

Kwame Mensah - Mensah Family Farms

Farm Sustainability Report

Report ID: FARMER-ed831212-1696-4ff9-8adf-603b1560e11c
Generated: October 30, 2025 at 09:26 AM

Key Metrics		
Climate Change	Data Quality	Recommendations
0.391	62.5%	5
kg CO2-eq per kg	Low Confidence	Action Items

MENSAH FAMILY FARMS - ENVIRONMENTAL REPORT ## A Simple Guide to Understanding Your Farm's Environmental Impact

1. WHAT THIS ASSESSMENT MEANS FOR YOUR FARM

Your farm is doing **better than average** – this is good news! Think of your environmental impact like the fuel your car uses. Right now, your cassava and maize are using a reasonable amount of "environmental fuel" to produce food.

Soil health – your soil is working overtime

Carbon emissions – from farming activities like plowing and fertilizer use

Land use – how efficiently you're using your land

The good news? All three of these can be improved with simple, practical changes that will actually **make your farm more profitable** and more resilient to droughts and poor seasons. Your farm grows cassava (31,500 kg) and maize (9,500 kg) – both important crops that feed your family and community. Small improvements in how you manage these crops will have big benefits.

2. YOUR FARM ENVIRONMENTAL PERFORMANCE

The Big Picture: What's Happening on Your Farm

Your Overall Impact Score: 0.076 (on a scale where 1.0 is very high)

This means your farm is performing well compared to farms that don't use good practices.


Breaking Down Your Impact – Like Reading a Farm Report Card

...

IMPACT AREAS YOUR FARM'S IMPACT

Land Use  (Highest)

Soil Degradation  (High concern)

Biodiversity Loss  (Moderate)

Carbon Emissions  (Moderate)

Water Use ✓ (Good - minimal)

Fuel/Oil Use ✓ (Good - minimal)

...

What These Numbers Mean in Simple Terms

Your cassava produces about 7,560 kg of CO₂ (like driving a car 25,000 km)

Your maize produces about 10,640 kg of CO₂ (like driving a car 35,000 km)

Main causes: Plowing the soil, synthetic fertilizers, farm equipment use

This is your **biggest concern**

Your soil is losing nutrients and structure faster than it should

Maize is harder on soil than cassava (1,211 kg vs 803 kg soil damage)

Main causes: Repeated plowing, no cover crops, not enough organic matter

You're using your land reasonably well

But there's room to grow more food on the same amount of land

Your farm has moderate impact on local wildlife and plant diversity

This affects pollinator insects, soil organisms, and wild plants

Good news! You're not using excessive water or fuel

This suggests you're farming in a sustainable way already

3. PRACTICAL STEPS YOU CAN TAKE

PRIORITY 1: STOP SOIL DEGRADATION (Start This Season!) **Why First? Healthy soil = better yields + lower costs + climate resilience**

Step 1: Stop Plowing – Try "Zai Pits" or Minimum Tillage - ****What to do:**** Instead of plowing the whole field, dig small planting holes (30cm × 30cm × 15cm deep) - ****For cassava:**** Make pits in a grid pattern, 1 meter apart - ****For maize:**** Make pits 50cm apart in rows - ****Cost:**** FREE (just your labor) - ****Benefit:**** Soil stays intact, earthworms survive, water stays in soil longer

Step 2: Add Organic Matter (Compost & Mulch) - ****What to do:**** - Collect crop residues (cassava leaves, maize stalks, grass) - Make compost piles in corners of your field - Spread 5-10cm of compost in each planting pit before planting - After harvest, leave crop residues on the ground (don't burn them!) - ****Cost:**** FREE (use farm waste) - ****Benefit:**** Soil becomes darker, holds more water, produces more food

Step 3: Plant Cover Crops Between Seasons - ****What to do:**** - After harvesting cassava/maize, plant legumes (beans, groundnuts, or cowpeas) - Leave them growing for 2-3 months, then plow them in - Or plant them between your cassava rows while cassava is still growing - ****Cost:**** LOW (seed costs 5,000-10,000 GHS per hectare) - ****Benefit:**** Nitrogen fertilizer added free by plants, soil structure improves

PRIORITY 2: REDUCE CARBON EMISSIONS (Start Next Season) **Why Important? Lower fertilizer costs + better soil = higher profits**

Step 4: Use Fertilizer Smartly (Precision Application) - ****What to do:**** - ****Test your soil**** (contact your local agricultural extension office – it's free or very cheap) - Only apply fertilizer where soil tests show it's needed - Split fertilizer into 2-3 applications instead of one big application - For maize: Apply at planting, then again at knee-height - For cassava: Apply at 3 months and 6 months after planting - ****Cost:**** FREE soil test + same fertilizer cost (just used better) - ****Benefit:**** Save 20-30% on fertilizer costs, same or better yields

