

Cocoa smallholders and professionalism

**Management of land, labour and fertilizers
in Côte d'Ivoire**

ICCO

World Cocoa Conference 19-23 Nov 2012

François Ruf

CIRAD / UMR Innovation

Professionalizing Cocoa Farming **to Enhance Social, Economic and Environmental** **Sustainability**

I. Definitions

- **Professional/professionalism/Professionalizing**
- **Entrepreneur/entrepreneurship**
- **Sustainability**

1.1 Professional / Professionalism

- A professional is a person who is **paid** to undertake a specialized set of tasks and to **complete them for a fee**.
- Professionnalisme : qualité d'une personne qui fait une chose par métier et qui en vit.
 - « Synonymes »: Compétence, efficacité

According to that definition, cocoa farmers in Côte d'Ivoire look very professional: Until recently they were making a living from cocoa (approximately 90% of their revenues)

1.2 Entrepreneur/ Entrepreneurship

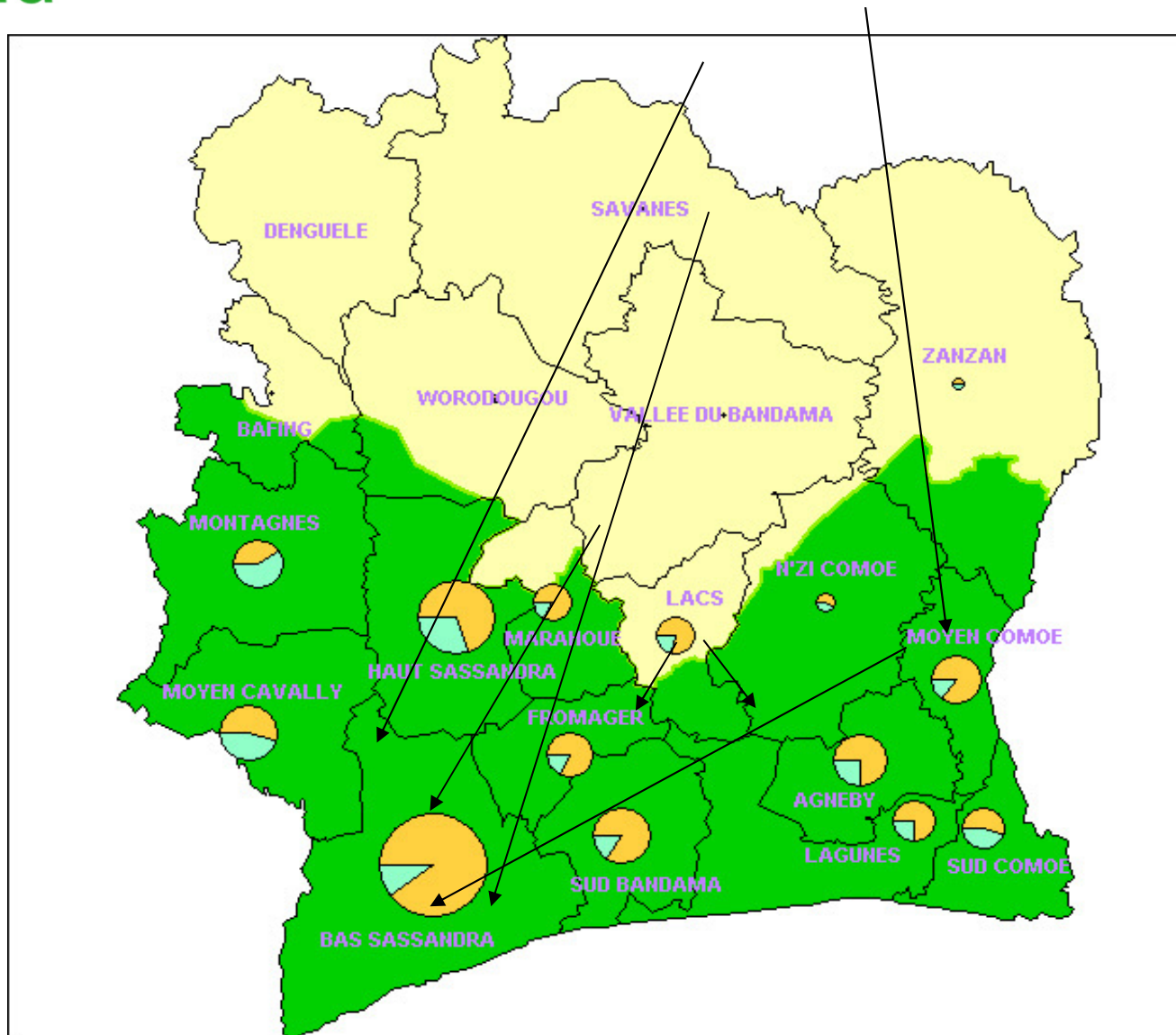
- The term entrepreneur is a loanword from French and was first defined by the Irish-French economist Richard Cantillon (18th century) as the person
 - who pays a **certain** price for a product to resell it at an **uncertain** price
 - thereby making decisions about **obtaining** and **using** the resources
 - while consequently **admitting the RISK of enterprise.**
- / ...

