

String Thinner Adapted For Older-Style Peach Trees

Canning peach producer Frank Bavaro gets more peaches at less cost with his modified Darwin String Thinner. While the Darwin works great for thinning blossoms on trellised and hedged peach trees, it doesn't work on more traditional tree shapes. Now Bavaro and others with traditional orchards can also benefit from blossom thinning.

"I've used it for 2 seasons, and I'm gaining a minimum of 1 1/2 tons per acre," says Bavaro.

The Darwin String Thinner has a 10-ft. rotating spindle with 2-ft. long strings spaced every inch along the spindle. Bavaro used the original hydraulic motors and orbital spinning shafts to develop 2 thinners. For top thinning, he mounted the thinning shaft horizontally on a high post. This allows it to break up blossoms on the tops of trees. The second unit has a shaft mounted vertically on a pivoting arm. This arm is manually controlled by a worker walking behind the machine. He can move it in and out to match the shape of the trees.

"I am working on a redesign with a platform where the operator of the vertical arm can sit," says Bavaro. "That eliminates the potential of tripping while walking and looking up."

He is also adding a second arm to the platform to thin blossoms on the accompanying row. This will eliminate a trip down the same row center.

"We'll be able to do the sides of 2 rows at a time," says Bavaro.

Bavaro uses the thinner at blossom time to reduce the load on the tree by about 50 percent. With hand labor, thinning takes place in May when pits harden. This year, he noted that fruit from trees thinned at blossom was 3 to 4 mm larger than trees that had not been thinned.

"With fewer blossoms, the tree could put its energy into those that remain," says Bavaro.

Labor costs were reduced by two thirds. In the past, it would take 25 to 30 workers to thin the trees in May. With the string thinner, he cut back to between 8 and 10 workers. Comparison trials he ran in 2015 revealed a cost per acre of \$140 with the string thinner alone, while conventional hand thinning done with workers on ladders ran \$810 per acre.

"Some folks had difficulty finding labor and getting their thinning done in time," says Bavaro.

The mechanically-thinned trees out-produced the hand-thinned ones significantly that year. The blossom-thinned trees produced



Photo courtesy T.J. Mullinax, Good Fruit Grower

Frank Bavaro modified a Darwin String Thinner to thin blossoms on his traditionally-shaped peach trees, reducing labor costs and improving yields.

33.6 tons per acre for canning and 7.3 tons for juice. The trees with fruit thinned in May produced only 29.3 tons per acre of canning fruit with no fruit for juice.

"The modifications cost about \$1,000," says Bavaro.

Bavaro has no intention of patenting his

modifications. He hopes that other growers of both canning and fresh peaches will adapt the idea.

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New Coupling Flexes More Than U-Joints

Running pto-powered equipment, steering, conveyor belts, driveshafts and axles is going to get a lot easier with this new power transfer coupling that offers a simple and more flexible alternative to standard universal joints and constant velocity joints. The Twin Spring coupling is practically maintenance-free with no grease zerks, bearings or yokes.

"Our initial model, the TSC8300, is only 2 3/4 in. in diameter," says Daren Finch, Twin Springs Coupling. "It is guaranteed to handle 300 foot-pounds of torque, but even at 600 foot-pounds, it will deform without breaking, and your equipment will keep working."

It is the design of the coupling that gives the company its name. Two counter-wound torsion springs transfer force in multiple directions. A ball bearing in the middle serves as a pivot point with the springs sliding around it to flex up to 35 degrees. Finch describes it as being similar to a bellows coupling, but those can only go in one direction.

"Our coupling is bi-directional," he says.

"It can go both ways."

Finch notes that if you push a universal joint past its design limits, it will snap. Work stops until it can be replaced.

"When you hit rocks or stumps with pto-powered equipment, the universal joint often can't take the punishment," says Finch. "Our spring design has more flexibility and travel. It also has less maintenance. We have no bearings, compared to a standard universal joint with 4."

