A photograph of a Toro rotary mower in a field at sunset. The sun is low on the horizon, creating a warm, golden glow. The mower is in the foreground, and a line of trees is visible in the background.

A new class of rotary mower.

# The Toro Gro

**Y**ou may already know Toro's legendary Groundsmaster® family. But its latest offspring is a whole new class.

That's because the Groundsmaster® 3000 dramatically raises the bar on rotary mower



# Groundsmaster<sup>®</sup> 3

performance. With a powerful new engine. Advanced cutting units with wider swath. A super durable new axle. Quick-attach system and more.

That adds up to everything you want in your next mower. Greater

productivity, capacity, stability, strength, longevity and quality of cut. Along with Groundsmaster's all purpose, all year versatility.

Frankly, you've never seen a rotary mower this advanced. Because it's the only one of its kind.



# 000.

What more can we say?  
Except it dawned on us that  
you'd like a free video starring  
Toro Groundsmaster® 3000.

Just mail the card and  
it's yours.



*Helping You Put Quality Into Play.*

# Meet the most complete family of rotary mowers under the sun.

**Groundsmaster® 200 Series 2 or 4WD** tractors have many deck options and all season accessories, making them your most versatile choices.



**Groundsmaster® 300 Series** is represented here by the **325-D** in 2 or 4WD. Its **Guardian® 72" Recycler®** deck gives you the safety of no discharge with maximized efficiency plus an unsurpassed quality of cut.



**Groundsmaster® 455-D** with surefooted 4WD gives you extreme maneuverability plus the trimability of a 0° uncut circle.

**Groundsmaster® 580-D** combines big 16-foot productivity with the deft maneuverability of a trim mower.



You're looking at some other members of Toro's legendary Groundsmaster® line.

Each is different. But all share certain family

traits. Exceptional maneuverability, productivity, power, versatility, durability and quality of cut. Everything you want as a turfcare professional.



*Helping You Put Quality Into Play.®*



# ASSOCIATION LISTINGS

**Alliance for Environmental Concerns (pesticide)**  
P.O. Box 3692  
Wayne, NJ 07474  
201/595-7172

**American Association of School Administrators**  
1801 N. Moore St.  
Arlington, VA 22209

**American Backflow Prevention Association**  
4381 Hudson Dr.  
Stow, OH 44224  
216/945-6900•Fax: 216/923-4136

**American Horticultural Society**  
7931 East Blvd. Dr.  
Alexandria, VA 22308  
800/777-7931

**American Junior Golf Association**  
2415 Steeplechase Ln.  
Roswell, GA 30076  
404/998-4653•Fax: 404/992-9763

**American National Standards Institute**  
11 W. 42nd St., 13th Fl.  
New York, NY 10036  
212/642-4900•Fax: 212/398-0023

**American Rental Association**  
1900 19th St.  
Moline, IL 61265  
309/764-2475, or 800/334-2177  
Fax: 309/764-1533

**American Seed Trade Association**  
601 13th St. NW, #570 S.  
Washington, DC 20005  
202/638-3128•Fax: 202/638-3171

**American Society For Horticultural Science**  
113 S. West St., #400  
Alexandria, VA 22314  
703/836-4606

**American Society of Agronomy**  
677 S. Segoe Rd.  
Madison, WI 53711  
608/273-8080•Fax: 608/273-2021

**American Society of Horticultural Science**  
113 S. West St., #400  
Alexandria, VA 22314-2824  
703/836-4606•703/836-2024

**American Society of Irrigation Consultants**  
P.O. Box 426  
Byron, CA 95414  
510/516-1124•Fax: 510/516-1301

**American Society of Landscape Architects**  
4401 Connecticut Ave., NW, 5th Fl.  
Washington, DC 20008-2302  
202/686-2752•Fax: 202/686-1001

**American Sod Producers Association**  
1855-A Hicks Rd.  
Rolling Meadows, IL 60008  
708/705-9898 708/705-8347

**American Sports Underwriters**  
600 Unicorn Park Dr.  
Woburn, MA 01801  
617/938-6300

**Arkansas Turfgrass Association**  
Penthouse Suite, University Tower Blvd.  
1123 S. University  
Little Rock, AR 72204  
501/663-8810•Fax: 501/663-9148

