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ENTERPRISE

Weeds gave him seed of an idea

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The root of a fantastic idea was within his grasp, but Jim Beck couldn't quite pull it out of his fertile mind.

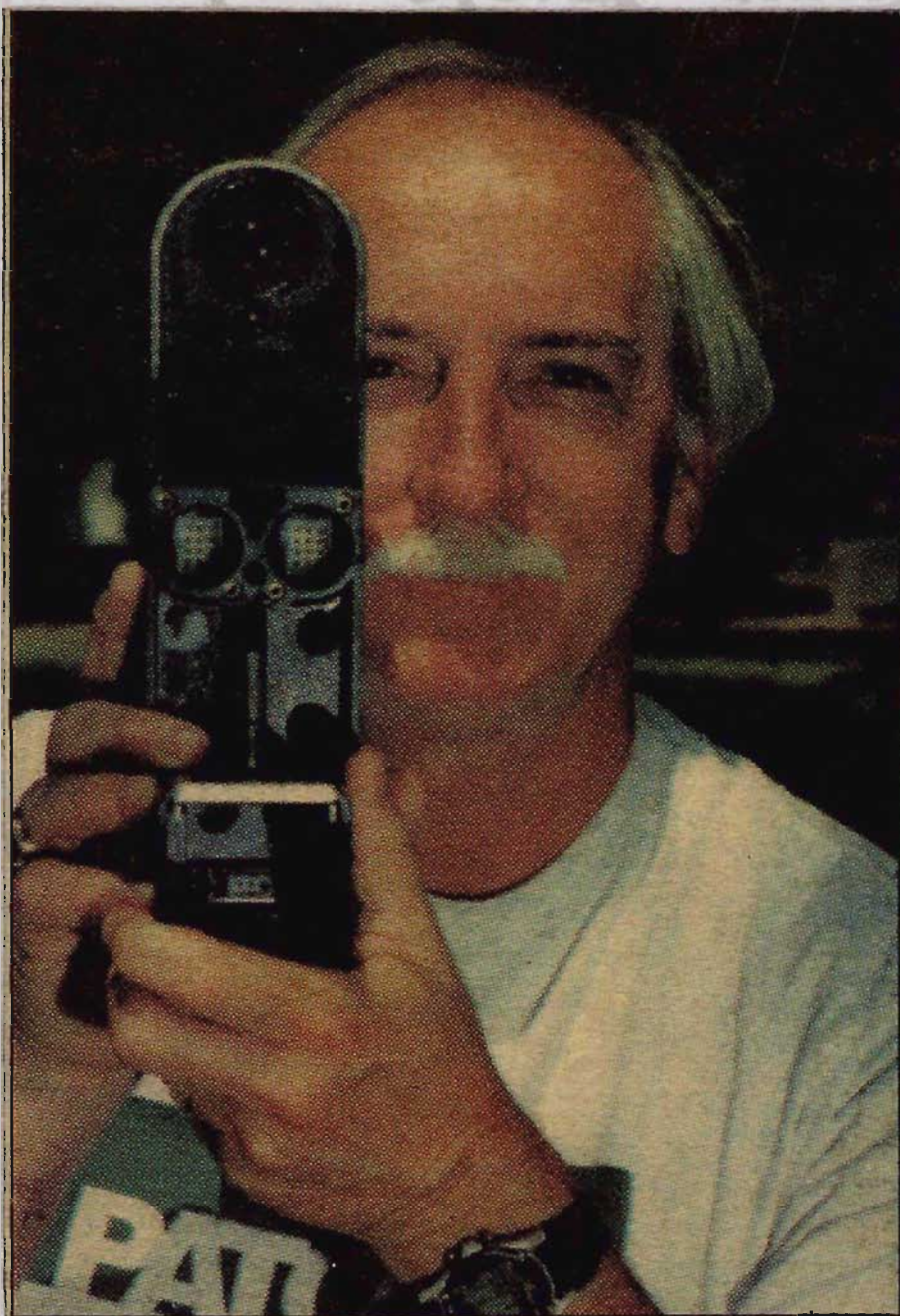
As president and chief executive of San Jose-based Indala Corp., Mr. Beck spent the bulk of his days wrestling with the intricacies of magnetic radio frequency identification.

