

STEYR SOILXPLORER SOIL SENSOR: AN INNOVATIVE WAY TO “DEEPEN” FARMERS’ KNOWLEDGE OF THEIR SOIL AND INCREASE THEIR TILLAGE EFFICIENCY

Real-time analysis of soil structures for applications in site-specific agriculture. Autonomous mapping of multiple soil parameters. Variable tillage depth when combined with DepthXcontrol functionality . Savings in fuel, machine wear and maintenance costs per hectare. Continuous improvement of soil structure

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PRESS RELEASE

With the innovative SoilXplorer soil sensor, STEYR now introduces an effective tool to increase farmers' knowledge of their soils and thus efficiency of tillage operations. Intensive field trials give clear evidence that reducing the working depth from 18 to 10cm during tillage operations will result in roughly 45 percent less energy consumption. At the same time, slip can be reduced by about 53 percent, and output be increased by about 20 percent. As soils often differ between and even within fields of a farm, using a standard cultivation depth either means working too shallow or too deep. Whilst the one will leave compaction zones untouched, the other reduces efficiency and increases energy consumption, wear and cost.

Looking beyond the surface

The STEYR SoilXplorer soil sensor is a contactless sensor for mapping and varying tillage depth, and uses electromagnetic signals to measure the soil conductivity. On this basis, soil type zones, relative water content as well as compaction zones can be determined. By means of four reception coils, four different layers from 0–25cm, 15–60cm, 55–95cm, and 85–115cm are “explored” in one pass. The SoilXplorer is the only system on the market that offers four parallel depths, works without soil contact, and provides instant data for an immediate workflow. It can be integrate very easily into other work processes.

With the SoilXplorer mounted in the front hydraulic of a tractor, tillage implements can be mounted in the rear at the same time. As all data are measured, processed in the system's software and made available in real-time, tillage implements can effectively be controlled and adapted to varying soil conditions via ISOBUS, regardless of weather conditions and crop vegetation.

Electrical conductivity correlates strongly to soil particle size and soil texture. Sandy soil for example has larger particles and a low water-holding capacity, thus shows a lower EC, while the EC of clay

and organic soils is higher. The soil sensor detects compaction zones and adjusts the working depth accordingly. There are three cultivation strategies available: shallow cultivation, subsoiling, and depth contour.

Customer benefits above the surface

Clear customer benefits are associated with the use of the SoilXplorer soil sensor, which was initially developed by the Austrian technology provider Geoprospectors GmbH. The system is easy to install, just plug-and-scan. The measured data is stored on a Windows10-base tablet in the cab and the operator just needs to import the exported file into the SoilXtend software immediately after scanning to visualize the mapping results, which can be exported as ESRI data *.shp, *.shx, *.dbf and *.qj compatible with common farm management software.

By means of GPS, precise positions in the field are documented and can be used for generating site-specific applications such as seeding with varying seed densities as well as adapted fertilisation and sub-plot-specific crop protection measures. As a clear additional benefit, the STEYR SoilXplorer takes strain off tractor operators on long working days. "We are convinced that the unique features and properties of our SoilXplorer and DepthXcontrol further add to the high efficiency that customers of the STEYR brand appreciate and are accustomed to", says Maxime Rocaboy, at STEYR responsible for S-TECH.

With a maximum penetration depth of 1.15 metres, and a maximum sampling rate of 5Hz, the vertical resolution of the SoilXplorer is as accurate as $\pm 5\text{cm}$. The recommended height above ground is 30cm, max 40cm. With a height of 550mm, a width of 1,740mm and a depth of 620mm, the weight is 32kg – thus making coupling and decoupling of the STEYR SoilXplorer an easy task.

More information about STEYR tractors is available on the internet at www.steyr-traktoren.com.

STEYR has been synonymous with leading technology and high-quality machinery for more than 60 years. Its premium Austrian-built tractor range focuses on outstanding comfort and precision operation, using proven technical innovations to maximise productivity for operators in the agricultural, forestry and municipal sectors. STEYR customers are backed by first-class support from STEYR's professional and highly experienced network of dealers. More information on STEYR products and services can be found online at www.steyr-traktoren.com.

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