

# BOOSTING BIODIVERSITY IN COLOMBIA'S CATTLE AND COFFEE

A SUSTAINABLE  
CUP OF COLOMBIAN  
COFFEE

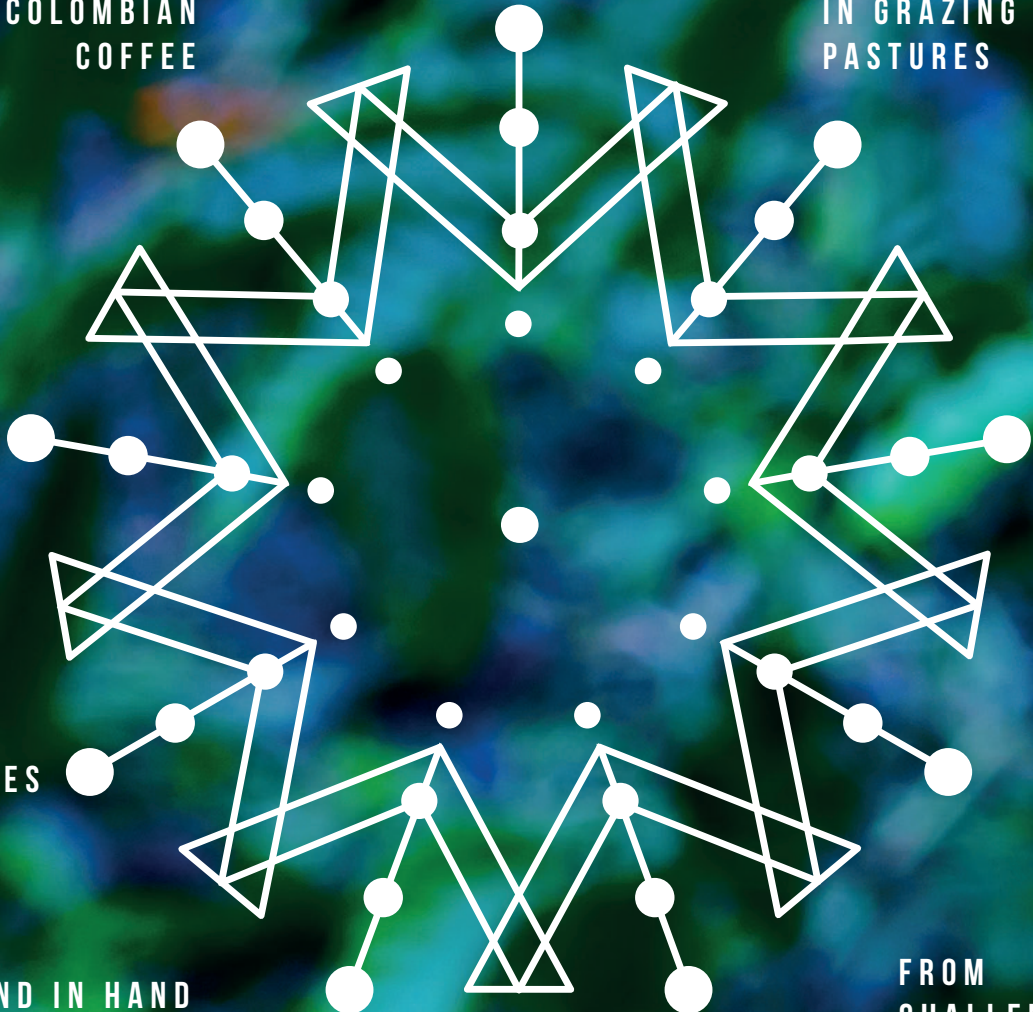
PLANTING TREES  
IN GRAZING  
PASTURES

INCENTIVES

HAND IN HAND  
WITH JUAN  
VALDEZ

RESULTS AND  
REPLICATION

FROM  
CHALLENGES  
TO INCENTIVES



MAINSTREAMING  
BIODIVERSITY —





# MAINSTREAMING BIODIVERSITY—

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## BOOSTING BIODIVERSITY IN COLOMBIA'S CATTLE AND COFFEE

*Two milestone projects in Colombia involving cattle ranchers and coffee growers have yielded encouraging results by successfully combining biodiversity conservation and agricultural production.*

Like most countries in the world, Colombia has in recent decades seen its agricultural sector lose ground to services. Despite this, its agriculture continues to be of vital importance for job creation and the economic well-being of Colombians. Unfortunately it is also one of the sectors with the greatest impact on biodiversity.

Nowadays, the main threats to biodiversity in Colombia are closely linked to population growth, habitat loss and land use change to make way for agricultural development, resulting in erosion and degradation of soils, water pollution, and deforestation.

Industries contributing to this include cattle ranching and coffee production, two of the most important components of Colombia's overall agricultural production. Cattle and coffee are organised into influential National Federations (*Fedegán* and *Federación Nacional de Cafeteros* respectively) and have benefited from strong government support (subsidised credit, guaranteed prices, etc.). However, unsustainable production in these sectors has led to significant biodiversity loss.

### 1. PLANTING TREES IN GRAZING PASTURES

One way of improving ecosystem functioning of degraded pasture lands has been through the development of intensive silvo-pastoral systems (SPS) that generate environmental benefits as well as socio-economic benefits.

Silvo-pastoral systems combine planted trees, shrubs and grass species with cattle grazing. These systems are a type of replacement vegetation, which to a large extent mimics forest ecosystems. Trees produce food for animals, form natural fences and produce many other benefits.

