

AUTOMATIC HARVESTING SYSTEM FOR SRC NURSERIES - ROD-PICKER

Goal of the project

The main objective of the project is to provide the newest development in SRC harvest technology. The ROD - PICKER prototype will be developed as an automatically working, harvesting, sorting and packaging system, thus greatly reducing the needed manpower and costs for harvesting SRC cutting in tree nursery quarters.

Short description of the project

Biomass is increasingly being seen as an important energy resource for Europe. However, due to sustainability requirements the biomass which can be harvested from European forests has only a limited growth potential. Therefore, the political focus has changed to the production of fast growing biomass Short-Rotation-Coppice (SRC). In parallel, the economic situation for European farmers deteriorated during the last decade, due to increasing cost pressures on agricultural products, especially energy prices and ecological control. SRC are a very promising alternative source of income, as a sustainable and continuous source for bio-energy generation. SRCs are highly efficient biomass production systems, with additional environmental contributions such as biodiversity, soil protection and local climate.



In order to reach the political climate protection targets Europe would need more than 4,2 million hectares of Short-Rotation-Plantations by 2030. To cover the corresponding demand of planting material approximately 1,410 hectares of tree nurseries have to be produced each year. Harvesting on these areas is carried out during the winter months only and is characterized by a high degree of manual work presently. Automatic and cost-efficient harvesting techniques for SRC cuttings are urgently needed to meet the future demand economically. Based on this background the SME proposers are planning to develop, construct and test an automatic harvesting and sorting system for SRC cuttings.

Project implemented by

A multidisciplinary team covering mechanical, computational, electronic engineering from UPT (at the initiative of the Research centre for Thermal Machines and Equipment, Transportation and Pollution Control), in partnership with EGEDAL MASKINFABRIK A/S from Denmark (project coordinator), Salix Energi (Sweden), Lempe GbR (Germany), TU Dresden (Germany), and TTZ Bremerhaven from Germany.



Main activities

- Determination of technical and economic requirements for the ROD-PICKER system;
- Development and design of the ROD-PICKER prototype;
- Construction and testing of the ROD-PICKER prototype;
- On-site testing and optimization of the ROD-PICKER prototype at tree nursery farm, monitoring and evaluation;
- Assessment the effects on environmental, social and economic sustainability of the developed ROD-PICKER system;
- Dissemination the project results for the later commercialization and exploitation of the ROD-PICKER system and system components



Results

- ROD-PICKER concept for all modules and units development, using a novel concept;
- Prototype mechanization, automatization & control unit;
- Testing, analysis of results and retrofit of proposed solutions;
- Manual and dissemination materials.



Implementation period

01.10.2012 - 30.09.2014

Research centre

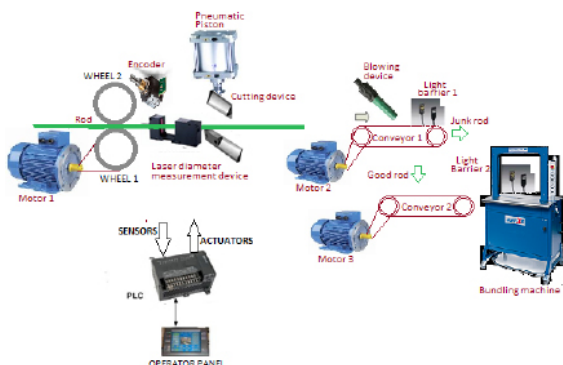
Research Centre for Thermal Machines and Equipment, Transportation and Pollution Control

Fields of interest

Cutting, Sorting and Bundling – Prototype Unit for SRC nurseries.

Financed through/by

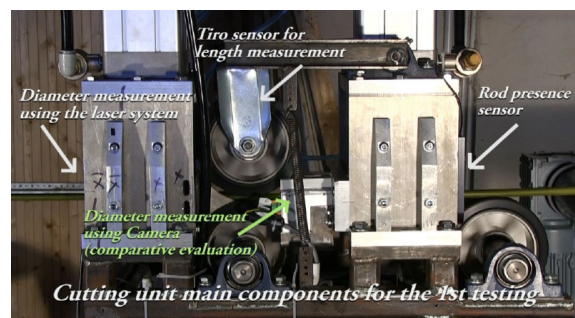
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Research team

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Applicability and transferability of the results

Production of the prototype for sorting, cutting and packaging the SRC cuttings

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