- Since 1988, a very uncertain price
- As they were able to maintain Côte d'Ivoire far above 1,200,000 tonnes in the 2000s, cocoa smallholders were highly professional !

Prix du cacao au producteur en Côte d'Ivoire 1960 à 2007



- Making decisions about **obtaining** and **using** the resources



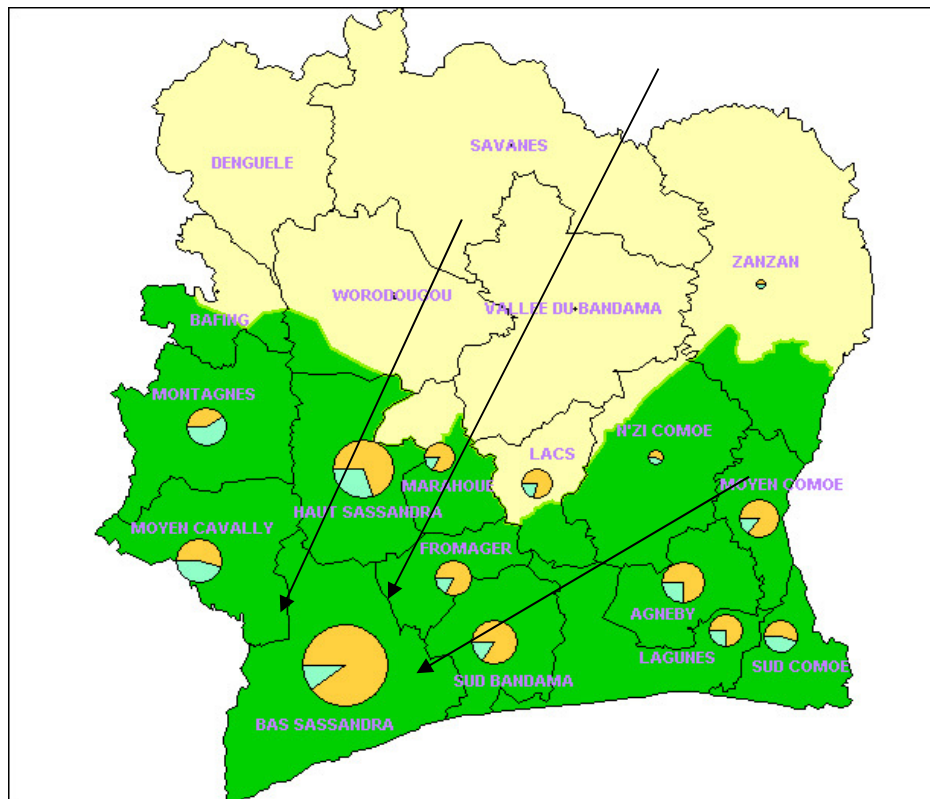
- 'Admitting the risk of enterprise' :
Migration, land conflicts, political difficulties
Inter-generational problems ...degraded environment ...



.../... Entrepreneur

- 1803: Jean-Baptiste Say: An entrepreneur is an economic agent who unites all means of production- **land** of one, the **labour** of another and the **capital** of yet another and thus produces a product.

He shifts economic resources out of an area of low productivity and into an area of higher productivity and greater yield.



.../... Entrepreneur

- 1961: David McClelland:
An entrepreneur is a person with a high need for achievement.

