

Shears, Sawbuck & Co.

Method

Students will understand that new problems inspire new inventions. After looking at a tool catalog featuring weed-killing devices, they will investigate the special tools designed for use against invasive plants.

Getting Ready

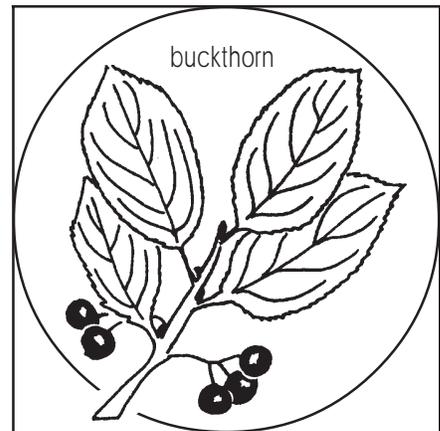
1. Gather as many different kinds of can openers as possible.
2. If possible, obtain traditional weed removal tools (e.g., hoes, shovels, pruners, saws) and new tools specifically for removing invasive plants (e.g., parsnip predators, honeysuckle poppers, dandelion diggers, etc.).

Introducing the Activity

If you're going to do something over and over, a specialized tool will save you time and frustration. Most of us would laugh at an automatic egg peeler until we had to peel hundreds of eggs every day! Think of how much easier it would be if you used the right tool for the job. The need to efficiently and effectively remove invasive weeds has spawned a surge in weed-killing devices!

Doing the Activity

1. **Talk about the need for tools.** Show the students a tin can. Explain that the tin can was invented in 1810, but the first can opener wasn't invented until 1858! The inventor of the tin can was a genius when it came to preserving food, but he didn't have a plan for getting the food out of the can. Instructions on the original cans read: "Cut round the top near the outer edge with a chisel and hammer." It wasn't until almost 50 years later that manufacturers made the metal on tin cans thin enough to allow safe and easy opening.
2. **Think about the demand for specialized tools.** Ask students to list different kinds of can openers that they have used (e.g., cutting wheel can openers, pocket knife can openers, electric can opener, and bottle/can opener combination tools.) **Optional:** As they mention different can openers, show examples.
3. **Think about the need for diversity in tools.** All of these can openers represent different solutions to the same problem. Ask some of these questions:
 - What need do these objects all fill? How are they alike and how are they different? Is one better than the others?



Objectives

- Become aware of how tools and gadgets fill a need.
- Realize that new problems encourage entrepreneurs to invent new solutions.
- Invent, test, market, or evaluate a tool to mechanically remove an invasive plant.

Grades

5 – 12

Group Size

Pairs or small groups

Activity Time

Two or three 50-minute periods

Setting

Classroom

Materials

- Tin can
- Can openers (the more models, the better!)
- Copy of *Shears, Sawbuck & Co.* for each student (page 119 – 120)
- Optional: weed removal tools

Connections

See next page.

Academic Standards

Grades 5 – 8

- Science: G.8.4

Grades 9 – 12

- Science: G.12.3, G.12.5
- Social Studies: D.12.10

Scout Connections

- Cadette and Senior Girl Scouts: Inventions and Inquiry

- How many of these can openers do you have at your house? Why? Can you think of situations that would make the most advanced can opener useless?
4. **Connect to invasive plant removal.** Explain that when a new problem comes along, such as the need to remove invasive plants efficiently and effectively, there will be people ready to invent solutions.
 5. **Brainstorm a list of available tools that could be used to kill invasive plants.** Be sure to consider both herbaceous and woody plants. Your class list might include: hoes, shovels, pruners, saws, weed diggers, and lawn mowers.
 6. **Think about demand for specialized tools.** From what you know about controlling invasive plants, can you think of any special needs that might be filled by a special tool? Try to come up with a list of problems associated with controlling invasive plants. Your list might include:
 - Some invasive plants have very deep taproots.
 - Invasives in wet areas are difficult to get to.
 - Some invasive plants cause severe dermatitis when touched.
 7. **Pass out copies of the tool catalog page.** The catalog pages are modeled after the 1897 *Sears, Roebuck & Co. Catalogue*. That catalog featured everything a person could need or want: familiar items, improved products, and things that people didn't even know they needed! Ask students to look over the tools and talk about the ones that are most interesting to them.
 8. **Divide into small groups and decide on a tool-related project.** Caution: Students should concentrate on mechanical removal and not use any herbicides in their testing or inventing. Students could:
 - Develop a marketing campaign for one of the existing tools.
 - Construct/purchase and test an invasive plant removal tool. Write a review!
 - Invent a new tool that solves an invasive plant control problem. Choose a local invasive that is easy to experiment with.
 - Evaluate the tools in terms of impact on the environment. Are any doing more harm than good?

