



Some people may not need a pickup as much as they think they do.

It's a common sight.

Pickup trucks roaming around oil fields, construction sites, farms and ranches, carrying little more than the driver.

And his hard hat.

If that doesn't sound like the best use of 4000 pounds of gas guzzling sheet metal, maybe you should have a look at the vehicle below.

It's called a Yamahauler.

It's got three wheels, a powerful four-stroke engine, shaft-drive, five forward speeds and reverse. Not to mention utility racks front and rear, a trailer hitch on the back that can tow whatever won't fit on the racks and a seat that can carry one person very comfortably.

And since a Yamahauler is smaller and narrower than a pickup, it can take that person more places. Through woods, up hills, over snow, across streams, swamps, mud, you name it.

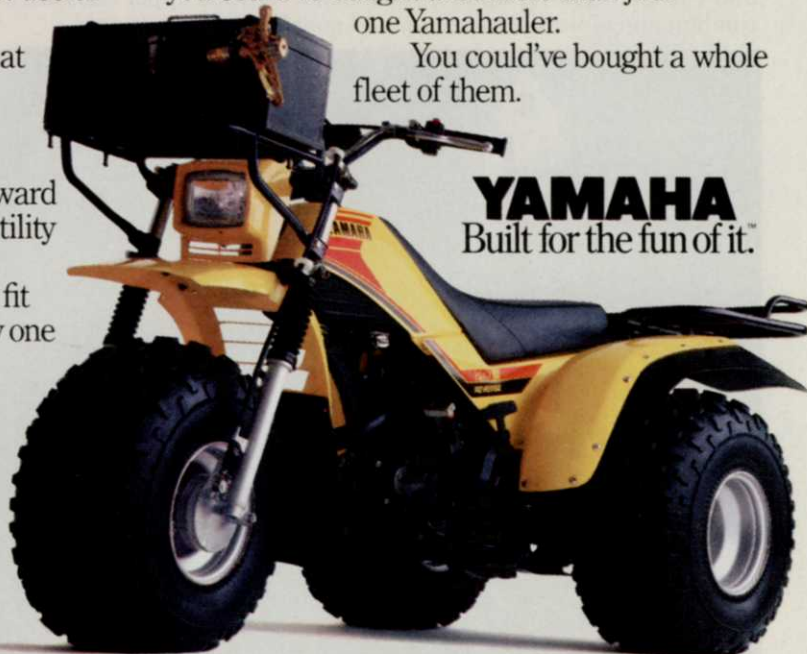
All the while, the Yamahauler

will be drastically lowering fuel bills.

Of course, if all that still hasn't sold you on the idea of three wheels instead of four, here's something else to think about.

For the price of the last pickup you bought, you could've bought a lot more than just one Yamahauler.

You could've bought a whole fleet of them.



YAMAHA
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Winter Damage

Cold temperatures this winter struck normally temperate regions of the South causing widespread damage.

by Michael A. Dirr, associate professor, horticulture, University of Georgia, Athens, GA



Snow insulates lower buds of rhododendron while upper buds are killed by a combination of wind desiccation and poor acclimation to cold.



Expect considerable flower bud damage and stem dieback on deciduous and broadleaf evergreen shrubs this spring. The damage will be pronounced from Minnesota to Florida.

In Minneapolis-St. Paul lows ranged from -30 to -34 degrees F. In Athens, GA, the mercury fell to 3 degrees F.

In both locations, similar temperatures have been recorded in previous years. Unfortunately, this year the plants were not fully acclimated and had not reached their maximum cold tolerances when the December freeze hit.

Additionally, the low temperatures persisted which accentuated the degree of injury. Plant exposure to prolonged low temperatures is usually more serious than short-term exposure (several hours).

Cold acclimation

Cold acclimation occurs in two stages, the first being triggered by short days in late summer and fall. The second stage is triggered by repeated exposure to low temperatures as well as freeze/thaw cycles.

