



# **Smaragdfa** ®

**and related Carbon Climate Plantations**

**100% Compliance with  
the United Nations'  
Sustainable  
Development Goals 17**

**2021**

# Carbon farm & SMARAGDFA® advantages

# Related Sustainable Development Goals and Targets



**Goal 1. End poverty in all its forms everywhere**

**1.5** By 2030, build the resilience of the poor and those in vulnerable situations and reduce their exposure and vulnerability to climate-related extreme events and other economic, social and environmental shocks and disasters.



**Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture**

**2.4** By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality

The large leaves of SMARAGDFA® (up to 70 cm) improve micro climate conditions through creating shadow and increasing evaporation, creates depression for natural rains in coastal regions and due to the surface structure of its leaves, it is able for enhanced dust absorption. All these can influence a better and safer environment for living and contributes to decreasing poverty all over the world



Its leaves provide an alternative option for human consumption in a stuffed form, its nectar is a premium element for honey production and its petals provide a stable base for tea production

Animal feeding is supported by the high protein content of leaves that can be direct fodder for livestock Soil quality improvement is generated through the high nitrogen content of the leaves, while rehabilitation of contaminated sites is insured through its filtering root system that also reduces slope erosion



Sustainable agriculture is strengthened through SMARAGDFA® symbiotic culture (intercropping) and agro-forestry capacities

After final exploitation (24-30 years) the trunk of SMARAGDFA® is offers a perfect habitat for mushroom production while new plantation grows in between the rows.



The excellent genetic characteristics of SMARAGDFA® are requesting a controlled genome deposit using a certified genome bank. Such an institution should work transparently and efficiently. Two dedicated and independent labs are commissioned for this mission.

2.5 By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed



**Goal 3. Ensure healthy lives and promote well-being for all at all ages**

**Burning SMARAGDFA® results in less contaminating residues than other fossils. On the surface of leaves – dust, pollen and soot can be accumulated, while the latter decreases smog. Planting SMARAGDFA® in eco-islands (in cities) and carbon climate plantations can improve micro climate, since they decrease temperature by 3-5 Centigrade. Consequently, we can have healthier environment.**

**Leaves contain Niacin (energizing B3 vitamin). Its pharmaceutical use could offer new perspectives for natural medicines. We have to mention that niacin is an important agent for popular products, since it has many good qualities (for skin, immune system, weight reduction etc.)**



**The listed large value chain of SMARAGDFA® and carbon farms can become organic parts of the lifelong knowledge transfer. It could promote quality learning opportunities about sustainable development for all, help to develop climate-awareness, while initiating a creative/interactive platform besides educating both adults and children in an entertaining way**

**3.9** By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination

**3.b** Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all



**Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all**

**4.7** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development



**Goal 5. Achieve gender equality and empower all women and girls**

The carbon climate farm plantations, symbiotic cultures and laboratory multiplication of clones offer continuous and also high-quality employment for women. Gender equality is ensured in all phases

**5.a** Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws



**Goal 6. Ensure availability and sustainable management of water and sanitation for all**

Both the carbon climate farm and the trees are useful for desiccation of waste (sewage) water and they can decontaminate polluted soil and waters, too. SMARAGDFA® can be planted on garbage depots, since its vertical root system filters the dangerous compounds of sludge and protects the upper structures of the plant for standard (human or agricultural) use. We have also incorporated a patented water saving product in our planting technology, with which the water consumption has been decreased to the half. This solution helps eliminate hydric stress, too. Such a solution protects fossil water nap, while supporting root development.

**6.6** By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes



**Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all**

**SMARAGDFA® and its plantations ensure access to affordable, reliable, sustainable and modern energy for all. Leaves have been examined and certified for biogas production, while the crown residue – as biomass- from the wood cutting could decrease deforestation and even protect conventional trees or forests. SMARAGDFA® biomass could also be transformed into bio-char through a gasification project with renewable energy production. It can be pelletized or transformed in a chemical process for methanol.**

**7.2 By 2030, increase substantially the share of renewable energy in the global energy mix.**

**To facilitate access to green energy worldwide we are sharing knowledge through a series of conferences such as the International Energy and Innovation Forums (all 26) and Sahara Scientists Summits (all 3) by now. Our flagship plan – the Green Sahara Project (GSP) is to enhance international cooperation, promote investment in energy infrastructure and clean energy technology.**

**7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology**



**Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**



**SMARAGDFA®** plantation all year round requires 1 to 2 workers/hectare and additionally offers more work by wood processing and manufacturing ready made goods. Its trunk is light (300-350 kg/m<sup>3</sup>) but the tree itself is considered to be a medium-hard tree. The ratio of its strength and weight is outstanding. Its light weight supports logistics of prefabricated houses and transport of other wood structures. Multiple use of **SMARAGDFA®** increases productivity and cost efficiency, while it contributes to the overall economic growth



The enhanced Oxygen production, outstanding air quality with improved microclimate effect human comfort. The large flowers of the trees (ca. 20-25 cm with their blue-purple color) can offer another tourist attraction. Special hotel marketing and a chain of actions can be built on those values and entertain tourists. Balance Hotel & Spa (Lenti – Western Hungary) is among the first to plant **SMARAGDFA®** in their energy center for such purpose.



The tree is an excellent raw material for furniture, door and window industry. Old industries/professions can be revitalized, such as barrel production or wooden sculpting. **SMARAGDFA®** could serve as a base for paper production, because of its high cellulose content.

8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors

8.9 By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products



**Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**

9.2 Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries

Thus, it can substitute Eucalyptus, the water nap and ecosystem destroying species in the paper industry

We are deeply convinced that scientific research and further tests can reveal further implications and good qualities of our tree. Among others, we will contribute to organic fiber market development and to some military applications, too. Innovation could considerably enlarge the value chain by introducing open field carbon fertilisation and other new technologies .

