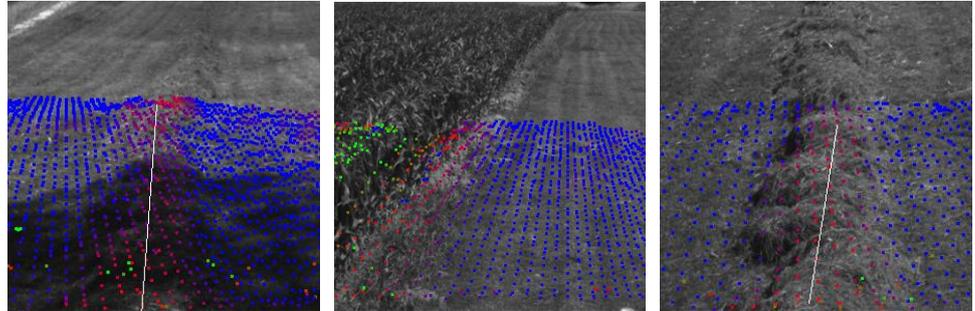




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## 3D swath and crop edge detection



The INSENSIV 3D swath and crop edge detection uses a 3D stereo camera system and intelligent computer vision techniques to determine the height of the field in front of the agricultural machine online. Depending upon the operation mode, the position of the swath or the crop edge is extracted from the detected 3D field and information about the run of the curve relative to the straight ahead direction are generated. This information can for example be used in automatic guiding systems to assist the driver.

The stereo system is even able to detect the swath or crop edge if there is no major difference in brightness between the field and the swath or crop edge, as long as there is enough structure in the images. Therefore the system can also be used in the dark with the help of the floodlight of the agricultural machine.

The accuracy depends upon the width of the 3D stereo system and the distance between the intelligent camera and the field. For example a stereo system having a width of 85 cm and a distance to the field of 7.5 m was realized, which has a height resolution of 5 cm. This is enough for a solid detection of a 20 cm swath. Such a system, that can easily be integrated in the cabin of the machine, has a field of view of about 3.5 m and produces multiple position information per second.

The indication of the direction can for example be delivered as a 3D vector. Alternatively the angle and the distance between the detected swath or crop edge and the straight ahead direction are send to the machine control. All position information are given relative to the position of the agricultural machine.

If requested, additional preprocessing of the determined data is possible inside the embedded camera unit, for example to smooth the course information that will be send to the guiding system.

INSENSIV is specialized in intelligent vision systems for agricultural applications. Each OEM product is adapted to the customers needs.

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