

Some tractors are operated by hand. Others by foot.
We were the first to use our head.



John Deere 4000 Series transmissions work so well with hands and feet because we used a part of anatomy often overlooked: The mind. A little extra thought allowed us to develop an economical SyncShift™ gear system with an added synchronizer that's so smooth it forever puts an end to the daily grind. Our PowrReverser™ transmission, by shifting directions instantly without clutching, greatly reduces turnaround time. And our top-of-the-line (available all the way up to the 48-hp 4700) Twin Touch® hydrostatic two-pedal control is an engineering feat twice: It uses the natural motion of your foot (unlike a treadle pedal), and leaves you free to use the left-side turning brakes (unlike many competitive foot control systems). So be our guest, test any of our transmissions. We're not afraid to go head-to-head with anyone.

Patented Twin Touch pedals are the most user-friendly on the market. Along with standard cruise control, this is the most productive transmission available anywhere.



The PowrReverser transmission is perfect for repetitive blade or loader work. Simply flip a lever on the dash and the tractor changes directions instantly.

4100	20HP
4200	26HP
4300	32HP
4400	35HP
4500	39HP
4600	43HP
4700	48HP



Circle No. 124 on Reader Inquiry Card



Nothing Runs Like A Deere®

We were the first to use our head.

Tough stuff



gine that delivers 10.1 hp at 2000 rpm. Ground contact pressure is only 3.27 psi.

Call Kubota at 888/4KUBOTA or www.kubota.com / circle no. 277

Scoop that mulch

Ramrod Equipment's mulch bucket comes equipped with a deluxe quick attach system to mount on the Ramrod Taskmaster Series of mini-skid steer loaders. It features a large capacity, 42-in. wide bucket designed to handle mulch, chipbark, loam or snow.

Call 800/667-1581 or www.ramrodequip.com / circle no. 278

Powerful tractors

New Holland has expanded the Boomer™ compact tractor line to include six higher horsepower economy and deluxe models. The operator's station can be accessed from the left or the right, and the In-Sight™ operator's station allows for better operator vision. On economy models, the engine is matched to a synchronized shuttle shift 12x12 transmission.

Call 717/355-1371 or www.newholland.com/na / circle no. 279

▲ Dingo does it all

The Dingo and Dingo TX hydraulic do-it-all machines share nearly 40 attachments that include a trencher, augers, a backhoe, various buckets and a snowthrower. In 1999, two new models rolled off the production line, one gas and one diesel, both with a 4-Paw™ independent four-wheel drive platform.

Call Toro at 800/476-9673 or www.toro.com / circle no. 275

Lots of bite

DPM Inc.'s Nursery Jaws is a hydraulic fork that can grab and move trees, rocks, and now pallets and boxes up to 42 in. with a new pallet fork option called Jaws II.



Call 800/669-4408 or www.nurseryjaws.com / circle no. 276

Dig, dig, dig

Kubota's new K008 Ultra Compact Excavator is small enough to pass through a standard doorframe and powered by a three-cylinder D722 liquid-cooled overhead valve diesel en-

Handles everything

The Allmond Bros.' tractor-loader-backhoe features a 35-hp engine, optional



two-speed hydrostatic four-wheel drive and a weight of 4,570 lbs. Featuring a hydraulic PTO, it can power augers, tampers, breakers, drills and saws.

Call 800/562-1373 or www.allmand.com / circle no. 280

Time-saving edger

Turfco's Edge-R-Rite bed shaper is perfect for cutting out flower beds, cutting in tree rings, edging walkways or even trenching in underground wiring for outdoor lights. A right angle blade for edging and landscape installation work and rotary blade for vertical cuts along patios or driveways are standard.

Call 800/679-8201 or www.turfco.com / circle no. 281

A-seeding we will go...

First Products' Seeda-vator can handle primary seeding and overseeding, and uses a patented swivel hitch which allows the



unit to turn around plant beds and other obstacles without tearing the turf.

Call 800/363-8780 or www.1stproducts.com / circle no. 282

▼ Crawler carrier

The upper structure of Komatsu's new crawler carrier can rotate 360 degrees, allowing forward-facing operations and eliminating the need for u-turns. Hand levers and joysticks are used to control



forward/reverse direction and the rotation of the upper structure. Driven by a 135-hp Komatsu engine, it has an operating capacity of 13,200 lbs., ground clearance of 19 in. and 3 psi ground pressure.

