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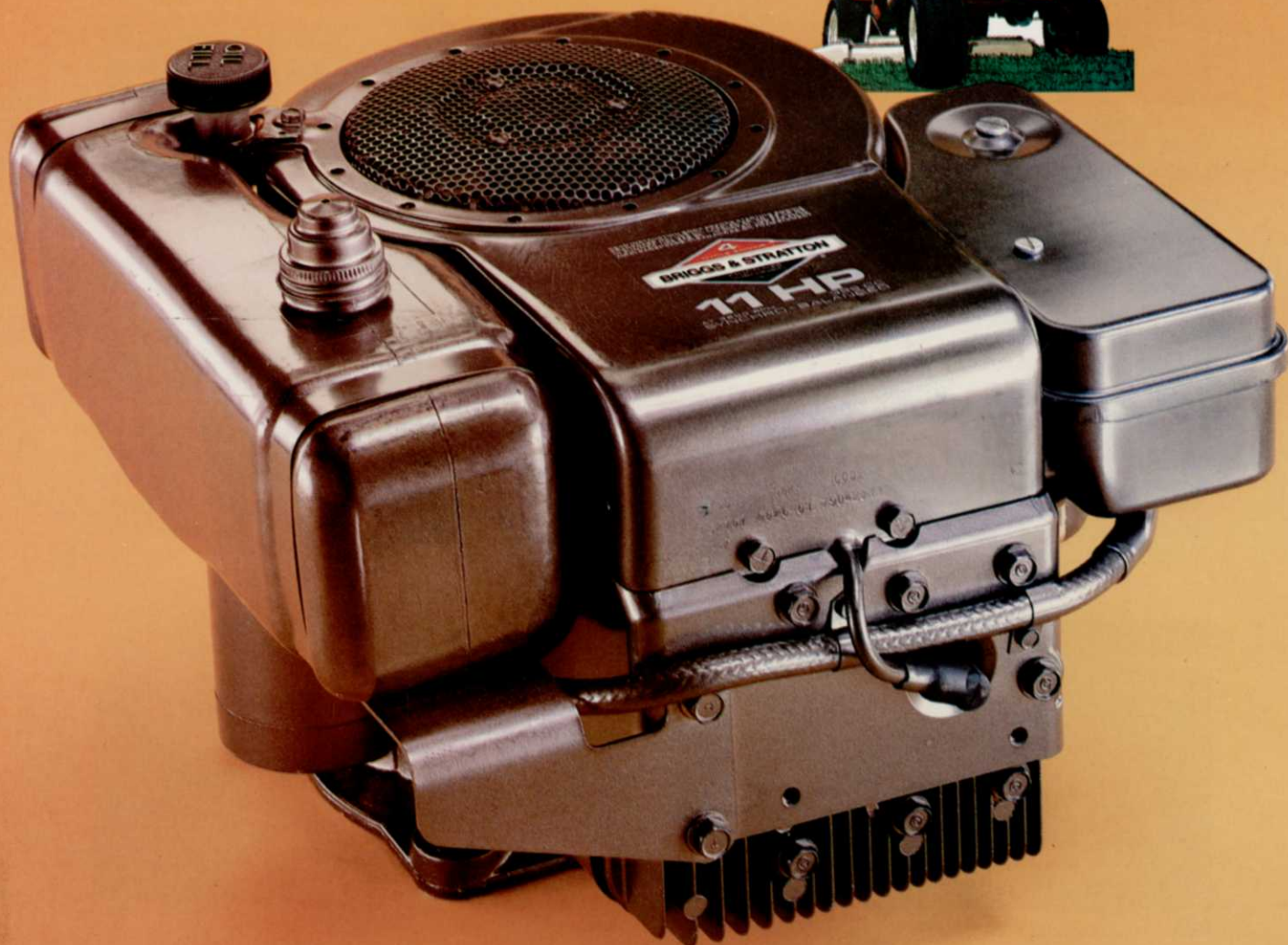
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RIGHT-OF-WAY WORKHORSES: EQUIPMENT BUILT FOR TOUGH JOBS

Right-of-way clearance and maintenance equipment ranks among the heaviest of duty workhorses in the Green Industry. The hours, conditions, and job at hand are the most challenging from endurance and stress standpoints. You simply can't take standard equipment and force it to the tolerances needed for right-of-way work and receive reasonable maintenance or endurance results.

