

Update on Electronic Pruners and Tying Tools

Richard Carey



FELCO

I FIRST SAW ELECTRONIC pruning shears at a wine tradeshow in France about 20 years ago. Pellenc, a French company, had released their P2000 series of clippers, and their booth on the tradeshow floor was crowded with growers interested in seeing a demonstration of this new tool. At that time, growers in the United States were using standard manual clippers although some companies had developed air compressor versions that used high pressure air-actuated pistons to drive the blades. There was no finessing the cut once started; and when the actuator was activated, it was loud. Hoses had to be dragged through the vineyard, and the compressors consumed power.

In the years since then, there have been several significant updates for electronic equipment. Two prominent companies that make electronic vineyard equipment, Pellenc (in Pertuis, France) and Felco, (headquartered in Switzerland), loaned me samples of their equipment to test and provided information on how to operate, maintain and obtain service for the different

electronic tools. Pellenc supplied their electronic grape tying device, the Fixion 2, and two versions of their clippers, the Vinion—primarily for use in vineyards—and the Prunion, which can also be used for tree pruning. Felco loaned me three electronic clippers, the 802, 812 and 822+.

Jeremy Berros, the battery-powered tools director for Pellenc in Santa Rosa, Calif., commented that the early adopters of the new electronic clippers and tying machines in the U.S. tended to be owners of smaller vineyards. These growers could see the personal benefit of electronic equipment and weren't as worried about what the item cost as long as the equipment provided efficiency and fewer wear-and-tear afflictions from repetitive tasks. Larger vineyard properties, and especially contract companies, were concerned that workers would not value the equipment and that, consequently, the new tools would not provide an ROI that was worth the risk. This assessment was echoed by Ryan Amberg, marketing and business development manager of Felco in Seattle, Wash.



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In the last few years, however, both Berros and Amberg have seen a significant up-tick in the purchase of electronic equipment for use in vineyards of all sizes. Several factors play an important role: large and small companies are realizing the ergonomic benefits of injury mitigation to employees and the importance of training them in how these devices work. They also understand that these devices will lower the costs of production by increasing the efficiency of each vineyard worker's output.

Miguel Garduno, a vineyard manager at Kendall-Jackson Wine Estates & Garden emphasized the importance of training crews, as well as the regular visits from supervisors to assure crews that management cares that things go well in the vineyard. Kendall-Jackson uses Pellenc Fixion 2 and the older A25 grape tying machines, and Garduno noted that crew members take pride in their assigned equipment, which has their names on it. No one wants to show up and not have their unit charged and ready to go because they know they will have to be working in the vineyard with hand devices.

Most notably, customers routinely reported that using electronic pruners and tying tools was anywhere from 30 to more than 50 percent faster than performing the work with other manual methods. In fact, one customer reported seeing ROI in one season in cost savings after the purchase of Pellenc grape tying equipment.

Electronic Grape Tying by Pellenc

Pellenc introduced the first model of their grapevine tying tool, the AP25, in Europe in 1992, but that tool didn't arrive in the U.S. until many years later. The current model, the Pellenc Fixion 2, is the primary electronic tying machine used in vineyards. Even though this is the newest machine, it has an element in common with the A25 I acquired more than a decade ago: the device that does the actual twisting of the tie. Beyond that part of the tool, there have been numerous changes and improvements over the A25.



Pellenc Fixion 2

The mechanics of the Fixion 2 are amazing yet easy to see when the tool is working. With this model, loading the tie reel into the device is simple. To add the material, one feeds the tie into the entrance slot of the tool until it bumps up against an apparent "wall." When the trigger is pulled, the tool and its ties are ready to go for the day. After the ties are loaded into the tool, each pull of the trigger guides the tie around a race hook that encompasses the vine and the wire. Then, with an elegant action, it captures the tie as it exits the tool race with the spinning wheel that whips the tie around the vine and wire with the exact number of turns that the user has set the tool to perform. Another adjustment can determine how tightly the tie wraps around the vine. Once the action stops, the Fixion 2 is lifted off the vine, and the tie is cut. Every customer I interviewed said how much they appreciate the fact that the battery charge lasts the entire day.



