A BUSINESS CASE

Future-proof your supply.

Transform monocultures into Dynamic Agroforestry — the only system that delivers stable yields, climate resilience and real carbon impact without external inputs.

ECOTOP SUISSE

THE PROBLEM

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Your supply is on borrowed time.

Supply chains are facing compounding risks that certifications alone cannot solve.

Up to 40%

of global soils farms are degraded — yields declining despite higher inputs

2050

up to 50% of current cocoa-growing land may become unsuitable for production

1 crop

exposes farmers and buyers to a single bad harvest, single price crash, single pest

Climate volatility · Soil degradation · Labor crisis · EUDR & CSRD compliance · Investor scrutiny

These pressures compound. Certifications don't transform the system that produces your beans — they only audit it.

THE POSITIONING

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Most agroforestry is marketing.

Adding a few shade trees to a monoculture is not transformation. It's decoration.

CONVENTIONAL AGROFORESTRY

A monoculture with extra trees

- A few shade trees over a single cash crop
- Still depends on synthetic fertilizer & pesticides
- Limited soil regeneration; degradation continues
- Yields plateau or decline over time
- Carbon and biodiversity gains are modest

DYNAMIC AGROFORESTRY

A productive forest that mimics nature

- Multi-strata succession with variety of species per hectare
- Zero external inputs — biomass is the fertilizer
- Soil regenerates from year one; carbon accrues
- Yields hold or rise; system gets stronger over time
- Certified-grade biodiversity & carbon co-benefits

DAF doesn't add trees to your supply chain. It rebuilds the ecosystem your supply chain depends on.

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Dynamic Agroforestry.

DAF mimics natural forest succession — combining cash crops, biomass trees and cover plants in dense, multi-strata systems where pruning biomass IS the fertility engine.

01

Design by function

Species selected by ecological role; arranged by strata and life cycle.

02

System activation

Pioneer species build microclimate, shade and biomass to launch succession.

03

Pruning = fertility

Biomass from intensive pruning feeds the soil. No external inputs needed.

04

Succession over time

Permanent species take over and produce yields for decades.

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Yields hold — without external inputs.

15+ years of side-by-side comparison in Bolivia. The data is unambiguous.

AVERAGE COCOA YIELD, 2025

AVERAGE GLOBAL COCOA YIELDS

450 kg/ha

DAF LIGHT

1,159 kg/ha

DYNAMIC AGROFORESTRY (DAF)

957 kg/ha

Source: SysCom Bolivia long-term trial, FiBL / ECOTOP — 12 cocoa cultivars, 4 reps per treatment.

No yield penalty.
Plus a forest of revenue.

- **Top cultivars range from 1.2 to 1.5 t/ha across every DAF system**
  Cultivar selection — not the system — drives top-end yield.
- **Zero synthetic fertilizer or pesticide in DAF**
  Biomass from intensive pruning feeds the system.
- **Additional revenue from timber, fruits, coffee**
  Total profitability per hectare exceeds monoculture.

