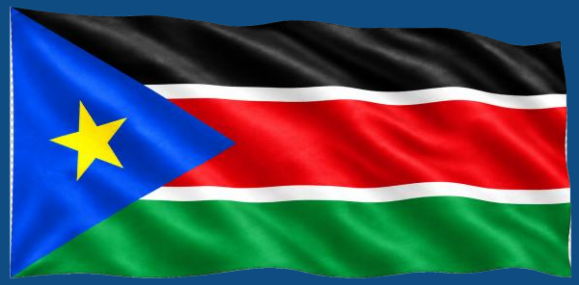


GREEN SOLUTIONS

SOUTH SUDAN

2030

Rebuilding food sovereignty in a nation of exceptional agricultural potential

Sorghum · Maize · Rice · Cassava · Horticulture · Livestock · Agroforestry

Four chapters, one trajectory

A clear assessment of an agro-pastoral economy under severe pressure and the corresponding technology response.

01

State of the Nation

Agroecological diversity, oil dependence and escalating climate pressure.

02

Living Value Chains

Sorghum, maize, cassava, rice, horticulture, livestock and fodder.

03

The Food Equation

High food deficits, underused land and a major yield gap.

04

Our Water Response

ECOSORB®, ECOFERT®, NAPEMA® and agroforestry, four tools for resilience.

South Sudan

≈ 80%
Of livelihoods depend on agriculture

7.8 M
People projected in acute food insecurity

≈ 4%
Of land is currently cultivated

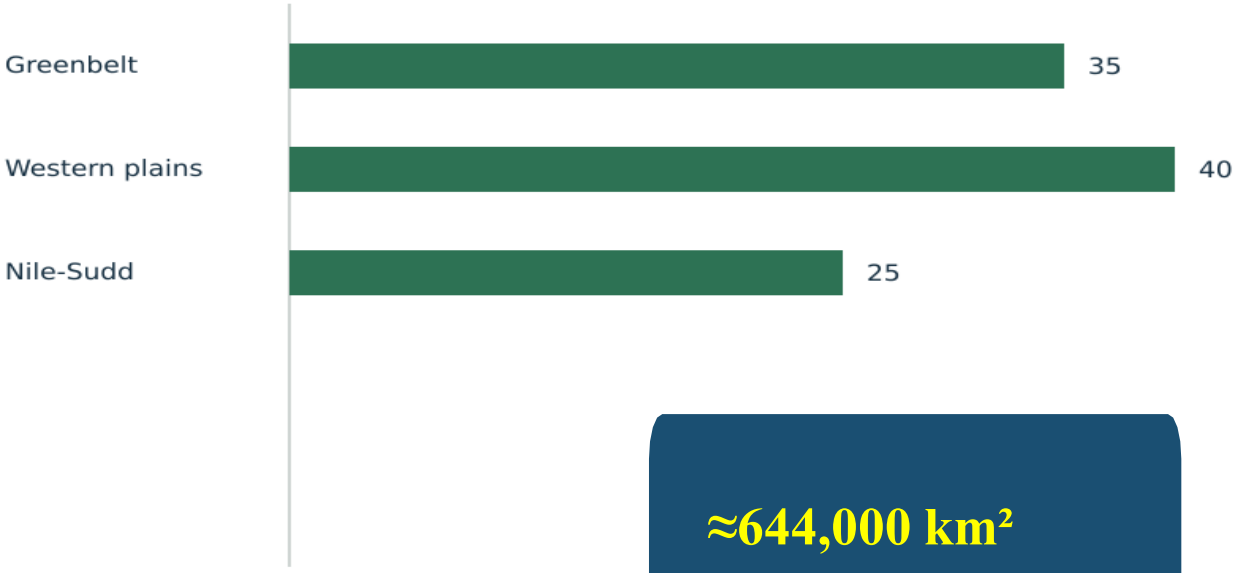
A vast agro-pastoral economy with major untapped potential

South Sudan combines extensive arable land, large livestock resources and the White Nile system. Yet most production remains rain-fed, small-scale and exposed to conflict, weak infrastructure, market fragmentation and repeated climatic shocks.

