THE BILLION AGAVE PROJECT

IMPLEMENTED BY REGENERATION INTERNATIONAL IN MEXICO

Regeneration International is promoting a new, agave-based agroforestry and land management project for soil and livestock feeding system, developed by several innovative farmers in the Guanajuato State of Mexico.

By planting billions of agaves that store massive amounts of atmospheric carbon above and below ground improving soil moisture and nutrient content, the *Billion Agave Proj*ect has been launched to spread the ecosystem-regenerative approach of Guanajuato, and revitalize small farmer landscape and livelihoods.

The Project, promoted by Regeneration International started from the collaboration between the Mexican association Via Organica, based in the Municipality of San Miguel Allende (State of Guanajuato), which since 2009 practices organic regenerative agriculture, the Organic Consumers Association, a network of organic consumers in the United States and the agricultural cooperative Hacienda Zamarripa, also based in the Guanajuato State, which has created a new system of drylands agroforestry and livestock management (sheep and goats), based upon the use of agave plants and mesquite trees.

The Project is based on countless scientific studies that demonstrate the great regenerative potential of agave, which can draw down and store above ground the dry-weight equivalent of 30-60 tons of CO2 per hectare (12-24 tons per acre) per year. Agave plants and nitrogen-fixing trees, densely intercropped and cultivated together, have the capacity to draw down and sequester massive amounts of atmospheric CO2.

Agave plants are also drought-resistant. They require little-to-no irrigation and thrive even in dry, degraded lands unsuitable for crop production. These plants are able to draw down moisture from the air, and store it in their thick leaves at night. During daylight hours, the opening of the *stomata* in their leaves closes up, drastically reducing evaporation.

The agroforestry approach promoted by the *Billion Agave Project* combines the potential of Agave with the aim of creating regenerative eco-systems that contribute to economic and social sustainability of small farmers and herders who manage agricultural and animal breeding activities in the difficult contexts of arid areas.

The regenerative eco-system implemented by the project is based on the integration of different components:

- The intensive planting of agave species that grow rapidly among

preexisting tree species with deep roots for nitrogen fixation, such as the mesquite or among planted tree seedlings. By continually transplanting the suckers taken from the mother agave plants, agaves and mesquites create a dense forest. This agroforestry system, which works in semi-arid degraded lands, guarantees continuous biomass growth and carbon storage. Agave plants can be used by farmers to generate typical products that feed the local economy, as fibers or alcohol.

- The recovery of the Mesquite trees and the local knowledge and skills to utilize them as an important ecological solution. Mesquite root systems can fix nitrogen deeply and sequester carbon more effectively than most arid-adapted trees. Mesquite has been used for centuries in Mexico as resource enabling production of foods and fermented beverages, sweets, shelter, medicine, fuel, tools, shade and a habitable environment. In addition, many farmers acknowledge that mesquite foliage and pods provide forage essential for livestock. The Project will be an occasion to promote its potential in the framework of the regenerative eco-system.

- The use of large amount of biomass generated by the agave leaves and root stalk to produce an innovative nutritious and low-cost forage to feed sheep and goats. The farmers of Guanajuato have managed to define an efficient process of finely chopping the agave leaves, which are high in sugar, to ferment them in closed containers. Thanks to this innovation, farmers can reduce the pressure of overgrazing on their fragile grasslands by adopting a rotational livestock grazing model and supplementing grass forage with fermented agave silage to feed their animals.

The main features of the regenerative eco-system based on agave and mesquite are widely described in the Billion Agave Project brochure allowing other farmers to adapt the principles and methods proposed to the specific production activities and characteristics of different territories.

The implementation of regenerative ecosystems based on agave allows to stimulate biodiversity, to prevent soil erosion, to improve soil moisture and nutrient content, contributing to the mitigation of climate change and the reduction of its environmental impacts. The goal of the *Billion Agave* campaign is to plant one billion agaves globally to draw down and store one billion tons of climate-destabilizing CO2. The campaign will be funded by donations and public and private investments.

Regeneration International is a movement organized as non-profit association in 2017 with the common goal of accelerating the global transition to regenerative agriculture and land management for the purpose of restoring climate stability, ending world hunger and rebuilding deteriorated social, ecological and economic systems. Today, Regeneration International engages with a network of more than 250 international partners and a growing number of Regeneration Alliances throughout the world.

To know more

Billion Agave Project in Regeneration International website

Brochure Billion Agave Project

Regeneration International sitio web

Article and video *Agave power* in Regeneration International website

Article in ecosystemrestorationcamps.org

Regeneration International in Facebook

Regenerative agriculture in Regeneration International website

Vía Orgánica website

Organic Consumer Association

Modelo Zamarripa in Facebook

Mesquite Manifesto

Article *agroforestry systems of Mexico* in researchgate.net

Article *better land use* in Regeneration International website

Article *Agave and climate change*