He is energetic and **a moderate risk taker.**

- **A high need of achievement : a long way to produce cocoa beans**



.../... Entrepreneur

- 1934: Schumpeter: Entrepreneurs are innovators who use a process of shattering the status quo of the existing products and services, to set up **new products, new services.**

Maybe a limit here in terms of “new products”

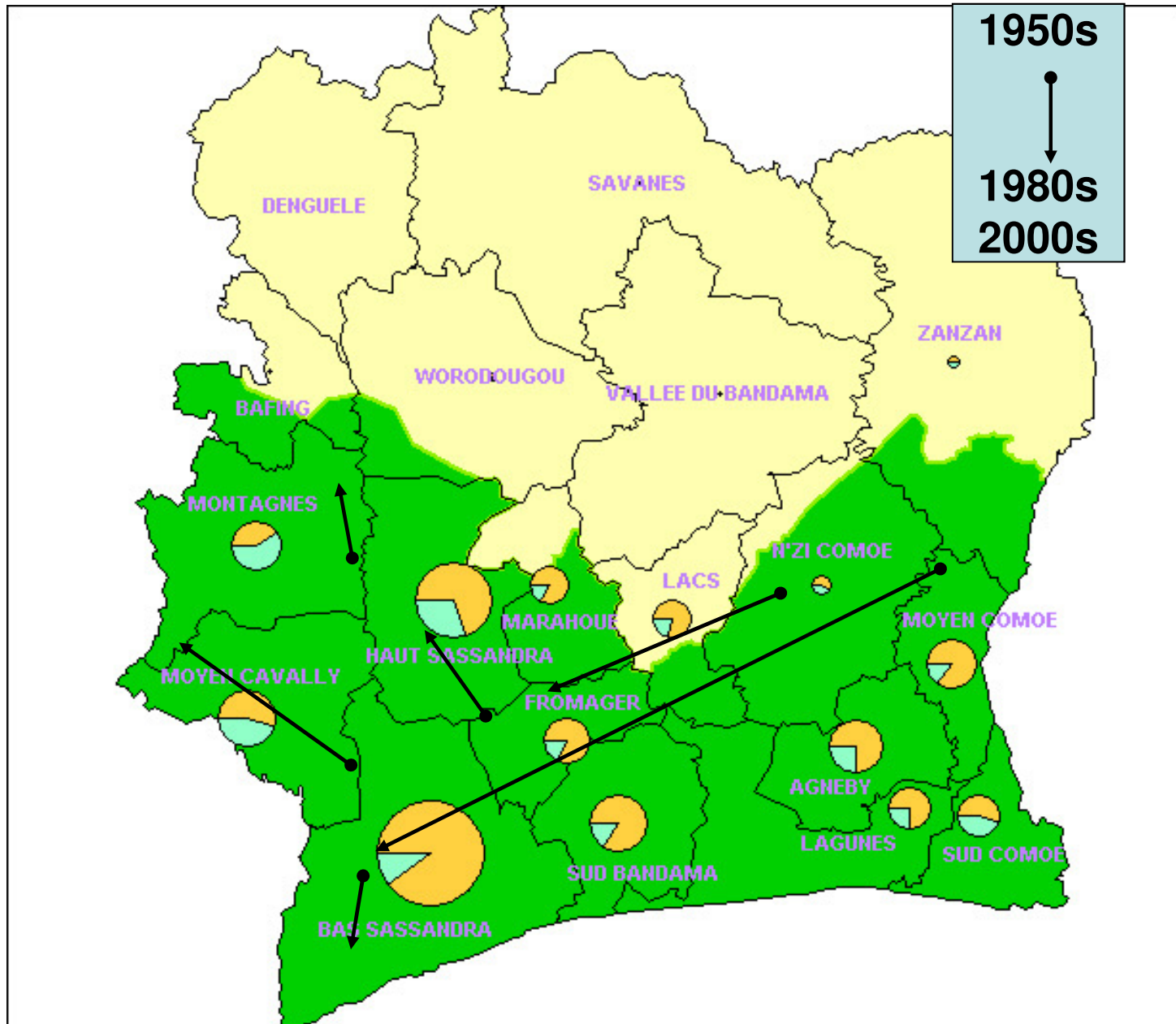
However, beyond cocoa beans, cocoa farmers invented and adopted new farming systems and new institutional arrangements

- 1964: Peter Drucker: An entrepreneur searches for change, responds to it and exploits opportunities. **Innovation is a specific tool of an entrepreneur** hence an effective entrepreneur converts a source into a resource.

