



Evaluating Profitability of Cocoa Farming in West Africa  
*ICCO Cocoa Market Outlook Conference*  
*September 22, 2015 – London, UK*



## CocoaAction Vision

A rejuvenated and economically viable cocoa sector, starting in Ghana and Côte d'Ivoire and then other cocoa producing countries, that can compete with alternative crops and provide opportunities to cocoa farmers and cocoa communities.





CocoaAction is a commitment by cocoa and chocolate companies to work together towards a truly sustainable cocoa industry.

This is the first time that the industry has voluntarily aligned around a shared sustainability strategy.



CocoaAction companies have committed to reach 300,000 farmers in Côte d'Ivoire and Ghana by 2020 through two interconnected packages with specific interventions that would double farmers' yield.



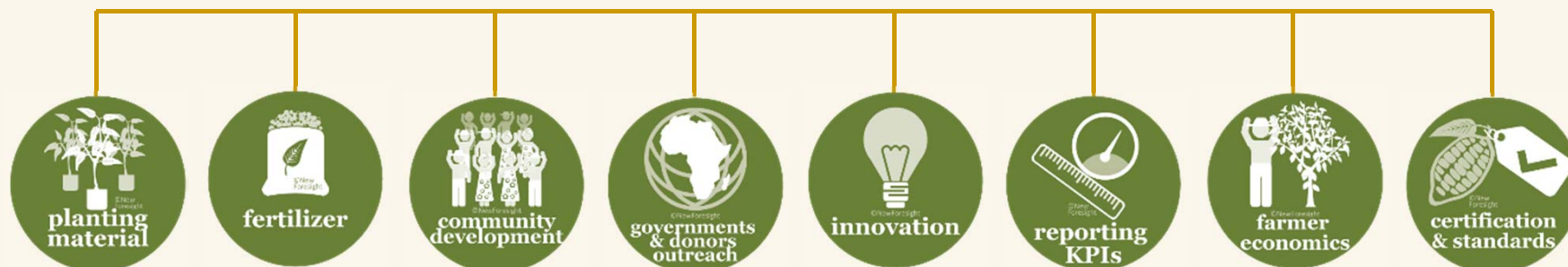
### **Productivity Package**

Training  
New planting material  
Fertilizer  
Good Agricultural Practices (GAP)

### **Community Development Package**

Community driven development (CDD)  
Primary education  
Child labor  
Women's empowerment

# CocoaAction: Eight Thematic Focus Areas (Work Streams)



## WS1 Planting Material:

Implement planting material propagation and distribution plans

## WS2 Fertilizer:

Increase farmer access to & adoption of good fertilizer practices

## WS3 Community Development:

Focus on three interventions: child labor, primary education, gender empowerment

## WS4 Governments & Donor Outreach:

Directly engage and coordinate with governments and stakeholders

## WS5 Innovation:

Expand digital extension; use bottom-up, farmer-led R&D approach to new solutions

## WS6a Key Performance Indicators (KPIs):

Leverage an aligned set of common measurements to increase understanding

## WS6b Farmer Economics:

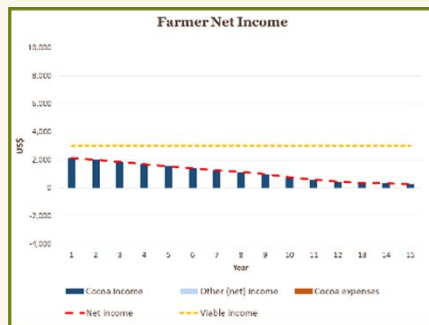
Understand dynamics and implications of farmer livelihoods

## WS6c Certification & Standards:

Work with certifiers to create alignment on global standards and 3<sup>rd</sup> party verification

# CocoaAction's Approach to Understanding Farmer Economics

## Analytics



CocoaAction  
Farmer  
Economics Model

## Research



Successful  
Farmers Study

## Partnerships

**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

**Solidaridad**



Partnerships with  
Others Doing  
Farmer Economics  
Work





## Analytics

### Farmer Economics Model

# Farmer Economics Model

## Purpose of the Farmer Economic Model

- Present set of assumptions to provide indicative view on business case on individual farm level
- Broadly inform and validate CocoaAction strategy or theory of change
- Identify sensitivity of outcomes to certain variables
- Derive directional strategic and policy implications