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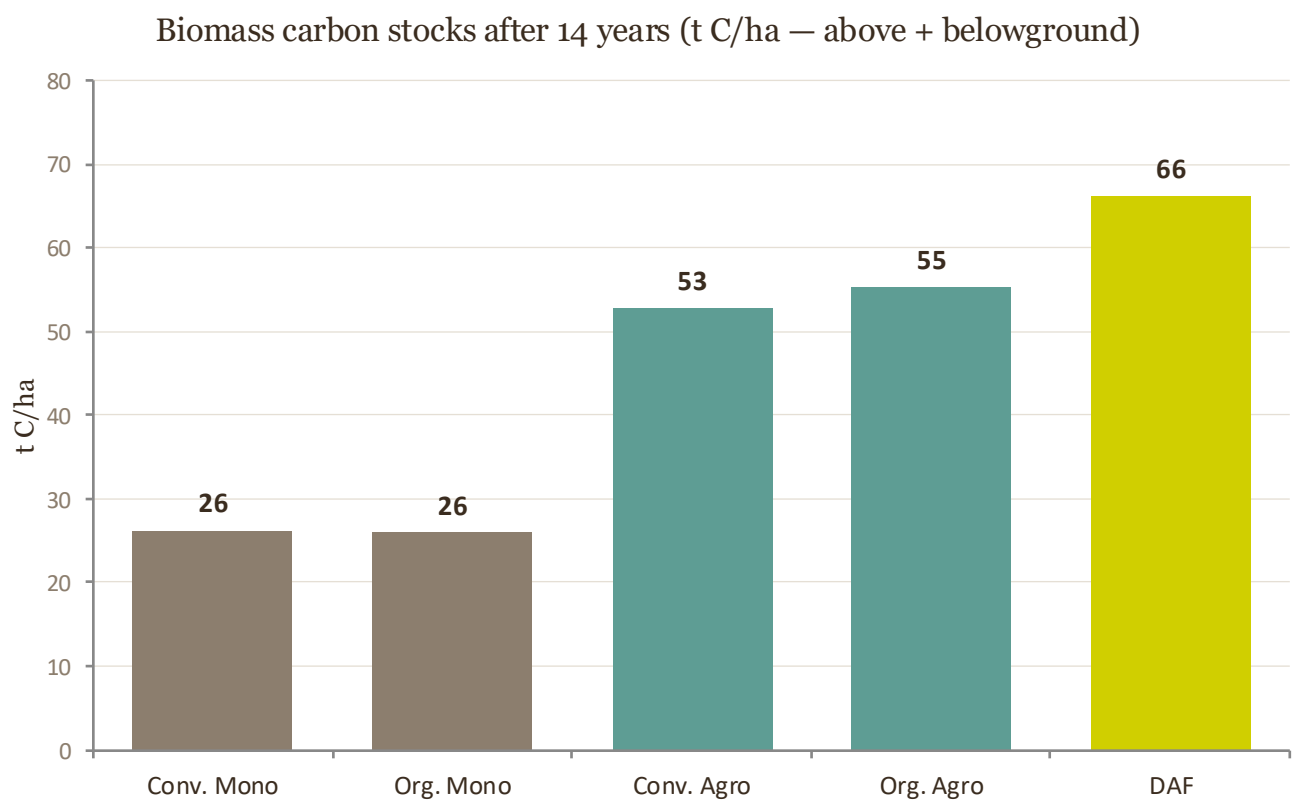
DAF stores 2.5× more carbon than monoculture.

Above- and below-ground biomass carbon, measured after 14 years on the same Bolivian soil. Peer-reviewed in Agriculture, Ecosystems & Environment.



2.5×

more biomass carbon than conventional monoculture

DAF: 66.2 t C/ha · CM: 26.3 t C/ha · $p < 0.001$

+19%

more biomass carbon than other agroforestry systems

DAF outperforms conventional and organic AF (52–55 t C/ha)