Assessing the Learning

Ask students to develop a rubric for grading individual projects. Rubrics should be approved before work on the project begins. They should include research, development, and presentation.

Finding Out More!

Tools of the Trade. The Nature Conservancy. 2005. Online tool reviews. <www.tncweeds.ucdavis.edu>

Shears, Sawbuck & Co.

We have spared no pains in selecting a line of tools that we can guarantee in every respect. These tools are crafted by the best companies and brought to you by our dedicated salesmen. Place your order with us and you will not be disappointed.

No. 2619 Red Dragon Torch
We are happy to offer this product from Flame Engineering. Kit includes torch, propane tank, and backpack. Free shipping.
Price, each **\$234.00**

No. 3404 Pulaski
You'll find nothing better for chopping, grubbing, and digging. Head weighs 3.5 pounds. The handle is perfectly sized at 32".
Price, each **\$54.37**

No. 3457 Parsnip Predator
The Prairie Enthusiasts now offer this new innovation to you through our catalog. Cut off those roots right below the ground.
Price, each **\$30.00**

No. 2698 EZject Lance
Deliver quick results with minimal effort on your part. Simply push the lance against the offending tree to inject an herbicide-filled capsule. From Odum Processing Engineering Consulting, Inc.
Price, each **\$425.00**
Price, 4800 brass capsules ... **\$425**

No. 4556 Weed Twister
This contraption is too good to pass up. No bending, stooping, or kneeling - just twist weeds out of the ground. From Ergonica.
Price, each **\$20.12**

No. 4534 Clint's Dandy Digger
This dandelion remover is destined to supercede all other weeders. Get rid of all your tap-rooted weeds. From Clint Jones.
Price, each **\$32.44**

No. 66732 Dandelion Drill
You can't afford to go without this unique drill bit. Spare the expense of chemicals. Note: Drill not included. From Forevergreen.
Price, each **\$16.95**