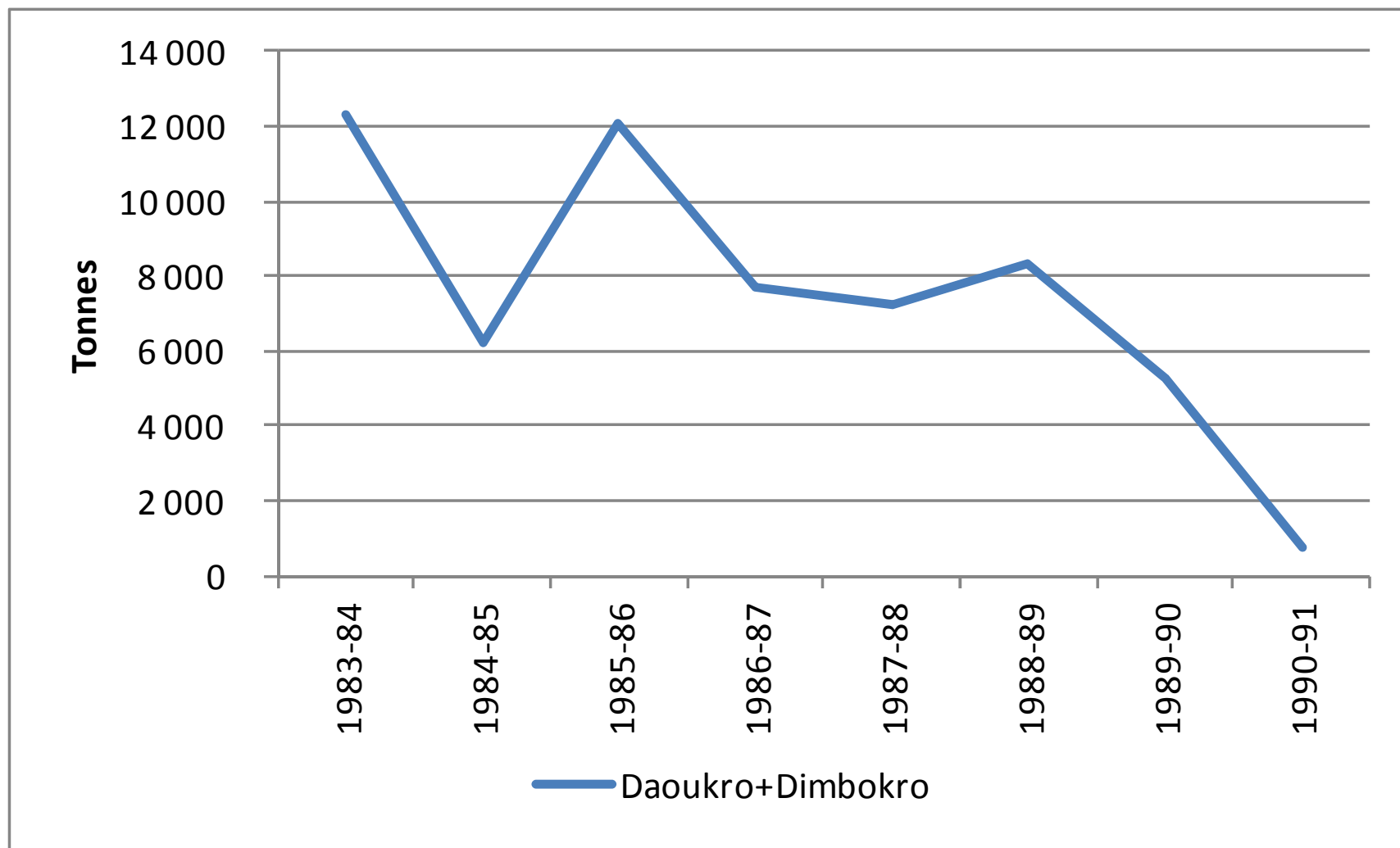
Land, forest, labour converted into “Your” resource: cocoa