The project *Integrated Silvo-Pastoral Approaches to Ecosystem Management*, made possible through funding from the Global Environment Facility (GEF), the UK's Department of Energy and Climate Change (DECC) and the World Bank, was carried out in Colombia, Costa Rica

and Nicaragua from 2002 to 2008. In Colombia, the scheme targeted two zones in the south-east that are representative of livestock production systems in the country. The project directly benefited small and medium-sized landowners who mostly depend on livestock and food crop production.

These and other stakeholders were also actively involved during the preparation and implementation of the project through workshops at which local farmers' organisations, environmental government agencies and scientists came together.

### FROM CHALLENGES TO INCENTIVES

There were two main challenges. First, the high cost of converting degraded grass into silvopastures and the long time needed before the system becomes productive. To overcome this barrier, the project established an eco-service fund to provide financial support to launch the silvo-pastoral technology: up to 50% of the costs for seeds and hired labour. Additional schemes of payment for ecosystem services (PES) – carbon sequestration, relative abundance of plant and animal species, soil and water quality – were put in place.

Second, the lack of awareness about the potential benefits of silvopastures (i.e. reduced dependence on chemical fertilisers and pesticides). This in turn was addressed through the provision of technical assistance and the sharing of experiences with existing enterprises already using this technology.

### RESULTS AND REPLICATION

The six-year project enjoyed success in terms of biodiversity conservation. Bird species numbers increased from 140 to 193 and the number of terrestrial molluscs, ants, butterflies, and other animals went up. Herbicide use almost halved to 7,900 litres per hectare, while milk production in the land increased by a fifth and meat output went up 80 per cent.

Carbon fixation went up by 1.5 tons per hectare each year. Four years after the end of the pilot project in 2012, SPS and forests were maintained and even saw a 90% increase in the cattle ranches that used them.



# MAINSTREAMING BIODIVERSITY —

A second phase (2010-2018) entitled *Mainstreaming biodiversity in sustainable cattle ranching* is being implemented in five other regions of the country in the vicinity of strategic ecosystems or protected areas known for their high biodiversity. This second phase aligns the goals of the cattle production sector and national government, brings Fedegán into play alongside other important actors like The Nature Conservancy, CIPAV, Fondo para Accion Ambiental, and aims to generate changes in land use on the 3,000 farms that benefit from the project.

*Fedegán's Strategic Plan for Colombia's Cattle Ranching 2019* aims to decrease by 10,000 hectares the area used for cattle ranching while increasing herds. Similarly, the National Development Plan of 2010-2014 proposes increasing by a fifth the herd while reducing the total land used for the sector by 21% before 2030, demonstrating a good match between the two.

All these elements have greatly contributed to the project's implementation and replication. So far, it has demonstrated that cattle ranchers are able to change their productive systems in the presence of economic stimuli and relevant information. The increase in productivity (meat and milk) due to the use of new technologies has also been a determinant factor to its adoption.

## 2. HAND IN HAND WITH JUAN VALDEZ<sup>1</sup>

Colombia is well known for its mild coffee brand and after Brazil and Vietnam is the third largest coffee exporter in the world. Coffee cultivation and export are under the management of the National Coffee Growers Federation (FNC) which is the country's most important private enterprise. Unfortunately Colombian coffee has been traditionally sun-grown with significant negative impacts on biodiversity.

*Mainstreaming biodiversity in the coffee sector in Colombia* (2010-2015) is a project that was established to create an enabling environment for conservation and sustainable use of biodiversity in coffee productive landscapes while improving the livelihood and economic conditions. The scheme has been implemented with coffee growers in 13 municipalities. Funded by the Global Environment Facility (GEF), the project's executing partners include the FNC, the Von Humboldt Institute as well as the Regional Autonomous Corporations.

## INCENTIVES

While sun-grown systems can produce higher yields, the larger amounts of chemicals used increase costs and pollute water streams and aquifers. The shaded farms easily outweigh them in sustainability measurements as the trees provide various ecological services offering both direct and indirect benefits (including income) to farmers and the environment.

Nevertheless, the seemingly lower profitability of shade-grown coffee farms, sparse knowledge about the revenue potential of biodiversity-friendly coffee certification schemes and the limited capacity of coffee producers to develop payments for ecosystem services (PES) production schemes constitute important challenges to the widespread use of shade-grown coffee. Therefore, this project considered the development of long-term economic incentives through PES to attract and keep farmers committed to growing shade coffee. These incentives include payment for the carbon sequestered by shade-producing trees and the certification of coffee grown in shade-coffee farms.

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The mid-term evaluation of the project (2012) showed positive results in its design and implementation. There are also significant advances in terms of the use of the landscape management tools and nurseries and progress in the number of hectares that have been certified. Moreover, the project has efficiently allocated resources through the FNC, thus benefiting local farmers and it has potential to be replicated. There is of course room for improvement, especially concerning the quality of indicators to measure progress on improving biodiversity and farmers' income. The latter is set in the context of the many variables that intervene, some not related to the project, like fluctuations in the price of coffee due to climatic conditions.

More information can be found in Colombia's Fifth National Report to the Convention on Biological Diversity at: <http://www.cbd.int/reports/search>

The project team acknowledges the valuable contributions of Jessika Carvajal and Paula Rojas in Colombia's Ministry of Environment and Sustainable Development as well as of Andres Zuluaga in Fedegan, Coordinator of "Mainstreaming biodiversity in sustainable cattle ranching".

<sup>1</sup> Born 1959, Juan Valdez is the logo character that represents the more than 500 000 Colombian coffee growing families. <http://www.juanvaldezcafe.com/en/juan-valdez-cafe/our-brand>