Zero

external inputs needed to achieve these gains

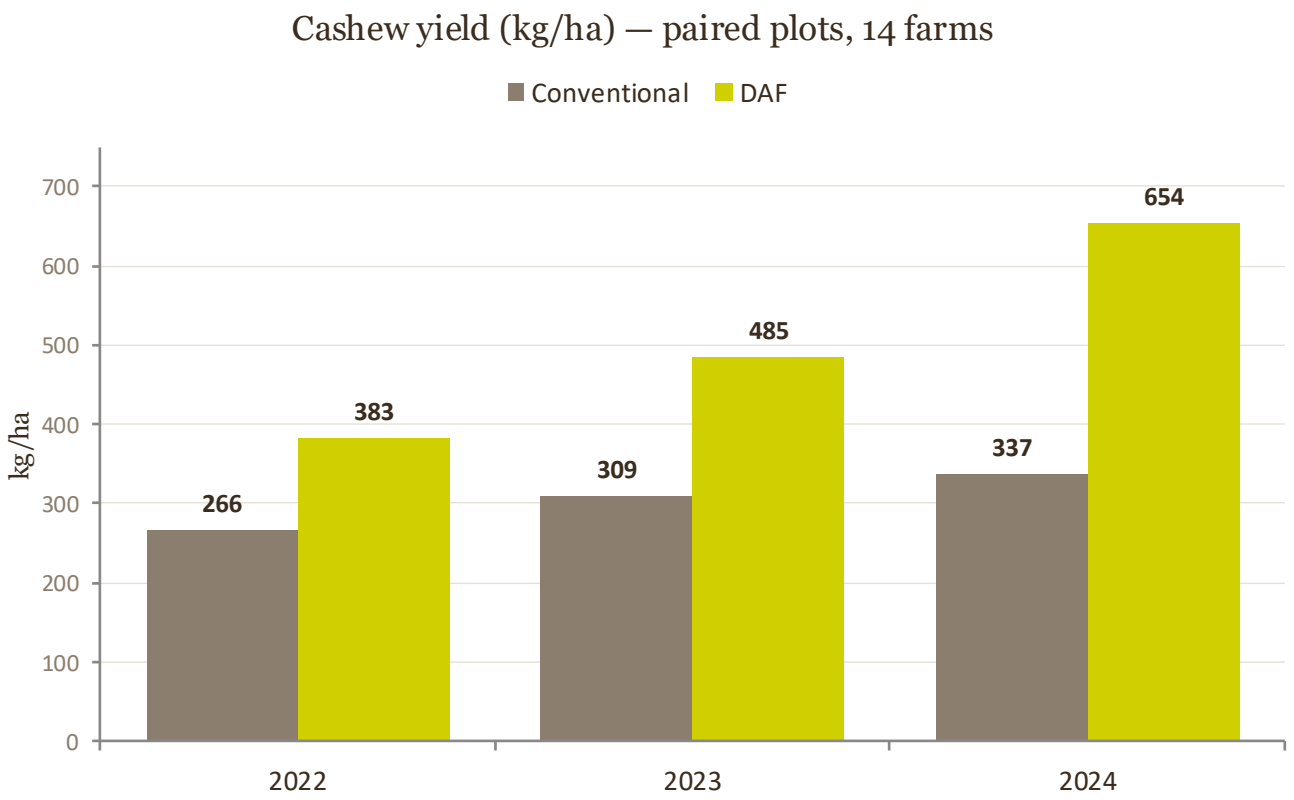
Tree biomass alone drives the carbon advantage

Source: Krause et al. (2025) — Agriculture, Ecosystems & Environment 393, 109820. Above + belowground biomass C, Table 3, SysCom Bolivia long-term trial.

ECOTOP SUISSE

It works in Africa, too.

482 cashew plots converted to DAF in Burkina Faso. Yields rising every year — even as climate stress intensifies.