## Inputs / Outputs:

- Model measures yield net income (which can correspond to income) over time
- 20+ adjustable variables that can be self-input/self-selected and adapted
- These variable work alone and in combination based on available information about for example, effect of fertilizer in combination with age of trees
- Based on historical data, scientific research, CocoaAction-commissioned research, and data provided by CocoaAction member companies
- Validated by CocoaAction companies and academic experts (Professor David Zilberman, UC Berkeley)



# Variables for Consideration

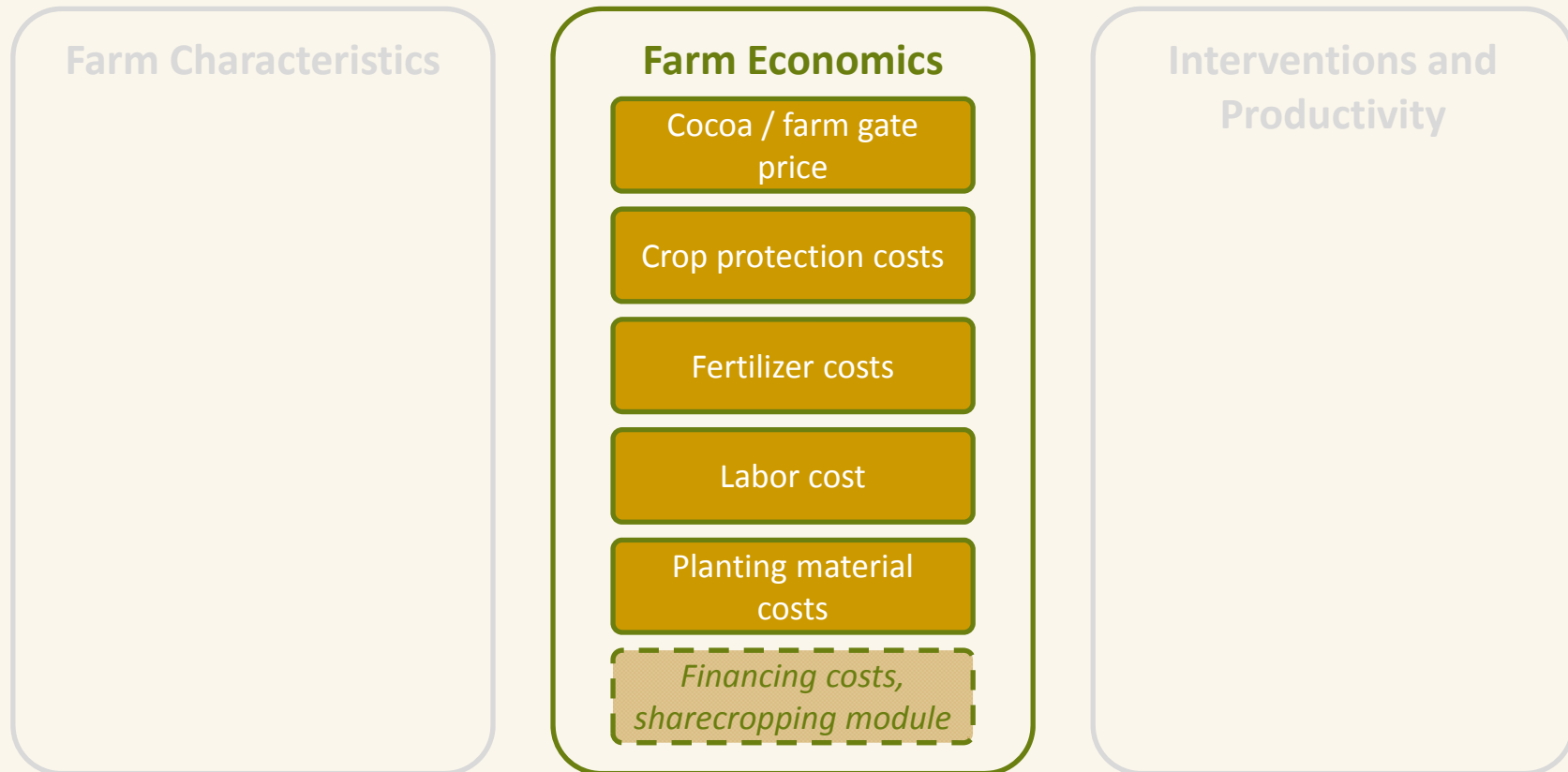


The basic characteristics of the farm

Current variables

*Potential additional variables*

# Variables for Consideration



Prices of various inputs and cocoa sales prices

Current variables

Potential additional variables

# Variables for Consideration



Details of the interventions implemented and associated productivity impacts

Current variables

Potential additional variables (illustrative)