Agriculture sustains the majority of rural households, while oil still provides about 90% of foreign-exchange earnings. Sorghum is the dominant cereal, followed by maize, millet and rice. Despite a good 2024 harvest, domestic cereal supply remained roughly one-quarter below national requirements.

The country has land, water and farmers. The missing link is a measured technology programs that converts local potential into reliable yields.

A geography of three production system



≈644,000 km²

Total national territory

White Nile and Sud

Strategic water system, with major drainage constraints

Greenbelt

High-rainfall zone

Maize, cassava, coffee and horticulture

The fundamental constraint

Agricultural conditions vary sharply. Western Equatoria receives a long rainy season and supports maize, cassava and horticulture. Bahr el Ghazal combines sorghum and livestock. Jonglei, Unity and Upper Nile face prolonged flooding, weak drainage and difficult market access.

Western flood plains

A major sorghum and livestock area, but seasonal floods and poor roads isolate producers. Water management must distinguish between drought-prone plots and soils already exposed to waterlogging.

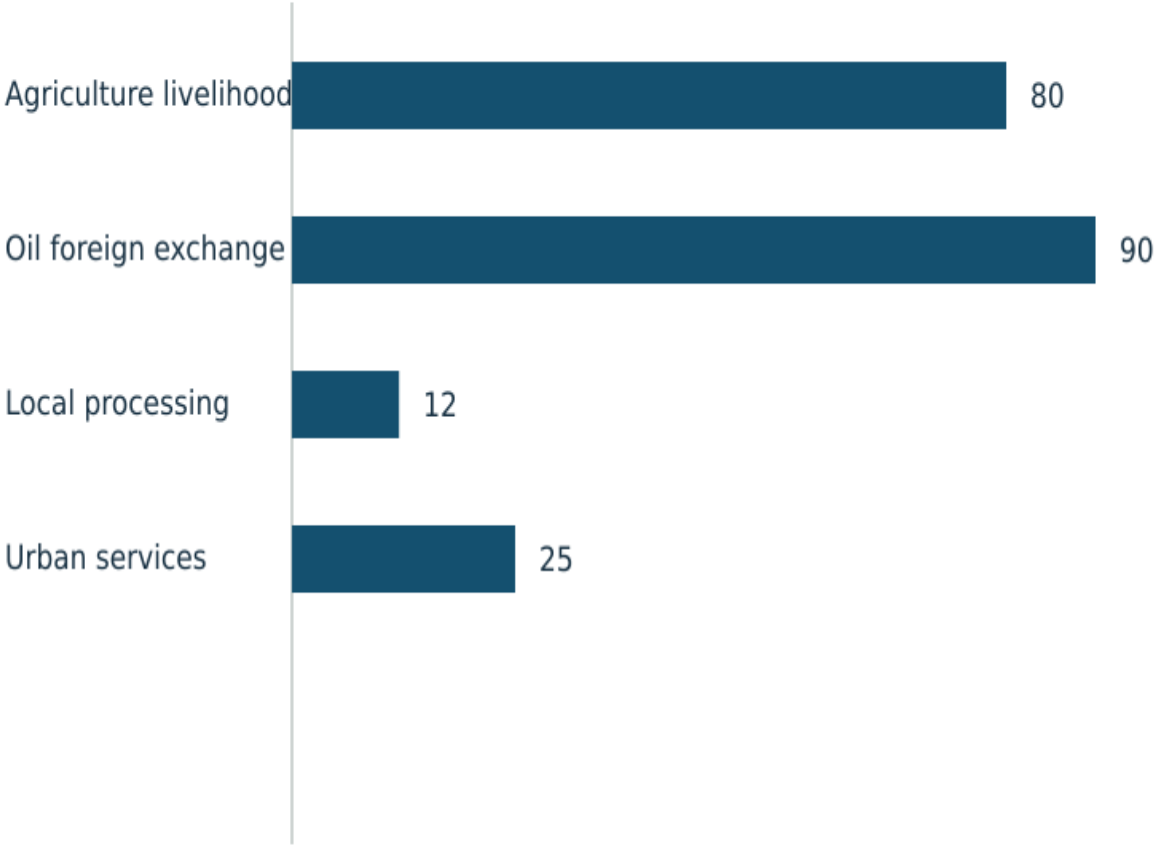
The verdict

South Sudan faces a double water shock. Parts of Equatoria experience dry spells and erratic rainfall, while the Sudd basin and northern flood plains remain inundated for long periods. Six consecutive years of severe flooding have transformed access to land and markets.

Operational threshold

Water-retention technologies belong only on adequately drained soils. In flood-prone areas, drainage, raised planting, adapted varieties and seasonal access planning must come first.

The South



Agriculture and livestock

≈80% of livelihoods

But low measured productivity. The gap reflects limited inputs, infrastructure and extension services.

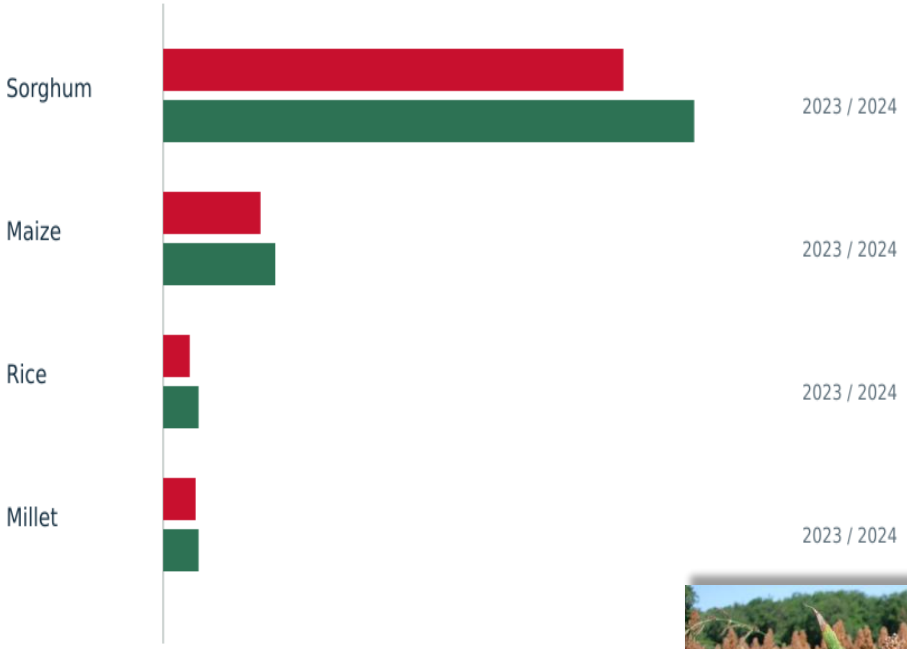
Oil

Critical dependence

Oil provides about 90% of foreign-exchange earnings. Pipeline disruptions through Sudan expose the entire economy.

Sorghum: The national food-security pillar

The dominant cereal and the first priority for stabilizing rain-fed production.



