# How to grow a 100-year-old tree in 15 years, meet Kerala's Miyawaki

Ayyappan R
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Left: M R Hari at Inova Multimedia, a company he had founded. Right: First Miyawaki forest in Kerala at Puliyarakonam.

For over a decade a Thiruvananthapuram-based entrepreneur had attempted to create a forest of forgotten native trees on nearly two-acre slope of an arid hill in Puliyarakonam, a 30-minute drive from Kerala's capital city.

M R Hari had dreamt of a dense forest made of Thanni (Terminalia Bellerica), Marotti (Chaulmoogra), Murikku (Indian Coral Tree), Charu (Black Varnish), and Pala (Devil's Tree), enchanting leafy beings of his childhood stories and dreams, on the bald rocky slopes.

But he was thwarted every step of the way. Seasonal cultivation done before had already damaged the top soil, and the place was parched. "Quarrying in nearby hills had caused the ground water to sink lower through the cracks in the underground rocks," Hari said.

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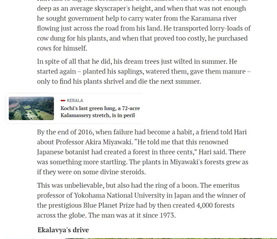


Hari had to dig what seemed like a bottomless well over 350-ft deep, as deep as an average skyscraper's height, and when that was not enough he sought government help to carry water from the Karamana river flowing just across the road from his land. He transported lorry-loads of cow dung for his plants, and when that proved too costly, he purchased cows for himself.

In spite of all that he did, his dream trees just wilted in summer. He started again – planted his saplings, watered them, gave them manure – only to find his plants shrivel and die the next summer.

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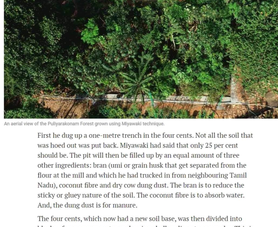
By the end of 2016, when failure had become a habit, a friend told Hari about Professor Akira Miyawaki. "He told me that this renowned Japanese botanist had created a forest in three cents," Hari said. There was something more startling. The plants in Miyawaki's forests grew as if they were on some divine steroids.

This was unbelievable, but also had the ring of a boon. The emeritus professor of Yokohama National University in Japan and the winner of the prestigious Blue Planet Prize had by then created 4,000 forests across the globe. The man was at it since 1973.

## Ekalavya's drive



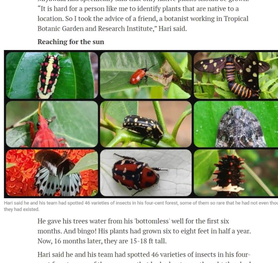
Akira Miyawaki in front of his forest.

Hari dug up everything that he could about the Miyawaki technique. So obsessed was he with the botanist that he ordered an out of print English translation of Miyawaki's book 'The Healing Power of Forests' for a price that would have shocked even the regulars at Sotheby's.

It was easy to relate to Miyawaki because the botanist's urban forest concept was inspired by the sacred groves, called chinju no mori, around shrines in Japan. Hari, too, lived close to sacred groves in his native village near Kottayam.

It took Hari nearly one-and-a-half years to get a satisfying hold of the Miyawaki technique, and in January 2018 he marked out four cents in his two-acre Puliyarakonam slope and began work.

## Kerala's first micro forest



An aerial view of the Puliyarakonam Forest grown using Miyawaki technique.

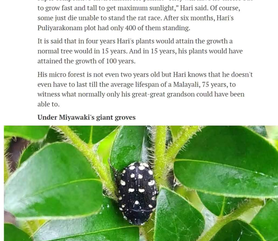
First he dug up a one-metre trench in the four cents. Not all the soil that was hoed out was put back. Miyawaki had said that only 25 per cent should be. The pit will then be filled up by an equal amount of three other ingredients: bran (uni or grain husk that get separated from the flour at the mill and which he had trucked in from neighbouring Tamil Nadu), coconut fibre and dry cow dung dust. The bran is to reduce the sticky or gluey nature of the soil. The coconut fibre is to absorb water. And, the dung dust is for manure.