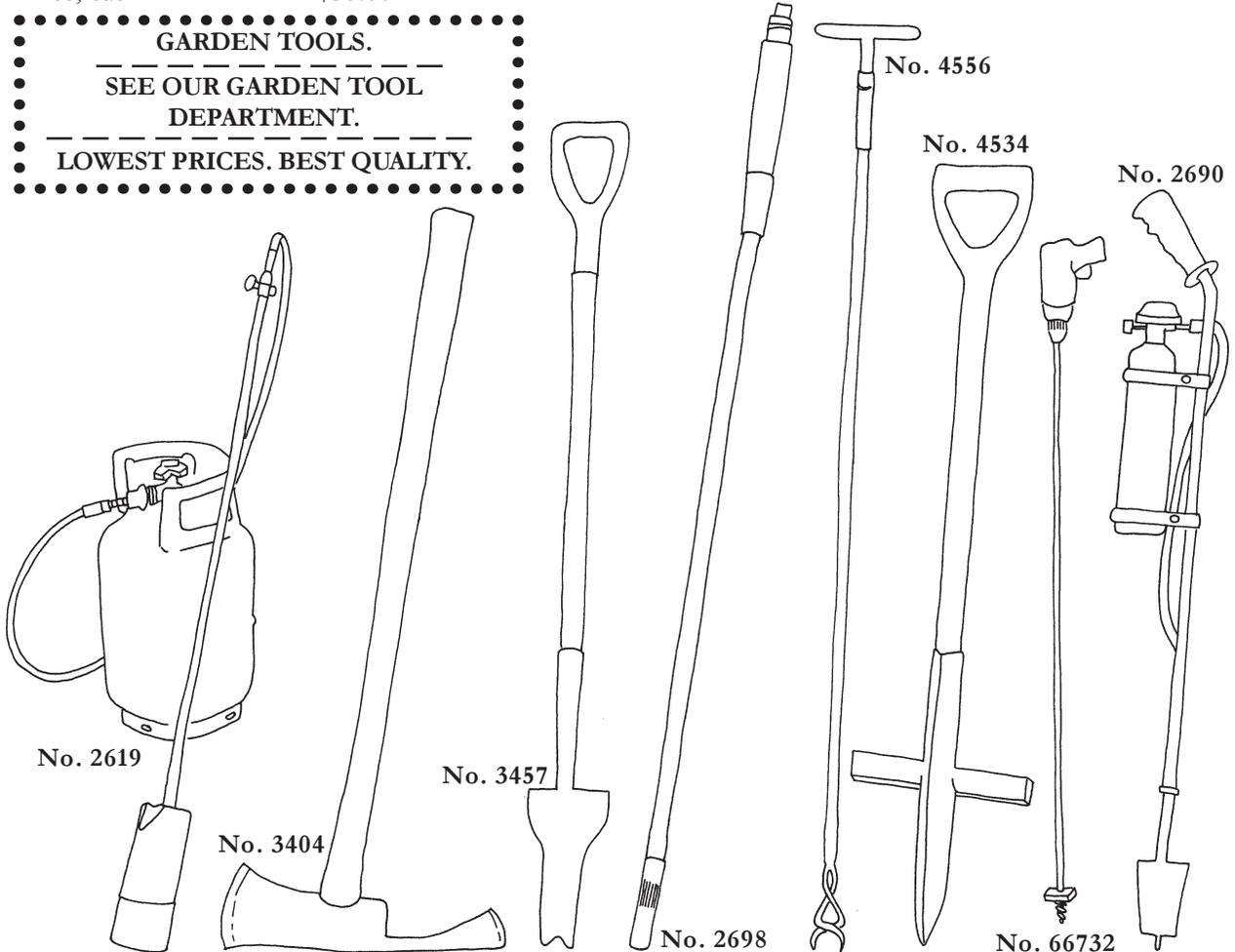
No. 2690 Punto
This handy mechanism delivers heat right to the root of your problems. The Punto's thermal element heats to over 1000° Celsius. From Forevergreen.
Price, each **\$195.00**

**NO BETTER OR MORE DESIRABLE GOODS ARE MADE THAN
THOSE WE ILLUSTRATE AND DESCRIBE.**

.....
GARDEN TOOLS.

**SEE OUR GARDEN TOOL
DEPARTMENT.**

LOWEST PRICES. BEST QUALITY.
.....





No. 3452

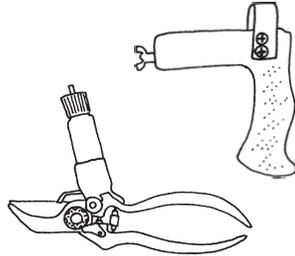


No. 1225

No. 2233



No. 2234



No. 7755

No. 2235

No. 3452 Gloves

In our experience, everyone from gardeners to railroad men can agree on these soft, yet sturdy gloves.

Price, each, \$5.84, dozen \$70.09

No. 2233 Pruners

We recommend buying two of these essential items. Not recommended for shearing sheep.

Price, each \$10.50

Price for two \$21.00

No. 1225 Cattail Knife

We have cleverly patented a new usage for a plain, old carpet knife. Cuts cattails like butter.

Price, each \$8.56

No. 2234 Kut-N-Kill Pruners

Combines all the latest improvements. No need to go back to treat with herbicides. Cut, then apply a drop of herbicide from the reservoir. From E cubed B Squared Farm Services.

Price, each \$39.89

No. 2235 KlipKleen Shears

A widget attached to your shears holds a cartridge of herbicide. As you cut, herbicide is applied to the cut surface. Shears not included. From A.M. Leonard.

Price, each \$17.44

No. 7755 The Ringer

You will find this very simple apparatus easy to use for all your tree girdling needs. From JMC Forest Maintenance Ltd.

Price, each \$189.90

UNCLE SAM MAKES IT EASY FOR YOU TO BUY BY MAIL.

No. 11200 Honeysuckle Popper

Don't let the name deceive you, this exemplary instrument can be used in the excising of countless invasive bushes. From Mr. Honeysuckle.