Call 847/837-2447 / circle no. 283

On the edge

Lightweight and compact, the Scag edger features a 10-in. milled-edge blade for deeper edging and longer life.



It has no moveable parts near the drive head, no springs to break, and no sliding booms or tilt quadrant to wear out. The industrial/commercial 3.5-hp Briggs engine powers this baby up nicely.

Call 920/387-0100 / circle no. 284

Entry-level backhoe

JCB has come out with a backhoe loader (214Se Series 4) to meet the needs of 14-ft. class, entry level customers. It has 4-



wheel drive, 4-wheel steer, four equal-size tires, 86 net hp JCB diesel turbo engine and SynchroShuttle transmission.

Call 888/742-5522 or www.jcbna.com / circle no. 285

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▲ A real swinger

The 4-wheel drive Swinger 3000 is a versatile, utility size articulated tool carrier/loader. A 25 gpm auxiliary hydraulic circuit and 80-hp John Deere Powertech diesel are standard, and a universal tool carrier plate accepts most skid steer attachments. An oscillating rear axle provides frame stability.

Call 715/835-3151 or www.nmc-wolard.com / circle no. 286

Spreading 'n spraying'

C & S Turf Care Equipment's SS8030 Turf Tracker spreads and sprays one acre in 11 minutes. It features a zero turning radius, 3-speed, 150-lb. capacity hopper, and 12-ft. breakaway spray boom.

Call 800/872-7050 / circle no. 287

Double trailer

J & J Truck Bodies and Trailers' new double dump trailer can carry a gross vehicle weight of 158,000 lbs. It has two lightweight aluminum bodies with hydraulic systems that allow drivers to easily discharge loads of construction materials, gravel, asphalt, sludge and sand.

Call 814/443-2671 or www.jjbodies.com / circle no. 288

John Deere tractors

John Deere has several tractor models to choose from: 5105/5205 (Powertech® diesel engine, SyncReverser™ transmission, independent PTO, optional four-wheel drive, 22.4-gal. fuel tank), 4700 (48-



hp Yanmar diesel engine, PowrReverser™ transmission, four-wheel drive, independent PTO, lateral float rear hitch arms, planetary final drives), 790 (30-hp diesel engine, sliding gear transmission, optional four-wheel drive, optional selectable PTO), and 990 (40-hp Yanmar diesel engine, standard collar shift transmission, optional four-wheel drive, planetary final drive).

Contact the John Deere Inquiry Department, P.O. Box 12217, Research Triangle Park, NC 27709 / circle no. 289

Tough skid steers

Case Corp.'s eight 1800 Series and XT Series skid steers offer horsepowers of 30 to 85, rated operating loads of 885 to 3,150

lbs. and operating weights of 3,107 to 8,800 lbs. All XT Series models have ergonomically designed excavator-style controls, push-button parking brake, superior operator sight lines and a suspension seat with lumbar support.

Call 414/636-6011 or www.casecorp.com / circle no. 290

Reinforcement

Versa-Lok Retaining Wall Systems now has the Versa-Grid™ for soil reinforcement for



segmental retaining walls. It provides additional soil reinforcement necessary for structural wall stability.

Call 800/770-4225 or www.versalok.com / circle no. 291

Rollin' sod

Ricard's big roll installer handles a variety of big roll applications. There are two varieties: 3-pt. hitch mounted and skid steer loader quick attach. They come in 24-, 30-, 42- and 48-in. widths. The operator does everything from the seat. Hydraulic cylinders open and close the tapered cones that grab the rolls by the plastic tubing.

Call 218/281-2120 / circle no. 292

Borderscapes

Borderscapes has three useful products for the landscape constructor and installer. Borderpathr holds pavers to create flowing curves or straight borders. Wallpins inter-

locking retaining wall units are designed to achieve consistent alignment. Brickholdr is a versatile brick/paver edge restraint system that combines fast and easy installation with the latest in technology.

Call 800/282-4226 or www.border-scapes.com / circle no. 293

This plow is the boss

The Boss Skid Steer Power-V Plow offers year-round use, from snowplowing in winter to pushing dirt in summer. It



adapts to V, scoop, and straight positions, plus it has a natural side-to-side tilt which can be converted to a hydraulic power tilt by adding an optional hydraulic cylinder. It mounts on all skid steers with a universal tool carrier.

Call 800/286-4155 or www.bossplow.com / circle no. 294

Mulch like crazy

Goosen Industries' LawnMaker hydro mulching machine provides a one-step efficient method for seeding, mulching and fertilizing. It features a full length mechanical rotor shaft for thorough mixing of ingredients. Material is disbursed with a slurry pump which minimizes clogging and allows course materials to be easily distributed.