It is obvious from the temperature data for the Athens area, that the plants never received the necessary low temperatures.

The same was true for Minnesota, where Dr. Harold Pellett at the University of Minnesota Landscape Arboretum reported flowers buds of the Northern

Forsythia buds above the snow line are often killed by cold temperatures. Vegetative buds, however, survive and leaves develop normally.

Subdue. The most effective fungicide against Pythium blight and damping-off.

Pythium weather. High temperatures, high humidity and high anxiety. Once Pythium takes root, it can destroy turf within hours.

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Subdue works both on contact and systemically.

Subdue fights Pythium blight and damping-off—as well as downy mildew (yellow tuft)—in two ways. On contact, Subdue destroys

the fungi in the soil. Systemically, Subdue prevents disease from within grass plants. That's because Subdue is water soluble—easily absorbed by roots. So Pythium—and now, downy mildew—don't have a chance.

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Subdue's systemic action means longer, more effective residual

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Before Pythium weather strikes, subdue it. Use Subdue in a preventive maintenance control program. And get a good night's sleep.

Ciba-Geigy, Ag Division, Box 18300, Greensboro, NC 27419.

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**HOW TO AVOID SLEEPLESS NIGHTS
DURING PYTHIUM WEATHER.**

SUBDUE

Circle No. 274 on Reader Inquiry Card

Lights hybrid azaleas were killed. These azaleas were bred and selected for flower bud cold tolerance down to -45 degrees F. But, the plants did not acclimate and, consequently, flower buds were killed.

Forsythia buds are often killed by low temperatures. Flower buds will open below the snow line where they are insulated. Notice that the vegetative buds are seldom injured and the leaves develop normally. This points out that flower buds are more susceptible to low temperatures than vegetative buds.

The Rhododendron Society rates various cultivars by their *flower bud hardiness*. H-1 is cold hardy to -25 degrees, H-3 to -5 degrees, H-5 to 15 degrees, and H-7 to 32 degrees F.

Dehydrating winds

Coupled with low temperatures were dehydrating winds. The wind passing across a leaf or stem surface acts as a driving force to remove water (via transpiration) from the tissue. If water is removed from leaves faster than it is replaced, cells will die.

Flower buds are more susceptible to low temperatures than vegetative buds.

Additionally, if the soil is frozen, roots cannot absorb water and the injury is even greater.

In general, broadleaf evergreens were more severely injured than deciduous plants. Plants shielded from the wind suffer less winter damage.

Rapid freezing

Dr. John Havis, University of Massachusetts, has frozen and thawed leaves of *Rhododendron catawbiense* 'Grandiflorum' at varying rates. All leaves subjected to rapid freezing were killed. Slow freezing, rapid and slow thawing did not result in injury.

Rapid freezing probably does not occur frequently in nature. Dr. Pellett has measured plant tissue that was 20 to 25 degrees F.

warmer than the air temperature on bright, sunny days. When a cloud passes overhead there is a rapid plunge in air temperature that results in the death of some cells. Over time, the cumulative effect is yellowish to brownish foliage.

This type of injury results in the poor winter color of *Thuja occidentalis*, American arbutivae, many junipers, other needle and broadleaf evergreens.

Nurserymen have selected away from this characteristic to provide *Techny* and *Nigra* arbor-

Frost cracks are most common on the south and southwest sides of trees, especially Norway maple and London plane tree.

vitaes which maintain dark green through the winter. Wintergreen Korean boxwood (*Boxus microphylla koreana*) maintains good green foliage color while the Korean form turns sickly brown.

Location and frost cracks

Proper siting of plants in the landscape can literally save lives or at least preserve foliage color. Controlled studies in Kansas and Minnesota have proven plants perform best on north, northeast and northwest exposures where temperature fluctuations in winter were reduced and summer temperatures were relatively cool. The south and southwest exposures were the worst.

Bark splitting and frost cracks may also result from great temperature fluctuations. Rapid temperature drops cause contraction and splitting. Frost cracks usually occur on the south or southwest side of trees.