# Study 1: Farmer Business Model

## Overview of the scenarios to be analyzed

### Three Scenarios Shown in this Presentation

**A.** Status quo: no interventions

**B.** 3% replanting

**C.** 10% replanting

### Key assumptions

#### All scenarios:

- Starting avg. age of farm 28 years
- Farm size: 3 ha

#### Scenario A:

- No use of GAPs, fertilizer, crop protection

#### Scenarios B and C:

- Implementation of GAPs and crop protection from year 1
- Fertilizer used from year 2, only on new stock
- Replanting of 3%/10% per year from year 1

# What do we focus on when evaluating the scenarios?



## 1. The productivity and income gain

- The goal of CocoaAction is to significantly increase productivity of individual cocoa farmers and double farmer yield by 2020
- Farm productivity and income are the main impact areas used in the dynamic model



## 2. The 'income gap'

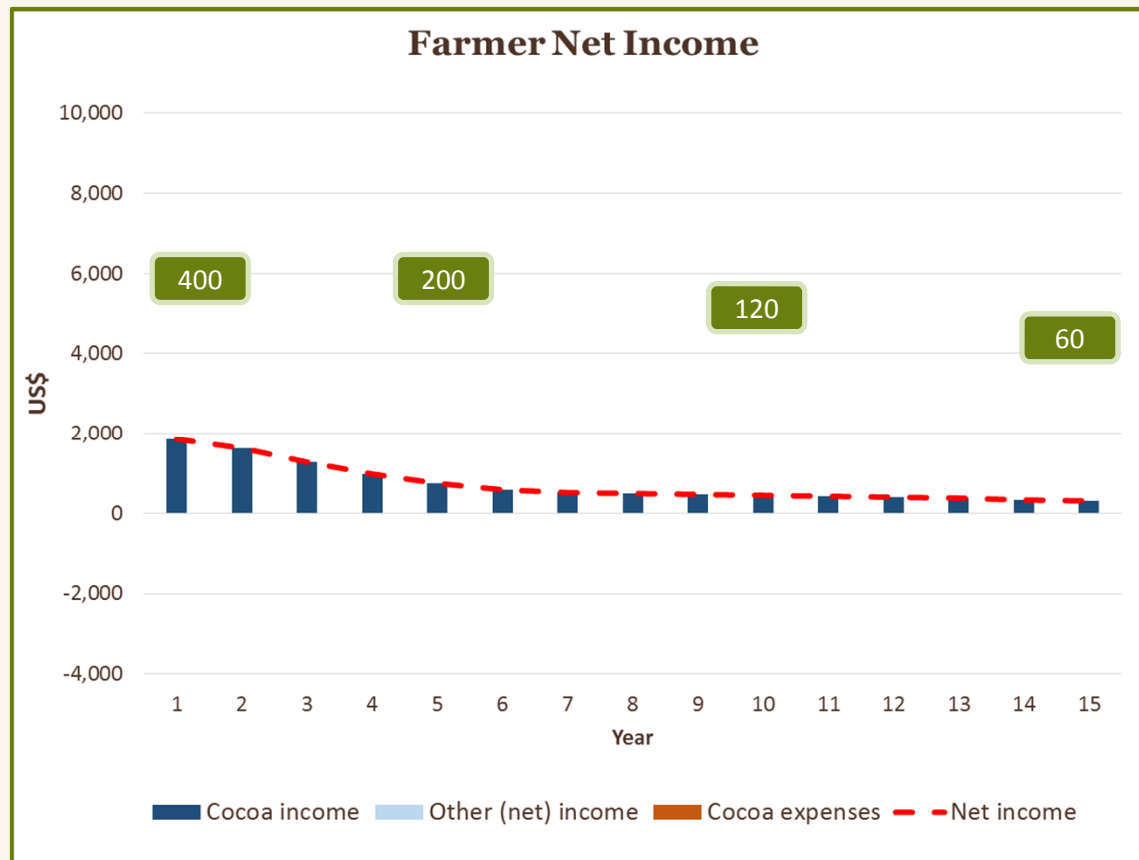
- The income drop in the years following interventions such as rehabilitation, clearing of diseased trees, and replanting and/or grafting
- This could present a serious problem to individual farmers in particular cases when no extra measures are taken.
- The question is how to cover short term HH income needs when new seedlings or grafted trees have not yet started producing cocoa (income). Typically this is between 3 and 5 years in duration. Is there a financing model, do we need to add food crops, other incentives?



