

Electronic pruners: faster and safer

If you prune at least 75 hours a year and typically cut large branches to shape trees, consider a portable, electronic pruner that can save you time and reduce your risk for serious injury.

How do they work? Electronic pruners are hand held shears powered by an electric battery pack that you wear around your waist. An all-day battery works for 8-10 hours and weighs 4-8 lbs. Unlike pneumatic pruners that instantly cut when activated, electronic pruners respond to increased squeeze pressure on the trigger. Uniform powerful cuts leave smooth clean edges that heal rapidly, even on large diameter stock up to 1.2-1.8 inches. These pruners weigh slightly more than similar manual pruners, and take a bit of getting used to because of the attached cable and battery pack.

Benefits:

Efficient: Electronic pruners are considerably more efficient than manual pruners when cutting heavy stock¹ and you may be able to cut pruning time by 20%^{2,3}. Because electric power makes the cuts, you will also reduce strain and fatigue in your arms, wrists, hands, and fingers so you can more easily work for a longer period of time, even on thicker wood. Hand fatigue after several hours can cause workers who use manual pruners to make slower, more ragged cuts, but with electronic pruners you get a smooth clean cut hour after hour. Clean cuts reduce the risk of infection in the pruning wound.

Profitable: Although electronic pruners have a higher up front cost than manual pruners, they can easily pay for themselves in certain situations. If you do a lot of shaping, elevation pruning, or topiary work that requires larger cuts on heavy stock you'll recover your costs



Manual pruners require more time and effort.



An electronic pruner keeps your wrist in a neutral position.

quickly. An electronic pruner plus accessories costs \$1,500 and up. If you can prune 20% more stock in the same time with electronic pruners as with manual ones, and if you do 150 hours of pruning each year, you can pay for the additional cost of electronic pruners in about 3 years (see table). You might also save money by reducing health care costs and time off work due to medical problems. Evaluate your pruning crew before you purchase tools. Workers who prune for shape and form usually have more training than those who do maintenance pruning. Does one person tend to do this type of pruning in your nursery? If that person prunes a lot each season, the payback period is quicker, especially for older workers or those more prone to repetitive stress injury. Of nine nurseries in Oregon who trialed these pruners through the Oregon Nursery Association, four were interested in buying them¹.

Electronic pruners, est. payback period			
Hours/year: Manual pruner	40	75	150
Hours/year*: Electronic pruner	32	60	120
Time saved	8 hrs	15 hrs	30 hrs
Labor costs saved at \$15/hr	\$120	\$225	\$450
Payback period	12.5yrs	6.7 yrs	3.3 yrs

* assumes electronic pruner is 20% faster

Less risk of serious injury: Using manual pruners requires both strong forces and a strong grip. This repeated effort can strain

WORK EFFICIENCY



Tip Sheet

A series of tip sheets on labor efficiency for nursery field work

by Larry Chapman, Astrid Newenhouse and Marcia Miquelon

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Healthy Farmers, Healthy Profits Project

your hands, arms and fingers. Steady pruning work over days and weeks can sometimes produce “overuse” injuries in the fingers, hand or wrist. One of the most common wrist disorders associated with pruning is carpal tunnel syndrome, a musculoskeletal disorder that costs, on average, about \$10,000 in medical costs alone to fix. In one study of vineyard pruning workers, 20% reported hand or arm pain using manual pruners compared to 13% using electronic pruners⁴. Electric pruners are also safer than pneumatic pruners, because your trigger finger determines how far the blade closes. Pneumatic pruners close completely upon contact, even if a finger is in the way of the blade. One study of nursery workers in Oregon compared manual, electronic, and pneumatic pruners and found the electronic pruners best for avoiding fatigue and protecting against injury risk¹.

Where do I get one? We’ve identified three manufacturers of electric pruners and compare their features below.

These references are provided as a convenience for our readers. They are not an endorsement by the University of Wisconsin.

Electrocoup F3005UL available from
Bubco Inc.
816 “B” Black Diamond Way
Lodi CA 95240
Tel 209.367.3885
info@bubco.com, www.bubco.com

Felcotronic F800 avail. after 5/1/2006 from
Pygar Inc.
PO Box 3147
Kirkland WA 98083
Tel 425.488.3263
felcousa@aol.com, www.felcousa.com

Pellenc Lixion available from
Pellenc America Inc.
1042 Hopper Avenue
Santa Rosa CA 95403
Tel 707.568.7286
pellencUS@msn.com
www.pellencus.com

Electronic Pruner Comparison	Electrocoup F3005UL	Felcotronic F800	Pellenc Lixion
approx. cost; tool & battery pack	\$1,800	\$1,600	\$1,500
largest cut	1.6”	1.2”	1.2”
tool weight	0.5 lb	1.8 lb	1.7 lb
battery weight	5 lb	4.0 lb	2.5 lb
battery life	8-12 hr	8 hr	13-30 hr
battery recharge time	5 hr	5 hr	Overnight

This material was developed by the Healthy Farmers, Healthy Profits Project, whose goal is to find and share work efficiency tips that maintain farmers’ health and safety and also increase profits. For more information, call (608) 262-1054 or visit our website at [http:// bse.wisc.edu/hfhp/](http://bse.wisc.edu/hfhp/)

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Sources: ¹Larson, H. OAN Worksite Redesign Project: In Sivesind C. A clip in time saves nine. Digger, March 2001.p. 54-59.

²Walula J, Beckmann T, Hett M, Landau K. Stress-strain analysis of grapevine pruning with powered and non-powered hand tools. Proceedings of the 44th annual Meeting of the Human Factors and Ergonomics Society. July 29-Aug. 4, 2000. Volume 3: p. 639-642.

³Oude Vrieling HHE, AAP Looije, G Peppelman, MCJ Op’T Hof. Ergonomic evaluation of professional pruning shears. Tijdschrift voor Ergonomie 2004; 29(3):4-10.

⁴Roquelaure Y, et. al., Transient hand paresthesias in Champagne vineyard workers. American Journal of Industrial Medicine 2001; 40:639-645.

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