Press release
Bosch compact

Farm #LikeABosch: precision through connectivity
Bosch highlights at Agritechnica 2019

November 11, 2019
PI 11040 RB khb/Bär

- Intelligent IoT applications for precise and eco-friendly crop farming
- App sends weather data, insights from research, and recommendations for optimum crop growing directly to smartphones
- Resource-conserving powertrains, connected control units, and sophisticated camera technology for environmentally conscious and economically viable agriculture

Stuttgart & Hannover, Germany: Bosch is providing new solutions and offerings that allow farmers to strike the right balance between economic and ecological considerations. These include intelligent sensors, apps for farmers, sophisticated camera technology for agricultural machinery, and resource-conserving powertrains. Visitors to Agritechnica can learn more about at these ideas at the Bosch booth (G17, hall 15), the Bosch Rexroth booth (A04, hall 16), and the NEVONEX booth (C10, pavilion 11).

NEVONEX – digital ecosystem for smart agriculture

A manufacturer-independent and open ecosystem, NEVONEX is geared toward smart, digitalized agriculture. NEVONEX-enabled control units help make new and existing agricultural machinery smart, regardless of the manufacturer, and streamline farmers' work processes. Various apps provide a pool of expert knowledge and can be used directly on the machine. Farmers benefit from reliable and seamless implementation across all their work steps. The ecosystem optimizes operating processes, increases yields, and can reduce the use of seeds, fertilizers, and pesticides.

Bosch offers environmentally friendly smart spraying solution

Up to now, high-yield crop cultivation have always called for the use of herbicides to ensure crops have sufficient space, nutrients, and light to grow satisfactorily. However, as herbicides can pollute the soil and the ecosystem, the aim is to use the smallest quantity possible for the best possible yield. With its smart spraying solution, Bosch offers a system that fits the bill: it recognizes the difference

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between weeds and crop plants. Cameras spread across the entire width of the crop sprayer take a continuous series of pictures, identifying weeds and allowing herbicide to be sprayed in the right amount and concentration, precisely where it is needed. This reduces the impact on the soil and the ecosystem, cuts down the volume of pesticide used, and increases crop yields. Bosch is developing the smart spraying solution in partnership with the BASF xarvio™ brand and agricultural machinery manufacturers worldwide.

App sends weather data and recommendations directly to smartphones

The weather is one of the greatest risk factors in agriculture. With the Bosch Software Innovations sensor system and Deepfield Connect app, farmers can be alerted to weather changes and optimize their crop growth. Via the Bosch IoT Suite, weather data is sent directly from farmers' fields to their smartphone. The Deepfield Connect app also provides information on crop growth. This means farmers always know exactly how their crops are growing and receive appropriate recommendations for the respective development stage. In addition to saving time and money, this also helps conserve valuable resources such as water.

IoT speeds up development and troubleshooting

Bosch's vehicle management solution connects vehicles and cloud-based services over the vehicle's entire life cycle. One element of this software platform is a new IoT application known as web-based validation. In the future, this process will accelerate development times for injection and exhaust-gas treatment systems and improve their robustness in production vehicles. Using a cloud-based system, a continuous flow of data from the connected validation vehicles is transferred and evaluated. Together with customers, Bosch can use this information to speed up and enhance the calibration of new systems. The predictive trends application evaluates field data from production vehicles. If diagnostics from the vehicle manufacturer or error information collected by Bosch indicate potential quality issues, special algorithms enable countermeasures to be developed and rolled out at an early stage. In some cases, breakdowns in the field can be prevented altogether.

Connected off-highway solution: open, modular, scalable

Bosch Rexroth's connected off-highway solution (COS) can be used as a complete end-to-end solution or as individual modules for integration into third-party systems. It is based on the tried-and-true Bosch IoT Suite. The modular, open system digitally connects vehicles and their subsystems via a cloud. Users can custom-configure the range of functions using a variety of apps and open development options. In addition to standard applications, such as remote

access to data and fleet management, COS also enables vehicle condition monitoring.

