Smart farming

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Satnav steered tractor. Credit: ESA

Navtronics, a Belgium ESA Business Incubation Centre start-up company, is tailoring intelligent guidance for agricultural machinery using advanced satnav.

As any other industry, the agriculture sector is always looking for ways to raise productivity and reduce labour cost through new technologies. One is the use of high-end Real Time Kinematic (RTK) satellite navigation to steer and control tractors and implements.

RTK satnav increases the precision of position data derived from the

Galileo, GPS and [Glonass](#) [navigation satellite](#) constellations. By using the 'phase' information of the signal's carrier wave, rather than just the [satnav](#) signal content, and combining this with a reference station for realtime corrections, Navtronics' systems can provide up to centimetre-level accuracy.

This accuracy far exceeds manual steering, resulting in better use of available land and higher productivity from human and machine.

By 'automating' farm machinery, even unskilled drivers can achieve near-perfect results.

Tractor guidance system. Credit: Navtronics BVBA

The precision also avoids the double spraying of pesticides or, through

mechanical weeding on organic farms, even eliminates the need for pesticides altogether – clearly better for the environment.

The Navtronics BVBA development of hard- and software solutions for automated agricultural guidance systems is being done with the support of ESA Technology Transfer Programme's Business Incubation Centre Flanders. The company is a spin-off from SBG Precision Farming in the Netherlands.

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