

# DRIVEN BY INNOVATION

ACHIEVING MORE SUSTAINABILITY  
IN GOLF AND SPORTS TURF



**JOHN DEERE**

NOTHING RUNS LIKE A DEERE



# SUSTAINABLE GOLF COURSE OPERATION

## ENVIRONMENTAL AND ECONOMIC FACTORS

A sustainable approach to golf course maintenance takes into account both environmental and economic factors while continuing to aim for high quality playing surfaces.







## **SUSTAINABILITY IN GOLF**

A sustainable approach to golf course maintenance takes into account both environmental and economic factors while continuing to aim for high quality playing surfaces.

Official creditation can be given to golf courses that are considered to be run on sustainable principles. Nationally recognised environmental management awards can be achieved that acknowledge clubs' efforts in reaching a credible standard for sustainable golf course operation, and their important contributions in protecting nature, conserving resources and strengthening links with local communities.

Golf's governing bodies worldwide rightly consider sustainability to be a key priority for the game and those who manage clubs. To be considered sustainable, the golf operation should both protect and have a positive impact on nature, benefit communities and conserve resources, while still providing a great golf experience.

These objectives include considering the requirement for manpower, machinery and materials and how a sustainable approach to the development and management of the golf course can bring cost savings and enhance revenue opportunities. It is also important for commitments to sustainability and environmental protection to be backed up by evidence of progress and results.

These aims can be achieved in part by investing in more modern and environmentally friendly course maintenance equipment, such as that sold worldwide by John Deere. Golf clubs and courses may now reap the benefits of new precision technology to help achieve quick results and long-term returns on their investment.

# THE JOHN DEERE SOLUTION

## PROGATOR™ 2030A

John Deere prides itself on developing technology that provides our customers with increased performance at a lower lifelong cost, which is easy for operators to use. We spend over \$4 m daily on worldwide research and development, using state of the art engineering facilities and processes to ensure that our products meet customers' needs.

The world of greenkeeping and grounds management is changing fast and John Deere is at the forefront of developments. For example, we were first to market in 2005 with hybrid electric cutting reel technology. Building on the experience we've gained worldwide, we now offer one of the widest range of hybrid electric turf mowers in the industry.



John Deere has also been a leader in GPS satellite guidance technology in the agricultural industry for over 20 years. We are now taking this to a new level by developing GPS systems specifically for golf course and sports turf maintenance use. This innovative technology increases productivity and accuracy, while also reducing labour and material costs.





Based on the established combination of a ProGator™ utility vehicle and HD200 low profile sprayer, the new 750-litre capacity GPS PrecisionSprayer offers a proven, off-the-shelf, integrated solution for precision spraying on amenity turf.

This satellite guided autonomous sprayer helps to spray predetermined areas in less time with greater pass-to-pass accuracy. It can control and place inputs more accurately, thus saving costs, as well as improve application rates, fuel economy and course stewardship. It can also record spraying operations for environmental purposes.

With features such as AutoTrac™ automatic steering, a full-colour in-cab touchscreen display and individual nozzle and section control, the easy-to-use GPS PrecisionSprayer:

- increases application accuracy and consistency;
- lowers input costs through reduced overlaps and misses;
- increases safety and productivity by reducing operator fatigue;
- helps protect the environment.

Another major benefit is the ability to electronically capture all spray data and analyse the results, which streamlines the documentation process and provides robust analytics for recording, legislation and environmental management purposes. Automated documentation also removes the need for manual records and increases accuracy when recording details of all spraying applications.

Everyone wants to make the job of spraying easier and more consistently accurate. With the John Deere GPS PrecisionSprayer, you just drive to the spray boundary, lower the boom, engage AutoTrac™ – and that's it. The machine will steer itself, spray only where it needs to and accurately regulate the chemical application rates.





# INTEGRATED TECHNOLOGY FEATURES

## PROGATOR™ 2030A

The RTK satellite receiver allows John Deere's AutoTrac™ system to be used effectively on golf courses and other sports and amenity turf areas, even when surrounded by woodland. AutoTrac™ takes over the steering function from the operator and allows them to focus on machine optimisation, which results in greater productivity and efficiency.



### AUTOMATED AND ACCURATE DOCUMENTATION



### AUTOTRAC™

- Operator-set A to B lines which can be either straight or curved allowing the sprayer to track itself, increasing pass to pass accuracy.
- Increased application accuracy reduces both the amount of chemical and water volume used, as well as the time needed for the spraying operation.
- Limits wasted product applications caused by pass to pass overlaps and misses.
- More efficient use of the greenkeeper's time.
- Operators are more productive and less stressed.



### BOUNDARY MAPPING

- The GPS PrecisionSprayer uses mobile RTK (real-time kinematic) navigation down to accuracy levels of 2.5 cm, to allow users to create reliable spray coverage maps.
- The RTK technology ensures mapped boundaries remain in place day to day, week to week and year to year, with no boundary movement.
- Ability to map no-spray zones for environmental controls.
- Ability to form almost any shape and size of boundary – tees, greens, fairways, rough, no-spray zones, native areas.