**Associated Irrigation Consultants**  
2014 Sepulveda Blvd.  
Los Angeles, CA 90025  
310/477-6525•Fax: 310/477-2813

**Associated Landscape Contractors of America**  
12200 Sunrise Valley Dr., #150  
Reston, VA 22091  
703/620-6363•Fax: 703/620-6365

**Association of Physical Plant Administrators  
of Universities & Colleges**  
1446 Duke St.  
Alexandria, VA 22314

**Athletic Turf Association Inc.**  
P.O. Box 1114  
Hurst, TX 76053  
817/282-4965

**Atlantic Seedsmen's Association**  
298 E. McCormick Ave.  
State College, PA 16801  
814/237-0330•Fax: 814/237-0330

**California Association  
of Recreation & Parks Districts**  
P.O. Box 4599  
Auburn, CA 95604  
800/773-7275 or 916/888-1813•Fax: 916/823-3935

**California Fertilizer Association**  
1700 "I" St., #130  
Sacramento, CA 95814  
916/441-1584•Fax: 916/441-2569

**California Golf Course  
Superintendents Association**  
10928 Caminito Alto  
San Diego, CA 92131  
619/566-3400•Fax: 619/566-3555

**California Native Grass Association**  
P.O. Box 566  
Dixon, CA 95620  
916/678-6282

**California Park & Recreation Society**  
P.O. Box 161118  
Sacramento, CA 95816,  
916/446-2777•916/446-0285

**Canada Turfgrass Research Foundation**  
RR 2, 1333 Dorval Dr.  
Oakville, Ontario Canada, L6J 4Z3  
905/849-9700

**Center for Irrigation Technology  
California State University - Fresno**  
5370 N. Chestnut Ave.  
Fresno, CA 93740-0018  
209/278-2066•Fax: 209/278-6033

**Colorado Association of Lawn Care  
Professionals (Metro-Denver).**  
P.O. Box 102502  
Denver, CO 80250-2502  
303/777-1578

**Connecticut Grounds Keepers Association, Inc.**  
P.O. Box 876  
Bethel, CT 06801-0876  
203/791-8615

**Council of Park & Recreation Consultants**  
100 Arrival Ave.  
Ronkonkoma, NY 11779

**Cultivated Sod Association of New Jersey  
Soils & Crops Dept., Cooks College,  
Rutgers University**  
P.O. Box 231  
New Brunswick, NJ 08903  
201/932-9453

**Delaware Turfgrass Association**  
R.D. 3 #230  
Seaford, DE 19973  
302/629-0329

**Equipment Leasing Association**  
703/527-0343

**EPA, Office of Public Affairs**  
401 M. St. SW.  
Washington, DC 20460  
202/260-4355

**Fertilizer Institute, The**  
501 Second St. NE  
Washington, DC 20002  
202/675-8250•Fax: 202/544-8123

**Florida Turfgrass Association**  
302 S. Graham Ave.  
Orlando, FL 32803-6399  
407-898-6721•Fax: 407/894-3975

**Georgia Turfgrass Association**  
5198 Ross Rd.  
Acworth, GA 30144  
404/975-4123•Fax: 404/975-4044

**Ground Management Association of Wisconsin**  
6515 Seybold Rd.  
Madison, WI 53719  
608/274-6311

**Hawaii Turfgrass Association**  
P.O. Box 31003  
Honolulu, HI 96820  
808/841-3305

**Horticultural Research Institute**  
1250 J street NW, #500  
Washington DC 20005  
202/789-2900•Fax: 202/789-1893

**Illinois Turfgrass Foundation**  
11 South LaSalle St., #1400  
Chicago, IL 60601-4298  
312/616-0800•Fax: 312/616-0223

**Independent Turf & Ornamental  
Distributors Association.**  
1217 Wayburn Ave.  
Grosse Park, MI 48230  
313/331-7739•Fax: 313/331-7739

**Indiana State Lawn Care Association**  
P.O. Box 481  
Carmel, IN 46032  
317/575-9010

**Institute of Groundsmanship**  
19-23 Church St.  
The Agora, Wolverton  
Milton Keynes, England, MK12 5LG  
44/908-311856•Fax: 44/908311140

**International Erosion Control Association**  
P.O. Box 4904  
Steamboat Springs, CO 80477  
303/879-3010

**International Facility Management Association**  
International Sports Turf Institute (James Beard)  
1812 Shadowood Dr.  
College Station, TX 77840  
713/623-4562 or 616/285-3963  
409/693-4066

