

Technical implementation of the project

Experiments with tomato in Portugal



Experiments with sweet corn in Hungary

 Sys-Control Kft



Identification of the important parameters for the tomato supply chain members; determination of partners

Identification of the important parameters for the sweet corn supply chain members; determination of partners

Determination of measurements related to tomato

Determination of measurements related to sweet corn

Discussion



Instrument installation

Measurements on the fields

Analyses

Harvest

Processing

Analysis of measured data

Identification of the important parameters for the supply chain members; determination of partners

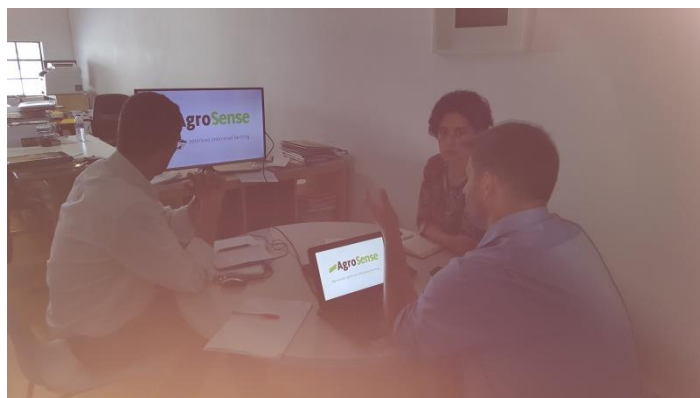
TERRAPRO identified the needs and requirements of the actors of the tomato supply chain, while CBHU identified the needs and requirements of the Hungarian sweetcorn supply chain members. Details are in the internal report.

Determination of measurements

Based on the needs and expectations, both parties determined the main parameters to measure, the necessary measurements, methods, equipment and data processing possibilities. Experimental plan is in detail in the internal report.

Discussion

The first meeting of SweetVeg project was held between 08-10 May 2017 in Lisbon/ Samora Correia, Portugal. The joint objectives of the SweetVeg project was discussed. The aspects above were harmonized between TERRAPRO and CBHU. The efficiency evaluation of different precision agriculture models was also discussed.



Instrument installation in Portugal

Within the framework of the first meeting, on 09 May 2017, a field trip was organized to visit the tomato field of TERRAPRO. The measuring instruments were also installed.



Instrument installation in Hungary

After sowing, on 29 May 2017, the sensor system was set up and installed on the experimental field dedicated to SweetVeg (K9 field, Újsolt 046/3-6; parcel number 046/18). Environmental data and data on the soil conditions were to be registered.



SweetVeg project



Measurements on the cornfield

In parallel with the continuous measurements by the sensors and nodes, the development of sweet corn plant (height, maturation of the crop) was monitored by on-site physical measurements. Haladás Zrt. has provided information on irrigation, fertilization, weed control and plant protection.



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MOMENTUM OF INNOVATION

SweetVeg project



Measurements on the tomatofield

These measurements have been implemented by TERRAPRO in Portugal. The methods for tomatoes have also been developed by the Portuguese partner.



SweetVeg project



SweetVeg project

CEa

Localização
Amostras
Sondas



Analyses

Twelve days before harvesting, daily measurements of previously defined parameters had started. The measurements performed by CBHU included: crop morphology, identification of product defects, colour measurements by DigiEye®, texture analysis, moisture analysis and sensory evaluation. For consumer's appearance, including colour, the flavour and the freshness of sweet corn appeared to be the most important factor, which explains the necessity of the selected measurements. A larger sample size (40-50 cobs/node) was established for these measurements based on previous projects in order to ensure the representative distribution of product defects.



