

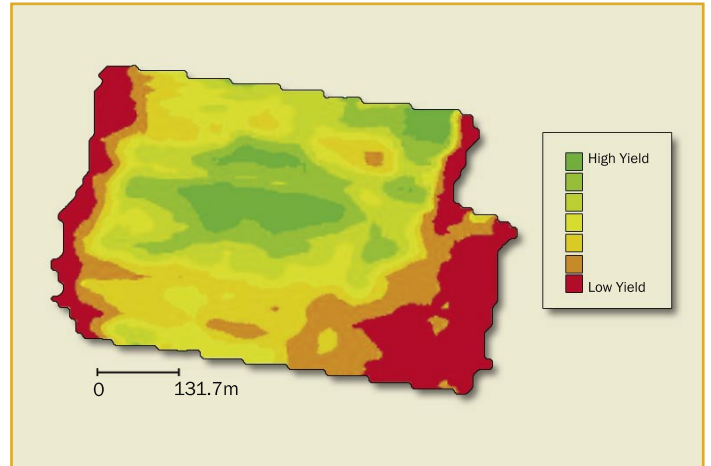
EGNOS FACT SHEET

11: FROM SATELLITE TO SILO - PRECISION FARMING WITH EGNOS

In August 2001, a Claas combine harvester was fitted with an EGNOS receiver to assess its benefits for precision farming. The European Commission's GALA study summarised the pressures faced by farmers. Precision farming helps the farmer to manage arable variability and to maximise financial advantage while operating within environmental constraints. Put simply, it turns one 100-hectare field into 100 one-hectare fields to help to optimise the yield/cost ratio by applying a custom prescription of chemicals to small areas. Precision farming can deliver significant cost savings to larger farms, but the high entry cost of precision farming is a barrier, and many farmers have cash-flow problems. Farmers need cost-effective solutions including retro-fitting sensors, and this provides the motivation for using EGNOS.

EGNOS will provide farmers with a new and cost-effective source of differential signals and offers important operational benefits: it has better European coverage than the marine radio beacons; it is free of direct user charges; and removing a separate radio for DGPS corrections cuts the cost of the user equipment.

Booz Allen Hamilton, under contract to ESA, joined up



Wheat Harvest Yield Map

with LH Agro (UK) Ltd and CBI Ltd to demonstrate the use of EGNOS for yield mapping. The demonstration was run at St Ives near Cambridge in England on 21st and 22nd August 2001. Both an EGNOS receiver and a beacon receiver were installed on the combine harvester. A 36.5 hectare field full of wheat was harvested, eventually providing an income of about 38 k€ to the farmer. The data processing scheme was tuned to exploit existing hardware and software. The beacon and ESTB positioning solutions agree to 3 metres (95%) once the antenna offsets and reference frame errors were removed. The final yield map is based on fitting contours to sample points based on smoothed data. Areas with good and bad yield can be seen clearly.

We see EGNOS making a positive contribution, extending the benefits of precision farming. It is our view that combining the operational benefits of EGNOS with advances in receiver technology will drive down the cost of the positioning element of precision farming. This vision sees the benefits of precision farming technology being extended to more farmers with smaller farms, producing cost savings, enhancing economic competitiveness, and helping to improve the environment.



Precision Farming With EGNOS