PRAKTIJKONDERZOEK
PLANT & OMGEVING
WAGENINGEN UR

Automatic girth measurement of trees

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Actual Dutch situation

Fig 1. Process of classifying trees.

- More than 3.3 million avenue trees are measured manually yearly in the Netherlands
- Classification based on their stem girth
- Sorted in defined classes, tallied, counted
- Registration in management systems

Constraints

- Labour costs
- Not an up-to date database
- Quality data in computer (human errors)
- Processing time long: availability of data digitally

Aim of the project

- Modular system for measuring and marking
- Data digitally available
- Accurate measure for all types of trees

Approach

- Feasibility study
- Building prototypes
- Testing in laboratory and on field
- Design and prototyping
- Market implementation

Concepts

Fig 2. Some concepts tested in the field.

- Selected concept: digital perimeter

Results

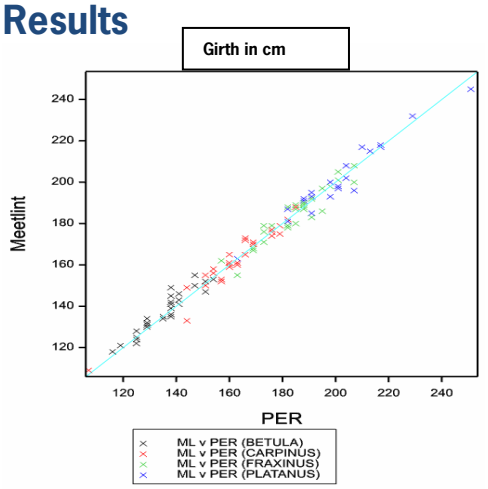

Fig. 3 Comparing perimeter (per) with inch strap ("meetlint").

- Digital prototype instrument (perimeter)
- 60 % faster than actual method
- Digital data storage
- Automation of marking classes is technically possible
- Sufficient accuracy
- Description of working process, data protocol, software

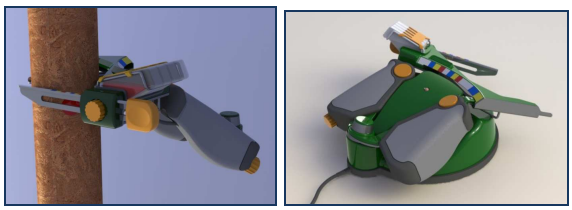

Fig 4. New device in action and on a docking station.

Futher development

- Data can be made location specific (dGPS, RFID)
- Registration of labour and diseases
- Managing of logistic, commercial and cultivation process
- Evaluation of data

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