Corn cobs before husking for crop morphology analysis



Corn cobs after husking, ready for crop morphology analysis



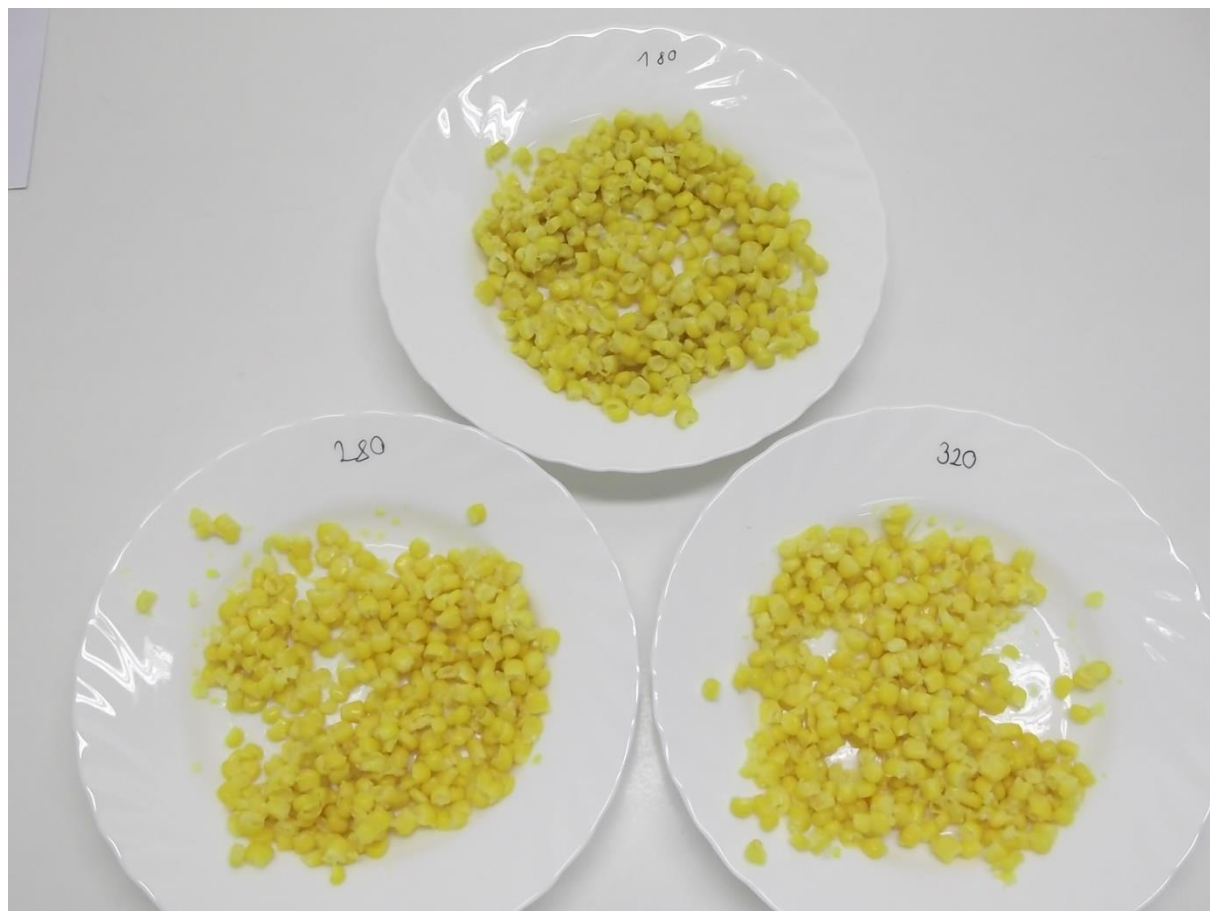
Corn cobs for identification of product defects



Colour measurement image by DigiEye®



Cut corn (sample preparation for further analyses)