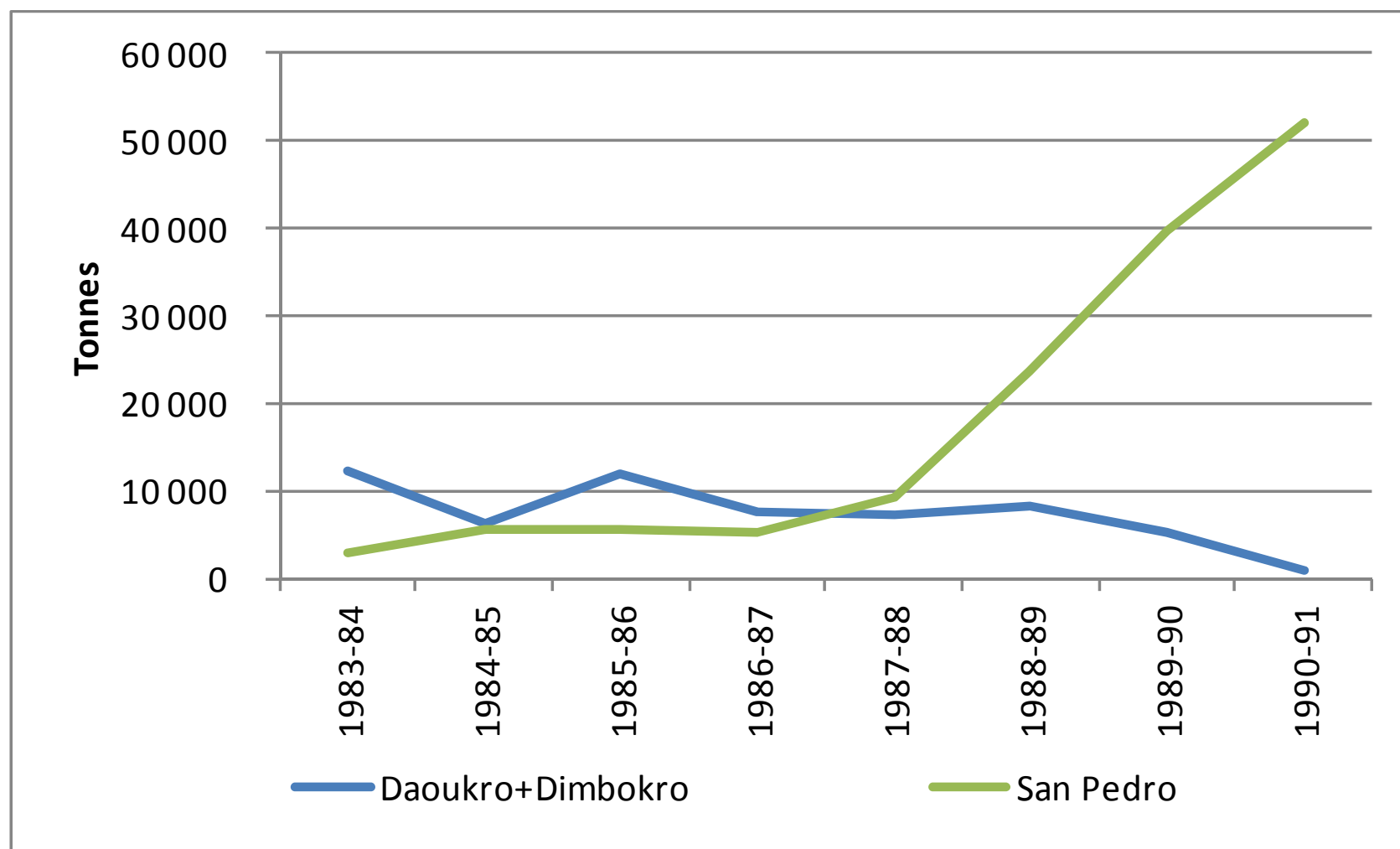
- 1971: Kilby: Emphasizes the role of **an imitator entrepreneur** who does not innovate but imitates technologies innovated by others.