+94%

DAF vs. non-DAF yield by year 3

p < 0.0001 across 14 paired plots

+29%

average uplift across 482 farmer plots

120.5 ha total, 11 villages, 3 seasons

1,800+

farmers trained in DAF biomass management

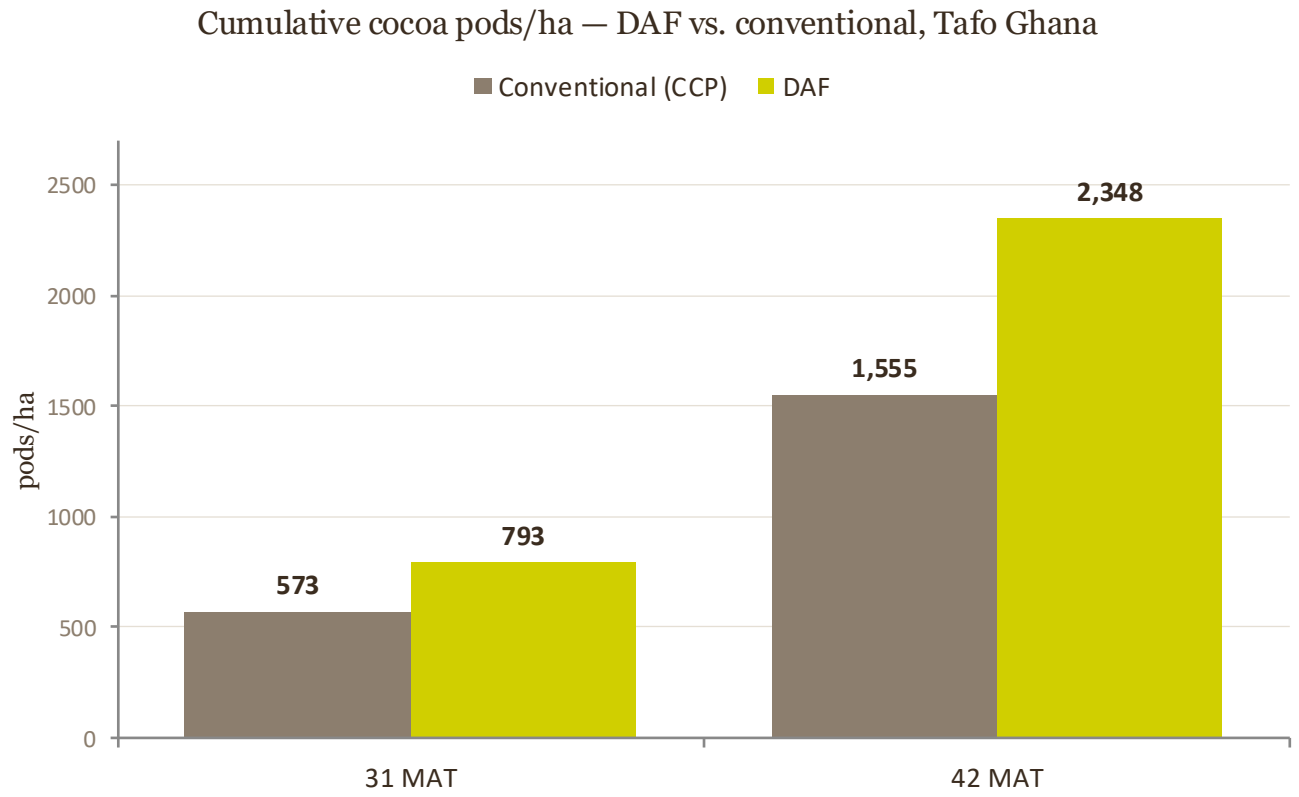
Through gebana, HALBA & Coop partnership

Source: Milz et al. (2025) — World Agroforestry Congress. "Sustainable Mangos and Cashews — Made in Africa" project (Coop Sustainability Fund, HALBA, gebana).

ECOTOP SUISSE

Ghana cocoa: DAF outperforms conventional from year three.

Independent trial run by the Cocoa Research Institute of Ghana (CRIG) — Sankofa project — comparing DAF to conventional cocoa cultivation practices (CCP) on low-fertility soils.



+51%

more cumulative cocoa pods at 42 months

DAF: 2,348 pods/ha · CCP: 1,555 pods/ha · p = 0.003

3×

lower seedling mortality at 24 months

DAF: 2.1% · CCP: 6.3% · fewer replants, faster path to commercial yields

−55%

less defoliator damage; 6× more black ants (predators)

Biodiverse system delivers natural pest control (p = 0.05 / p < 0.01)

