

Disruption in Forest Industries

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Anja von der Ropp

World Intellectual Property
Organization

Climate Change and Food
Security

Anja.vonderropp@wipo.int

Zebra Ventures

Anja.zebraventures.ch



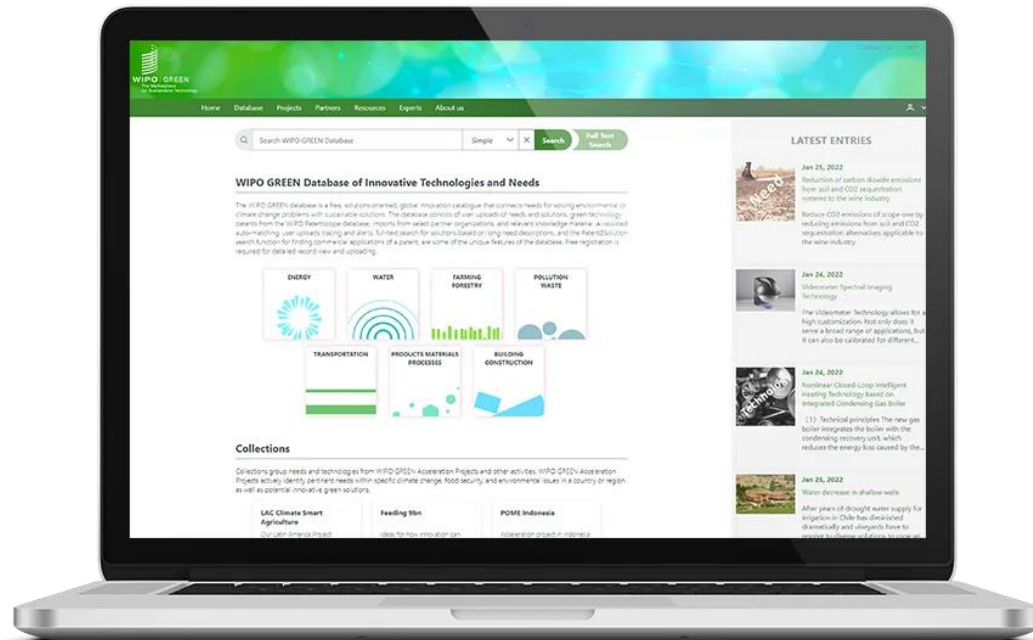
Green Technology growth outlook (in billion euros)



Source: Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU): GreenTech Made in Germany 2021

WIPO GREEN

A technology marketplace that accelerates adaptation, adoption and deployment of green technology solutions.



Forest-related technologies in WIPO GREEN

- AI-based real-time fire identification, EXINN, Albania
- Satellite observation technology, Mitsubishi Electric Corporation
- Pheromone insect traps, Slovak Centre of Scientific and Technical Information, Slovakia
- Use of acoustics to disrupt and deter wood-infesting insects, Northern Arizona University, USA
- Portable seed/litter trap to collect the fallen seeds, Federal University of Technology – Parana, Brazil
- Non-destructive high flow tools to study forest adaptation to climate change and assess wood quality, National Agricultural Technology Institute, Argentina
- Carbon fixation evaluation and calculation device, Fujitsu Limited, Japan
- Services to quantify biogeochemical processes in forest systems, National Agricultural Technology Institute, Argentina
- Utility promoters for biomass feedstock biotechnology, Michigan State University, USA



Need from Argentina

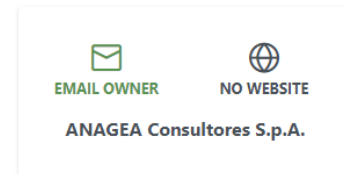
Technologies to

- adjust the planting density (initial density and thinning)
- sustain the soil water supply
- genotypes not affected by extreme events (drought, fires, floods, etc.)
- genotypes adapted to salinity and /or sodicity conditions

Silvicultural management strategies and new forestry management technologies



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Description **Details** Other Information Support

Further details

The forest frontier is expected to advance toward marginal environments. In soil situations with shallow soils and/or high stoniness, technologies to adjust the planting density (initial density and thinning) are required, to sustain the soil water supply and the production potential of the genotypes is not affected by extreme events, such as drought, fires, floods, etc. Similarly, new technology to support the development of genotypes adapted to salinity and /or sodicity conditions require site-specific establishment forestry depending on the degree of limitation that the environment offers.

All this implies adjusting technologies, management strategies and silvicultural techniques (plantation densities or thinning intensities) to the environments in which trees are cultivated, not only to sustain forest productivity but for the sustainability of the environment. Industry and new product development using forestry raw materials also needs to be considered.

Geographical location

Argentina

wipo.int/green



Zebra Ventures Swiss-based venture capital firm, impact by nature & tech-driven.

We are interested to work with **nature-positive companies** that have the right mindset and the potential to lead the transformation the world needs.

We move within our network through **collective action and partnerships**, to generate impact at the necessary speed and scale.

We stay **agile** and **humble** vis-a-vis the challenges we face.

*“Zebra companies are both black and white - they are both profitable and works to improve society. In this way, they are defined as having a “double bottom line”. This business model is framed as an alternative to the disrupting and profit-focused unicorn model.”**

* <https://hbr.org/2014/12/understanding-new-power>

* <https://www.tbd.community/en/a/dont-be-unicorn-be-zebra>



OUR SECTORS FOCUS

Where innovation & scale is urgently needed to transform sustainably food systems



Precision farming

Precision farming means the iteration of agriculture and aquaculture towards 4.0., i.e., using technologies from IoT to drones to AI for improving agriculture in terms of resource efficiency, pesticide use, carbon sequestration and productivity. Precision farming techniques play a role in both indoor and regenerative farming.

Main Applications

- Novel farming (indoor & vertical)
- Precision agriculture
- Carbon capture
- Ag biotechnology

Main Technologies

- Drones & VRA
- Satellites
- Robotics
- Hyperspectral imaging
- Machine learning
- Sensors



Alternative nutrition

Alternative nutrition aims to offer products that are more attractive than today's products but without traditionally grown animal ingredients. It aims at linking the human and soil microbiomes. It consists of plant/insect or algae-based meat or dairy substitutes and precision fermentation, particularly cell agriculture that can grow real meat, fish, eggs, or dairy up to functional ingredients for humans or animals.

Main Applications

- Plant nutrition
- Animal cell culture
- Fermentation
- Insect nutrition

Main Technologies

- Extraction / purification
- Grinding
- Milling
- Fine chemistry
- Natural bioactive extracts



Waste & circularity

There's plenty of opportunities to ensure that food does not go to waste throughout the whole lifecycle. Food waste reduction can range from more intelligent logistics, warehousing, and supply chains to better demand understanding up to more resistant food products. Finally, there is an opportunity in upcycling food that is going aside and making that "waste" beneficial.

Main Applications

- Food waste management
- Sustainable packaging
- Upcycling

Main Technologies

- Enzymatic processes
- Microbiology
- Grey biotech
- High content imaging
- Advanced equipment & smart materials