

Researchers Recommend Soft Touch When Shaking Trees

By Linda Cooke
USDA Agricultural
Research Service

"The operation was a success but the patient died," says USDA Agricultural Research Service engineer Galen K. Brown, referring to mechanical harvesting techniques which are cutting the productive life of Michigan's cherry orchards from 30 to less than 20 years.

Research by ARS and Michigan State University researchers in East Lansing focuses on recognizing and minimizing the damage machines can do to cherry tree trunks.

While mechanical harvesting gave Michigan's sweet and sour cherry business a shot in the arm in the 1960s, the change from hand-picking to mechanical harvesting also brought a serious problem that can't be overlooked today.

Mechanical shakers pick 98 percent of Michigan's sweet and sour cherry trees. Recent tests have shown that over two-thirds of young trees have trunk damage after the first 3 years of mechanical harvesting. "If we want orchards to last 30 years, we have to reduce the damage," says Brown.

Trees — both young and old — are being overshaken. Growers often shake trees four or five times for a few second at a time. Brown recommends replacing the several short shakes with one continuous 5- to 10-second shake until the cherries drop onto the canvas or catcher below.

Trunk shakers designed for full-

grown trees are being used on young trees that are easy to damage. Some commercial shakers briefly apply excessive movement and force to the bark when the machines start and stop. The research team identified ways to keep this from happening and in the process invented a controllable shaker which may soon be commercially adopted.

To reduce the damage to young trees caused by currently used shakers, Brown and colleagues, designed a new clamp pad system that allows safely harvesting young trees that have trunks as small as 1.5 inches in diameter.

Besides designing a new pad system, the scientists have found better ways to use existing ones. For example, using a nitrile-covered thin belting over the pads, silicone lubricant on the nitrile surfaces, and less clamping pressure reduces the forces that loosen bark during shaking.

"Some commercial clamp pads applied more than five times the pressure that the bark can stand without damage," says Brown, who recommends applying no more than 150 pounds per square inch to the bark of young sweet or sour cherry trees.

Cracks and broken bark are obvious signs of trunk damage, but damage can be hidden too. Cells rupture in the cambium layer where xylem cells become wood and phloem cells develop into bark.

Diseases and insects, such as the American plum borer, a serious

pest in Michigan, can enter through cracks that may not be seen until a year after harvest. The borer gets into young tree tissue, reproduces, and the entire colony chews their way around the tree, says ARS plant pathologist Clyde L. Burton.

Wet weather also makes trees

more susceptible to bark damage. "It's unfortunate that cherries are harvested in June and July when tree cells are regenerating and most vulnerable," says Brown. He recommends that growers shut off irrigation at least two weeks before harvest, then resume after harvest.

Steps to reduce harvest-inflicted injuries can be taken now. By modifying equipment, training personnel, and applying good management techniques, growers can extend the productive life of an orchard by 10 years. "Our goal is to be able to harvest cherry trees with no injury at all," says Brown.



Tree shakers, such as this one in use in Michigan, pick cherries quickly and efficiently, but they can damage trees.

ATTENTION FARMERS

Call Cleck's for quick removal of dead & disabled animals. Free of charge.

Located in Mifflintown, PA

717-436-8272

Also Serving Lancaster, Carlisle, York, Millersburg & Eastern Pa. Areas

215-367-6259 if no answer
215-369-1625

TSC
TOWNSEND SAW CHAIN

FALL CHAIN SALE

Buy One Get One FREE
At A Dollar Per Bar Inch.

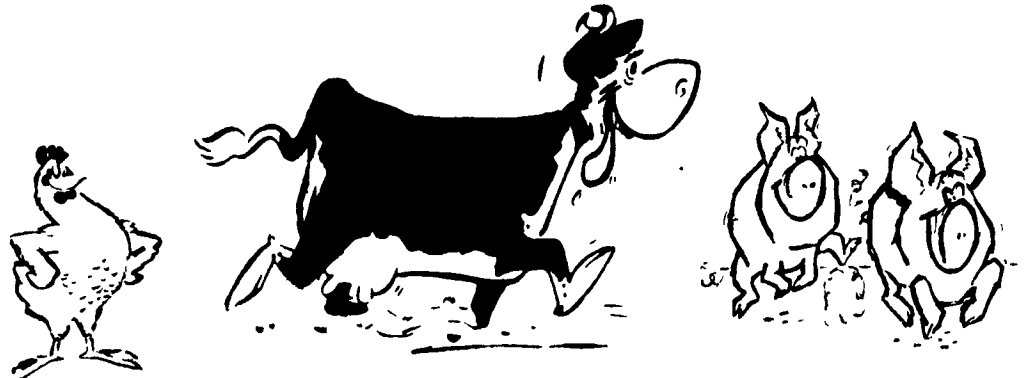
Example 16" Bar - \$16.00 2nd Chain FREE

CALL US *We Will Ship UPS*
We Have Chains For Most Makes

Martin's Repair Shop

R.D. 4 Box 49
Ephrata, PA 17522
717-733-3015

Now Improve The Performance Of Your Livestock or Poultry



It's a fact! High quality conditioned water can greatly improve your livestock and poultry performance. Our years of experience plus hundreds of farm related treatment systems has proven the validity and practicality of correcting contaminated water.

Call us today for treatment of

* Nitrates * Bacteria * Iron
* Sulfates * pH - Acidity/Alkalinity



Martin Water Conditioning Co.

SPECIALISTS IN FARM WATER TREATMENT

548 New Holland Ave.
Lancaster, PA 17602
(717) 393-3612
Along Rte 23



740 E. Lincoln Ave.
Myerstown, PA 17067
(717) 866-7555
Along Rte. 422

Early Morning or Evening Call 717-345-8795
We Serve PA & Surrounding States

Contact our Representatives in

So. Chester Co., PA
Dick 215-932-3307
Hagerstown, Md.
Allen 301-733-0458

W. Lancaster Co., PA
Richard 717-665-7405
Virginia
Ron 703-879-9958