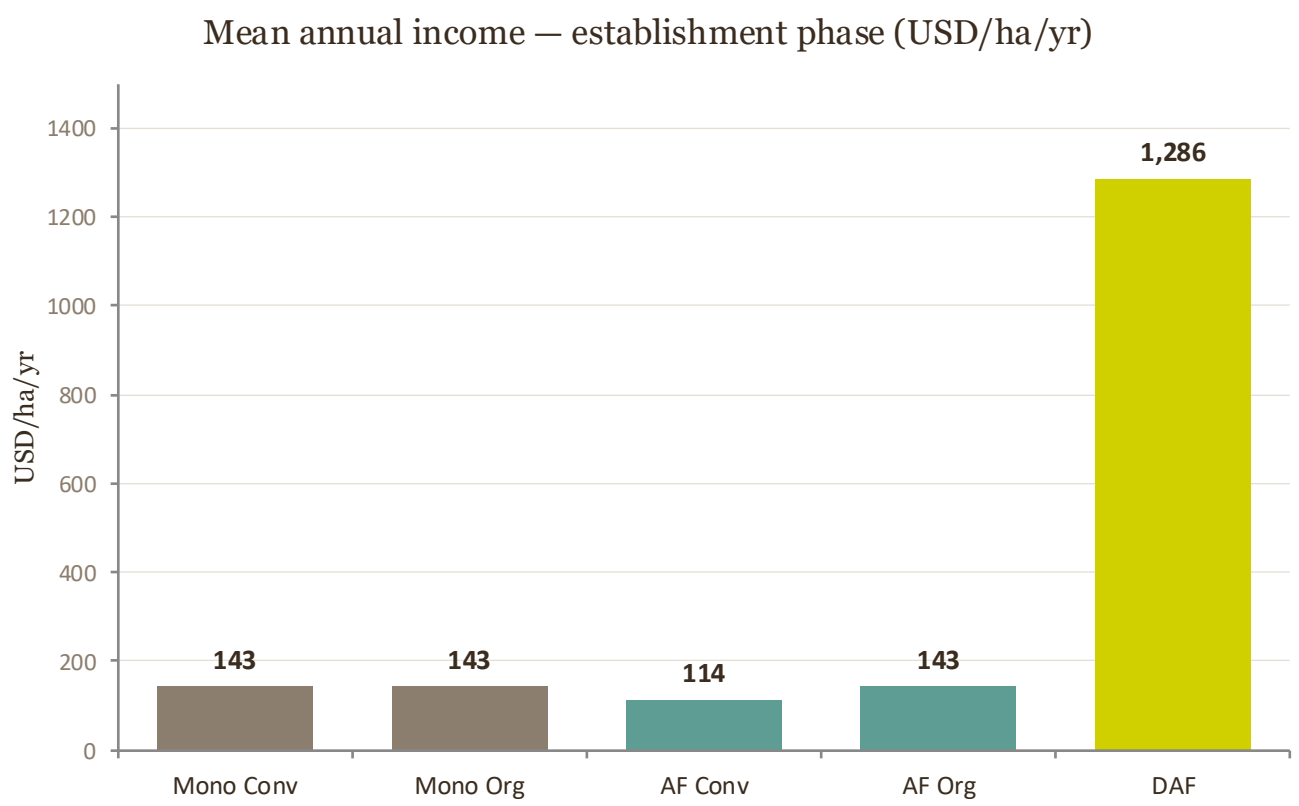
MAT: Months after transplantation of cocoa seedlings

Source: Cocoa Research Institute of Ghana (CRIG), Tafo — Sankofa project. 4-year RCBD trial on denuded soils. Partners: Kuapa Kokoo, ITC, ECOTOP Foundation, HALBA Chocolats.

ECOTOP SUISSE

DAF pays back from year one.

Most agroforestry transitions ask farmers — and their buyers — to absorb years of losses. Not DAF. The numbers prove it.



9×

more establishment-phase income than monocultures or conventional agroforestry

~$1,300/ha/yr vs. ~$140/ha/yr

Year 1

first cash flow from cassava, banana, plantain, ginger, turmeric, pigeon pea

Before cocoa even comes into production

0

transition years where farmers lose income

Removes the single biggest barrier to system change

Source: SysCom Bolivia long-term trial (Rüegg et al., in prep). Establishment-phase income converted at 7 BS/USD. DAF: ~9,000 Bs/ha/yr; other systems: ~1,000 Bs/ha/yr.