Machine health: the simple way to analyze vibrations

The IVAS intelligent vibration analysis sensor delivers valuable information in real time to increase the availability of agricultural, construction, and forestry machinery. In a typical use case, the information IVAS collects and pre-analyzes is transferred to a cloud via a digitally connected ECU. If required, the cloud can be used to visualize vehicle data and trends. This enables the user to identify deviations, carry out maintenance work in good time, and order spare parts.

Fully integrated tire pressure control solution reduces fuel consumption

Thanks to Bosch Rexroth's GFT 8150 TIS (tire inflation system), harvesters with individual-wheel drive can for the first time ever now be fitted with a tire pressure control system that seamlessly integrates into the machine and is operated via the standard terminal. Controlling the tire pressure of harvesters has numerous advantages. In view of different vehicle handling characteristics on roads and on fields, the system helps saves fuel and increase driving stability.

Land leveling by tractor, thanks to EHC-8

For rice cultivation and in fields with irrigation canals, the ground needs to be especially flat and even to achieve uniform irrigation and crop growth. Farmers will be able to create ideal conditions on their own in the future, thanks to the EHC-8 land leveling system, which combines the tractor's existing hitch components with a laser combination and a leveling plate. Bosch Rexroth's land leveling system reduces irrigation volumes, increases yield, and lowers energy consumption.

New repair-shop software improves troubleshooting and repairs

With the launch of its Grade-X software, Bosch is speeding up the identification and repair of machine faults. On a PC or tablet, the software guides repair-shop workers through the diagnostic process step by step. Once the mechanic has performed a diagnostic test to identify the machine with all its technical features, they receive only information that is relevant to that particular machine. Developed by Bosch, the software generates the appropriate circuit diagrams on the basis of the fault identified. In doing so, the software highlights only those components that are actually installed in the machine and that are causing the error. Through augmented reality (AR) technology, the mechanic receives additional information in the form of text and images as well as the location of hidden components. This information is displayed on the screen of the tablet or in AR glasses. The new Bosch software is open for use with existing customer solutions and compatible with tools from other manufacturers. Sophisticated

encryption technology provides protection against attacks by hackers and ensures secure data transmission.

Bosch common-rail system: the right solution for every diesel application
Bosch offers diesel injection systems for a number of agricultural applications: from emergency generators to combine harvesters. Its portfolio also comprises engine control solutions, various sensors, and exhaust-gas treatment systems. Bosch powertrain solutions help further reduce fuel consumption, thereby cutting the CO_2, pollutants, and noise emitted by the engines.

Bosch vision system for optimum 360-degree vision
The Bosch vision system is a driving and work assistance system for mobile agricultural machines that improves all-round visibility. Its main component is a full HD camera system which generates a detailed bird's eye view of the vehicle. The additional Bosch ultrasonic and radar sensors detect objects in the area immediately surrounding the vehicle, which are highlighted in the live image generated by the system. In this way, the Bosch vision system enables farmers to work and maneuver safely, even in the tightest of spaces. It detects obstacles and people in the danger zone of the machinery in good time, thus preventing accidents.

Press photograph: #2828507, #2828508, #2828511, #2891612, #1846713, #2726726, #1162499, #1162501, #1162502, #2892372, #2892373, #2892370, #2892371

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The Bosch Group is a leading global supplier of technology and services. It employs roughly 410,000 associates worldwide (as of December 31, 2018). The company generated sales of 78.5 billion euros in 2018. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 460 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At nearly 130 locations across the globe, Bosch employs some 68,700 associates in research and development.

The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as "Workshop for Precision Mechanics and Electrical Engineering." The special ownership structure of Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant upfront investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.

Additional information is available online at www.bosch.com, www.iot.bosch.com, www.bosch-press.com, www.twitter.com/BoschPress.