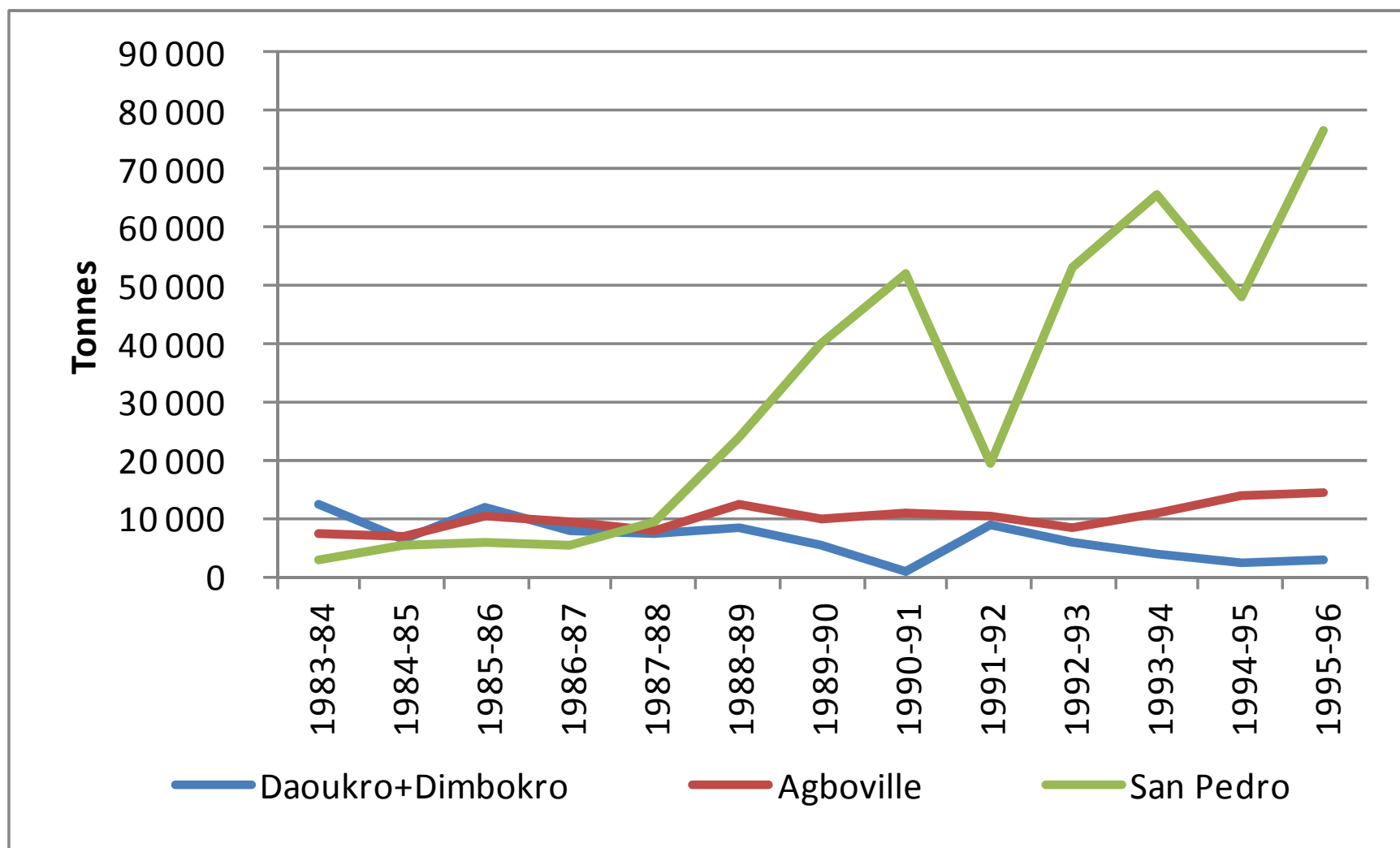
1.3 Sustainability (lack or apparent lack of)