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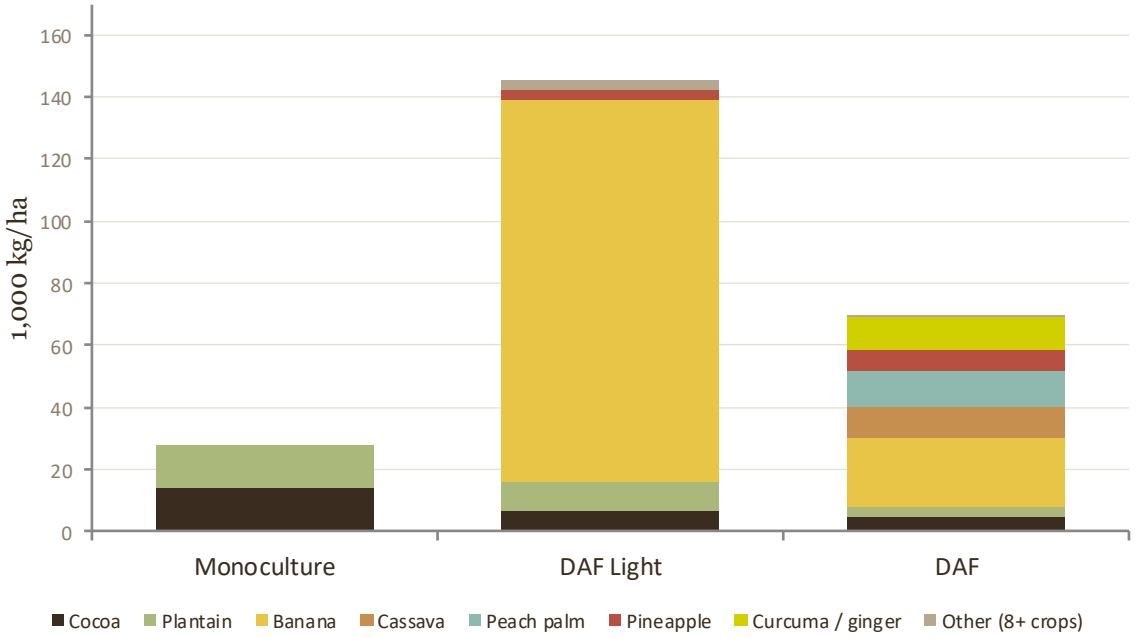
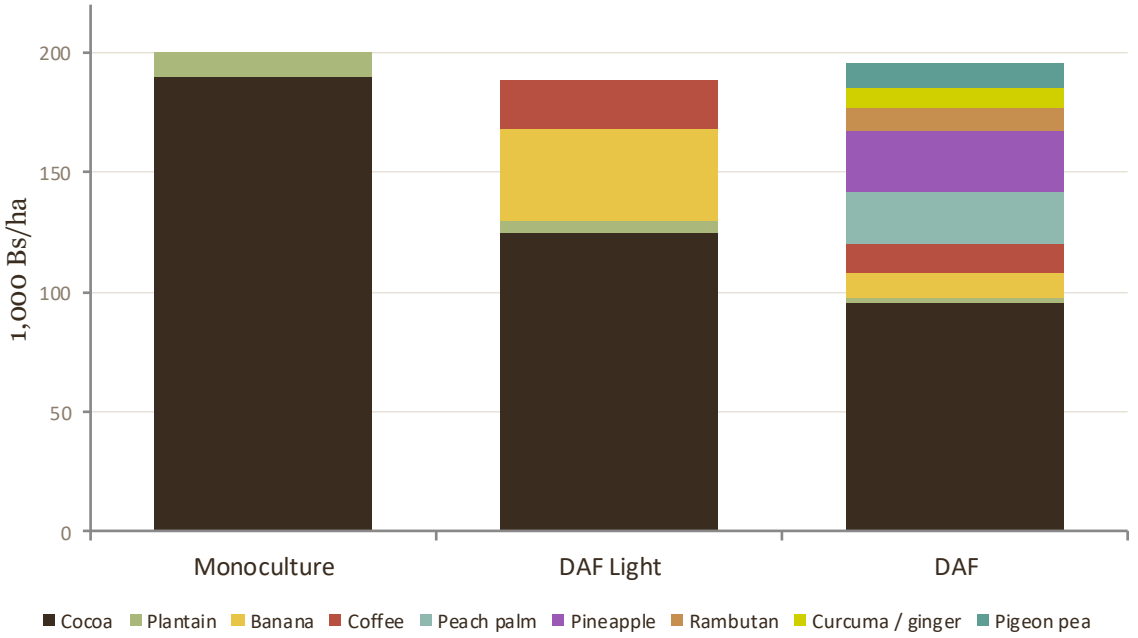
Same income. Fifteen crops. One resilient farm.

DAF earns the same as monoculture cocoa — and outperforms DAF Light — while spreading risk across 15 saleable crops on the same hectare. Volume goes down, value and resilience go up.

Cumulative fresh-weight yield 2009–2023 (1,000 kg/ha)



Cumulative income 2009–2019 (1,000 Bs/ha)



THE STRATEGIC TAKEAWAY

DAF income matches monoculture (~195k Bs/ha) and beats DAF Light (~185k). Yield gap is compensated by higher-value crops. DAF Light has higher density of banana stems*

GINGER · 1:5

1,586 kg/ha harvested *from 312 kg seed*

TURMERIC · 1:15.5

1,272 kg/ha harvested *from 82 kg seed*

Sources: Rüegg et al. (in prep) — cumulative yields & income, SysCom Bolivia (2009–2023). ECOTOP 2025 SAFS by-crop yield data. Yields shown as fresh weight.

