

## Maintaining the Grounds



A grading tractor equipped with a laser controlled box blade can easily grade to within 1/4 of an inch.

# How Grading by laser works

## Using an automatic laser controlled box blade and a tractor, you can accurately grade sports fields



**L**aser leveling is not just a term, it's a process that sports turf contractors and managers are learning can improve productivity and accuracy when grading sports fields and golf tee boxes.

"Laser leveling" or "laser grading" is used to refer to the grading process, which combines the use of a laser system and a grading tractor, bulldozer, or skid steer loader to control finish or sub grade elevation.

The laser system consists of a laser transmitter, which provides a 360-degree reference plane of laser light similar to an airport beacon, a 360-degree sensor mounted on a box blade or bulldozer blade to receive the laser light, and a control panel located on the tractor or in the cab of a bulldozer.

An operator can grade with a box blade or a bulldozer using the laser system as an "Indicate Only" manual reference, or the system can be installed to automatically control the cutting edge of the machine. When the operator uses the system in the manual mode, changes in elevation are displayed on the control panel as "High, Low, or On Grade", which allows the operator to make corrections.

### Autopilot

However, many operators prefer to have the laser system automatically control the cutting edge of the box blade or the machine. The laser system sends a signal to the hydraulic system to automatically correct elevation of the blade, which follows the laser light set at a predetermined grade. Automatic machine control allows the operator to concentrate on operating the machine, while the laser system makes corrections automatically. This results in more efficient, and accurate fine grading.

A laser controlled box blade is commonly used with grading tractors for finish grading. A hydraulic valve mounted on the tractor plugs directly into the remote hydraulics of the tractor. A 3-point hitch allows workers to install the box blade on a Class I or II tractor in just a few minutes. The trailing wheels of the box blade are controlled by the hydraulic valve and raise or lower the blade on the 3-point hitch to maintain grade.

### Benefits

**Improved accuracy.** In general, laser leveling is more accurate than any other grade control method commonly used in the turf industry. A grading tractor and a box blade can precisely grade to a predetermined elevation, which is preset in the laser system. Accuracy to within 1/4 of an inch is possible using automatic laser control.

**Improved playing field.** Athletes enjoy a smooth, accurate field; dips and valleys in the playing surface are eliminated and drainage is enhanced.

**Increased productivity.** Using a laser controlled box blade and grading tractor, you might finish grading an infield in 40% less time, according to one manufacturer.

**Versatility.** Level only, single, dual, or a cone grade can be achieved utilizing a laser controlled box blade grading system, and bulldozer or skid steer machine. Mounted on a bulldozer blade, sub grade can be controlled to a specified elevation. Select material can be added to the field in specified lifts and laser leveled between lifts to required specifications.

**Cost control.** Laser leveling helps control the cost of material and provides better control of select material. An initial grade check with a laser system allows you to calculate existing grades and establish the best profile for an existing field.

### What to look for

It is important to focus on what you want to accomplish on your project.

- Do your grading jobs require level only, single, dual, or a cone grade?
- Will the laser system serve you well in future projects?
- How easy is the system to set up and use?
- Is your dealer knowledgeable enough to help you with set-up and grade questions.
- Inquire about warranty and service support.
- See if there's an advantage to leasing. **ST**

*This article was provided by Laser Leveling, Tampa, FL, 800-622-5777.*



## GRADE TO PERFECTION

Southern Laser's Diamond Series laser system emits a conical plane of light that allows users to grade athletic fields to perfection in a fraction of the time of conventional means. The dial, located in the aperture of the laser, allows users to dial in the amount of slope wanted for each particular job. The laser will automatically level itself. The variable speed head motor offers additional flexibility and convenience. Southern Laser also offers products such as SkidMaster, GradeMaster and CourtMaster. GradeMaster is a three-point hitch grading system. The blade is compatible with most tractors. GradeMaster can be used for golf course tees, subgrade finishing, final grade finishing and numerous other applications. The SkidMaster blade has been designed specifically for skid-steer loaders. The design allows for bi-directional movement of material. SkidMaster can be used wherever conventional box blade attachments can be applied. CourtMaster is a versatile grading system. The rolling axle ensures the wheels stay in contact with the ground, and a four-tire setup offers maximum flotation. The portable hydraulic unit allows the CourtMaster to operate completely independent of a tractor's hydraulic system, greatly decreasing the minimum tractor capabilities.