**International Turfgrass Society  
Virginia Tech, International Turfgrass Corp.  
and Soil Environmental Science.**  
Blacksburg, VA 24061-0404  
703/231-9736•Fax: 703/231-3431

**Interstate Professional Applicators Association**  
P.O. Box 681  
Kirkland, WA 98038  
206/823-2600•Fax: 206/821-7112

**Iowa Professional Lawn Care Association,  
Turf Office**  
RR 1, Box 281  
Ames, IA 50010  
515/243-2229•Fax: 515/964-1395

**Iowa Turfgrass Institute**  
P.O. Box 49  
Ames, IA 50010  
515/294-1439

**Irrigation Association, The**  
8260 Willow Oaks Corp. Dr., #120  
Fairfax, VA 22031  
703/573-3551•703/573-1913

**Irrigation Training & Research Center**  
Cal Poly State University,  
Agricultural Engineering Dept.  
San Luis Obispo, CA 93407  
805/756-2434  
Fax: 805/756-2433

**Kansas Turfgrass Foundation**  
2021 Throckmorton Hall, Kansas State University,  
Manhattan, KS 66506  
913/532-6173

**Landscape Materials Information Service**  
P.O. Box 216  
Callicoon, NY 12723  
914/887-4401

**Lawn Care Association of Pennsylvania**  
908 N. Second St.  
Harrisburg, PA 17102  
717/236-2050•Fax: 717/236-2046

**Lawn Equipment Dealers Association**  
P.O. Box 38  
Sierra Madre, CA 91025  
818/792-4602•Fax: 818/792-3340

**Lawn Garden & Power Equipment Expo**  
6100 Dutchman's Lane, 6th Floor  
Louisville, KY 40205  
800/558-8767

**Lawn Institute, The**  
1509 Johnson Ferry Rd., NE., #200  
Marietta, GA 30062  
404/977-5492•Fax: 404/977-8205

**Lawn Service Association of Michigan**  
P.O. Box 608  
New Baltimore, MI 48047  
810/598-7158•Fax: 810/598-7165

**Louisiana Turfgrass Association**  
P.O. Box 25100  
Baton Rouge, LA 70894  
504/388-4141

**Manhattan Ryegrass Growers Association**  
P.O. Box 250  
Hubbard, OR 97032  
503/651-2130



**Maryland Turfgrass Council**

12 Pressie Lane  
Churchville, MD 21028  
410/335-3700

**Massachusetts Association of Lawn Care Professionals**

1620 Sudbury Road, #6  
Concord, MA 01742  
508/287-0127•Fax: 508/371-6454

**Massachusetts Turf & Lawngrass Association**

P.O. Box 489  
Hadley, MA 01035  
413/549-5295

**Michigan Recreation & Park Association**

2722 E. Michigan Ave., #201  
Lansing, MI 48912  
517/485-9888

**Michigan Turfgrass Foundation**

Michigan State University,  
Dept. of Crop & Soil Science  
P.O. Box 80071, Lansing, MI 489098  
517/321-1660

**Midwest Regional Turf Foundation**

Dept. of Agronomy, Purdue University  
West Lafayette, IN 47907  
317/494-9737

**Minneapolis Park & Recreation Board**

3800 Bryant Ave., South  
Minneapolis, MN 55409-1029  
612/348-4448

**Minnesota Professional Lawn Care Association**

5425 Girard Ave. South  
Minneapolis, MN 55419  
612/822-7382

**Mississippi Turfgrass Association**

P.O. Box 9555  
Mississippi State, MS 39762  
601/325-2311

**Missouri Park & Recreation Association**

1203 Missouri Blvd.  
Jefferson City, MO 65101  
314/636-3828

**Montana Turf & Ornamental Professionals**

P.O. Box 80331  
Billings, MT 59108  
406/256-9499

**Musser International Turfgrass Foundation**

P.O. Box 8  
Sharon Center, OH 44274  
216/239-2383

**National Fertilizer Solutions Association**

11701 Borman Dr.  
St. Louis, MO 63146  
800/844-4900

**National Institute on Park & Grounds Management**

P.O. Box 1936  
Appleton, WI 54913-1936  
414/733-2301

**National Sports Turf Council**

P.O. Box AA  
College Park, MD 20740

**National Technical Information Service**

5285 Port Royal Road  
Springfield, VA 22161  
703/487-4812•Fax: 703/321-8533

**National Turfgrass Evaluation Program**

Beltsville Agricultural Research Center-West,  
Bld.- 001, Room 333  
Beltsville, MD 20705  
301/504-5125•Fax: 301/504-5167