## 3. The time lag effect

- Interventions such as GAP, fertilizer use and rehabilitation take time before they impact productivity and income.
- For the farmer's cash flow and the CA goals for 2020 it is important to see how long certain interventions take to generate positive impact and pay back

## Scenario I-A: Status Quo (Base case scenario)



Avg. Productivity  
(kg / ha)

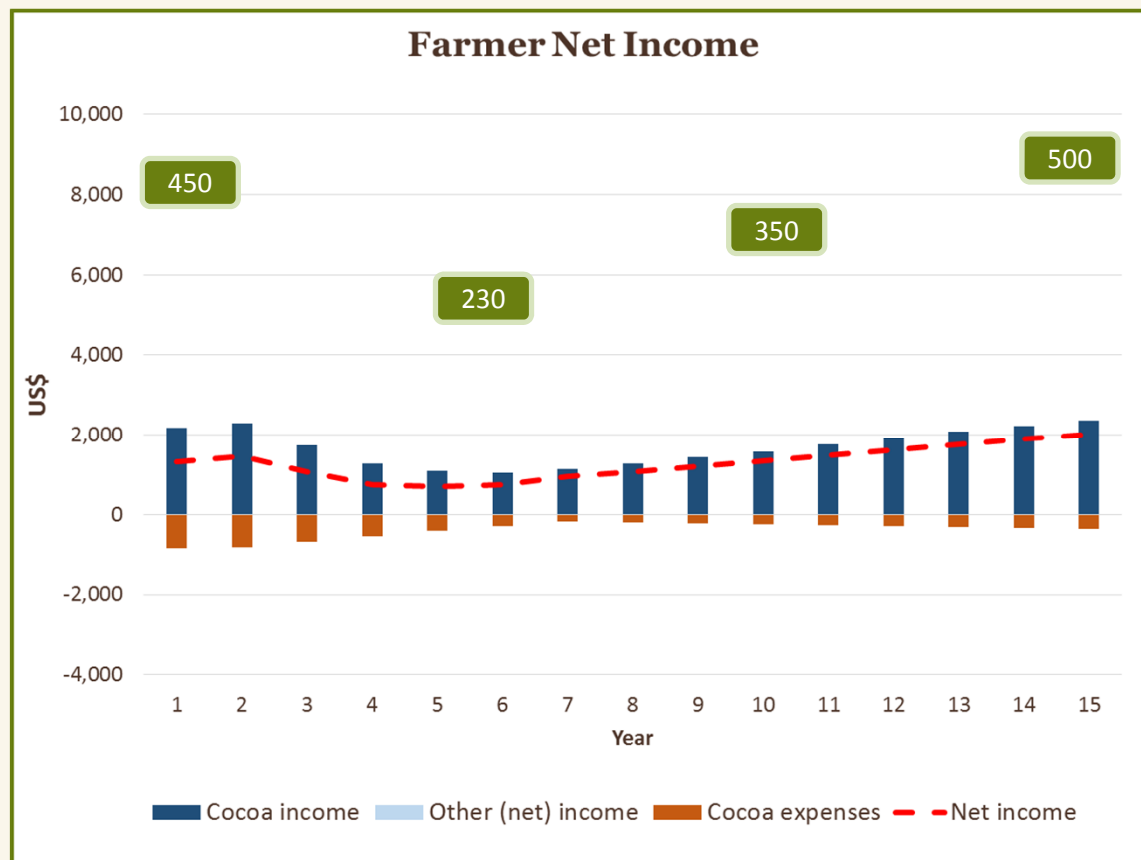
- Starting age: 28 years

### Strategic Insights

- Decreasing cocoa income over the years
- Main reason: old age of current tree stock
- Strategic insights: importance of rehabilitation of cocoa farms in Ivory Coast (and Ghana) clearly established



