Newsletter 1 February 2014

SustAffor project "Sustainable Afforestation" launched!

*The FP7-SMEs project SustAffor (**Bridging effectiveness and sustainability in afforestation / reforestation in a climate change context: new technologies for improving soil features and plant performance**) started in October 2013 with a duration of 24 months.*

A significant part of the trees planted on productive and protective reforestations/afforestations, gardening, environmental restorations or fruit production plantations die after few months, if no adequate maintenance is performed. The maintenance of newly planted or seeded trees is not only expensive, but also implies frequently the application of techniques raising social and environmental awareness, such as herbicides, use of fossil fuels or petroleum-based products or of large volumes of water. The last scientific and technical advances have resulted on more sustainable and efficient techniques for increasing success rates on tree planting, while reducing or even avoiding maintenance costs. These techniques can be utilized on a vast range of plantations schemes, both at household and at professional level.

SUSTAFFOR project, implemented by a consortium of 10 European entities (**6 Small or Medium size Enterprises – SMEs and 4 Research & Development performers - RTDs**) has as **main objective to develop and validate novel techniques aiming at improving tree planting projects from an environmental, technical and economic point of view**, and to explore the synergies between them.

These **novel techniques aim at mitigating the negative effect of temporary water scarcity and competitive vegetation**, which are the two main factors that can result in the failure of a young tree in the current context of irregular water availability and climate change.

Soil conditioners: aiming at retaining and releasing water available for plants while improving soil structure and fertility and thus increasing considerably the site quality in the area occupied by the tree. This product is mixed with the earth utilized to fill the plantation pit.

During the project, **a mix of a new high-performance hydro-absorbent polymer combined with fertilizer and growth precursors** will be developed by the Spanish SME **TerraCottem Internacional**. This company is developer and distributor of the TerraCottem® soil conditioning technology, a proprietary mixture of polymers, fertilizers, growth precursors and carrier material that is unique for its synergetic effect; this technique stimulates plant growth, increases the capability of soils and growing media to retain and provide water and nutrients to the plants and reduces the amount of water necessary to create high-quality plants and turf.

Aspect of the soil conditioner before being mixed with the soil

Mulching techniques: groundcovers aiming at impeding the establishment of competitive vegetation (thus avoiding the need for weeding) and reducing soil water evaporation in the area of soil occupied by the tree roots. Similarly to soil conditioners, mulching is a minimal scale intervention that allows enhancing tree development. During the project, four models of new groundcovers will be developed:

→ **A 100% biodegradable frame based on a new biopolymer formulation**, developed by the Belgian SME **DTC**, fused to a commercially available biodegradable film. This company is expert in the fabrication of specialized plastic and bio-plastic products by mould injection.

Left: 40x40 cm model, for harsh conditions; right: 80x80 cm model for high quality sites

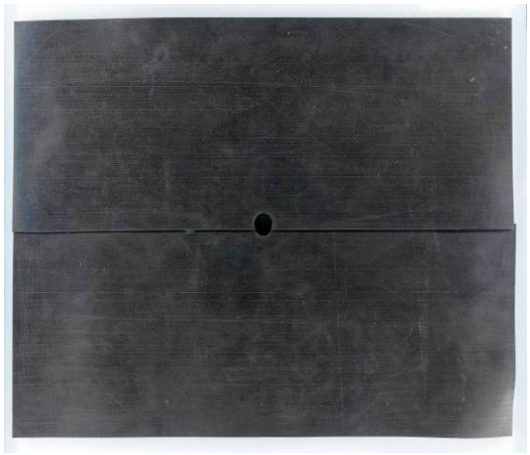
→ **A 100% biodegradable mulching semi-rigid plate based on a new biopolymer formulation**, developed by the Belgian SME **DTC**.

Left: 40x40 cm model, for harsh conditions; right: 80x80 cm model for high quality sites

→ **A 100% biodegradable mulch made with woven jute cloth treated with furan bio-based resin for increased durability**, developed by the Belgian SME **La Zeloise NV**. This company works with natural fibre products, especially recycled jute, treated with innovative finishing techniques for enhanced properties.

40x40 / 80x80 cm model

→ **A long-lasting mulching mat based on recycled rubber, reusable in successive tree plantation projects**, developed by the Belgian SME **EcoRub bvba**. This company is experienced in the production of agro-forestry auxiliary products based on recycled rubber, coming from worn-out tyres and conveyor belts.



40x40 cm model, for harsh conditions; two units of 40x80 cm for high quality sites

The novel techniques will be evaluated separately and combined, in order to study the synergic effect. Also, they will be compared with the current best available techniques (reference techniques) applied for the same purpose. This evaluation will be done at eight plantations installed in four strongly contrasted conditions in Northeast Spain representing many of European and Mediterranean conditions: Semiarid, Mediterranean continental, Mediterranean humid and Subalpine. Moreover, an evaluation of the techniques under controlled conditions will be performed in a nursery.

The other SMEs participating in the project are:

- **Terrezu SL** (Spain): this company has a vast experience in the implementation of innovative and sustainable solutions for landscaping and forest restoration in Southern Europe. During the project his company will coordinate SMEs activities and will advice on the potential of the novel techniques in Mediterranean and mountain conditions.

- **Ceres International Sp. z.o.o** (Poland): an SME commercializing innovative products for horticultural, forest and nursery sectors in central and Eastern Europe. This company will advise on technical requirements and commercialization potential of the novel techniques in central and Eastern European markets.

The four RTDs are the *Centre Tecnològic Forestal de Catalunya* (**CTFC**, Spain), project coordinator and director of scientific and technical activities; *Centre National de la Recherche Scientifique* (**CNRS**-**IC2MP**, France), which will study the biochemical changes in soil organic matter in the field trials; Belgian Textile Research Centre (**Centexbel**, Belgium), which will study the resistance and degradability of the novel techniques and **EDMA Innova** (Spain), which will participate on the environmental monitoring of field trials.

Aspect of the novel groundcovers once installed:

100% biodegradable framed mulch (DTC)

100% biodegradable semi-rigid mulch (DTC)

100% biodegradable jute mulch (La Zeloise)

Reusable recycled rubber mulch (EcoRub)

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Duration: October 2013-September 2015.

Further information is available at the project website: www.sustaffor.eu.