The planting of SMARAGDFA® and the maintenance of carbon farms are equally possible in less developed countries. Thus, it helps 3<sup>rd</sup> world countries to attract investors, while the large utilisation profile of the tree offers specific investment opportunities for both green funds and industrial entrepreneurs

The Green Sahara Project and/or cooperation with Great Green Wall can reduce inequality within and among the 20 member countries. We are going to initiate new practices and promote appropriate legislation, policies and action toward sustainable future

SMARAGDFA®, its eco-islands for cities and carbon farms have great impact on environment and human life quality. Eco-islands (containing 5+ SMARAGDFA®) could decrease temperature peak by 3-5 Centigrade, thus decreasing stroke possibility in cities. Eliminates pollen and dust reduces smog, thus improving air quality and human comfort. Its high ignition point (400 +°C) increases security in both living settlements, saunas and surroundings. It makes possible to build multi-storey prefabricated houses with better fire protection.

As green fuel (biomass, bio-char or ethanol) SMARAGDFA® utilisation results in zero carbon emission and less contaminating residues than fossils.

Its beautiful flower can enrich public spaces, school gardens and hospital surroundings.

9.5 Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending



### Goal 10. Reduce inequality within and among countries

10.3 Ensure equal opportunity and reduce inequalities of outcome, including by eliminating discriminatory laws, policies and practices and promoting appropriate legislation, policies and action in this regard



### Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations

11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities





The cities and living settlement that create carbon farms or eco-islands with SMARAGDFA® are immediately targeting multiple goals of UN SDG17, while they are decreasing their environmental impact. The ground-breaking technology and implications of the SMARAGDFA® motivates both citizens, local & governmental decision makers to comply with sustainability requirements.

SMARAGDFA® and carbon farming offer raw material for building sustainable and resilient buildings utilizing local material. The unique structure of the tree offers technological background for innovative constructions and mobile housing on affordable prices.



**11.b** By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels

**11.c** Support least developed countries, including through financial and technical assistance, in building sustainable and resilient buildings utilizing local material.



**Goal 12. Ensure sustainable consumption and production patterns**

Thanks to its fast-growing character, SMARAGDFA® can produce 0.6-1m<sup>3</sup>/log by the end of the 5th to 8th years and it can be harvested 3 to 4 times during its life span.

High melting point of its ash (1.100-1.200 °C) makes it possible to mix its pellet with low quality biomass to improve the boiler capacity.

The listed variations of carbon farms and SMARAGDFA® can become organic parts of the knowledge about sustainable development.

The knowledge (know-how) and case studies about the tree and the farms can support resilience, and improve the sustainable agricultural methods, boosts agro forestry in developing countries.

Knowledge of carbon farming and the method of planting SMARAGDFA® is part of the know-how, which could be transferred to developing countries in different constructions. Open field CO<sub>2</sub> fertilisation solution with SMARAGDFA® – as a novel of Sunwo Plc- was presented in the COP22 Marrakech, in 2016 and won the Important Innovation Label.

We are committed between 1000 ha and 25000 ha Quadrats to regreen the Sahara Desert and launch a large enough global climate mitigation program. The project details were introduced to the public and professionals during the 3<sup>rd</sup> Sahara Scientists Summit (Dakhla 2017) and recently, on the 5<sup>th</sup> Crans Montana Forum (Dakhla 2018).



**12.2** By 2030, achieve the sustainable management and efficient use of natural resources

**12.5** By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

**12.8** By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

**12.a** Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production



**Goal 13. Take urgent action to combat climate change and its impacts**

**13.a** Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible



**Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development**

The planted SMARAGDFA® farms on the continents can slow down the acidification of oceans and seas, while carbon farms can use diluted sea water to irrigate SMARAGDFA® farms, thus it could protect the fossil water nap below the desert.

SMARAGDFA®'s vertical roots can protect hillsides and decrease erosion.

Thanks to its fast-growing character, SMARAGDFA® can be a tool to efficient and multipurpose reforestation all over the world. Most recently, a feasibility study was completed for Congo (Brazzaville) to save tropical rainforest and reduce afforestation

Its root length can reach even 8 m by the end of the 5<sup>th</sup> year, and pump water with necessary ingredients for its own development. With special technology, it can be planted in different soils including deserted areas.

SMARAGDFA® is a hybrid plant with sterile seeds, its multiplication requires laboratories trough tissue-culture. It has NO INVASIVE character; beside that it is free of GMO!

There are excellent genetic characteristics of SMARAGDFA® - the genomes- are stored in genome deposits. Two independent and certified genome banks have been commissioned for this activity. Such institutions work efficiently under control and transparency. Thus, assuring the stable and reliable availability for multiplication. Beside that SMARAGDFA® plantations are subject to high level control and assistance, which secure transparency both for institutions and on entrepreneurial level.

14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels



**Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss**

15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements

15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

15.3 By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

15.8 By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species



**Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels**

16.6 Develop effective, accountable and transparent institutions at all levels





**Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development Finance**

Carbon farming is a perfect tool to revitalize the Global Partnership for Sustainable Development Finance. It offers a triple win (win-win-win) solution for the participants (investors, donors), while it helps regions development and contributes to global climate mitigation. Green bonds with development assistance will facilitate recovery of global economy after COVID19.

17.2 Developed countries to implement fully their official development assistance commitments, including the commitment by many developed countries to achieve the target of 0.7 per cent of gross national income for official development assistance (ODA/GNI) to developing countries and 0.15 to 0.20 per cent of ODA/GNI to least developed countries; ODA providers are encouraged to consider setting a target to provide at least 0.20 per cent of ODA/GNI to least developed countries

**For more information,  
please contact us and  
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