≈70%
Of cereal area

1.123 Mt
2024 net cereal output

≈25%
Cereal requirement deficit

+10%
2024 output vs. 2023

Sorghum,the backbone

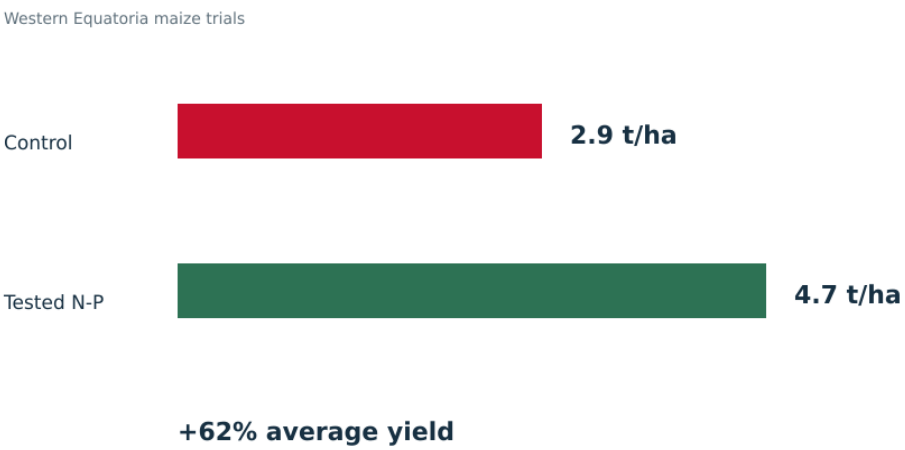
Sorghum is cultivated throughout the country and dominates cereal land. It supports household consumption, local brewing, fodder and trade. Production relies heavily on family labor and traditional seed systems.

The challenge is structural: late access to fields, weeds, pests, poor seed quality, depleted soils and post-harvest losses reduce output. The 2024 harvest improved under favorable weather and slightly larger planted areas, but the national cereal deficit remained significant.

Priority: local seed multiplication, soil diagnosis, side-by-side field trials, safer storage and contracted markets.

Maize and cassava: the Greenbelt opportunity

Western Equatoria can supply Juba and regional markets if roads, storage and processing improve.



2.9 t/ha
maize control plots

4.7 t/ha
maize with tested N-P

+62%
observed yield gain

56%
land rated highly suitable

A productive but isolated Greenbelt

Field research in Yambio and Nzara found favourable rainfall, topography and soil conditions for rain-fed maize. In controlled trials, average yield reached 4.7 t/ha with nitrogen and phosphorus, compared with 2.9 t/ha in control plots.

Cassava provides an essential resilience crop. Clean planting material, local processing and better drying can convert a subsistence crop into a reliable food and income buffer.

These results are local, not a national promise. Multi-season replication, soil analysis and an independent economic assessment must precede wider deployment.

Horticulture: a domestic market waiting to be supplied

Tomato, onion, okra, mango and leafy vegetables: strong urban demand, but irregular water and logistics constrain supply.

Tomato
Pilot under irrigation

Onion
Storage and quality

Mango
Local processing

Vegetables
Juba market supply

The Juba market, if consistency follows

Juba depends heavily on food arriving from neighboring countries. Peri-urban horticulture and Greenbelt production can shorten supply chains, provided producers have controlled irrigation, planting schedules, aggregation and cold storage.

Water stress reduces fruit size and quality, while unmanaged humidity increases disease pressure. NAPEMA® should therefore enter through supervised integrated-crop-protection trials, with residue, efficacy and safety monitoring.