Price, each \$120.00

No. 1133

Cut-Stump Herbicide Wand

A thoroughly practical way to dispense with your weeds without a drippy mess. Do-it-yourselfers will appreciate Jack McGowan Stinski's low cost invention.

Price, each \$20.05

No. 11344 Weed Wrench

This tool gives the best of satisfaction, as it combines the economy of time, labor, and expense of materials. Comes in 4 sizes to uproot trees and shrubs up to 2 1/2" in diameter. From the Weed Wrench Company.

Prices \$82, \$130, \$155, \$189

No. 3899 Bow Saw

Anyone can sell a satisfactory saw, but our time-tested model is the best on the market.

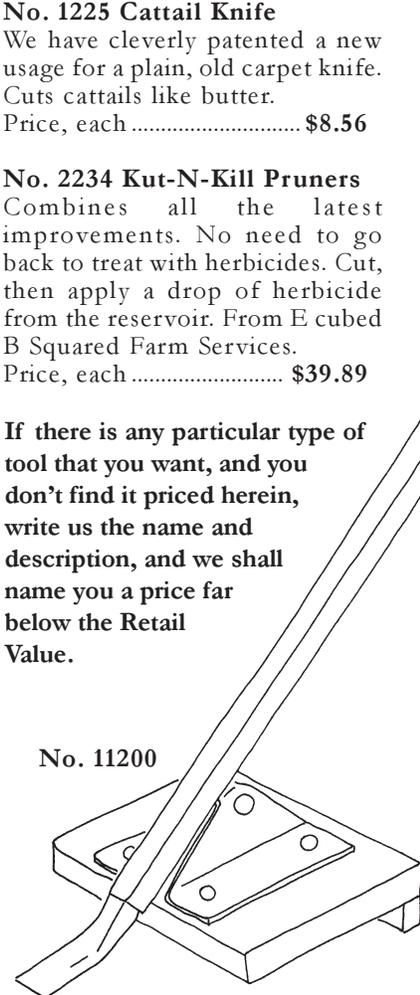
Price, each \$13.10

No. 3877 Loppers

Best loppers ever made at anything like the price. 24" ash handle and steel cutter.

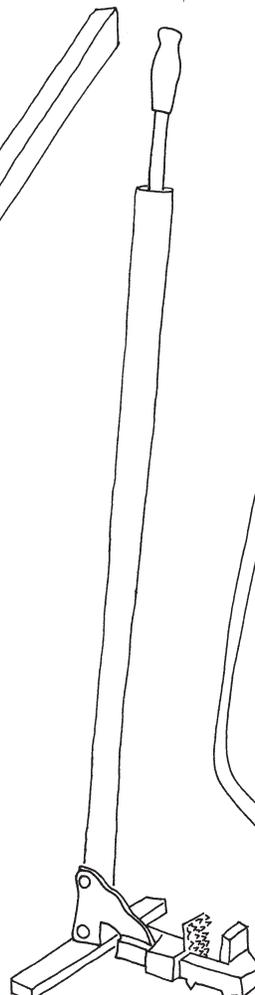
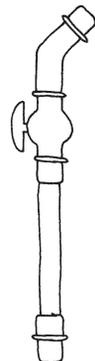
Price, each \$24.53

If there is any particular type of tool that you want, and you don't find it priced herein, write us the name and description, and we shall name you a price far below the Retail Value.

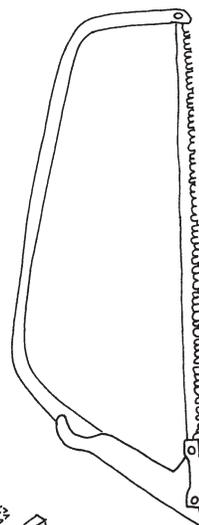


No. 11200

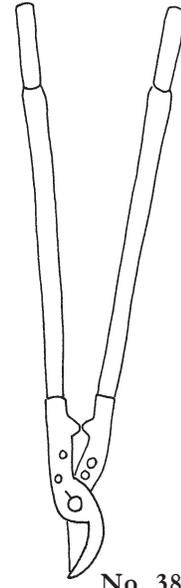
No. 1133



No. 11344



No. 3899



No. 3877