800-622-5777

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## CONSTRUCTION, RENOVATION USING LASERS

Carolina Green Corp. is a licensed general contractor specializing in design, construction and renovation of native, modified soil and sand-based sports fields. Carolina Green uses laser technology in many aspects of its construction and renovation work. The company's equipment is state of the art and adaptable for heavy grading, fine grading, topdress/leveling and drain line trenching. All laser-guided equipment is fully automated and adjustable to within 1/100 of an inch. Many of the fine grading implements are custom fabricated to provide an exceptional finish with minimal footprint, allowing Carolina Green to "float" over fields without damaging the turf or subgrade. The staff of agronomists and construction specialists at Carolina Green has the experience and expertise to operate the equipment in any grade configuration. In addition to laser leveling services, Carolina Green provides renovation and construction services, including sod stripping and installation, infield refurbishment, custom soil amendments and blending, aeration, sprigging, and topdressing. Carolina Green's premier service has been the design and construction of modified native soil fields with sand slit drainage, which couples the stability of native soil with drainage characteristics similar to sand based fields.

704-753-1707

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## Maintaining the Grounds



### DEEP DE-THATCHER

SISIS Inc. has introduced a deep de-thatcher for use on all fine turf. The Rotorake 600 has a 13-hp engine, a 24-in. working width, and will work to a maximum 2-in. depth while leaving a clean-cut groove, says the company. At a shallow setting it is perfect for routine use and has a range of interchangeable reels for use year-round.

You can choose from front or rear discharge and opt for the large collector box.

The model incorporates the SISIS Rotorake contra-rotation principle developed in the UK, whereby the reel rotates at high speed against the direction you're travelling. Thus the blades cut upwards continuously throwing fiber forward rather than pushing it into the surface. This also helps hold the machine to the ground.

The 600 also contributes to aeration; the clean, continuous slits assist water and air absorption through a heavy thatch layer, and your topdressings can integrate better, says the company.

Neil Metcalf, course manager at the Royal St. George's Golf Club in Kent, tested the 600 extensively and says "The machine's depth was impressive and achieved without loss of power; it is a robust machine and good for courses with severe thatch problems."

864-261-6218

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### PROFESSIONAL BACKPACK BLOWER

RedMax's EB4400 backpack blower is rugged, quiet and light. The 19.4-lb. EB4400 moves up to 565 CFM of air at a speed of up to 160 mph. Yet the sound from air movement and RedMax's 41.5cc two-cycle engine is just 69 decibels. RedMax's EB4400 backpack blower carries the company's 1-year commercial warranty. An optional 2-year warranty is available.

800-291-8251

For information, circle 146

### BRILLION'S OVERSEEDER

The new Overseeder from Brillion delivers precise seed placement with optimum seed-to-soil contact for vigorous overseeded stands, says the company. The unit delivers new stands of overseeded turfgrass into existing seasonal, outdated or less desirable varieties, and bare spots.

"The knives on the front cutter create a groove, seed is placed directly into the groove, and the fully aligned rear wheel closes the groove for ideal seed placement with excellent seed to soil contact," says Tim Geary of Brillion.

Brillion Overseeders come with a choice of curved fairway knives for minimal disturbance in existing turf or straight knives for a more aggressive, dethatching cut. Both feature 3/16-in. high-carbon heat-treated knives set on two 9/32-in. spacings that can be adjusted to cut grooves at depths from 0 to 1.5 in.

The Overseeder uses Brillion's well-known seed metering system; the larger Turfmaker II Micro-Meter feed cups have precision fluted feed rolls to meter tall fescue seeds at rates from 24-462 lbs. an acre, and when the standard speed-up kit is installed, up to 924 lbs. per acre.

