Role of yield improvement in achieving living income

Insights from empirical evidence

Yuca Waarts & team of researchers & partners
Different approaches: closing living income gap

- Yield increase can be an effective route to a living income for a small group of households who are already doing relatively well.
- There is a large group of households who produce low volumes and do not have the potential to improve substantially.
  - Multiple barriers to investment and income growth.
- Therefore: different approaches needed for different groups but totally different approach needed than traditionally for the poorest.
- Note for next slides: the net income is calculated without remuneration for household labour.
Large group with average yields (70-80%)

**Large group average yield**
- Total kgs/year: about 2,000
- Yield kg/ha: ~500
- 4ha
- Total household income: 3,400
- = ~ 50% of a living income

**Yield x 1.5**
- Total kgs/year: 3,000
- Yield kg/ha: ~750
- 4ha
- Total household income: 4,700
- =~80% of a living income

$ & adult labour capacity to invest important besides ROI

Based on total volumes, other income and cost from literature, e.g. KIT 2018 & 2022, farm gate prices from this season, without a premium. Figures in USD & estimates. The net income is calculated without remuneration for household labour.
~ Half of the households producing least

**Current**
- Total kgs / year: about 1,000
- Yield kg/ha: 300
- Ha: 2-3ha
- Total income: ~1,650
- = ~ 25% of a living income

**Price x 1.5**
- Total kgs / year: about 1,000
- Gross cocoa income: 2,030
- Total household income: 2,330
- = ~ 38% of a living income

Too many barriers to invest: different approach needed to increase incomes substantially

Based on total volumes, other income and cost from literature, e.g. KIT 2018 & 2022, farm gate prices from this season, without a premium. Figures in USD & estimates. The net income is calculated without remuneration for household labour.
Small group of professional farmers (20-30%)

<table>
<thead>
<tr>
<th>Small group professionals</th>
<th>Yield x 1.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Total kgs/year: about 4,000</td>
<td>▪ Total kgs/year: about 6,000</td>
</tr>
<tr>
<td>▪ Yield kg/ha: ~800</td>
<td>▪ Yield kg/ha: ~1200</td>
</tr>
<tr>
<td>▪ 7ha</td>
<td>▪ 7ha</td>
</tr>
<tr>
<td>▪ Total household income: 6,300</td>
<td>▪ Total household income: 7,800</td>
</tr>
<tr>
<td>▪ = living income for many</td>
<td>▪ = living income for most</td>
</tr>
</tbody>
</table>

Based on total volumes, other income and cost from literature, e.g. KIT 2018 & 2022, farm gate prices from this season, without a premium. Figures in USD & estimates. The net income is calculated without remuneration for household labour.
Thank you!

For more information, please contact:

Yuca Waarts: yuca.waarts@wur.nl

Further reading:

- Balancing the living income challenge (2021)
- Multiple pathways to living income (2021)
- WUR white paper on living income (2019)
Promoting income and productivity for smallholders: a partnership approach
About Us

- Our solutions increase farmers’ access to resources and income to help farmers increase yield and make more profit.

- A marketplace that combines digital tools, logistics, field agents, farm resources and agribusiness partnerships to support African farmers.

- Mergdata is licensed to 130+ development partners, global food traders and manufacturers who use its customisable tools to improve the lives of 1.0 Million farmers around the world.

- In 2 years >$17M worth of inputs and crops financed for smallholders.
How we doing this?

**Input Financing**
Farmerline finances high-quality agro-inputs and assets with flexible re-payment terms

**Technology**
Leverage Mergdata to power your supply chain digitization & intelligence for continuous training & education, payments & traceability, credit recovery and credit appraisal process

**Market Access**
We work with our partners & field agents to ensure farmers connected to buyers
Data Monitoring & Reporting

- **56%** CROP PRODUCTIVITY
- **57%** ADOPTION RATE
- **51%** WOMEN

Source: 60dB, 2022
THE USE OF CLIMATE TO IMPROVE COCOA YIELDS
THE COCOA YIELD GAP CHALLENGE

Typical Yield: 300-600 kg/ha
Potential Yield: 2000-3000* kg/ha

Yield Gap: 70-95%

*experimented on farmer fields in Ghana

This gap creates a valuable opportunity to address deforestation by improving the yield of existing farms.
GOOD AGRICULTURAL PRACTICES
Using climate information for efficient farm management
Using climate information for efficient farm management

BLACK POD MANAGEMENT

Uncontrolled evolution of P. megakarya in the field
- Dry year - LTA year - Wet year

Threshold for economic damage

Black pod infection (% of pod load)
Using climate information for efficient farm management

Uncontrolled evolution of P. megakarya in the field
- Dry year - LTA year - Wet year

Fixed monthly interventions: common recommendation

Threshold for economic damage
Using climate information for efficient farm management

Uncontrolled evolution of P. megakarya in the field
- Dry year
- LTA year
- Wet year

Spraying & removing pods every time the infection reaches 2.5% of the total pod

Threshold for economic damage

CLIMATE42
CLIMATE-SMART DYNAMIC COCOA CROP CALENDAR

PLANNING FARMER INTERVENTIONS

Status quo calendar: old, generalized, static - unadapted to changes in climate

**Climate42's Proposal**

Dynamic, climate-smart cocoa cropping calendar

Our interdisciplinary approach combines climate science, agronomy, plant physiology & a solid knowledge of cocoa production systems

"Timely intervention = Efficient intervention"