## Scenario I-B: Slow rehabilitation (3%)



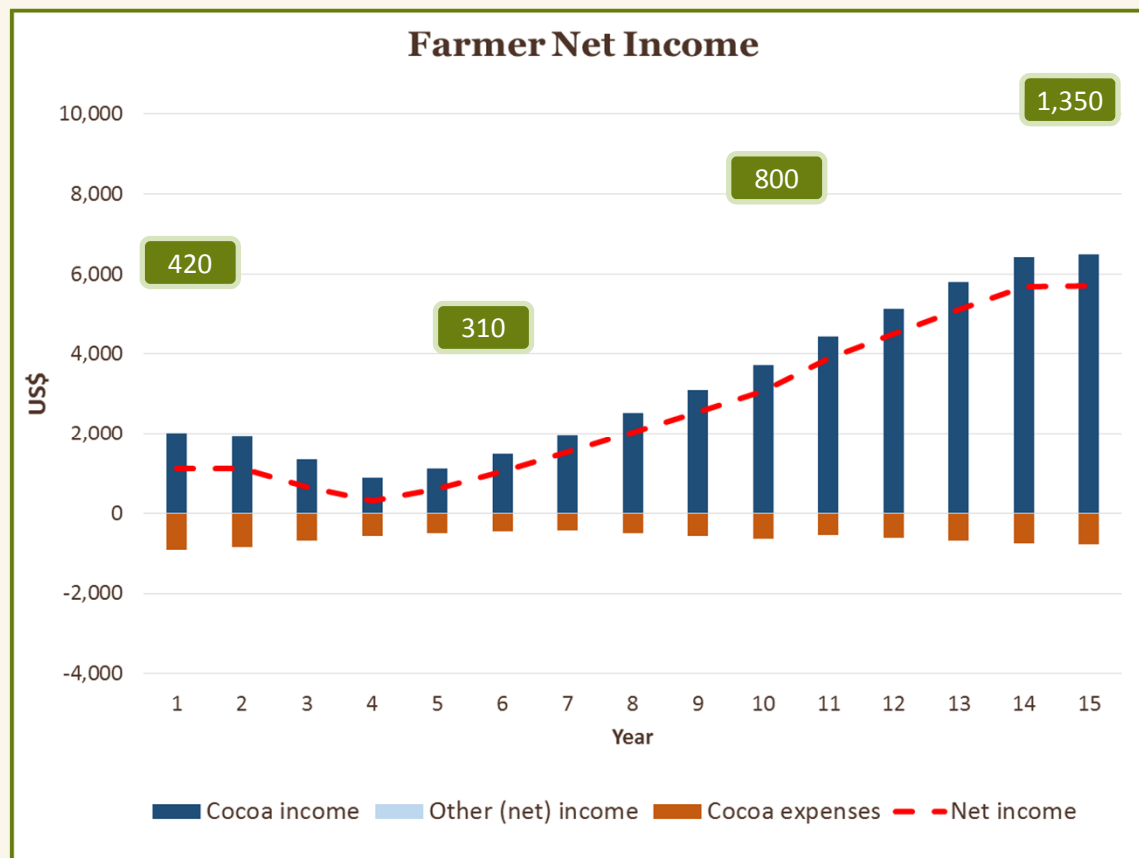
Avg. Productivity  
(kg / ha)

- Starting age: 28 years

### Strategic Insights

- Replanting rate not fast enough to counterbalance decreasing yield on older stock
- Use of fertilizers and crop protection only on newly-replanted part of farm keeps input costs relatively low
- By year 15 (2030), 55% of the farm will still be old stock trees

## Scenario I-C: Medium rehabilitation (10%)



Avg. Productivity  
(kg / ha)

### Strategic Insights

- Viable income level reached in year 9-10
- Initial income drop ('income gap') is a serious problem that will prevent a farmer from rapid rehabilitation unless special measures are taken
- Not enough planting material may be available to implement this for all farmers

## Overarching conclusions

### **Replanting:**

- For older farms, rehabilitation and replanting are absolutely crucial; without these, no real progress can be made
- It will be crucial to balance variables: 'income gap', limited supply of PM, need to coordinate inputs and knowledge, and timing of productivity and income gains
- Higher replanting rates may be limited by lack of seedlings supply
- What options exist to support and/or incentivize parcel renovation? Is there a financial model that can be used over a 3 to 5 year period? Food crop diversification needed?