The four cents, which now had a new soil base, was then divided into blocks of one square metre each using chalk or limestone powder. This is done for the sake of convenience and precision. Miyawaki's is a dense planting technique. He wants four saplings in one square metre.

As for the saplings, they were first grown for two months in a pot with the same mud-bran-fibre-dung base that would be prepared for the trench. Hari began work on the trench after identifying the plants and growing them in a pot. When the saplings were two months old, when they had attained a height of around two-and-a-half feet, they were taken out of their 'test tube' pots and transferred to the trench. Now, there was a massive crowd: 450 plants belonging to nearly 170 species, and all of them two to two-and-a-half feet tall, on four cents of sloping land.

Miyawaki had specifically said that only native plants should be grown. "It is hard for a person like me to identify plants that are native to a location. So I took the advice of a friend, a botanist working in Tropical Botanic Garden and Research Institute," Hari said.

## Reaching for the sun



Hari said he and his team had spotted 46 varieties of insects in his four-cent forest, some of them so rare that he had not even thought they had existed.

He gave his trees water from his 'bottomless' well for the first six months. And binge! His plants had grown six to eight feet in half a year. Now, 16 months later, they are 15-18 ft tall.

Hari said he and his team had spotted 46 varieties of insects in his four-cent forest, some of them so rare that he had not even thought they had existed.

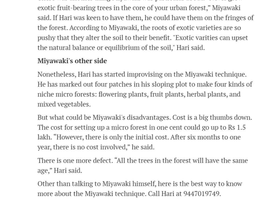
Emboldened, he took the lead to create such a micro forest in the corner of the sprawling Kanakakkunnu Palace lawns, a neatly kept remnant of a dead monarchy. In six months the trees leapt to a height of 12 feet. Now, the Kerala Forest Department had invited him to create micro forests around three of their guest houses in various parts of the state.

The Miyawaki technique, by packing the plants so densely, creates a super competitive environment for plants. "They will have no choice but to grow fast and tall to get maximum sunlight," Hari said. Of course, some just die unable to stand the rat race. After six months, Hari's Puliyarakonam plot had only 400 of them standing.

It is said that in four years Hari's plants would attain the growth a normal tree would in 15 years. And in 15 years, his plants would have attained the growth of 100 years.

His micro forest is not even two years old but Hari knows that he doesn't even have to last till the average lifespan of a Malayali, 75 years, to witness what normally only his great-great grandson could have been able to.

## Under Miyawaki's giant groves



A type of bug found at Puliyarakonam Forest.

Last August, Hari had felt for himself the Miyawaki magic. This technology entrepreneur had stood under the giant groves created by the great botanist himself. He tried embracing the monster trees found in Yokohama University, the first urban forest created by Miyawaki in 1973. "They were so thick that I couldn't bring my hands on the other side," Hari said. These Methuselah-like trees were just 46 years old. Possibly, this might be how his trees might look in about 13 years.

He also had his wish. The 92-year-old wheel-chair bound reclusive botanist agreed to meet him. Hari showed Miyawaki his work. The legend was pleased but had a word of caution. "Don't allow creepers to go around your trees in the early years. Creepers grow very fast so wait till the trees grow mature so that the creepers will not choke them," he told Hari.

There was another thing Miyawaki was particular about. "Never grow exotic fruit-bearing trees in the core of your urban forest," Miyawaki said. If Hari was keen to have them, he could have them on the fringes of the forest. According to Miyawaki, the roots of exotic varieties are so pushy that they alter the soil to their benefit. 'Exotic varities can upset the natural balance or equilibrium of the soil,' Hari said.

## Miyawaki's other side

Nonetheless, Hari has started improvising on the Miyawaki technique. He has marked out four patches in his sloping plot to make four kinds of niche micro forests: flowering plants, fruit plants, herbal plants, and mixed vegetables.

But what could be Miyawaki's disadvantages. Cost is a big thumbs down. The cost for setting up a micro forest in one cent could go up to Rs 1.5 lakh. "However, there is only the initial cost. After six months to one year, there is no cost involved," he said.

There is one more defect. "All the trees in the forest will have the same age," Hari said.

Other than talking to Miyawaki himself, here is the best way to know more about the Miyawaki technique. Call Hari at 9447019749.