Without bearings, dirt, dust and water are no problem, and the only maintenance needed is to occasionally pull off the neoprene sleeve, rinse it with gas or a cleaner fluid, and replace the sleeve.

The company currently has only a single model available. It is being manufactured in small quantities and is priced at \$275.

Finch says the design is size-neutral. Spring couplings can be made at virtually any size. The company is working on larger versions to handle 500 and 700 foot-pounds of torque.



Two counter-wound torsion springs on coupling transfer force in multiple directions. Springs slide around ball bearing at middle that serves as a pivot point.

"They can be used in new equipment or to retrofit older equipment," says Finch.

He is looking for manufacturing partners to bring the product to OEM and after-market manufacturers with the expectation that the price will drop as the quantity produced increases.

Finch vows that one thing that won't change is quality. The coupling springs are made out of chrome silicon steel, an alloy designed for high stress and to handle shock

and impact loading.

"All our components are U.S. made and selected for their quality," says Finch.

Check out a video of the Twin Spring coupling at FARMSHOW.com.

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Mechanical PTO You Can Activate Remotely

You can retrofit a mechanically-activated pto with a new "remote over center" pto from Twin Disc that can be activated by either hydraulic or pneumatic pressure. "It can eliminate the need to get off the tractor or out of a truck to engage a pto with a hand lever," says Chuck Balboa, Twin Disc, Inc. "It works with all types of equipment from wood chippers to fans, sprayers or different types of pumps. All you need is a source of hydraulic or pneumatic pressure."

Twin Disc makes the remote-controlled units for equipment ranging from 50 to 600 hp. Balboa expects the remote activation to find ready acceptance in construction, manufacturing, mining, timber and oil and gas production, as well as agriculture.

"Anyplace you have a hand-activated clutch and hydraulic or air power sources, you can use the RO 114/214," says Balboa. "The power source is only needed to push the clutch over center, and then it can be shut down. Without a need for a constant flow of air or hydraulics, the unit is much more

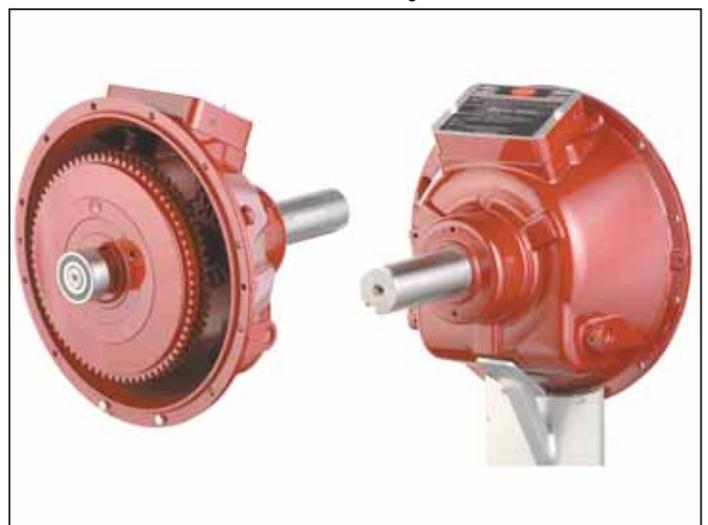
efficient and cost effective than that of the competition."

The company has been making pto systems for 100 years and offers a full line of power-shift transmission, mechanical and hydraulic ptos, gearboxes, torque converters, pump drives, air clutches, electronic shift controls and universal control drives.

Existing Twin Disc SP 114/214 mechanical clutches can be field converted to the new RO using a kit from the company. In addition to replacing mechanically-activated units in existing equipment, Twin Disc is also working with several OEMs on factory installation.

"Readers can call us or visit our website to find local distributors and dealers," says Balboa. "They can identify the size unit needed for a particular piece of equipment and pricing."

Contact: FARM SHOW Followup, Twin Disc, 1328 Racine St., Racine, Wis. 53403 (ph 262 638-4000; www.twindisc.com).



"Remote-over-center" pto can be activated by either hydraulic or pneumatic pressure.