### **Supporting options:**

- Farm diversification and support to other income sources/crops may be necessary to smooth over income changes and shocks to the system (e.g., drought, disease, pests)
- CA should look at specific policy issues –cost of fertilizer, cost of trainings, financial products, etc. – that would help offset overall costs of production and manage risk

### **Time lag:**

- Reaching significant productivity and net income increases by 2020 will be very challenging given cocoa economics and agronomics

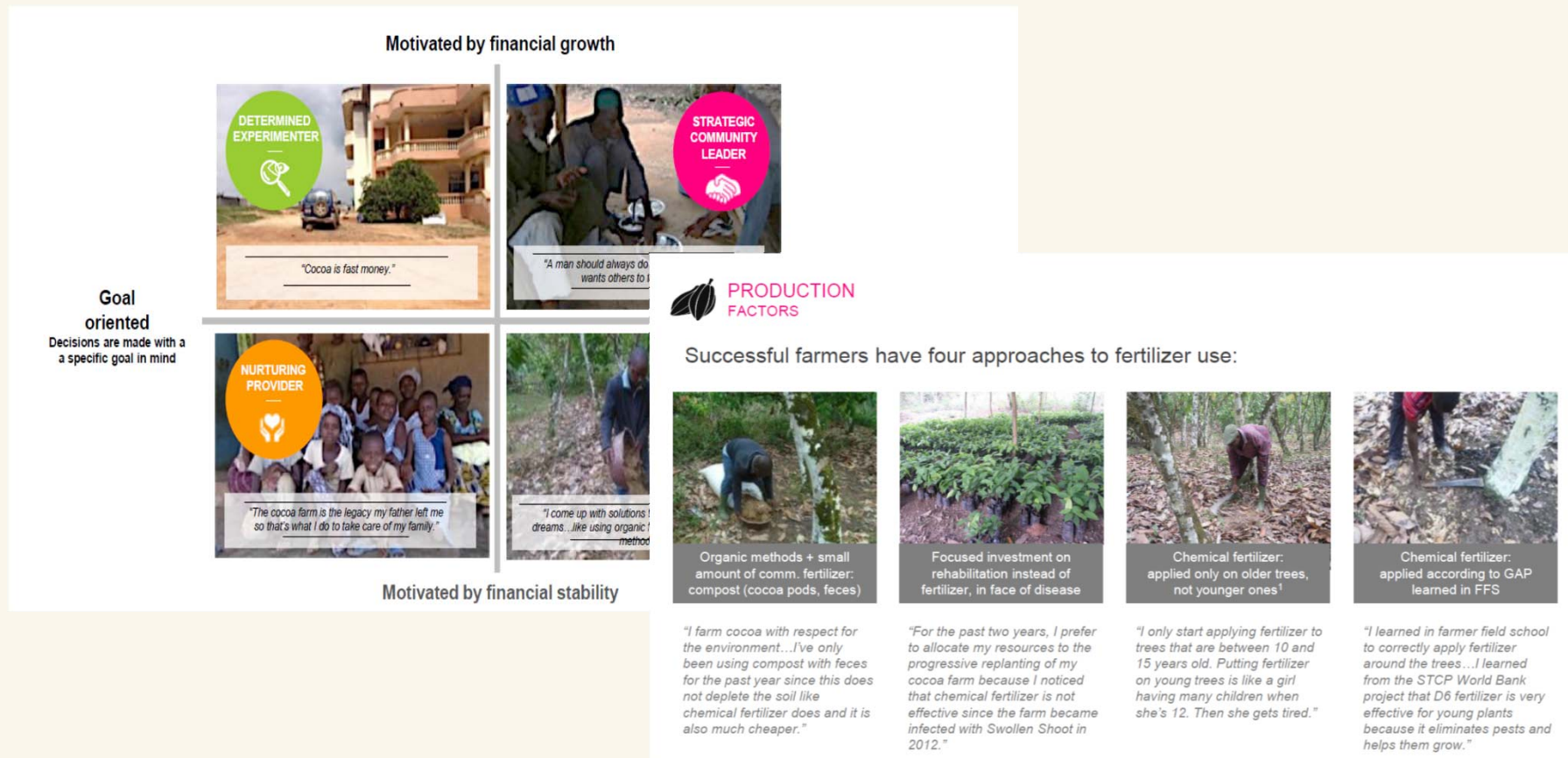




## Research

# Successful Farmers Study

Analytics only get us so far. We recognize that farmers are the true influencers in farm success. CocoaAction is funding research to identify what makes up a successful farmer to identify how we can influence others in similar behaviors.



Source: April 2015 Farmer Economics Study done by Insitum for CocoaAction

# Future of CocoaAction Farmer Economics

## 2016 Plans:

- Migrate model online for better, more secure company interface
- Update and add to adjustable variables based on new research from IDH, Solidaridad, etc.
- Identifying ways to apply findings of 2015 research

## Partnerships

- How do we leverage work other organizations are doing on modeling cocoa farmer outcomes?
- What efficiencies / research partnerships can we create?