Consequently, manufacturers have developed a family of equipment specifically designed to meet right-of-way wear and tear. Some members of this family are presented in this article as submitted by manufacturers. The price tags on such equipment may be higher than conventional turf or tree equipment, but they return the difference in durability and longer life.

Flail mowers

The Model 7HD from Mathews Co. cuts an 84-inch width with its heavy-duty lift-type flail shredder mower. It contains 34 sets of curved knife blades made of high carbon grader blade material heat treated for toughness. The blades are mounted to swing on a U-shaped rod which provides double hinging to reduce shock loads when hitting foreign objects.

A Category 1, 3-point hitch has built-in floating links for following contours. This combined with rugged gauge roller lets you cut close without scalping. The rotor and knife assembly are balanced to operate smoothly. The 7HD requires a 40- to 50-horsepower tractor with a PTO of 540 rpm. It weighs 1,400 pounds.

Other models from Mathews cut 120 and 144 inches and weigh 1,790 and 2,050 pounds respectively. All machines chop up prunings, shred stalks, and mow in difficult conditions. (Circle 200 on free information card).

Side-mounted "hammer knife" mowers on the Mott Interstater are free to float, following the contour of the ground. They may be held at varying heights and angles of tilt above the ground to mow over objects, soft areas, water, and holes without needing ground contact for support.



Mathews 7HD 84-in. flail.

The side-mounted mowers are Mott 74 or 88 cutters that are structurally modified. They attach singly or together to a Model 88 rear-mounted mower to make a two or three unit fully integrated tractor-mounted gang mower. Swaths of the three-unit gangs are 18 feet, 10 inches with 74-inch side mowers, and 21 feet, 2 inches with 88-inch side mowers.

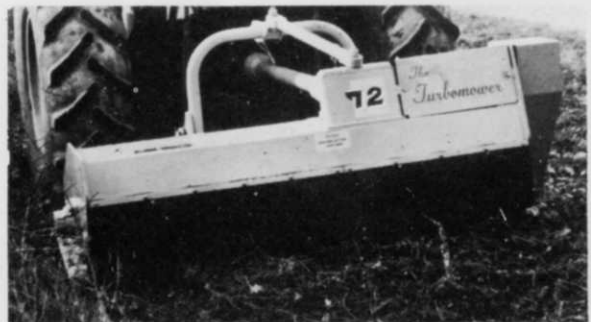
A "hydra-dynamic" power system transmits energy from the tractor engine to the mowers. (Circle 201 on free information card).

The 72 HD Turbomower from Turner International Ltd. has been designed with two features that enable it to work for a long time and cut grass and scrub in difficult conditions. A floating link suspension allows the mower to follow the contours of undulating ground to reduce wear on linkage points. An ability to offset up to 20 inches to the left allows cutting close to walls and other barriers.

The mower's 5½-inch diameter steel rotor has a ⅜-inch thick wall and is dynamically balanced and fitted with spring steel cutters attached by spring steel shackles. It adjusts for height from ¾ to 4¾ inches. The heavy-duty, double-sealed, and self-



Mott Interstater side-mounted flail.



Turner 72-in. Turbomower.

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Pear
Peach
Plum
Cherry
Orange
Lemon
Lime
Grapefruit
Raspberries
Pecan
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Blueberry



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PRICES: 1 to 3 cases, \$35.00 per case
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WEIGHT: Each case weighs 44 lbs.
NOTE: There are approx. 155 stakes per case. 20 nylon caps included in each case.

Stock No.	Description	No. of Cases	Price Per Case	Totals
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Make check payable to Ross Daniels, Inc.



"I wish my quarterbacks were as durable as this John Deere Tractor."

Coach Dan Spadoni, Dollarway High School, Pine Bluff, Ark.