**LESS  
WATER**



**CHEMICAL  
SAVINGS**



**LESS TIME FOR A  
SPRAY JOB**



**LESS  
FUEL**



### INDIVIDUAL NOZZLE CONTROL

- Nozzles automatically turn on and off when entering and exiting a preset boundary.
- Increased spray accuracy reduces chemical use and waste – sprays are only applied where they are needed, with no overlaps or missed passes.
- Will not overspray an area that has already been sprayed.
- Minimises application errors and reduces fatigue, as the operator does not need to focus on manually turning boom sections on and off.



### AUTOMATED & ELECTRONIC DOCUMENTATION

- Time, date, location, chemical applied, rates etc are recorded and then easily visible using suitable software.
- Fully automates the task of documenting spraying activity and improves accuracy.
- Auto calibration saves time and eliminates errors.
- Allows multiple spray programmes to be saved and accessed at any time.
- The John Deere Operations Center provides a set of online tools that allow access to turf management data anytime, anywhere, for easy analysis, editing and decision making.

Savings shown are the maximum values recorded during internal tests; Internal tests were run on north American golf courses with different kinds of configurations. The tests we conducted with the same sprayer booms and tanks, during 2 consecutive months, on the same spraying areas. Figures compare a ProGator™ HD200 select sprayer and a ProGator™ HD200 GPS precision sprayer (RTK signal with 2.5 cm accuracy) with identical spraying jobs. Savings might differ depending on the spraying area, spraying conditions and operators. Average spraying surface is 60 ha (150 acres). Manual spraying operations have an average of 15 cm overlap compared to 2.5 cm with the GPS precision sprayer technology (reduction of 83% overlap). Less overlap combined to auto rate control will result in less water and less chemicals. Automated documentation upload will reduce labour time and labour costs and therefore length of a spraying job. Less passes on the spraying area will result in lower full consumption from the sprayer.



# PROVEN IN PRACTICE

## VOICES OF OUR CUSTOMERS

Innovative clubs are already working with the GPS PrecisionSprayer and report consistently positive experiences.



### LEICESTER CITY FOOTBALL CLUB

John Ledwidge, Head of Sports Turf & Grounds at Leicester City Football Club, bought the first of the new GPS PrecisionSprayers to be delivered to a non-golf customer in the UK, from John Deere dealer Farol.



***“THERE WERE MANY REASONS FOR CHOOSING THE SPRAYER, THE CHIEF ONE BEING ACCURACY,” SAYS JOHN. “WE ARE CREATING A WORLD-CLASS FACILITY AT OUR NEW TRAINING GROUND AND WE ASPIRE TO BE WORLD-CLASS IN THE WAY WE OPERATE.”***

JOHN LEDWIDGE, COURSE MANAGER





— Founded 1780 —  
**ROYAL ABERDEEN  
 GOLF CLUB**

## **ROYAL ABERDEEN GOLF CLUB**

Royal Aberdeen Golf Club was the first UK golf course to buy a GPS PrecisionSprayer, as part of a John Deere Financial package deal with local dealer Double A. Course manager Robert Patterson believes this advanced technology combination is definitely worth the investment.

***“I WAS KEEN TO GET THE NEXT STAGE OF TECHNOLOGY WITH GPS, MAPPING AND AUTOMATIC STEERING ALL ON ONE MACHINE. THE RTK SATELLITE SIGNAL HAS PROVED TO BE VERY RELIABLE AND REPEATABLE, PARTICULARLY IN TERMS OF ACCURACY AND CONSISTENCY.”***

ROBERT PATTERSON, COURSE MANAGER

“The sprayer picks up exactly where you are anywhere on each course, so you can start work straight away with no time wasted in setting up. All the programmes and products we use are stored in the controller and recorded when you’re finished, so the operator just chooses the application required from the menu and away you go, it’s really that easy and straightforward.”

“With the GPS system, individual nozzle control is a real advantage. You can spray contours much more accurately – as soon as the spray boom moves over the mapped line, it switches itself off and then back on again when necessary, so there are big savings there.”







## JOHN DEERE & THE ENVIRONMENT

### COMMITTED TO THE FUTURE

John Deere is committed to sustainability in every aspect of its global business, from the way it operates its factories and office facilities to the way it designs its products. It is also committed to providing products and services that will help customers meet and deliver on their own sustainability goals.





At John Deere we take our responsibility for safeguarding the environment seriously. We offer products that are efficient and effective and minimise environmental impact. We also design, build and support those products in offices, factories and dealerships that are built and maintained with the environment in mind.

We are constantly on the lookout for opportunities to reduce our energy and water consumption, increase our waste recycling rate and improve our air and water quality systems. We share the concerns of our customers in the golf and turf industry, including reducing water use, pollution and the use of fertilisers and pesticides, and we are constantly developing innovative turf equipment to help them meet those concerns.

With the strategic use of automation, our equipment can help turf customers manage one of their most pressing problems: the rising cost and declining availability of labour. Our innovative work with electrification, fluids and emissions has made our turf fleet among the best for limiting customers' environmental footprint.

Further details of the company's environmental and sustainability strategies can be found at [www.deere.co.uk](http://www.deere.co.uk).







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