



# TUNNEL VISION



THE TITLE OF HIS THESIS WAS A BIT OF A MOUTHFUL, BUT NSW EXOTIC MUSHROOM SPECIALIST NOEL ARROLD CONCEDES IT'S NOT AS BIG AS THE MARKET HE'S HELPED CREATE.

words KIRSTY MCKENZIE photography KEN BRASS

**When it came to the crunch, science student Noel Arrol had a choice of doing his PhD on diseases in wheat or diseases in mushrooms. "I figured if I went with wheat, there would be a drought every two years and it would take me forever to complete," Noel recalls. "Being a practical person, I went with mushrooms."**

Which is how the man who published a thesis entitled *The effect of Ditylenchus myceliophagus and Aphelenchoides compositicola on the cultivated mushroom* ended up as simply "the Mittagong mushroom man".

After leaving Sydney University in 1969, Noel headed overseas and worked with distinguished geneticists in the US, UK and Germany, developing better varieties of mushrooms. He returned to Australia in 1987 and set

up a mushroom spawn laboratory in the NSW Southern Highlands town of Mittagong. "Back then, the white mushroom was the only variety that existed in Australia," Noel says.

"Then the man who was chief buyer for Woolworths came back from a trip to the States and showed me a picture of all the mushrooms you could buy in the supermarkets there. Basically, he gave me an order to supply the lot. So, being a practical person, I went out of that business and into importing mushroom cultures from France, America, England and Hong Kong."

Noel's business, called Li-Sun Exotic Mushrooms, not because of any Asian connection, but because it's an abbreviation of the names of his two children, started with Swiss browns. Then he moved on to cultivating shiitakes, pink, white and yellow oyster mushrooms, chestnuts and shimejis.

**Above:** Noel's mushroom farm is located in a 650-metre long disused railway tunnel on the outskirts of Mittagong where he replicates the environment of the forest floor where mushrooms grow naturally.

**Left:** Humidity is essential for healthy mushrooms and Noel controls the levels in both the laboratory and the tunnel.

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As the business grew and hotels and restaurants as well as domestic cooks snapped up his produce, he moved into wood ears, enokis and king browns. These days, Noel has moved out of Swiss browns and prefers to focus on the exotic varieties.

His "farm" is located in a 650-metre disused railway tunnel on the outskirts of Mittagong. "Basically, the tunnel replicates the conditions in the forest where the mushrooms occur naturally," Noel explains. "It's cool, the light is dim and there's higher humidity than outdoors. In winter, when conditions tend to be dry, we actually spray the tunnel with water, but for the rest of the year, the ideal conditions occur naturally." More than half the tunnel is lined with compacted sawdust logs, which provide the growing medium for shiitakes, the most popular exotic in Australia, probably because of its stronger flavour.

The other substrates Noel uses are bags of pasteurised straw, which replicate conditions favoured by shimejis and oysters, and a Japanese-devised method of bran and wheat in bottles, which produces a good base for king browns, enokis and chestnut mushrooms.



"To all intents and purposes, our farming practices are organic," Noel says. "We haven't gone for certification because of the cost, but there are no chemicals involved in our production, we only crop once and we sterilise the growing medium with heat. The sawdust comes from dead eucalypts and after cropping we use the logs for fuel for our slow-combustion stove. The other mediums (straw and bran and wheat) end up as compost and mulch, which eventually break down into the soil. The only intervention we use is pulling paper collars around the enokis and king browns to encourage them to grow taller towards the light."

**Top:** Li-Sun Exotic Mushrooms produces (from left) enokis, chestnuts, shimejis, yellow, pink and white oyster mushrooms as well as king browns.  
**Above:** Mycelia are produced in glass bottles in the laboratory before being introduced to the growing medium where they mature into fruiting mushrooms.

While the business has grown beyond his wildest dreams, Noel estimates that he produces 1500kg of mushrooms a week, "still small fry when compared with a white mushroom farm that might produce 25 tonnes". "Still, it's a high-value crop," he explains. "We sell as much as we can produce because, being Australian-grown, our mushrooms are fresher than anything imported from China or Korea," he says. "The entire Australian exotic mushroom industry supplies only about 30 per cent of what is consumed here. So there is plenty of room for expansion."

As with any modern farming enterprise, that research and development occurs in the laboratory, where Noel collects the mushroom spores, which are grown out in test tubes as mycelium, which, when introduced to the growing media, develop into fruiting mushrooms.

"I'm constantly trying to find the best strain for the growing conditions," Noel adds. "The microbiologist in me likes the technical and innovative side of the business, but I also enjoy the marketing aspects of it."

As well as the supermarkets, Li-Sun mushrooms are sold at growers' and farmers' markets in NSW, ACT and Queensland. "I like going to the markets because it's a great opportunity to educate customers about the lesser-known varieties," Noel says. "People might be reluctant to try a mushroom they haven't had before because they don't know how to cook it. Once we talk to them and give them a recipe, chances are they'll be back next week to buy more."

Back in the laboratory, Noel would love to be able to add maitake mushrooms, another popular Asian variety, to his range. It's currently not allowed to be imported into Australia, but because of its medicinal properties and good flavour, he's hopeful the situation may change in the future. Meanwhile, he's preoccupied with trying to recreate a pink shimeji, which suddenly turned up a few weeks ago.

"That's how new varieties occur," he explains. "They spontaneously generate because of some fluctuation in the growing conditions. So now I'm trying to work out what I did accidentally to produce a pink strain so I can replicate the conditions." 