Norway maple (*Acer platanoides*) and London plane

tree (*Platanus x acerifolia*) are particularly susceptible to frost cracking. Other species also experience this phenomenon to various degrees. The best remedy is to plant non-frost cracking species.

Winter protection comes in many forms, but the most logical is the use of plants that are perfectly cold hardy in your area. Invariably, plants are used outside their zones of adaptability and suffer from cold "comeuppance". Gardenia is sold and planted in Zone 8 (10 to 20 degrees F.) but invariably is killed to the ground as it was in 1981-1982 and this year. In fact, plants look so bad this year, they may not resprout from the base.

Plants can be protected with burlap, boards, plastic structures, etc. Nurserymen protect their container plants by storing them in plastic covered houses. In the production phase this is acceptable but in a landscape situation it is almost impossible.

To prevent snow and ice damage on yews, boxwood and other plants that tend to split, tie branches with string, wrap in burlap, or build a protective cover.

Anti-desiccants (films) have been used with variable success on evergreens. The idea is to cut down on water loss through the leaves. Repeated applications through the winter might improve results compared to a single late fall application.

Readers are encouraged to write the magazine about their experiences with winter kill this year.

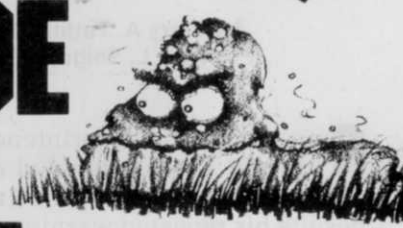
Since we are always learning, I'd appreciate observations from readers about winter kill in their area.

This article begins a regular series in WEEDS TREES & TURF on plant identification and problems. You may reach me by writing the magazine, 7500 Old Oak Blvd., Middleburg Heights, OH 44130. Let me know what you'd like to discuss.

WT&T

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Mower Wounds KILL TREES

Seemingly small bumps or scrapes by mowers can cause severe damage to valuable shade trees. Operators need to understand what mower injuries do.

by Terry A. Tattar, Associate Professor of Plant Pathology, University of Massachusetts, Amherst, and Alex L. Shigo, Chief Scientist, Forestry Science Laboratory, USDA Forest Service, Durham, N.H.

One golf course superintendent in New York, frustrated over continued wounding of trees despite his repeated warning, laid off the entire mowing crew for a day. He no longer has serious tree wound problems from lawnmowers.

Lawnmowers are often operated by people with little or no training in arboriculture. They do not understand injury and infection started by lawnmower wounds can often be the most serious threat to tree health on golf courses, parks, and other landscapes.

Most arborists and tree

pathologists have been aware of the lawnmower problem for some time. Extensive research has been conducted on the importance of wounds in tree health care (Shigo 1977, 1979). This research has led to significant adjustments in pruning, cabling, bracing, injection, and cavity treatment (Shigo 1982).

Despite this knowledge, one major source of wounds, lawnmowers, remains a constant threat to tree health care (Tattar, 1978).

Lawnmowers cause the most severe injury during periods when tree bark is most likely to "slip", in early spring during leaf

emergence and in early fall during leaf drop. If the bark slips, a large wound is produced from even minor injuries.