**Nebraska Professional Lawn Care Association**

P.O. Box 83864  
201 North 8th Street  
Lincoln, NE 68501  
402/476-3852•Fax: 402/476-6547

**Nebraska Turfgrass Foundation**

P.O. Box 2118  
Hastings, NE 68902  
206/754-0825

**New Jersey Turfgrass Association**

41 Lupton  
Woodbury, NJ 08096  
609/853-5973 (Phone/Fax), or 908/821-7134

**New York State Lawn Care Association**

P.O. Box 26450  
North Chili, NY 14626-0450  
716/594-1095  
Fax: 716/594-9523

**New York State Turfgrass Association**

P.O. Box 612  
Latham, NY 12100  
800/873-8873; 518/783-1229  
518/783-1258

**North Central Turf Grass Association**

P.O. Box 2513  
Bismarck, ND 58502-2413  
701/232-0215

**Northern Michigan Turf Managers Association**

3733 Appollo Dr.  
Traverse City, MI 49684

**Northwest Turfgrass Association**

P.O. Box 1367  
Olympia, WA 98507  
206/754-0825

**Ohio Lawn Care Association**

P.O. Box 14901 Columbus, OH 43214  
614/261-1221•Fax: 614/261-1242

**Ohio Turfgrass Foundation**

P.O. Box 14824  
Columbus, OH 43214  
614/261-6750•Fax: 614/261-1242

**Ontario Turfgrass Research Foundation**

50 St. Phillips Rd.  
Weston, Ontario M9P, Canada  
416/241-5551

**Oregon Fine & Tall Fescue Commission**

1193 Royvonne, #11.  
Salem, OR 97302  
503/585-1157•Fax: 503/585-1292

**Oregon Seed Council**

866 Lancaster Dr. S.E.  
Salem, OR 97301-5831  
503/585-1157•Fax: 503/585-1292

**Pencross Bentgrass Growers Association**

P.O. Box 250  
Hubbard, OR 97032  
503/651-2130

**Pennsylvania Sod Growers Association**

21 Stable Drive  
Elverson, PA 19520  
610/286-6741

**Pennsylvania Turfgrass Council**

P.O. Box 1078  
Lemont, PA 16851-1078  
814/863-3475

**Perlite Institute**

88 New Drop Plaza  
Staten Island, NY 10306-2994  
718/351-5723•Fax: 718/351-5725

**Portable Power Equipment Manufacturers Association**

7315 Wisconsin Ave., #702, Air Rights Bldg.  
E. Bethesda, MD 20814  
301/652-0774•Fax: 301/654-6138

**Potash & Phosphate Institute**

655 Engineering Dr., #110  
Norcross, GA 30092-2821  
404/447-0335

**Professional Consulting Arborists Association**

605 SE 70th Ave.  
Portland, OR 97215  
503/254-0482

**Professional Grounds Management Society**

120 Cockeysville Rd., #104  
Hunt Valley, MD 21030-2133  
410/584-9754•Fax: 410/584-9756

**Professional Lawn Care Association of America**

1000 Johnson Ferry Rd., NE, #C-135  
Marietta, GA 30068-2112  
800/458-3466; 404/977-5222•Fax: 404/578-6071

**Professional Sports Turf Managers Association**

610/519-4426

**Responsible Industry For A Sound Environment (R.I.S.E.)**

1155 15th St., NW, #900  
Washington, DC 20005  
202/872-3860•Fax: 202/463-0474

**Rocky Mountain Regional Turfgrass Assoc.**

P.O. Box 29  
Franktown, CO 80116  
303/688-3440

**Sod Growers Association of Michigan**

50240 Marty Rd.  
Belleville, MI 48111  
313/481-0033