Last season, Coach Spadoni had all four of his quarterbacks out at one time or another with injuries.

But his John Deere 850 Tractor never missed a day's work.

"In the two years we've had it, we've used it to mow both of our football fields, the practice field and the grounds around the school," says Coach Spadoni.

"And we've never had any problems. Even opposing teams have told us ours is the best field they've played on!"

Which, of course, is why Coach Spadoni and School Superintendent James Matthews decided to buy a John Deere 'Little-Big' Tractor in the first place.

Not too big, not too small

They were looking for a tractor big enough to handle

**Maximum PTO horsepower at 2600 engine rpm (by official test).*

***Maximum PTO horsepower at 2400 engine rpm (by official test for the 950, factory observed for the 1050).*

a large-acreage mowing job. Yet small enough so it would be economical to buy and operate.

The 22-PTO-hp* John Deere 850 filled the bill on both counts.

Its compact, water-cooled, 3-cylinder diesel engine has the power and stamina to run a rotary mower day after day, year after year. Yet being a diesel, it gives the kind of fuel economy a school's budget really appreciates.

More than just a mower

Another reason Coach Spadoni picked the John Deere 850 is its versatility.

It has a well-spaced 8-speed transmission that can match up to just about any job you want to do, plus a differential lock.

It has a Category I 3-point hitch, 540-rpm PTO and adjustable drawbar, plus more than 20 power-matched implement options.

And it's available in a variety of different tire styles and sizes.

Built to last

Of course, like all John Deere tractors, the 22-PTO-hp 850 is built to last.

"You can actually *feel* how solid it is when you ride it," says Dan Spadoni.

And to prove it, we ask only that you test drive one yourself at your nearby John Deere dealer.

Try out the 850, the 27-PTO-hp 950 or the new 33-PTO-hp 1050 with turbo-charged diesel engine:**

See for yourself why John Deere 'Little-Big' Tractors are a big winner with schools, parks and golf courses everywhere.



Nothing runs like a Deere®

For more information, write John Deere, Dept. 63, Moline, Illinois 61265.



The little-big tractors from John Deere

Workhorses from page 20B

aligning rotor bearings have a diameter of 2½ inches. Drive is through a heavy-duty bevel gearbox and a cross shaft with double universal coupling to four final drive v-belts with self-adjusting tensioning.

The cowl is made from ¼-inch mild steel plate; end plates are from ½-inch mild steel plate. For



safety, the machine has 12 independent front steel flaps in ¼-inch mild steel plate. A full width guard of heavy-duty, fabric-reinforced rubber is fitted at the rear.

The mower works well behind a tractor because its 72-inch width is approximately tractor size. This helps it maneuver well in confined spaces. (Circle 202 on free information card).

There are many other types of flail mowers to choose. These include Brillion Iron Works (203), Excel Industries (204), FMC, Agricultural Machinery Div. (205), Ford Motor Co., Tractor Operations (206), Hefty Tractor Co. (207), Hesston, Woods Div. (208), International Harvester (209), John Deere & Co. (210), and Vemco Co. (211).

Clearing devices

A fence row trimmer attachment on the Klearway, made by Kershaw, completely clears and mulches material growing in and above fences. It reaches straight up to 15½ feet or straight out 7 feet. With its powerful, high-speed rotary drum, it clears and mulches material 4 inches in diameter.

While the trimmer attachment clears fences above, the frontmounted cutter head clears brush and timber flush against the fence. The trimmer throws the mulched debris downward for safe discharge. Its side-mounted position gives the operator a complete view from his cab to do smooth, safe, and fast work.

When not in use, the fence row trimmer stows on top of the Klearway without disturbing the machine's stability or balance. (Circle 212 on free information card).

Bombardier Limitee, Industrial Equipment Div., makes the Muskeg Brush Cutter to clear and maintain rights-of-way where exceedingly soft terrain and swamps stop other types of vehicles. The large bearing area of the tracks provides a low ground pressure to allow this vehicle to work the year round over any type of terrain.