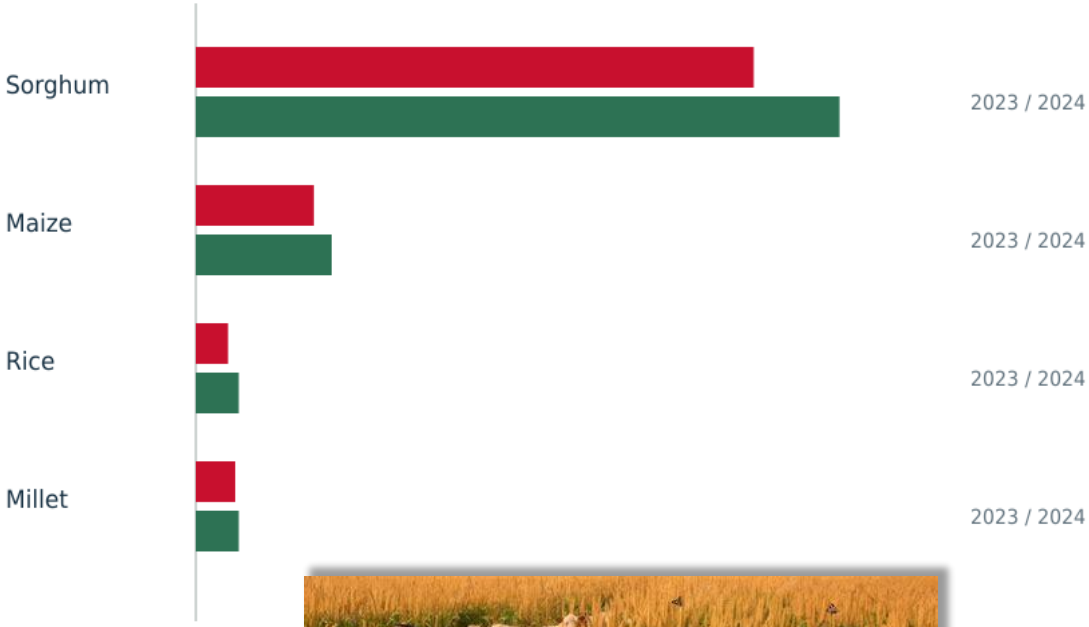
Commercial objective

Reliable weekly supply

A pilot should measure marketable yield, rejection rates, water use and delivered cost before expansion.

Sorghum and livestock: the rural foundation at risk

Rain-fed farming and pastoralism face both prolonged floods and local droughts.



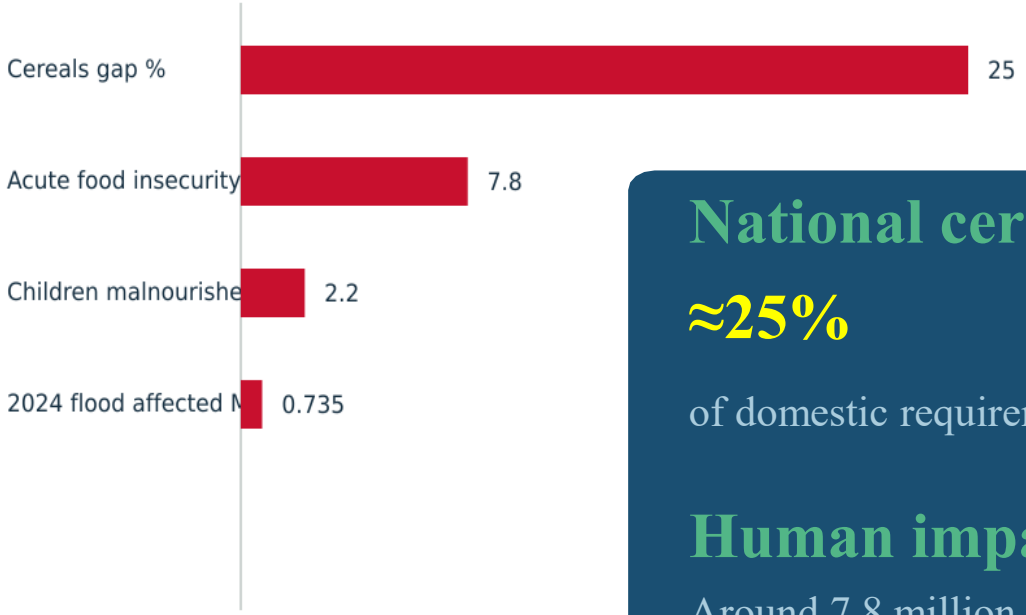
An honest verdict

Water availability alone does not guarantee production. Farmers also need access to land, seed, animal health services, storage and functioning routes to market.