**Soil Science Society of America**

677 S. Segoe Rd.  
Madison, WI 53711  
608/273-8080•Fax: 608/273-2021

**Soil & Plant Analysis Council, Inc.**

Georgia University Station  
P.O. Box 2007  
Athens, GA 30612-0007

706/546-0425•Fax: 706/548-4891

**Soil & Water Conservation Society**

7515 NE Ankeny Rd.  
Ankeny, IA 50021  
515/289-2331•Fax: 515/284-12

**Southern Turfgrass Association**

1003 Howe  
College Station, TX 77845  
409/693-1656 or 913/749-5885

**Southwest Turfgrass Association**

9301 Indian School Rd. NE., #201  
Albuquerque, NM 87112  
505/646-4125

**Sports Turf Association**

185 Edinburgh Road S.  
Guelph, Ontario, N1G 2H8, Canada  
519/763-9431

**Sports Turf Managers Association**

401 North Michigan Ave.  
Chicago, IL 60611-4267  
312/644-6610•Fax: 312/321-6869

**STMA of Florida**

4740 NE 12th Ave.  
Oakland Park, FL 33334  
305/938-7477 305/938-7477

**Sports Turf Research Institute**

Bingley, West Yorkshire  
England BD16 1AU

**Southern California Turfgrass Council**

1092 Tanya Lane, Unit B.  
Fallbrook, CA 92028  
619/723-0255 or 714/951-8547

**Stadium Managers Association**

875 Kings Hwy., #200  
Woodbury, NJ 08096-3172

**Tennessee Turfgrass Association:**

c/o Mid-East Power Equipment Co  
525 Fairground Ct.  
Nashville, TN 37211  
615/726-8811

**Texas Recreation & Park Society**

508 West 12th St.  
Austin, TX 78701  
512/478-7781•Fax: 512/478-1049

**Texas Turfgrass Association**

1003 Howe  
College Station, TX 77845  
409/693-1656

**Turfgrass Council of North Carolina**

P.O. Box 289  
Southern Pines, NC 28388  
910/695-1333•Fax: 910/695-1222

**Turfgrass Information Center**

W 212 Library, Michigan State University  
E. Lansing, MI 48824  
517/353-7209

**Turfgrass Producers International**

1855-A Hicks Road.  
Rolling Meadows, IL 60008  
800/405-8873  
708/705-9898•Fax: 708/705-8347

**Virginia Turfgrass Council**

P.O. Box 9528  
Virginia Beach, VA 23450  
804/340-3473

**Virginia Turfgrass Association**

3646 Greenland Ave., NW.  
Roanoke, VA 24012, 804/427-9061

**Wisconsin Turfgrass Association**

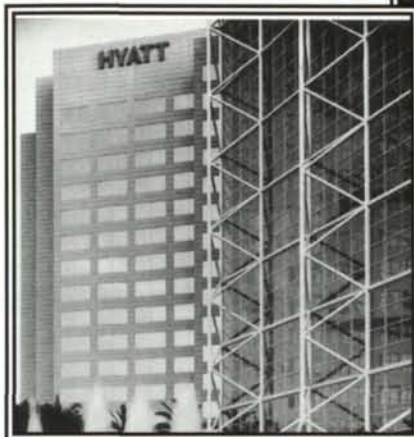
Bishops Woods, #104  
Brookfield, WI 53005  
414/274-6311 or 608/752-9766

**West Virginia Vegetation Management Association**

P.O. Box 1739  
Salisbury, MD 21802-1739  
410/860-6331• Fax: 410/860-6077



# STMA



# 1996

## SPORTS TURF SOLUTIONS SHOWCASE!

SPORTS TURF MANAGERS ASSOCIATION  
7TH ANNUAL CONFERENCE & EXHIBITION  
JAN. 24-28, 1996 • ANAHEIM, CA



Make plans now to join your colleagues and the Sports Turf Managers Association (STMA) in the heart of sunny Southern California. Anaheim's Hyatt Regency Alicante is the headquarters hotel, less than a mile from the gates of Disneyland. 1995 College World Series Champions Cal State Fullerton's sports complex will play host to the full day exhibition and demonstrations.