PELLENC

The Fixion 2 has two basic modes of operation. The easiest to use has a small reel with 80m of tie, or approximately 450 ties, that attaches to the tool. While this version is easier and lighter to carry, most users prefer the second mode of action, which has a “holster” for a larger 200m reel that provides 1,500 ties. This is a better option for larger vineyards as workers don’t have to reload their reels as often during the day.

Cycle time for a given tie is slightly more than 1 second. The most important part of using the Fixion 2 is to wait for the tool to finish its cycle. When the tie is in place, the tool can be immediately lifted straight up from the vine, and the tie is cut by the tool. As Max Manoukian, a vineyard manager at E. & J. Gallo Winery in Napa, stated, “The biggest issue we had to train our workers to do was to slow down just enough to let the tool finish the cycle before lifting it off the vine.”

Joshua Grainer, technical director and one of the owners of RDV Vineyards in Delaplane, Virginia, commented that he is pleased with the battery performance of the Fixion 2. He noted that if you start the day with the battery charged, you will still have power available when the work day is over.

Most of these users do much of their own maintenance, and they keep a backup supply of the spinner attachment for the tool because that is the most likely part to break. While this part is important, it does not require much effort to repair in the vineyard.



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Felco Electronic Grapevine Pruners

Felco is a major supplier of electronic grapevine pruning equipment. This Swiss company has been supplying pruning equipment for more than 70 years, including several examples of hand pruners that work well for many agricultural/horticultural plants. The company produced the first pneumatic grape pruner in 1971 and followed that with the first electronic pruner in 1991.

There are different models of electronic pruners available that cover a wide range of tasks done in the vineyard. Unless a grower wants to buy more than one type of pruner, he or she will have to determine which model covers the widest range of uses and has the correct features for the vineyard. It should be noted that each Felco pruner model has both a right- and left-handed version.



Felco 802



Felco 812



Felco 822

The Felco 802 is the lightest model at about 750 grams. The widest diameter of vine it will cut cleanly is 30mm or 1.2 inches. The shear is about 10 inches long with controls for “off” and “on” at the base of the shear where the power cord is connected. The outer body of the tool has a velvety feel to it. When working, it has the heft of a power tool and, when wet, won’t slip out of your hand.

There is a Felco app to control different aspects of the tool’s use. When moving quickly through the vineyard and snipping small vine diameters, the user may not need the opening to be at full throttle. The tool can be adjusted to open at the degree necessary to maintain efficiency.

The 812 model has several differences from the 802. It weighs 810 g (1.8 lbs), 60 grams more than the 802. Probably most significant is that the blade is made from “High Speed Steel” (HSS), according to Felco’s specs. The cradle of the blade is designed so that it drops down at the proximal base of the shear and then curves up.

A design feature of Felco shears is the piston-like driver that forces the blade down against the cradle to cut the vine. As with the 802, this shear can be adjusted to suit the needs of the user, including the degree of blade cross-over of the cradle. Although I didn’t use that adjustment, the instructions

indicate that this should be easy to do in the vineyard. This tool opens 5mm (0.2 inches) more than the 802 and will cut through anything that will fit properly into the cradle. It is possible to cut through vines that are bigger than the diameter of the cradle, but it may take more than one attempt to make the cut.

Felco’s 822 is the largest of their pruners and weighs 980 g (2.2 lbs.). It is an impressive tool as it has the power to handle tough jobs and can cut many of the oldest vine trunks. Like Felco’s two smaller units, it has progressive triggering, which moves the blade only as long as the user continues to pull the trigger. It can cut up to 1.8-inch vines in a single cut and can handle larger vines with a bit more finessing although the user needs to understand that the blade may get embedded in wood, which may take some effort to remove it. I found that out firsthand!