The Muskeg carries a 4-cylinder Detroit Diesel engine with a 212.4-cubic-inch displacement and 120 horsepower at 2,500 rpm. Power steering comes through controlled differential. Sixteen solid rubber wheels on tracks of rubber belts with steel crosslinks move the brush cutter.

The machine is 16 feet, 7 inches long, 100½ inches wide, and 90¼ inches high. Its ground clearance is 14 inches and frame height is 32 inches. (Circle 213 on free information card).

Woodsman Model 6003-DH enables one operator to clear 3 acres of land to ground level in one day. The Royer Foundry & Machine Co. land clearer cuts through heavy brush, trees to 6 inches in diameter, and trash lumber, then chips the cut wood into a mulch. It leaves the land ready for immediate use since there is no need for on-site burning or hauling debris to a landfill.

This Woodsman features a diesel engine with

Continues on page 55

Muskeg Brush Cutter (top) by Bombardier Limitee. In the middle is the **Kershaw Klearway** also enables over-the-fence cutting. **The Woodsman** by Royer.

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INCREASED DIVERSITY NEEDED IN LANDSCAPE TREE SELECTION

By Douglas J. Chapman, Horticulturist, Dow Gardens, Midland, MI

A new monthly series intended to provide objective information on weaknesses and strengths of current and new urban plant materials.

A tree is often selected for planting with aesthetics or emotions playing the major role, rather than a clear understanding of the tree's potential or growing requirements. Similarly, a large number of trees are used because of familiarity, such as birch and elm, with little consideration of their maintenance requirements. In making planting decisions, one should understand the cultural requirements; disease, insect, and air pollution resistance or susceptibility; and site requirements. With these concerns playing a co-equal role with aesthetics, there would be an increase in diversity of trees utilized in cities and home landscapes.

Many people have suggested Silver Maple (*Acer saccharinum*) is a "weed tree." This is not only an erroneous conclusion, but shows a clear lack of knowledge as to how the tree fits into our landscape. For many years, seedling Silver Maples were grown in the nursery for two years, then cut off, and allowed to grow back. This technique resulted in straight, high, well-branched specimens. Further, horticulturists who knew the requirements of this fast-growing, high maintenance tree pruned it every two to three years, resulting in smaller pruning wounds and less structural problems.

Presently, silver maples are pruned in five to eight year cycles, which often results in heartwood rot and structural damage. This clearly indicates that if Silver Maple is used on city streets, it will require constant preventative pruning and care rather than after-the-fact cosmetic pruning. The severe storm which hit the Central Michigan area during 1975 demonstrated that trees correctly pruned (this includes Silver Maple) were not as severely damaged from ice storms. The advantages of Silver Maple are obvious. It is fast growing and highly adaptive to urban conditions, with some selections developing outstanding fall color.

Doug Chapman manages the impressive Dow Gardens in Midland, MI. He has Bachelor degrees from the University of Massachusetts and Michigan State University in landscape operation and agriculture. He also has a M.S. in ornamental horticulture from MSU and Ohio State University. Before going to Dow Gardens he served as horticultural agent and county extension director in Flint and Midland, MI.

The American Elm (*Ulmus americana*) also adapts well to urban conditions and is a rapid growing tree, but is extremely weak wooded (falling apart in every storm), attacked by many insects (entire publications are devoted to its insect problems alone), and, of course, is subject to Dutch Elm Disease. The elm has been considered a highly desirable urban tree because of its familiarity to the general public. A study by Kalmbach and Kielbaso shows large trees (canopy over the street) were preferred by the majority sampled. The general public, as well as the professional forester, is willing to accept the millions of dollars spent on keeping the elm in a healthy, vigorous state. Contrast this with the Silver Maple — a tree with many of the same desirable characteristics, few insect or disease problems, yet is considered a "weed tree."

Selection of many landscape trees should be based on disease resistance or susceptibility. The crab apple, with its 600-800 available cultivars, is an outstanding tree when in full flower or heavily laden with fruit, but it is susceptible to apple scab and fireblight. There are some 80 cultivars showing good to exceptional resistance to these two diseases and these should be selected and grown.