In flood plains, standing water destroys crops, restricts grazing and increases livestock disease. In drier zones, shortened rainy seasons reduce pasture and raise competition around water points.

ECOSORB® can be tested on drained, drought-exposed plots. ECOFERT® may support depleted soils. Neither product should be deployed in waterlogged land without drainage assessment.

Food dependence: the strategic blind spot Domestic cereal output, import exposure and emergency assistance remain tightly



National cereal gap

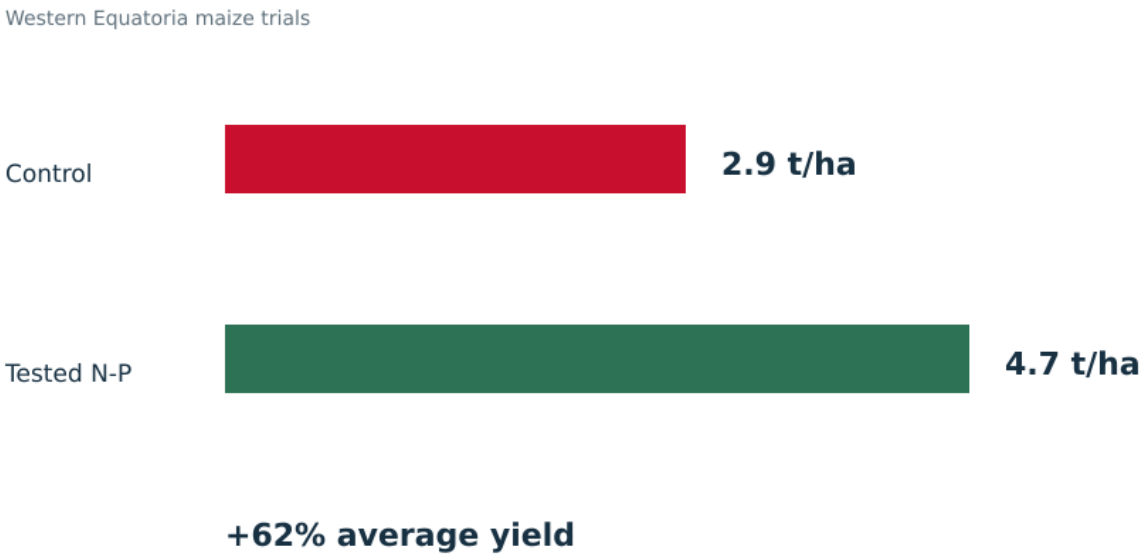
≈25%

of domestic requirements remained uncovered after the 2024 harvest.

Human impact

Around 7.8 million people are projected to face acute food insecurity in 2026, alongside severe child malnutrition.

Yield potential: Evidence before expansion
What local trials demonstrate, and what still requires independent verification.



4.7 t/ha

Average maize yield in fertilized trials, against 2.9 t/ha in control plots.

Results from Western Equatoria justify larger pilots, not automatic national extrapolation. Soil, rainfall, security and market access vary widely.

Four technologies considered for variable rainfall, depleted soils and pressure on food production

ECOSORB® — water retained near the root zone

A targeted water-retention technology for drained soils exposed to dry spells and irregular irrigation.

Up to 300×
its weight in water, according to product specifications

Irrigation water use
Irigation volume per marketable tonne

Pilot metric
Marketable yield versus control plots

3 to 5 years
Claimed active period

For sorghum and maize: safer establishment

The first weeks after sowing determine plant establishment. On properly drained plots exposed to dry spells, ECOSORB® can be tested in the planting hole or row against an untreated control. Soil moisture, emergence and yield must be recorded.

For horticulture: measured irrigation reduction

Near Juba and in the Greenbelt, the relevant test is commercial: cubic meters of irrigation per tone of marketable produce, crop quality, pumping cost and product payback.
Flood-prone or poorly drained plots must be excluded.

ECOFERT®

Regenerating depleted soils and rebuilding productive biological activity.