### HIGHLIGHTS OF THE 7TH ANNUAL CONFERENCE & EXHIBITION:

- A full day of activities, exhibits and hands-on demonstrations at College World Series Champion Cal State University - Fullerton's athletic facility featuring nearly 70 booths with the latest sports turf technology.
- The "Seminar on Wheels" bus tours will feature one whirl-wind tour of professional sports complexes (to say you've been there) and a second more educational option that will stop at several distinctive venues with unique sports turf challenges.
- Future "Hall of Famer" Tony Gwynn will keynote our annual awards banquet where STMA will present nine awards of distinction including the Harry C. Gill Memorial Award for the Sports Turf Manager of the Year.
- A panel discussion on sports field safety and sports torts, budgeting workshop, a workshop on understanding soils, the art of mowing, what's bugging your turf clinic, panel on drainage system technology, new approaches to improving wear tolerance and much more!
- And don't miss the silent auction and raffle of valuable sports memorabilia.

SPORTS TURF MANAGERS ASSOCIATION

*Promoting Better and Safer Sports Turf Areas*

401 North Michigan Avenue • Chicago, Illinois 60611

**(312) 644-6610**



# Ballpark News

**Multi-purpose equipment saves money, time and manpower.**



The party's over. Well it wasn't really a party, but it's still making a few people smile. After they purchased a Ballpark-6 or a Diamond-Master just to groom their ball diamonds. Then they found out the same machine will brush-in sand top dressing on their outfield or mix soil conditioner for moisture absorption as shown in these photos.

**Don't ever sell  
TOPDRESSING  
short as a way to  
improve your  
sportsfield on a  
limited  
budget.**

**BUT DO IT  
RIGHT!**

If it's time to even think about renovation you probably have plenty of compaction. Air, moisture and nutrients are not being supplied to the root zone as they should be. That's the signal



for deep aeration. That may come from a coring aerifier, Shatter Tines or whatever you have available.

Now, over the next few days is the time to topdress. If you do not have an accurately calibrated topdresser which will spread uniform

layers from 1/4-inch or less and up to one or two inches you should borrow or rent one.

The Bannerman topdressers are all calibrated and range in size from 1.5 cu. yd. capacity up to 7.5 cu. yd. Talk to a professional who

can advise you. He may want a soil sample. In any case ensure that you have a competent source of supply as opposed to someone getting rid of earth from an excavation or from farm land where there may be chemicals.



# Changing Ballparks all over North America

This is 2 pages of a 4-page brochure published by Bannerman and covering various aspects of the maintenance of sportsturf and some of the equipment and products used throughout the industry. If you would like a copy of the complete brochure please check your Reader Service Card.



## EXTENDED AERATION gives your sportsturf a breath of fresh air and gets you a pat on the back.

Treating your sportsturf to severe, deep aeration in the off-season is great. But if your turfgrass is going to stay healthy you have to keep the root zone nourished and healthy all year long. And that means keeping compaction to a minimum.

That's why Bannerman developed the Slitter Tines as shown here. Because of

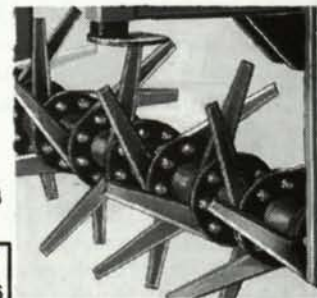


their design, when mounted on the Super-Ject Aerator frame these tines enter and exit with little or no surface disturbance. This means you can continue 7-inch aeration right into the playing season.

### **Bannerman**

Gordon Bannerman Limited  
41 Kelfield Street,  
Rexdale, Ontario, Canada M9W 5A3  
Telephone 416-247-7875

**TOLL- CAN 1-800-325-4871**  
**FREE USA 1-800-665-2696**





# Choices in Utility Vehicles

By Jim Williams

**M**ost sport turf managers will someday shop for a utility vehicle. Utility vehicles (UVs) are just too efficient and versatile to ignore. Generally no bulkier than a large riding mower, a UV can drive into just about any area a manager can reach on foot or with a wheelbarrow, placing more people, equipment and supplies within easy reach of sport complex sites faster than almost any means other than an air drop.

UVs mean greater economy, saving labor costs and the cost of maintaining a variety of different specialty vehicles. This leaves you with more money for your turf and, in turn, means higher turf standards. What the tractor is to the farmer, the UV is to the turf manager, and the odds are you will eventually have to plow through the many models available and choose one.

Like it or not, the choice is yours. No one else knows your turf and your problems as well as you, and unfortunately, there is no single UV to fit all purposes. You must match the vehicle to its actual use in the field by making a precise list of your primary and secondary needs. For a comprehensive list, talk to your field personnel and consult other managers for advice and recommendations.