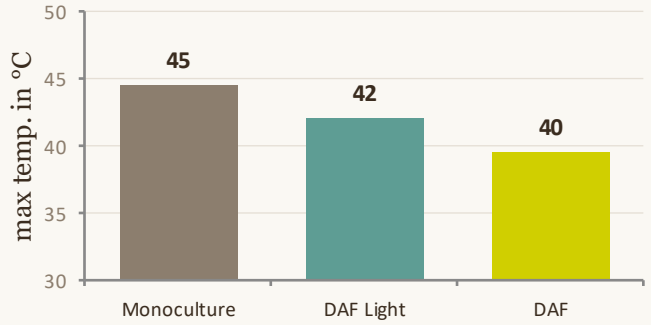
ECOTOP SUISSE

DAF buffers your supply against climate shocks.

Cooler canopies. Soils that hold rain. Living ecosystems. Three measured outcomes that mean fewer bad harvests for your supply chain.

TEMPERATURE BUFFERING

Cooler under climate stress.



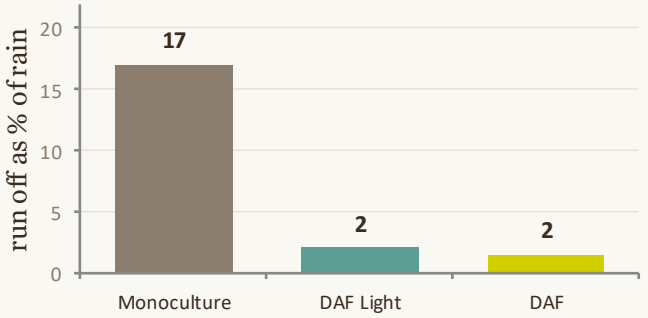
−5°C

peak daily max in DAF vs. monoculture

Critical for cocoa heat tolerance.

WATER RETENTION

Soils that hold the rain.



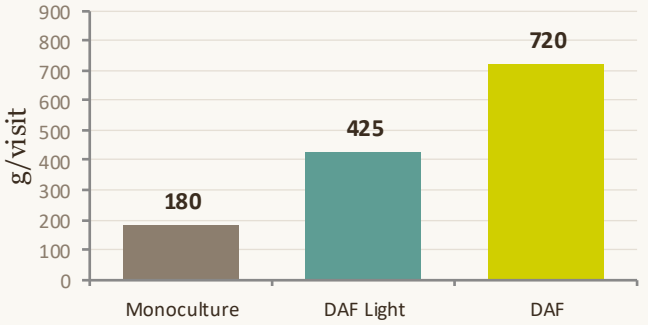
10×

less rain lost to runoff vs. monoculture

Plus less erosion, more aquifer recharge.

BIODIVERSITY

Living ecosystems return.



4×

more bird biomass than monocultures

Birds = pest control + ecosystem health.

Sources: Niether et al. (2018) microclimate; Fuchs et al. (2021) runoff & water balance; Naoki et al. bird biomass (in prep). All from SysCom Bolivia.

THE TIMELINE

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Quick wins from year one. Full system by year five.

DAF is not a slow promise. Farmers see income and soil change within months — not decades.

YEAR 1

Establish & earn

- Cassava, banana, plantain, pigeon pea — first cash flow
- Biomass trees set; soil cover established
- Farmer training completed

YEAR 2

Canopy closes

- First pruning cycle = first biomass fertility input
- Coffee, ginger, turmeric come into production
- Microclimate stabilizes

YEAR 3–4

Cash crop kicks in

- First commercial cocoa / cashew harvests
- Yields already +29% vs. monoculture (Burkina data)
- Soil and biomass carbon measurably rising

YEAR 5+

Full system, full supply

- Yields competitive with conventional, no inputs
- 5–15 revenue streams active per hectare
- Carbon credits, biodiversity, climate resilience

This timeline is verified across multiple ECOTOP projects: SysCom Bolivia (cocoa), Burkina Faso (cashew), Sankofa Ghana (cocoa).

ANTICIPATED OBJECTIONS

ECOTOP SUISSE

"But isn't this just…?"

The three concerns we hear most from sourcing teams — and how the data answers them.