Call 800/228-6542 / circle no. 295

Layin' line

The Line-Ward L-2 line layer is perfect for the installation of underground sprinkler lines with a simple blade change. It features rubber tracks for traction and blade drive system that minimizes lawn disturbance. At

26-in. wide, it can reach tight spots.

Call 800/816-9621 or www.lineward.com / circle no. 296

High horsepower

Caterpillar's new 228 and 248 skid steer



loaders feature high hydraulic horsepower to handle tools such as cold planers and stump grinders. The 228's and 248's operating capacities are 1,500 lbs. and 2,000 lbs., respectively. Each model has a Cat 3034 direct-injection, 4-cyl. diesel engine. Other features include pilot-operated joystick controls, more than 30 types of Cat work tools, and hydrostatic transmission that optimizes the hydraulic/rimpull match for greater productivity.

Contact Caterpillar Inc., P.O. Box 10097, Peoria, IL 61612-0097 / circle no. 297

The Extractor

The Extractor™ is a mechanized fork lever that can extract entire established tree and shrub root systems for transplanting. The manufacturer of the Extractor says it has lower overhead cost than the "ball and burlap" method, leaves root systems intact for higher survival rate, and is versatile enough to be able to remove stumps, light rocks, con-

crete and asphalt. With the Extractor, there is little or no need for hand labor, and speed and efficiency enhance plant survival and eliminate human error.

Call 800/950-6186 / circle no. 298

Claw at composting

Brown Bear Corp.'s attachments fit skid steer loaders, farm tractors from 35 to 150 hp, articulated and crawler loaders and dozers. They're perfect for composting grass and leaves (yard waste), chipped wood waste or manures into odor-free, dry organic fertilizer and humus.

Call 515/322-4220 or www.brownbearcorp.com / circle no. 299

Optimal Tree Spade

Billed by Bennett & Bennett Enterprises as "the world's most compact and technically advanced tree spade," the Optimal Tree Spade is 30 to 50% more compact than other tree spades. It comes in sizes ranging from 16-in. to 120-in. in diameter.

Call 865/436-2008 or www.optimal-treespades.com / circle no. 300

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Do-it-all power unit

Mertz, Inc.'s TrackMaster can do most everything a skid steer can do but also



squeeze into hard-to-reach places. Its width can be reduced to 30 in., and ground pressure is dispersed evenly to minimize lawn damage.

Call 800/654-6433 or www.mertzok.com / circle no. 301

So much at stake

Arborlock Staking Systems introduces Arborstakes and ArborAnchors to its professional tree staking line, products that suit any tree up to 5 in. in caliper. Both use the tree-friendly Arbor-Tie strap combined with tensioning buckles and ground-gripping anchors for both hard and soft soils.

Call 305/378-6153 or www.arborlock.com / circle no. 302

Soil blender/mixer

The Royer model 466 soil shredder is ideal for large scale topsoil blending and mixing applications. The shredder belt churns and aerates soil while incorporating a combination of peat, compost, sand or loam. All unwanted debris fill is automatically separated from the mix and removed.

Call 717/866-2357 or www.royerind.com / circle no. 303

Precise seeding

The Greenseeder from Redexim Charter-

house can plant all seed types from rye to bent. Using interchangeable gears, the machine can be set to give a precise seed dosage. All seeds are buried at a pre-set depth for maximum germination rates. In addition, the Greenseeder plants at a close and uniform spacing of 1.5 in., at speeds of up to 6 mph. For maximum flexibility, it can be mounted on a three-point linkage or trailed behind any prime mover; no PTO is required. An optional two-wheel hydraulic lift transport frame allows the Greenseeder to be converted to a "Tow-N-Seed" for pull-behind use.

Call 800/597-5664 / circle no. 304

A cut above

Classen Mfg.'s Model SC-18 self-propelled 18-in. sod cutter is powered by either a 5.5- or 8.0-hp Honda OHV engine and will



cut sod up to 2 1/2-in. deep. It can easily change from an 18-in. cutting unit to a 20-in. or 12-in. cut with optional conversion kits. Other features include drive wheels with a knobby tread design to eliminate dirt build up and ensure better traction and a twist grip throttle which goes to idle and stops machine movement when released.