Once you've made a list of your needs, you're ready to focus on the UVs that will best fulfill them. You'll want to order detailed literature on specific vehicles from manufacturers and distributors. If at all possible, try to test drive a variety of UVs, both empty and full, or better still, see if some of your local dealers have demos they can loan for a couple of days. As you study the UVs, you will find that there are about six basic areas in which you'll have to make choices.

## Hauling Capacity

This is the most basic area, for this is how utility vehicles are generally classified: as either (1) light-duty, capable of hauling around 500 pounds; (2) medium-duty, 1,000 pounds; or (3) heavy-duty, 2,000 pounds and up.

Light-duty units are good basic transportation models. Basic transportation can help perform such tasks as carrying irrigation parts and other equipment and supplies or serving as a mobile office. In

basic transportation models, manufacturers offer lights, fuel gauges, hour meters, seating for two people, canopy tops and even hydraulic dump beds for hauling.

The light-duty category now includes a new generation of powered wheelbarrow/cart combinations. Derived from garden tractors, these come in walk-behind and rider versions (often with a sulky attachment). Some can move loads of 500-plus pounds over difficult terrain, yet aren't any more complicated than the average mower.

While light-duty vehicles have their applications, medium- and heavy-duty units offer more versatility and durability. These two classes, which are the norm for heavy hauling and for towing turf implements, are the types usually preferred at larger athletic complexes. Their initial cost is greater than a light-duty's, but their versatility saves you time and money.

Buying a heavy-duty unit for light-duty use is overspending. Just to move people around, you don't need to pay for all the multiple-use extras you'd find on heavy-duty vehicles. But it's even a greater mistake to use a light-duty vehicle for heavy-duty applications. Heavy loads, towing implements and power take-off (PTO) units strain UVs and will quickly wear out the lighter-duty vehicles.

## Power Source

In this area, your first choice is whether to buy electric or combustion. In favor of electric engines is the fact that they are the quietest of all power sources and have fewer parts, so their maintenance is easier. Standard electric vehicles offer 36-volt systems and 2.5 hp motors, although 42-volt systems and 5 hp motors are available.

The main drawback to electric models is their limited range between battery charging. Consequently, most managers opt for combustion engines, which come in gasoline, gas propane and diesel models, with liquified natural gas on the immediate horizon.

Gasoline and diesel are the more common types, and between the two, diesel offers fuel savings of up to 50-percent, less maintenance and no ignition timing or spark plugs. Even so, gasoline models are preferred because fuel and servicing are more readily available.

In gasoline models, two-cycle engines have faded in favor of four-cycle units. Although two-cycle engines offer an economical option for vehicles that carry smaller loads, four-cycle engines are quieter, more durable under constant heavy use and better equipped to meet ever-growing emission-control standards. Likewise, between water- or air-cooled engines, water usually gets the nod. Air-cooled engines require less maintenance, but water-cooled power plants last longer because internal engine parts don't wear out as quickly.

Regardless of what type of engine you choose, the key is to make sure it has sufficient power to pull or operate your equipment. It must have power to do jobs when the vehicle is fully loaded and the torque to climb hills as well as get over curbs. For heavy hauling and towing implements, a UV's higher speeds are of secondary consideration; primary is good response at lower speed ranges.

The manufacturers' literature you receive will provide this information, containing specification sheets that list a vehicle and engine's rated capacity. Try to determine if the capacity includes one or two people; if only one, subtract 200 pounds from the hauling capacity if you send out crews in twos. You might also see if the literature mentions a "ground speed governor," a standard feature in many heavy-duty utility vehicles. When towing an implement like a spreader, the governor keeps the vehicle's speed consistent when driving over undulating terrain, which allows uniform distribution of materials. This saves time and money.

## Maneuverability

In this area, you first decide whether a three-wheel or four-wheel model is more appropriate to your needs. Three-wheelers are categorically more maneuverable, but four-wheelers can haul more cargo and are more stable, an important factor on uneven or hilly terrain.

Maneuverability is also determined by the vehicle's steering and suspension systems, as well as its length and wheelbase. Wider wheel bases are more stable and tend to be more maneuverable.

The best way to determine a UV's stability and maneuverability is to test drive it. See how it feels when you make