CERTIFIED BIOLOGICAL INPUT

Greenbelt soils can support strong crop growth, but field studies identify important constraints:
nitrogen and phosphorus deficiencies, acidic reactions in some profiles, low cation-exchange capacity and declining organic carbon under forest degradation and repeated cultivation. Blanket recommendations would be technically unsound.

ECOFERT® should be assessed as part of a complete soil-fertility program: Laboratory analysis, locally adapted organic inputs, comparison with standard farmer practice and monitoring over several crop cycles.

ECOFERT START
Emergence and establishment

ECOFERT GROW
Active vegetative phase

ECOFERT BLOOM
Flowering and fruiting

ECOFERT SOIL
Organic-matter restoration

ECOFERT STRESS
Drought and heat resilience

For maize, cassava and horticulture producers, soil restoration must translate into measurable yield, quality and margin improvements.

NAPEMA®

Natural crop protection within an integrated and supervised programme.

South Sudanese horticulture faces fungal and bacterial diseases, insect pressure and major gaps in diagnosis. Product use must follow crop-specific protocols, local registration rules and safety training. Claims of export compliance require laboratory confirmation.

NAPEMA® combines plant extracts and essential oils. Its performance should be compared with current farmer practice through replicated trials measuring disease incidence, marketable yield, phytotoxicity and residue outcomes.

For producers supplying Juba and regional markets, the commercial test is straightforward: lower crop losses, consistent quality and a treatment cost supported by additional saleable output.

Biological protection

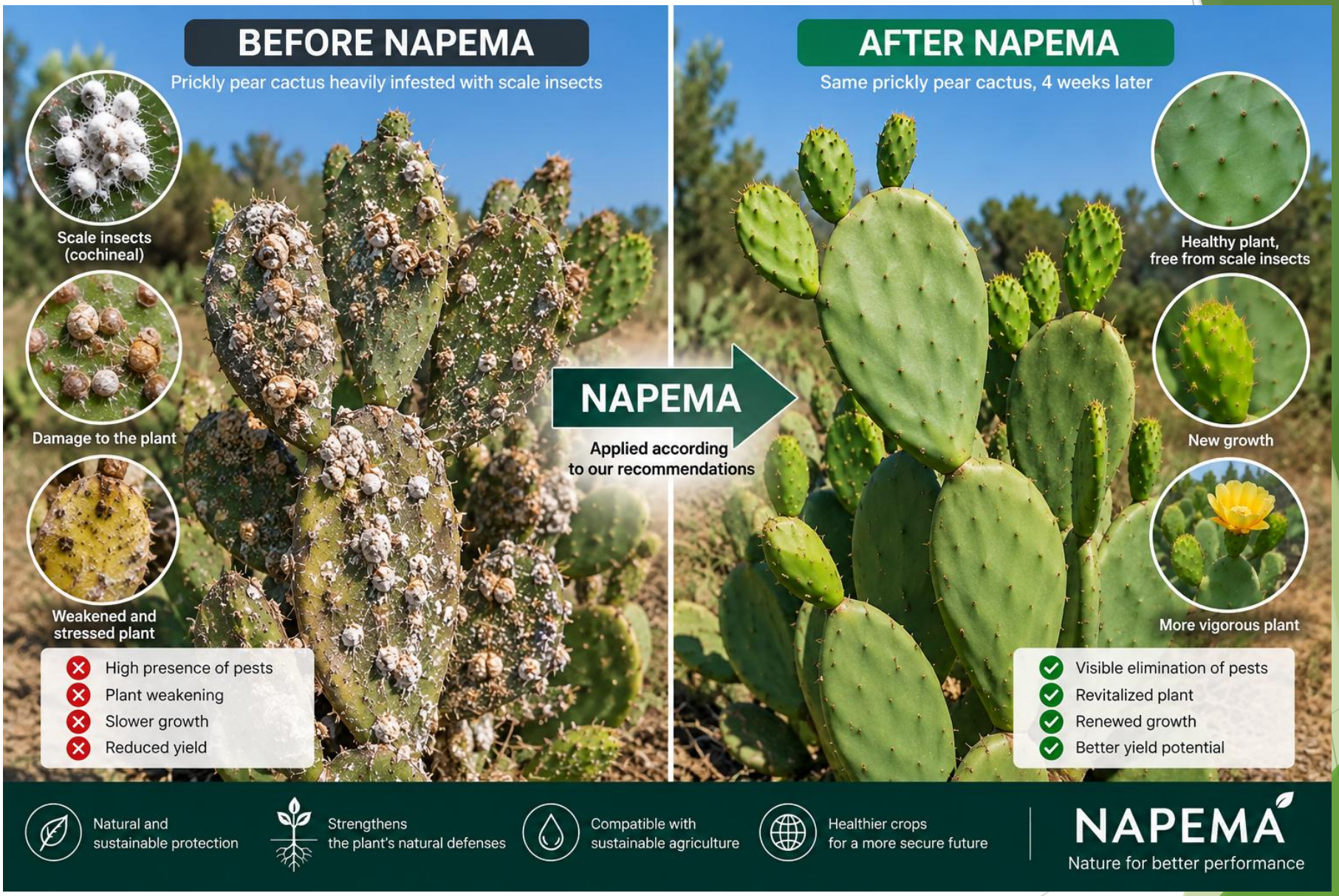
Crop-specific protocols against identified fungal and bacterial pressure.