Blanched cut corn for sensory evaluation



Sensory evaluation



Homogenisation for texture and moisture analysis



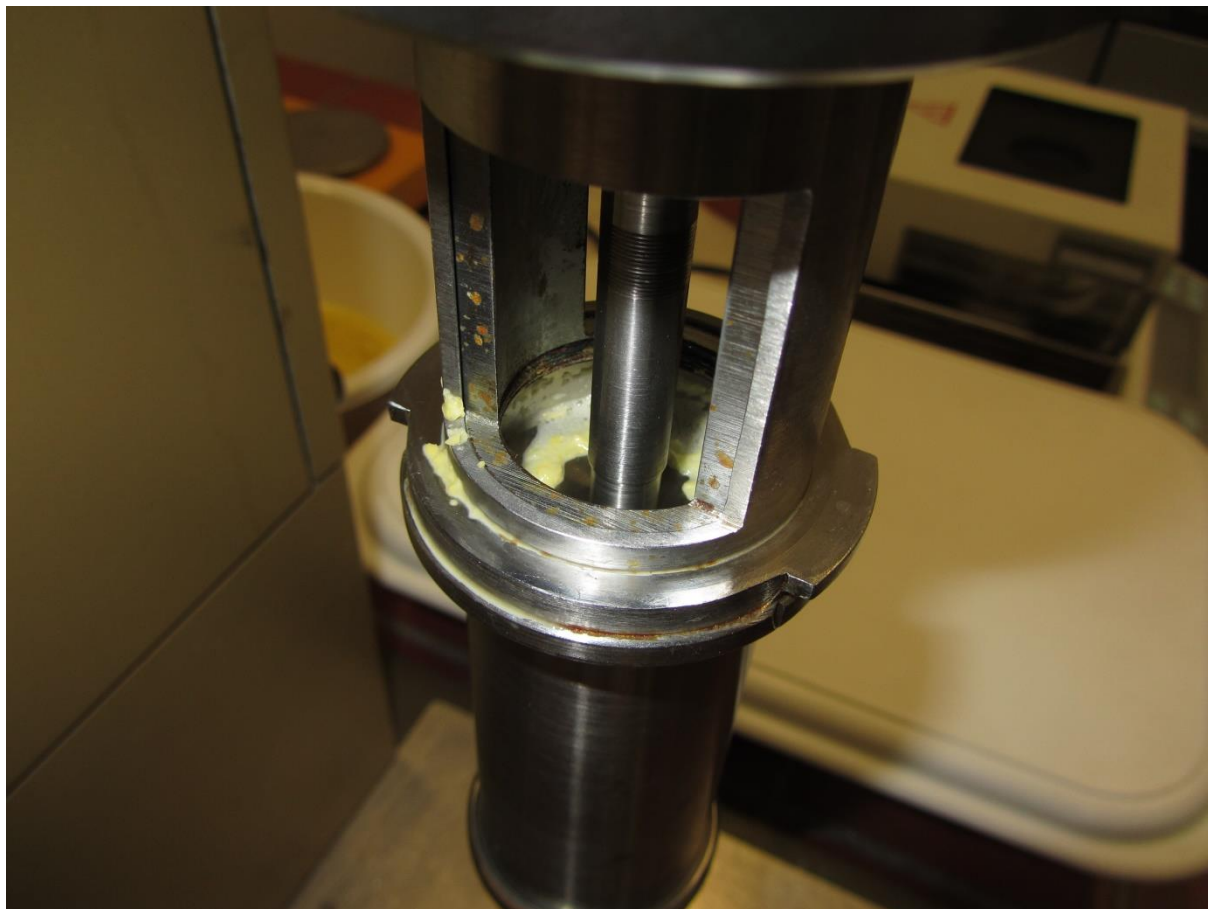
Sample for moisture analysis



Result of a moisture analysis



Texture analysis



Texture analysis

Harvest

The harvest of sweet corn took place on 22-23 August, 2017. The license plate numbers of trucks which transported the sweet corn harvested from the surroundings of the sensors were noted.



Processing

We could keep track the sweet corn during processing based on license plate numbers of trucks.



SweetVeg project

Analysis of measured data

In progress...