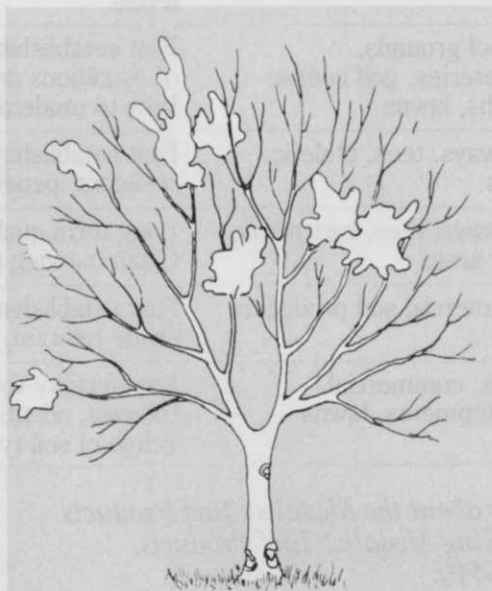
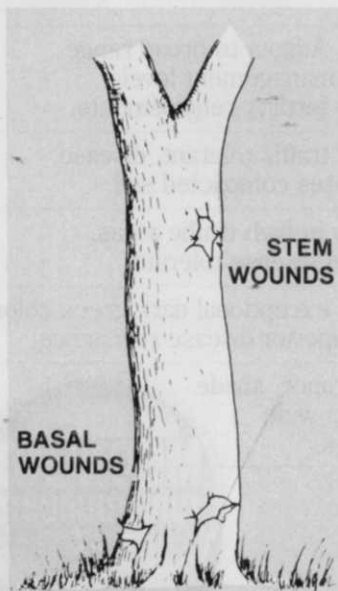
Most tree injuries occur when mower operators attempt to trim grass around trunks with a push or riding mower. This can be prevented by removal of turf around trees or hand trimming.

The site of injury is usually the root buttress, since it flares out from the trunk and gets in the path of the mower. However, injury is also common anywhere from the roots to several feet above the ground.

Although large wounds are most serious, repeated small wounds can also add up to trouble.

Wounds from lawnmowers are serious enough by themselves, but the wounded tree must also protect itself from pathogens that invade the wound. These microorganisms can often attack the injured bark and invade the adjacent healthy tissues, greatly enlarging the affected area. Sometimes, trees can be completely girdled from microbial attack following lawnmower wounds.

Decay fungi also become active on the wound surface and structural deterioration of the woody tissues beneath the wound will often occur. Many wounded trees which are not girdled may eventually break off at the stem or root collar due to internal decay.



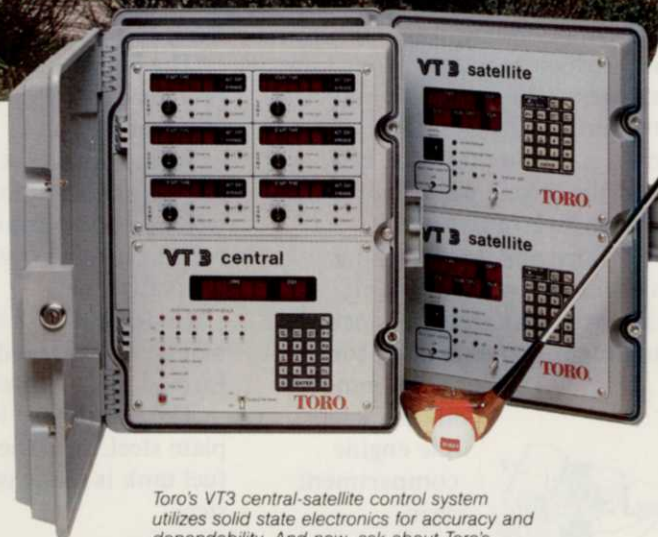
Multiple wounds from landscape equipment result in loss of tree foliage and eventual death.

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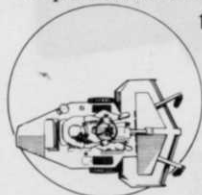
A free demonstration.

Of course, the best way for you to learn about the Cushman Front Line is to see it in action.

