

Vegetative propagation of spruce – towards future plant production

Short presentation of the ERDF project

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Programme for Sustainable Growth and Jobs

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the EU
2014–2020



Aim: to develop a new method for producing forest regeneration materials

- Project will run from 1.1.2015 to 31.12.2016 (2017)
- Financing: Region of South Savo, City of Savonlinna (Punkaharju's regional committee & Savonlinnan Yrityspalvelut Oy) and Natural Resources Institute Finland (Luke): total budget 536 201 €
- Responsible leader Tuija Aronen
- Three researchers: Saila Varis, Frida Lappalainen, Mikko Tikkinen
- Research assistant (7 months), trainees (4 months)
- Luke's laboratory and greenhouse / nursery personnel
- Collaborators:
 - Mikkeli University of Applied Sciences
 - 3K Factory of Electronics
 - UPM, Joroinen Forest Nursery
 - SweTree Technologies Ab
 - Forest tree breeding program



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Work package I:

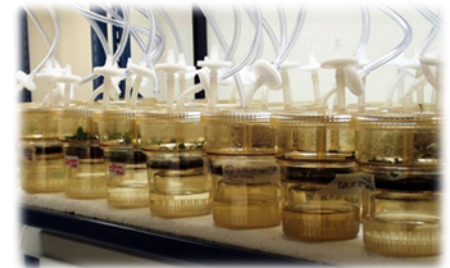
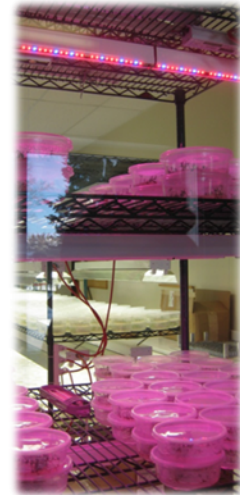
Improving effectiveness of research lab producing spruce embryogenic cell lines

- New systems for sample identification and data handling during cryostorage
- Testing LED-technology for lightning of cultures
- Application of bioreactors for multiplication of cultures, and for somatic embryo maturation and germination

→ More cell lines through laboratory testing phase to field testing

→ Ensuring forest regeneration materials of being not only of high quality, but also having enough genetic diversity

→ Technological support (know-how) for mass-multiplication



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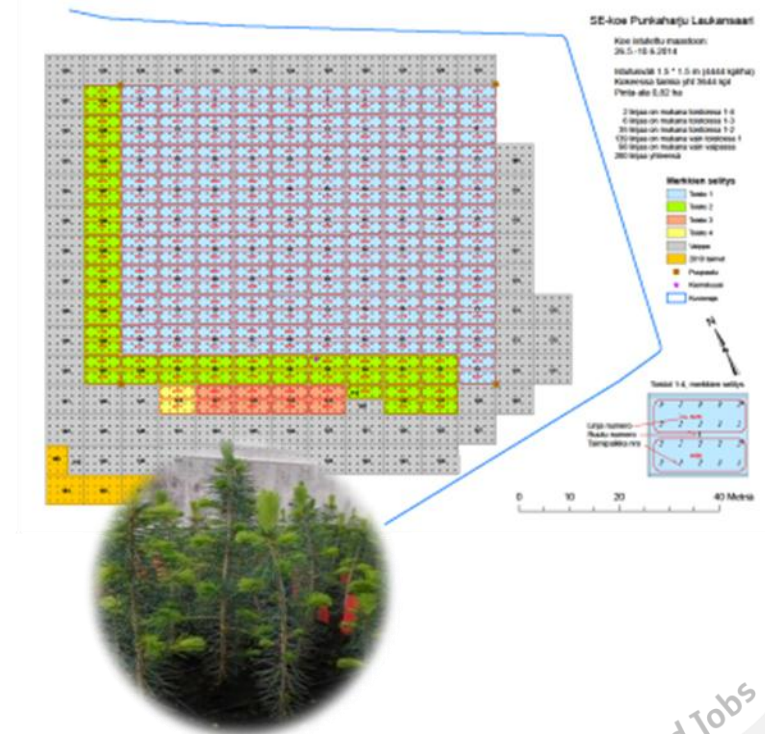
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Work package II:

Enhancement of field testing of produced spruce lines

- Testing of SE lines as rooted cuttings
- Integration of SE line testing with testing of spruce breeding materials

- Field testing started as soon as possible
- No separate testing program for vegetatively propagated materials



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Work package III:

Pilot production of tissue cultured spruce plants in collaboration with commercial partners

- Testing Swedish technology based on bioreactors and automated picking of embryos (Fluidics system by SweTree) with Finnish cell lines
 - Spruce emblings produced at research lab (Punkaharju) further grown at commercial forest nursery (UPM Joroinen)
- **Evaluation of existing technologies and possibilities for their integration**
- **Possibility to plan specialization and partnerships within plant production chain**



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