In his free time, Mr. Beck grew Christmas trees in the Santa Cruz Mountains.

When he walked around his seven-acre ranch, spraying every inch for weeds, he knew there was a better way.

"Then one day I made the connection," Mr. Beck said. "It was there all this time, but I just hadn't realized it."

His epiphany is called the "Weedseeker." When
—SEE WEEDS ON PG 8A



Jim Beck uses infrared in his war on weeds.

MATT SOBIE PHOTO

mounted on tractors, the device uses infrared light to detect weeds before spraying them with herbicide.

"In the entire history of man, no single endeavor has consumed as much human energy as pulling weeds," he said. Worldwide, "we spend more than \$20 billion each year on herbicide—most of it wasted."

It took Mr. Beck two years to convince himself that making a weed sprayer was important enough to leave a comfortable six-figure salary at Indala.

He formed Patchen Inc. of Los Gatos in 1992 with a simple business plan. He would build a prototype, perfect it and sell it to a large company that could mass-produce it.

"I'd say it's the first time I had ever written a plan that went exactly the way I'd envisioned," he said.

John Deere Corp. bought Patchen last year for an undisclosed cash amount. The company is selling more than 400 Weedseekers each year, bringing in \$5 million in revenue.

But before he could enjoy the millions he earned in the sale, Mr. Beck went through a series of nightmares.

"I had to invest well over \$1 million of my own money to get it off the ground," he said. "There were plenty of days when I didn't think it would ever happen."

Mr. Beck had to devise a way for farmers to apply just the right amount of herbicide they needed to kill pesky weeds without killing other plants.

Using technology similar to a television remote control, the Weedseeker casts infrared light, which is reflected in special patterns when it detects common weeds found in fields.

When it sees the light pattern for chlorophyll, the green pigment found in plant cells, "it sprays," Mr. Beck said.

Farmers wouldn't believe his device would spray weeds and not waste a drop between plants, Mr. Beck said.

They agreed it was cheaper and better for the environment to spot-spray, but farmers are conservative. They resist anything that might jeopardize a harvest, he said.

"For the most part, there is no way that a farmer is going to try something as sophisticated as this," Mr. Beck said. "Even though they spend more than \$30 an acre on chemicals alone, they are not going to try anything new."

To find test growers, Mr. Beck turned to friends in the technology industry who grew grapes in the Napa Valley.

"They could trust the technology and they were very impressed with the results," he said.

In 1994, representatives from John Deere signed a long-term research and development agreement, allowing Mr. Beck to expand his testing and speed up production.

"It's a very exciting product and we plan to implement it in some way on one of our vehicles in the near future," said Al Higley, John Deere's agriculture equipment

spokesman. "We would not have purchased the company if we didn't think it was a valuable product."

Farmers say they need to have at least 400 acres to spray to justify the Weedseeker investment of more than \$1,000.

"We farm over 100 acres, so it probably wouldn't be worth it for guys our size," said Mitch Mariani, owner of Morgan Hill-based Mariani Orchards. "But you could definitely save quite a bit of money on spraying."

Mr. Mariani, who grows several fruits, said he sprays twice each year, with chemicals costing \$25 to \$100 per acre.

"Those big places that just do blanket spraying could really use the [Weedseeker]," he said. "I bet they could save between 80 and 90 percent on chemicals alone."

He said he knew it was going to be a success when the first customers reordered. "I was worried that these things would end up behind their barns," he said.

The customer base is expanding.

Meanwhile, Patchen is fine-tuning the Weedseeker to identify specific weeds to eliminate even more waste.

Eventually, the Weedseeker will be able to protect golf courses, cemeteries and stadiums.

"There's no limit to the possibilities," Mr. Beck said.