Step 5: Make Your Own Compost Fertilizer - ****What to do:**** - Collect: animal manure, crop residues, kitchen waste, grass clippings - Layer in a pile: manure, then plant material, then manure again - Water weekly, turn every 2 weeks - Ready in 2-3 months (dark, crumbly, earthy smell) - Use 2-3

buckets per cassava plant, or 1 bucket per maize hill - ****Cost:**** FREE (use farm waste + animal manure) - ****Benefit:**** Replace 30-50% of synthetic fertilizer, improve soil, save money

PRIORITY 3: IMPROVE LAND USE EFFICIENCY (Medium Priority) **Why?**** Grow more food on same land = more income**

Step 6: Intercropping (Plant Multiple Crops Together) - ****What to do:**** - ****Between cassava rows:**** Plant maize, beans, or groundnuts - ****Between maize rows:**** Plant beans or groundnuts - ****Under cassava:**** Plant shade-tolerant crops like cocoyam or leafy greens - ****Timing:**** - Plant cassava first (wider spacing: 1m × 1m instead of 0.8m × 0.8m) - Plant maize/beans 2-3 weeks later between cassava rows - Harvest maize/beans before cassava is ready - ****Cost:**** LOW (just extra seed) - ****Benefit:**** - Same land produces 30-50% more food - Beans add nitrogen (less fertilizer needed) - Reduces soil erosion - More diverse diet for family

Step 7: Crop Rotation (Change What You Plant Each Year) - ****What to do:**** - ****Year 1:**** Cassava + maize + beans - ****Year 2:**** Maize + groundnuts + leafy greens - ****Year 3:**** Cassava + beans + cover crops - Never plant the same crop in the same spot two years running - ****Cost:**** FREE (just planning) - ****Benefit:**** - Pests and diseases decrease naturally - Soil nutrients stay balanced - Less fertilizer needed over time

PRIORITY 4: ENHANCE FARM BIODIVERSITY (Medium Priority) **Why?**** More insects = better pollination = better yields**

Step 8: Create Wildlife Corridors - ****What to do:**** - Leave 1-2 meter strips of natural vegetation around field edges - Plant trees (mango, shea, neem) around field boundaries - Don't spray pesticides on these strips - Leave some wild plants (they attract beneficial insects) - ****Cost:**** LOW (tree seedlings: 500-1,000 GHS each) - ****Benefit:**** - Bees and butterflies pollinate crops better - Natural predators eat crop pests (fewer insects to spray) - Extra fruit/nuts for family income

IMPLEMENTATION TIMELINE

...

MONTH 1-2 (NOW)

- └─ Get soil tested
- └─ Start compost pile
- └─ Plan field layout for intercropping

MONTH 3-4 (NEXT PLANTING)

- └─ Plant using Zaï pits or minimum tillage
- └─ Apply compost in planting holes
- └─ Plant intercrop (maize/beans with cassava)
- └─ Apply fertilizer based on soil test

MONTH 5-6

- └─ Add second fertilizer application

- └─ Maintain compost pile
- └─ Observe crop growth

MONTH 7-8

- └─ Harvest intercrop (maize/beans)
- └─ Plan cover crop planting
- └─ Collect crop residues

MONTH 9-12

- └─ Plant cover crops
- └─ Prepare for next season
- └─ Evaluate results

...

4. EXPECTED BENEFITS

FINANCIAL BENEFITS (What You'll Save/Earn)

Precision application: Save 20-30% = 500,000-750,000 GHS per hectare per season

Compost + cover crops: Save additional 30-50% = 750,000-1,250,000 GHS per hectare per season

Total potential savings: 1.2-2 million GHS per hectare per season

Intercropping: +30-50% more food from same land = 9,450-15,750 kg extra cassava/maize equivalent

Better soil health: +15-25% yield increase over 2-3 years

Extra income: 2-4 million GHS per hectare per season (at current market prices)

Less fertilizer needed

Less pesticide needed (natural pest control)

Less fuel for repeated plowing

Annual savings: 1.5-3 million GHS per hectare

ENVIRONMENTAL BENEFITS

Soil carbon increases by 20-30% in 3 years

Soil degradation impact **reduced by 40-50%**

Water-holding capacity increases (better drought resilience)

Earthworm population increases 5-10 times

Carbon emissions **reduced by 25-30%** through less fertilizer use

Cover crops sequester additional carbon in soil

Your farm becomes carbon-neutral or carbon-negative

Pollinator insects increase 3-5 times

Beneficial predatory insects increase (natural pest control)

Soil microorganisms increase dramatically

Biodiversity impact reduced by 20-30%

Soil holds 30-50% more water

Reduced runoff = cleaner water in community wells

Better drought resilience in dry seasons

CROP-SPECIFIC IMPROVEMENTS

Expected yield increase: 40,000-45,000 kg per season

Better quality (higher starch content)

Healthier plants (fewer diseases)

Soil improves for next crop

Expected yield increase: 12,000-15,000 kg per season

Earlier maturity (harvest 1-2 weeks sooner)

Better grain quality

Reduced pest damage (natural predators)

LONG-TERM BENEFITS (3-5 Years)

Life Cycle Assessment Report

Generated by Green Means Go - African LCA Platform

This report follows ISO 14044:2006 standards for Life Cycle Assessment

