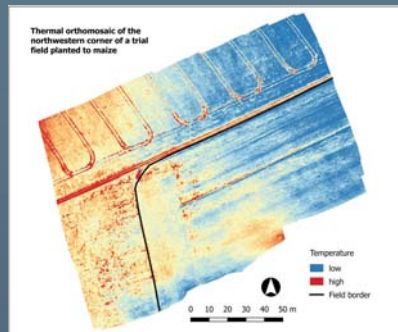




Supported by:



Start: 08/04/2016
End: 31/12/2019

Budget: 916.121 €

Operational Group:

Control of additional water use in crop production - situational, site-specific and automated (Precision Irrigation)

Steuerung des Zusatzwassereinsatzes in der Pflanzenproduktion – Situativ, teilschlagspezifisch und automatisiert

Practical

problem

In the federal state of Brandenburg (Germany), irrigation of arable land is a measure to maintain agricultural value despite decreasing summer rainfalls. To avoid over-using the available water resources, however, a precise irrigation control needs to be developed and tested under local conditions.

Partners

Type:

Research Institute

Farms

Private companies

Professional association

Name:

Forschungsinstitut für Bergbaufolgelandschaften e.V.

Grünhagen Ackerbau GmbH; Agrarbetrieb Altdöbern

Irrigama Projektgesellschaft Dr. Schörling & Partner; Hydro-Air international irrigation systems GmbH

Fachverband Bewässerungslandbau Mitteldeutschland

Project

Objectives:

Development of an economic solution for site-specific irrigation, which takes into account the actual water need of the crops. The potential of infrared thermography for precision irrigation control is evaluated in addition to traditional soil based approaches.

Expected results:

An existing model for steering irrigation is adapted to site-specific irrigation control. The model results are automatically transferred to the steering unit of centre pivots to help save labour resources. Since the steering approach is applied at farm scale and evaluated in cost-benefit analyses, we shall be able to develop a practical solution for precision irrigation for local farmers.

Results so far/first lessons:

Two existing center pivots were modified to enable the site-specific application of irrigation water. We derived soil-based irrigation management zones and controlled the timing and amount of irrigation water with an offline prototype of our steering model. Moreover, we acquired aerial images at the infrared spectrum to derive crop canopy temperatures and to calculate crop water stress indices.

Who will benefit:

Farmers, governmental and non-governmental institutions, scientists.

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