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Open Farm Management Information System Supporting Ecological and Economical Tasks

Tomáš Řezník et al. Lesprojekt / Masaryk University

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Project introduction



FOODIE (FP7) follow-up

- 48 partners from 16 countries
- Funded between 2017 and 2020
- Overall budget 16 mil. € (EU contribution 13 mil. €)





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Motivations



Image adopted from: http://ifro.ku.dk/english/staff/?pure=files%2F21514055%2Fconceptual_model.pdf

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Three pillars for ecological and economical sound decisions





Yield potential



- Convential farming expects that fields are homogenous
- Precision farming expects spatial variations on a field
- DataBio- based precision farming, among others, also provides information on areas below/within/above average of the yield potential

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Yield potential





The presence of complete series of yield maps for all fields is rare...



...remote sensed data are analysed to determine the field variability of crops through vegetation indices

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Satellite images for last 8 years (Sentinel, Landsat)

> Images filtering only for the second half of vegetation period

> > Derivation of vegetation indices (NDVI, EVI) applied together with clouds identification (CF Mask algorithm)

Yield potential index computing

Scenes combination and median value computation for yield potential

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Sensor monitoring



- Adopted from ISO 19156 Observations and Measurements, specialized according to INSPIRE
- Used for meteorological and pedological sensor measurements





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Three pillars for ecological and economical sound decisions





Machinery fleet monitoring



- Enhancing the ISO 19156 Observations and Measurements concept for multimedia support, measurement classifications,...
- Machinery fleet monitoring as well as cow monitoring/analyses

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Machinery fleet monitoring



9 tractors and 23 application machines continuously monitored since March 2015



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Integration

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Conclusions



- The main outcomes are already a subject of research and commercial interests
 - Global Earth Observation System of Systems, DG Joint Research Centre of the European Commission, Open Geospatial Consortium, Research Data Alliance, Czech Ministry of Agriculture,...
 - Farmers, advisor companies, tractor manufacturer (Zetor), sensor and machinery devices manufacturers (Agrio, Farmet), public audience through public administration

Need of manual pre-/post- processing Big Data approaches needed to be tested

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Thank you for your interest in DataBio!

Tomáš Řezník Lesprojekt / Masaryk University tomas.reznik@sci.muni.cz

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