"Too complex and risky."

Field-proven for 30+ years.

1,800+ farmers trained in Burkina Faso alone. SysCom Bolivia ran 15+ years of paired trials; CRIG has 42 months of ongoing paired trials. Sankofa, gebana, Dr. Bronner's, HALBA — all running DAF programs at scale.

"Too slow to deliver."

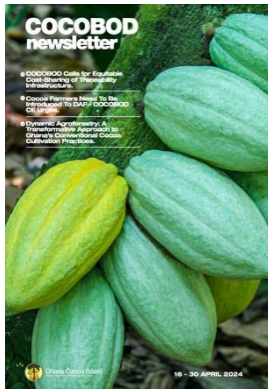
Income from year one.

Banana, cassava and pigeon pea generate revenue within months. By year 3, cocoa/cashew yields already match or exceed monoculture — and keep climbing.

"Certified beans are enough."

Certification audits. DAF transforms.

A certified monoculture on degraded soil won't exist in 10 years. DAF rebuilds the ecosystem your supply depends on — that's supply security, not just a label.



TRACK RECORD

Done it. Doing it. Across continents.

ECOTOP partners with the world's most demanding sourcing companies and research institutes.

14
COUNTRIES
where ECOTOP has implemented DAF projects

10,000+
FARMERS
directly impacted by ECOTOP programs

5,600+
HECTARES
of Dynamic Agroforestry implemented

COCOA · BOLIVIA

SysCom Bolivia

15+ year FiBL long-term trial. The most-cited DAF cocoa dataset globally. Peer-reviewed in Agriculture, Ecosystems & Environment (2025).

CASHEW · BURKINA FASO

gebana / Coop CH

120.5 ha converted, 482 plots, 1,800+ farmers trained. +29% average yield gains; +94% by year 3.

COCOA · GHANA

Sankofa · Kuapa Kokoo

Independently validated by the Cocoa Research Institute of Ghana (CRIG): +51% cumulative pods at 42 months vs. conventional, p=0.003. Partners: ITC, ECOTOP, COOP - HALBA.

FIBL · ETH · GIESSEN · UMSA

Research network

Peer-reviewed research partnerships producing the evidence base that powers this entire business case.

More: ecotop.org

WHY ECOTOP

We don't sell agroforestry. We pioneer DAF.

Pioneers since the 1990s

Co-founded by Dr. Joachim Milz in Alto Beni, Bolivia. The original implementers of DAF.

One system. Mastered.

Many companies offer 'agroforestry'. We have studied one specific system on our own farms for 30+ years.

Zero external inputs

Biomass from intensive pruning is the fertilizer. No synthetic fertilizer, no pesticides.

Research-backed

Active partnerships with FiBL, Giessen, UMSA, ETH— peer-reviewed evidence.

Full-stack

Design, implementation, capacity building, carbon, MRV, research — under one roof.

What we preach, we practice — on research plots and in commercial supply chains.

THE PARTNERSHIP

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From your first hectare to landscape transformation.

Three entry points, one trajectory: secure your supply, transform your supply shed, lead the category.

ENTRY POINT

Pilot

20–100 ha

Convert a defined block of your supplier farms to DAF. Generate the proof-of-concept and quick wins inside your existing cooperative.

- System design + farmer training
- Baseline measurement (yield, soil, carbon)
- First-year quick-win crops
- 24 - 36 month implementation

SCALE

Supply-shed transformation

200 –1,000 ha

Roll out DAF across an entire cooperative or sourcing region. Build farmer capacity, monitoring infrastructure and a stable, regenerative supply.

- Train-the-trainer programs
- Cooperative-run nurseries
- MR system + carbon assessment
- Co-financed implementation

LANDSCAPE

Category leadership

1,000+ ha

Multi-cooperative landscape transformation with carbon co-benefits, biodiversity outcomes and category-defining sourcing claims.

- Landscape-level design & monitoring
- Carbon credit generation pathway
- Joint research & evidence base
- Multi-year strategic partnership

Every partnership starts with a supply-chain assessment. We map farms, baseline soil and yields, and design the system together.

THE NEXT STEP

Secure your supply for the next generation.

The science is settled. The systems are field-proven. The only question is which supply chain leads, and which one waits.

Let's design your pilot.

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