Market compliance

Residue and food-safety claims confirmed through independent laboratory analysis.

Durable crop health

Integrated prevention, monitoring and treatment rather than routine spraying.


BEFORE NAPEMA
Prickly pear cactus heavily infested with scale insects
Scale insects (cochineal)
Damage to the plant
Weakened and stressed plant
High presence of pests
Plant weakening
Slower growth
Reduced yield
NAPEMA
Applied according to our recommendations
AFTER NAPEMA
Same prickly pear cactus, 4 weeks later
Healthy plant, free from scale insects
New growth
More vigorous plant
Visible elimination of pests
Revitalized plant
Renewed growth
Better yield potential
Natural and sustainable protection
Strengthens the plant's natural defenses
Compatible with sustainable agriculture
Healthier crops for a more secure future
NAPEMA
Nature for better performance

Agroforestry: restoration, shelter and rural value

Trees can protect soils, diversify farm income and support landscape recovery.

South Sudan contains savannas, woodland, riverine forests and one of the world's largest wetlands. Agroforestry design must therefore use local ecological evidence. Native and proven regional species should lead restoration programs.

Paulownia may offer rapid biomass growth under specific conditions, but it requires controlled pilot testing. Water demand, survival, invasiveness risk, soil compatibility and local wood markets must be assessed before any large plantation.

Green Solutions Group can support nurseries, field protocols and monitoring. Government, communities and research partners must jointly select species and sites.

Pilot first
no national extrapolation

Survival rate
measured each season

Water balance
verified before scaling

Local species
priority in restoration

South Sudan partnership model

Three pillars:

Territorial distribution, Agronomic support and Institutional positioning.

- Defined pilot territory
- Secure initial stock
- Import and inland logistics
- Transparent commercial margins

- Certified technical training
- Field advisory support
- Independent crop monitoring
- Technical and commercial hotline

- Coordination with MAFS
- Links with research institutes
- Engagement with FAO and World Bank
- Support for donor-funded programs

GREEN SOLUTIONS
GROUP

South Sudan has the land, water and farmers required to feed its population.

What it needs is a measured technology program that converts potential into results.

No impossible promise. No miraculous transformation. The proposal is a 12-month programme in two contrasting agroecological zones, with control plots, independent measurements and clear commercial indicators.

Green Solutions Group is seeking a South Sudanese partner able to coordinate government, researchers, producers and markets. Expansion will follow evidence, not assumptions.

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