Call 402/371-2294 / circle no. 305

Compact skid steer

Finn Corporation's Eagle 250 compact skid steer has a lifting capacity of 650 lbs. and a maximum operating height of 97.5 in. It features full hydraulic power to all functions simultaneously. The unit is self leveling, and a quick-change feature al-

lows for quick attachment changes. Dual fuel tanks allow a full day's work without refueling.

Call 800/543-7166 or www.finncorp.com / circle no. 306

DownUnder loader

The Kanga mini skid steer loader is a compact, multi-purpose machine capable of laying turf, trenching for drainage, planting trees, digging/leveling/transporting soil, fencing post holes, laying irrigation systems, horizontal boring and snow plowing.

Call 918/459-2137 or www.kanga-loader.com / circle no. 307

Awesome add-ons

Ambusher's new LOBO post-guard rail puller is built to fit any skid steer, has 17,000 lbs. of breakout pull force, can be operated by one person, and pulls wood or steel posts in seconds. Also for skid steers, Ambusher's rotary cutter mulches tall grass and brush and cuts material up to 3 in. in diameter.

Call 800/432-5955 or www.amm-busher.com / circle no. 308

Mini-loaders


Coyote articulated loaders are powered by water-cooled diesel engines from 22- to 50-hp and can access almost any area. Its Z-bar linkage offers leverage for high breakout force and faster lifting speed. A hydraulic locking system secures attachments without the driver having to get out of his seat.

Call 330/650-5101 or www.coyoteloaders.com / circle no. 309



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FERTIGATION

Move to the next level

When a condominium's property languished, the managers turned to fertigation. It might be just the solution you need

BY ROBERT E. REAVES

We're all creatures of habit, but when faced with a declining landscape and traditional management methods that aren't working, it's time to look at new solutions. In the case of the Tuscany Hills Homeowners' Association in Lake Elsinore, CA, fertigation plus regular diagnostic evaluation solved the problem.

Tuscany Hills features poor soil quality (in many cases pure rock) along with steep slopes, some 3:1, which made it difficult for the landscape management company to apply granular fertilizer. In addition, sodium from the irrigation water accumulated in the soil because there was no way for the water to leach. As the landscape continued to decline, some blamed poor soil conditions while others blamed the landscape architect and the landscape contractor.

Analysis first, prescription next

"I got a call to come out and look at the situation," says Bill Nolde, technical director for Fertigation Choice, a fertigation project management company located in San Diego. "After a full battery of soil, tissue and water analyses, I came to the conclusion that the problem was a plant nutrient deficiency because of poor soil chemistry. Because the site was so difficult, a whole new



landscape management strategy had to be applied. I recommended using fertigation systems to apply needed products."

At Nolde's suggestion, the homeowners association purchased 23 water-driven fertigation units, selected because the irrigation controllers were far away from the backflow preventers. Each unit was positioned close to the backflow preventers.

With the fertigation system in use after several months, the results have been excellent. "We applied a chelated phosphorus product on Indian hawthorn and New Zealand tea tree this year. The blooms have been phenomenal. The groundcover has begun to recover and we are not seeing any disease," Nolde said. Response from the homeowners association continues to be positive. "There's even a desire from homeowners to install fertigation systems at individual residences," he reports.

Because of the fertigation systems, Tuscany Hills is expected to decrease its water use 30% to 50%, depending on the month. "Most homeowners associations want to be good water stewards; however, their primary motivation is to save money on water bills," observes Nolde. He says



As a result of fertigation, Tuscany Hills changed from a bare wasteland (inset) to a thriving green property (above).

fertigation delivers higher plant quality and decreases irrigation time, as well as the labor necessary to apply fertilizer and soil conditioning products.

The program accomplished four things at Tuscany Hills:

- ▶ Soil conditioning (removal of salts),
- ▶ water conditioning/buffering,
- ▶ application of fertilizer nutrients, and
- ▶ water conservation.

Homeowner association market

Nolde says homeowners associations are a great place to increase the use of fertigation in landscapes. "Attractive common areas effect property values – which is very important to the members. This common area at Tuscany Hills will ultimately expand from 80 to 240 acres. It's been gratifying to convince people who aren't landscape professionals about the benefits of fertigation."

Unlike the agricultural and golf course markets, fertigation is relatively new to the

landscape industry. "I have given many talks to landscape groups," Nolde says. "Unless landscape architects specify fertigation, landscape contractors probably won't consider it in the near future. Because they are under such tremendous competition for business, fertigation and diagnostic evaluations are usually thrown out of the picture."