The 802 and 812 units come with a smaller battery pack that should remain charged for a full day’s work. Recharging takes about 90 minutes. The larger 822 unit has a bigger battery so it can operate for a full day. I liked the Felco harness for holding the battery, primarily because it positioned the weight on my back, not my side. In addition, it fit well and was fully adjustable for a wide range of user sizes, including multiple layers of clothing.

Pellenc Grapevine Pruners

The Vinion

Pellenc introduced its first electronic shears in 1985. The P2000, a brushless shear, was introduced in 1994 and was imported into this country about five or six years later. The Vinion, which was introduced in 2015, was the lightest (at 680 g) of the pruners reviewed and newest of the tools I tested. It fit well in my hand, with or without gloves. While the Pellenc system does not have different tools for right or left-handed users, the design allows connection on either side of the power unit.

Joel Sokoloff, vineyard manager at Cayuse Vineyards in Milton-Freewater, Oregon, said that he appreciates Pellenc’s optical sensor on the trigger. To him, it has the potential to prevent an accidental triggering of the blade if the power were left on and unattended. The motor in the Vinion is brushless, providing speed and power, and runs at about 92 percent efficiency. Sokoloff also stated that the Vinion cut fast and seemed as if it were an extension of his hand because of the lighter weight.

The blade on the Vinion has several positions that can be adjusted from the battery pack, and it can be set for more and quicker snips when the vines are small and/or in tight places. When I used the tool, the 150 battery worked very well and always had plenty of power for the day’s work.



The Prunion

The Vinion

The Prunion

The Prunion unit compares favorably with the Felco 822, but the Prunion blade handles vines to 1.4 inches while the Felco 822 goes up to 1.8 inches. The Prunion requires the larger 250 battery in comparison to the Vinion's 150. The power seemed to be similar on test cuts I made to compare the two pruners. The Prunion provided more than adequate power, and I never felt that it struggled to cut vines up to its full-rated diameter.

The same multi-opening blade function is available for this tool as on the Vinion, and the cable can be connected on either side of the power unit to suit either handedness or use in the field. The harnesses for the Pellenc systems are situated on the side of the hip. It's a matter of personal preference whether this position is better than that of the Felco pruners.

Recommendations for Ensuring the Longevity of Electronic Vineyard Tools

The heavy work imposed on these electronic tools increases the importance of performing maintenance on a regular basis. Felco and Pellenc both have robust maintenance services that virtually every person I interviewed had utilized for their tools. Some customers did the routine maintenance themselves and sent in the tools for more in-depth needs. Others sent in their tools for a more thorough revitalization. Both companies have many customers who have tools that have been used for decades before replacement is warranted.

The newer tools provide more information to the manufacturer when they are returned for service. Each company now keeps a record of the serial number on each tool and who purchased it so that if any tool happens to show up for repair that is on the "walked off the vineyard" list, the company can contact the owner of the tool. They also can determine the number of cycles each tool has been put through, and they can test the battery to be sure that it is providing the correct power.

One important recommendation emphasized by each manufacturer was that the customer should closely follow the initial charge/discharge cycles with any new unit to ensure that the device will function well for the duration of its useful battery life. The purchaser of the new tool should be absolutely certain that the first few charges are completed to the full charge level. The first charges create a memory set point that future charges will see as the proper stop point. One customer I interviewed found this out the hard way—that particular device never did function as well as the others that were bought about the same time.

Both companies have well-designed support pages that are set up to help customers understand how to operate each device and video tutorials that show how each item works. If a customer does not understand something, support staff is available to talk users through any questions they have on the device's operation. Because both Pellenc and Felco are multinational businesses, their videos are available in different languages.

These electronic vineyard tools have improved greatly over the years. They are extending the working life and health of vineyard workers, whether the worker is the property owner or the owner's hired hands. **WBM**



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