

# Veteran Hemp Producer Unveils New Crop Processor

By Jim Ruen, Contributing Editor

Canada legalized industrial hemp in 1998 so farmers up there have a lot more experience harvesting and processing the versatile crop. We recently talked to Bruce Ryan at CannaSystems, who has experienced first-hand the boom and bust cycles of the last 20 years.

Ryan says one of the biggest problems hemp farmers face is finding a processor to extract the valuable fiber in a form that's usable for manufacturers. That's why he's spent the last few years developing a turnkey processing system that fits into a standard 40-ft. shipping container. Bales of hemp feed into one end of the "Decorticator" and totes filled with hemp fiber and the core hurd (the woody material at the center of the stalks) come out the other end.

"In Canada last year, 98 percent of hemp was grown for seed only, not fiber," says Bruce Ryan, CannaSystems. "It just isn't worth hauling bales more than a couple hundred miles to a mill."

He says on-farm processing should change all that. He notes that while a farmer might get \$150 for an unprocessed bale of hemp, he can get more than 3 times as much for properly processed fiber and the core hurd.

Decorticating is the name of the process used to strip hemp plants down to fiber and hurd. Ryan's first full-scale, \$250,000 Decorticator is being shipped to a farm in Virginia. He says hemp farmers should start processing their own crops, the same way grain farmers use combines to harvest their crops. "We're also working to develop alliances to help farmers market their fiber and core."

Ryan was one of 7 cofounders of the Canadian Hemp Trade Alliance in 2003. Founding it was a reaction to the boom and bust following Canada's decision to legalize industrial hemp production.

"Production expanded like crazy and

then collapsed because there weren't any established markets," says Ryan. "We grew the industry by helping people produce seed and sell into the health food marketplace for products like CBD oil."

He started working on his decorticator when he was contacted by a manufacturer who wanted 2 1/2 to 6-in. long hemp fiber. There weren't any hemp processing plants that could produce fiber longer than 2 1/2 in.

"There are people producing long fiber but they're doing it by hand with no real automation," says Ryan.

After failing to find a working, automated decorticator that would produce longer fiber, he began designing his own in 2015.

His R-2 Helical Decorticator is designed to process between 1,000 and 6,000 tons of fiber and core per year. Ryan suggests a single unit would be viable for farms from 200 to 1,500 acres.

Depending on the feeding system, the Decorticator can process up to 4 tons per hour. It is powered by a diesel genset with an electric option.

Bale unwinders feed hemp biomass onto conveyers that deliver it to the helical rollers. Once the fiber and core have been broken down, they are separated and aggregated.

The first 10 machines to be produced in 2020 will be available to members of CannaSystems Strategic Alliance. These are hemp producers who contract seed and fiber production through the Alliance.

Unlike during the earlier boom/bust cycles, Ryan is confident strong market opportunities are there today. He points to companies like HempWood out of Kentucky and BioFiber from Alberta.

"HempWood has a factory up and running, making engineered timbers out of hemp fiber and are offering to license the technology," says Ryan. "BioFiber has a process for making hempcrete blocks that fit together



When manufacturers came looking for longer hemp fiber than what was on the market, veteran hemp producer Bruce Ryan decided to create the first farm-sized processor for hemp. The decorticator equipment that processes the crop, shown at left, fits inside a standard 40-ft. shipping container.

like Legos. They are insect and fire proof, with structural strength for up to 5 stories."

Ryan was recently contacted about hemp core pellets to replace coal in European power plants. "They burn cleaner and hotter and are biodegradable," he says. "One of the smallest contracts would have required all the core from 100,000 acres. That's almost as much as was grown in all of Canada last year."

If approached by a prospective buyer, Ryan advises hemp producers to look closely at the end user industry to evaluate legitimacy. "Look for companies where hemp would be an add-on or replacement product," he

says. "I had an inquiry from an automotive company. They were looking for fiber that could be used in injection molding. They have a process and end use already established."

Ryan says he has more than 300 inquiries already in hand for his Decorticator.

"Our game plan is to eventually develop a field harvester that processes the crop in the field with one pass," says Ryan.

Contact: FARM SHOW Followup, CannaSystems, 29 Lynnhaven Rd., Toronto, Ont. Canada M6A 2K7 (ph 416 939-6143; www.cannasystems.ca).