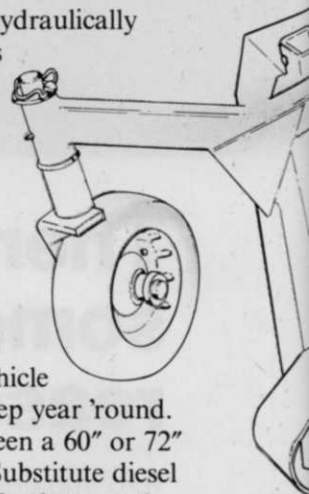
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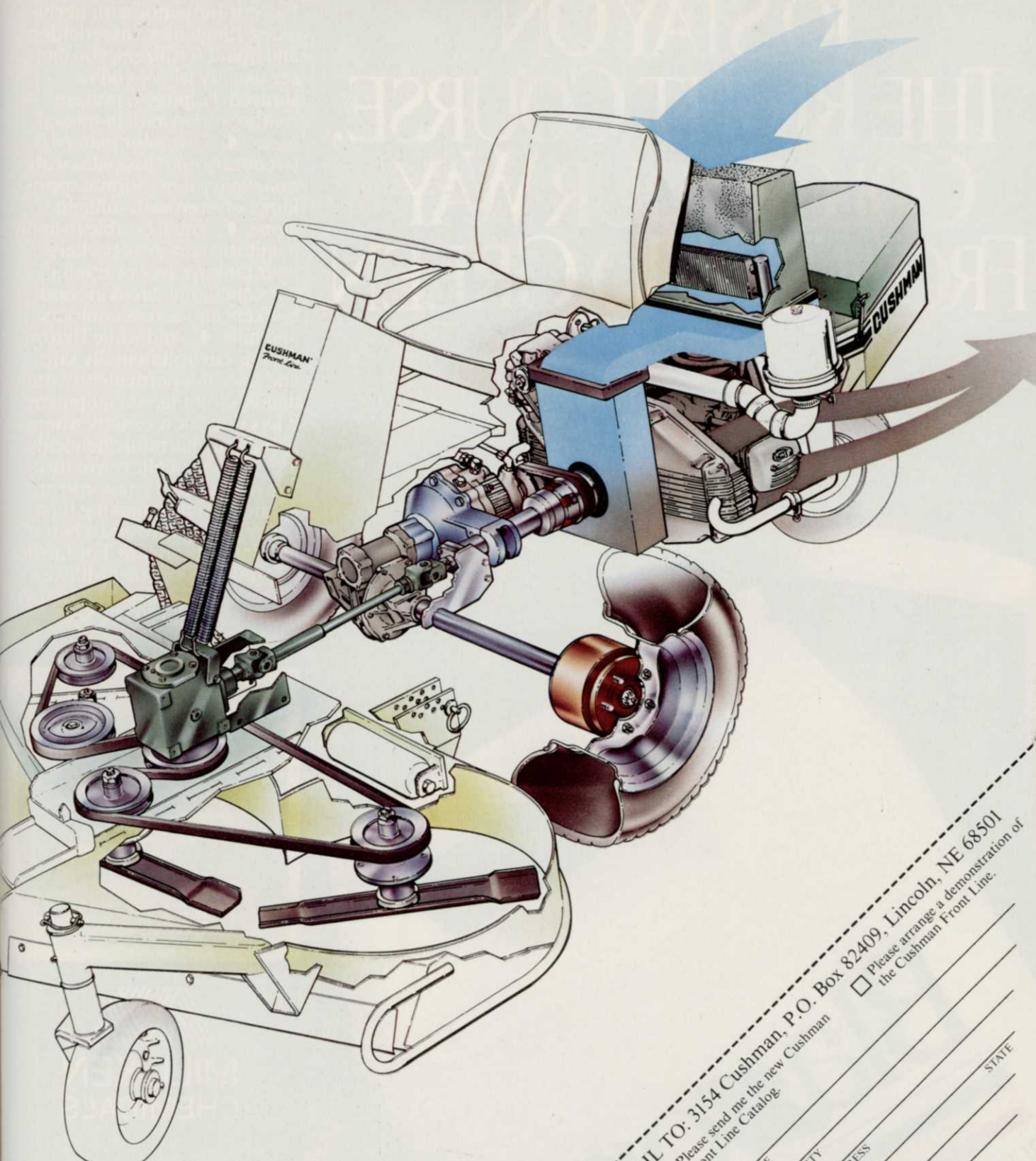
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