When one completely reviews the literature, outstanding varieties, such as Malus 'Snowdrift,' 'White Angel,' 'Candied Apple,' 'White Cascade,' *M. tschonski*, and *M. floribunda*, should be high on the use list. When reviewing what trees are readily available in the trade, one sees *M. 'Eleyi'*, 'Van Eseltine,' 'Radiant,' 'Red Jade,' and others which are extremely susceptible to one or both disease problems. Many valuable trees are resistant to severe problems — White Oak (*Quercus alba*) to oak wilt, Norway Spruce (*Picea abies*) to cytospora canker, Ruby Red Horsechestnut (*Aesculus carnea* 'Brioti') to bacterial leaf blight — and should predominate a list of low maintenance trees.

The homeowner and commercial applicator should use tolerance or resistance to insect attack as a consideration in making a planting decision. With today's understanding of use and limitations of pesticides, one should be diversifying the landscape rather than making planting decisions which require a continuous insecticide application. In the Central Michigan area, White Birch (*Betula papyrifera*) is almost deitized, being used in 60 percent of the landscapes, yet only recently has there been extensive research to replace this outstanding native with borer and miner resistant trees; i.e. Monarch Birch (*B. maximowicziana*), River Birch (*B. nigra*), and Japanese White Birch (*B. platyphylla japonica*). There is still a place for White Birch in the landscape, not only in the more northern areas of the Northeast but in southern areas. The planter should know that this is a short-lived tree and requires constant applications of insecticides to protect it against the ravages of these two insects. If one is clearly informed as to how a tree responds in a part of the country, then knowledge-



Norway maples (left) adapt better to urban soils than sugar maples.



Sugar maple (left) requires fertile, well-drained soils.

Silver maple (above) requires constant pruning and care.

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able decisions to plant River or Paper Birch (*B. papyrifera*), elm, or hackberry can be made.

The plant's ability to tolerate air pollutants, such as sulfur dioxide, ozone, or sodium chloride laden air, is an important factor when making decisions



on plant types. Austrian Pine (*Pinus nigra*), a two-needle pine, tolerates pollutants much better than the five-needle pines, i.e. White Pine (*P. strobus*) and Bristlecone Pine (*P. aristata*).

Planting sites should also be considered for their impact on trees. The native Sugar Maple (*A. saccharum*), which thrives on fertile, well-drained soils, does not adapt to the poorly drained, heavy clay urban soils as well as Norway Maple (*A. platanoides*). If one has a large open site with fertile, well-drained soil, Sugar Maple, for its habit of growth and fall color, is clearly more exciting than Norway. Site not only dictates tree size and shape but also adaptive type. Many trees are planted on droughty soils on outlawn conditions with little regard to their ability to withstand this rigorous environment. Sugar Maple collapse and beech predisposition to borer attack make these trees less desirable to White Oak, English Oak (*Q. robur*), Silver and Red Maple (*A. rubrum*), 'Bradford' Callery Pear (*Pyrus calleryana* 'Bradford'), and cultivars of Honey Locust (*Gleditsia triacanthos*).

One should also consider plant compatibility. Rhododendrons are exciting when growing among pine trees, yet quickly die when planted among maples. It is akin to the frustration of trying to grow a quality turf under a Sugar Maple or the ease of cultivation under Honey Locust.

Every tree has conditions which make it the outstanding selection. It should be paramount when making landscape plant choices to increase the diversity of trees grown while eliminating the classification "weed trees." A tree is only a "weed tree" when we don't understand the maintenance requirements, where or under what conditions the tree thrives, or aren't able to provide the correct level of maintenance. Each tree from Tree of Heaven (*Ailanthus altissima*) to Silver Maple, crab apple, Ruby Red Horsechestnut, or White Oak has different maintenance requirements but each fills an important niche in our total overall landscape.

WTT

Aesthetic value (above) is only one of many considerations in plant selection.

Eighty crab apple cultivars out of 800 show resistance to apple scab and fireblight.