Unfortunately, few in the landscape market use water testing. "Over time, landscape management companies will pick up contracts from other companies who have lost the account. This is a critical time to go in and do a water analysis, along with tissue and soil tests."

Fertigation is most effective when combined with diagnostic evaluations. "Guessing is a 50/50 proposition. Fertigation with diagnostic evaluation takes landscape management to a science. You apply what is

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"Fertigation combined with diagnostic evaluation takes landscape management to a science." – Bill Nolde

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missing through the fertigation system." For example, if magnesium was the only missing ingredient, magnesium sulfate (Epsom salts) could be applied through the system.

Nolde is a convert to fertigation from his 16 years as a golf course superintendent. When he arrived at Canyon Country Club in Palm Springs, CA, he found a fertigation system out of commission. "We rebuilt the pump and got the system going again. Because of the sandy soil at the course, we had very low cation exchange capacity. I bought some soil conditioning products and began adding humus through the irrigation system. We grew the most beautiful bermudagrass I have ever seen. It took me a while to develop confidence in fertigation. Now, I'm sold on it."

Get off the 'gypsum bandwagon'

He believes it is time to approach landscape management from a new perspective. "Most owners of landscape management companies are very sharp. However, it takes longer to convince field personnel since they have first-hand dealings with all the competition in the marketplace. The landscape market is very aggressive, with a financial critical mass. It's very easy to give up on things like soil tests. Right now, 90% of all landscape management is grooming. Very little attention is given to plant fertility."

As an agronomist, Nolde says poor soil chemistry is the major culprit in landscape decline. "I see so many folks who lose their jobs because of soil chemistry, something over which they have no control. Soil salinity is a problem at many landscapes."

He says gypsum is not the answer to salinity. "Some of the liquid materials we have used through fertigation systems have displaced sodium cation exchange sites within a few weeks. We can document this through soil tests."

Many researchers are reluctant to explore materials that can be a solution to soil salinity, he believes. "They're still on the 'gypsum bandwagon.' Not only does it take up to two years for the exchangeable calcium to be released in gypsum; the amount of exchangeable calcium in gypsum is very low compared to soluble forms of calcium." But before selecting a calcium product, be sure to ask your supplier how much exchangeable calcium is in it. Work with chemical distributors that support this technology with products suitable for fertigation systems.

Soluble forms of calcium are terrific alternatives to gypsum, all of which can be used with fertigation systems. "I recommend calcium chloride, calcium polysulfide, calcium thiosulfate or calcium nitrate – big improvements over gypsum. For example, everybody raves about the color of

overseeded ryegrass where calcium nitrate is used."

Soil conditioning is the most important component of growing good plants, according to Nolde. "And I believe a liquid-based delivery system is the best way to accomplish this. If you can apply materials that condition the soil, plant roots will penetrate easier. You can also buffer sodium and bicarbonates in water through fertigation systems."

Costs in time and money

Nolde says the maintenance/management time of fertigation systems is minimal. "At Tuscan Hills, we use 30-gallon tanks. Each of these fertigation units operates from zero to 40 gpm. We rotate soil conditioning and plant fertility materials frequently. Depending on the season and needs of plants, we can adjust from 500 gallons of water/1 gallon of product to 40 gallons of water/1 gallon of product." However, he says product rates and choices are not a guessing game. "Everything we apply through the fertigation system is based on the results of diagnostics."

As far as money is concerned, the installed cost of a water-driven system is around \$1,500 per unit, while an electric system will run around \$2,500 per unit. He expects costs to come down as fertigation becomes more common.

"Landscape managers have tried everything else. If they will look at fertigation systems strictly as a device to get the job done, their usage will grow."

— Robert E. Reeves is a turf specialist with Turf Industries, a subsidiary of Van Waters & Rogers Inc., located in Austin, TX. E-mail: Robert.Reeves@vwr-inc.com.

Bill Nolde, director of technical systems at Fertigation Choice, can be reached at 619-585-9909. E-mail: fertigate@aol.com.

Rx for a declining landscape

Situation Tuscan Hills Homeowner Association, Lake Elsinore, CA, faced a declining landscape under tough growing conditions. Granular fertilizers were not working on the steep slopes, and high salinity added to the problem.

Property Size 80 acres, with plans to expand to 240 acres.

Solution Technical consultant Bill Nolde decided on fertigation to solve salinity and fertility troubles. To displace sodium, he used fertigation to release faster-available forms of calcium into the soil profile. The results have been dramatic.