day to try to map their theoretical innovation to a practical product. A few months later, they founded Ecovative.

Ecovative takes agricultural waste and adds mycelium to create all sorts of sustainable and easily decomposable packaging material as an alternative to the environment's biggest enemy: styrofoam.

Looking back on it now, Bayer says it probably would have been easier to start with a more consumer-facing product. "People won't refrain from buying an iPhone because of its environmentally-unfriendly packaging,"



“You know you have surrounded yourself with the right people when you’re always the worst person around to do a certain task.”

## SUMMARY

<i>Company</i>	<b>Ecovative</b>
<i>Country</i>	<b>United States</b>
<i>Founder &amp; CEO</i>	<b>Eben Bayer</b>
<i>Postcode Lottery Green Challenge</i>	<b>Winner 2008</b>
<i>What</i>	<b>Creating sustainable and decomposable (packaging) material.</b>
<i>How</i>	<b>By adding mycelium – the natural “glue” found in mushrooms.</b>
<i>Founded in</i>	<b>2007</b>
<i>Employees</i>	<b>80</b>
<i>Founders wisdom</i>	<b>“Be bold, make sure you are solving a large part of the environmental problem and have a truly innovative business model. When you think you’ve been bold enough, raise it up a couple notches and keep going.”</b>

says Bayer; “and an actual product is much easier to sell than a material.” But Bayer and McIntyre would find that out the hard way.

The agricultural waste, which Ecovative buys from the farmers, thus generating an additional source of income for them, is ground into particles. When the mycelium is added, it grows through and around the particles, filling every crevice and producing a solid structure in an average of five days.

The beauty of Ecovative is that it is completely cost-competitive in the plastics industry (even with gas prices as low as they are today) and is a relatively easy process to replicate. The type of agricultural waste used does not really matter, as long as it is a woody type of plant stock. In Asia, for example, rice straw could be used.

### Competing with giants

Like any other new business, Ecovative has had its challenges. “In the past 70 years, the plastics industry has built profitable businesses; it’ll take some time to break that down,” explains Bayer. “From a performance standpoint, the plastics industry is value-optimized to the max. Because we didn’t have a specific product from the start, it was especially difficult, as we couldn’t focus all our attention and resources on one area. In 2011, we started working with Dell, providing packaging material for their electronics. That was a huge breakthrough for us.”

Besides revolutionizing the packaging industry by producing an alternative to styrofoam, they’ve also found replacements for particleboard, plywood and fibreboard. In 2016 they’re also launching their own line of fully grown furniture for the home and office as part of their strategy of reaching more people directly. They’re currently trying to figure out how to scale up further without losing focus. Most of their customers are in the United States, but they’re keen to expand their horizons.

### Out of the basement and into the world

In 2008, Ecovative won the Postcode Lottery Green Challenge competition, which kick-started the project. It gave Ecovative global validation for its business case, and allowed them to move out of a start-up incubator’s basement and build their first plant. In 2011, the DOEN Foundation took a minority stake in Ecovative. Today, they have 80 employees and almost 5,000m<sup>2</sup> (over 50,000 sq. ft) processing space which processes a million pounds (over 450 metric tonnes) of agricultural waste per year.

“The Postcode Lottery Green Challenge is the world’s largest competition in which contestants think of commercial ways to combat climate change”, says Bayer. It is an audacious challenge which deserves audacious submissions.” Bayer returns to the Postcode Lottery Green Challenge every year and stays in touch with alumni: “it’s an incredibly valuable network to be part of,” he explains.