## Transplanter Ideal For Hemp

New hemp farmers looking for transplanters to plant seedlings in the field should check out equipment from Checchi & Magli (C&M). Originally designed for tobacco growers, the C&M system can be used to plant through plastic, direct into the soil, and even has no-till options. While vegetable transplanters can also do those things, they don't have the big cups and trays to handle the larger hemp seedlings.

"We have the only carousel that works with tobacco plugs, which are also bigger, and it works with hemp just as well. It lets us transplant seedlings up to 22 in. tall," says Grant Allen, Allen International and North American territory manager for C&M.

The C&M transplanters can place as many as 2,000 plants per hour per row. Acres per hour depend on the number of rows and the model. Models include the Trium with carousel for direct soil planting and the WolfPro for planting through plastic. Transplanters are available in configurations of 1 row on up. The 4-row model is most popular, according to Allen, but he has sold up to 8 rows and has customers asking about 12-row machines.

Demand for the machines has exploded with the hemp industry. Allen recalls selling 20 machines in a year, only a year and a half ago. This year he sold just under 1,000 transplanters and expects to double that number next year. Adding 172 dealers this year should help him meet that goal.

The transplanter makes a deep space in the row to deposit the plant. Firming wheels push



C&M transplanter comes with big cups and trays that can handle hemp seedlings up to 24 in. tall.

soil in around the roots. Plants are set straight into the ground. Water can be applied as can granular fertilizer and herbicide.

Allen says the company can set up machines to match a hemp farm's size and needs. Prices vary accordingly. However, he notes that a standard 4-row machine appropriate for a 200-acre or larger farm runs around \$35,000. That would include horizontal racks and a water application option, but not the water tanks. A no-till option, with its heavier toolbar and components, adds around \$3,500 per row to the cost.

Contact: FARM SHOW Followup, Allen International, 4904 N. Eagle Nest Lane, Lehi, Utah 84043 (ph 801 794-9774 or 208 520-8222; CandM@allenintl.net; www.besttransplanter.com).

## Street Sweeper Brush Strips Hemp

Matt Westenhaver needed to strip flower buds and leaf material from fresh cut hemp. Fresh or wet hemp is especially hard to strip by hand, so he decided to build a motorized "shucker".

"We needed something faster and more ergonomic," says Westenhaver. "I had seen a mobile unit with 2 brushes mounted to rotate in opposite directions, but at \$75,000, it was hard to justify."

Westenhaver did an internet search and came up with an 8-ft. street sweeper brush from Repurposed Materials (www.repurposedmaterialsinc.com; ph 877 282-8733). He cut it into two 4-ft. lengths and mounted one section in a framework made from 6 by 6-in. posts. He set up the brush with a direct drive for an electric motor. He recognized that running it off a tractor pto would have been simpler, but he wanted to be able to run the machine inside if necessary.

"I couldn't find an electric motor that would run it on my circuits in time for harvest," recalls Westenhaver. "I had a 2 hp. motor, but it kept popping breakers."

Unable to get his stripper set up in time, Westenhaver contracted with a company to harvest, pick, dry and bag his crop. However, when a freeze threatened, he cut down all his hemp earlier than planned. With 5 years experience growing hemp and medical marijuana before that, he knew that extreme heat or cold could boost resin. While that increases CBD oils, it can also raise the THC content beyond legal limits.

"I needed a quick way to strip my plants," he says.



Hydraulic-driven street sweeper brush strips flower buds and leaf material off fresh cut hemp.

A friend loaned him an actual street sweeper with a hydraulic drive. He put it to work, running the plants between the brush and plywood sheets. The set up was similar to how he planned to complete his stripper with the brush running against a plywood shelf.

"It separated the material to be bagged or burned," says Westenhaver. "It worked great, so I know mine will as well."

Westenhaver noted that commercial machines to shuck or strip whole hemp plants can run from the thousands to tens of thousands of dollars.

"I've spent \$250 so far on mine," he says. "After adding the motor and platform, I plan to attach a tarp to direct the buds and leaf material into a bag. It's a low cost option, but I believe it will work."

Contact: FARM SHOW Followup, Matthew Westenhaver, 3430 W. County Rd. 54G, Laporte, Colo. 80535 (ph 970 310-0884; matthew@quatrix.us).