800-409-9749

For information, circle 140



### OUTFRONT MOWER

Gravely, an Ariens company, has introduced their new PM-310 outfront mower. Features include an adjustable high back seat with arm rests for comfort, a hydraulic deck tilt for quick clearance, six anti-scalp wheels, and 10-gauge welded deck construction with 7-gauge top plate. The 7.5-gal. fuel tank allows you to mow longer without refueling stops.

The PM-310 is available with a Kohler 25-hp Command Pro engine and your choice of 50-, 60-, or 72-in. deck. Ground speeds are 0-9.5 mph forward and 0-4.5 mph in reverse. The maintenance-free Gravely XL spindles reduce time spent greasing spindles and sharpening blades.

920-756-2141

For more information, circle 148





## AGILE MOWER

The Bob-Cat 218ES zero-turn ride-on rotary features compact size, zero turn radius and lever-type steering. An 18-hp Briggs & Stratton Intek V-Twin engine and 52-in., side-discharge cutting deck combine for a mowing capacity of up to 3/4 acres per day. Refueling stops are infrequent because of a 9.5 gal. fuel tank. On rough terrain the 218ES maintains solid traction while 3-inch antiscalp rollers protect delicate turf. The 218ES features a hinged foot plate that allows access to the deck drive belts. The foam-padded seat tilts forward to allow linkage adjustments and battery and fluid level inspection. A manual deck lift adjusts the cutting height from 1.5 to 4.5 inches. Armrests, electronic ignition, engine hourmeter, neutral safety switches, traction levers, a key switch and a PTO clutch are all standard features. Two-post rollover protection, knobby-tread rear tires and an ecoplate mulching kit are all optional. The formed and welded steel frame is backed by a full, 1-year commercial warranty.

888-922-8873

For information, circle 145



## TWO-IN-ONE

In the early 90's a small Indiana commercial lawn cutter was tired of trailering and maintaining a zero-turn rider and a walk behind. The zero-turn rider offered speed, comfort, and less fatigue; the walk behind was needed for areas the rider couldn't reach. So even though both machines were needed for his business, he was wasting money always having one unit sitting on the trailer. By using his business as a test bed, he developed a zero-turn rider that could convert to a walk behind, which now features a patented swing arm control. The conversion requires no tools and can be done in seconds.

Rich Manufacturing started building these 2-in-1 machines in 1996 under the name "Convertible," to offer the comfort of a rider with the flexibility of a hydro walk behind. One machine can handle a hillside, low-hanging object areas, or hard to reach areas while reducing trim time and equipment cost.

The current model Convertible features a 17-hp Kawasaki engine or the V-twin Kohler 17-, 20-, 22-, and 25-hp engines. The formed floating deck is made of 10 gauge steel with a 1/2-in. reinforcement plate on the front for durability. The model also can become a powered aerator, wheelbarrow, dethatcher, spreader, and sprayer.

### RICH MANUFACTURING

For more information, circle 138

# Simply The Best.



At LaserLeveling, we pride ourselves in manufacturing the most advanced, efficient grading systems available on the market today. Our box scrapers, when coupled with laser guided machine control, are completely automatic. Simply setup the laser, adjust the blade's sensor, and you are ready to grade, all while achieving a remarkable 1/4" grade tolerance.

Our systems also feature the revolutionary PILOT hydraulic system. This unique valve actually allows you to adjust the hydraulic speed of your grading system from the seat of your tractor or loader, greatly reducing finishing time and material waste.

For over 20 years, LaserLeveling has been forging the future of the grading industry. We offer a complete line of grading systems for pull-type, 3-point hitch, and skid-steer tractors. Our unmatched experience in this field also enables us to provide you with custom grading solutions for your specific needs. If you would like more information on how LaserLeveling can help you, click on [www.laserleveling.com](http://www.laserleveling.com).

**LaserLeveling**

P.O. Box 17678 Tampa, FL 33682  
800.622.5777 [www.laserleveling.com](http://www.laserleveling.com)

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