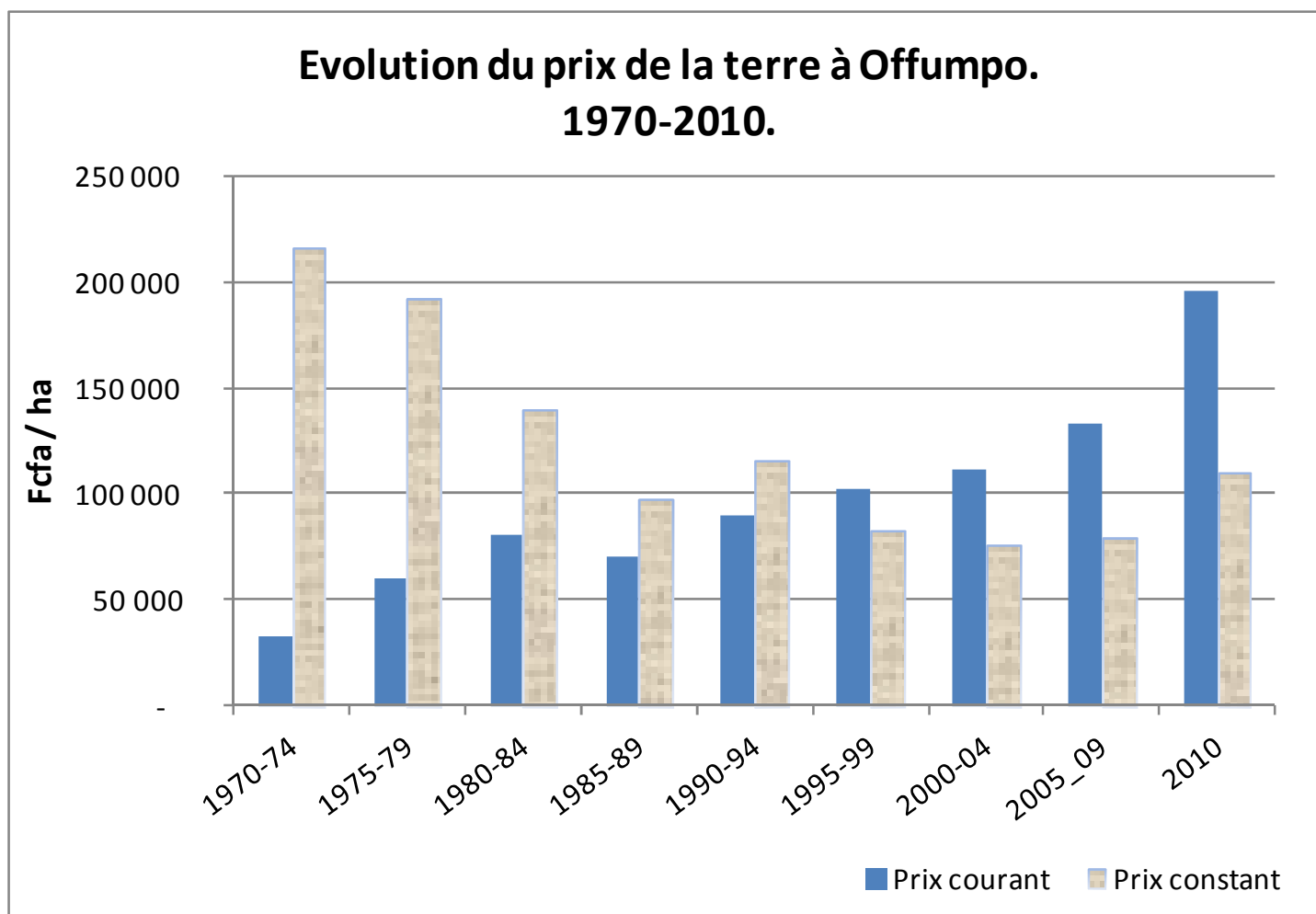
Are smallholders 'non-professionnals' because they destroyed the forest of the country and did not try to make cocoa farming 'sustainable' ?







Non professionnels? On the opposite, smallholder did take a perfect rational decision is to optimize returns by shifting investments owing to
1. the low prices of land/forest during 4 decades



High rationality to invest in land,

despite the risks

Land investment (Fcfa)	Prod (kg)	Cocoa price (Fcfa)	Gross revenue (Fcfa)	Estimated Net revenue (Fcfa)	Annual Reinvestment capacity in land (ha)
50 000	700	400	280 000	168 000	3,4
100 000	600	300	180 000	108 000	1,1

a perfect rational decision to optimize returns by
shifting investments owing to

**2. the forest rent : immense advantage to clear
forests (rapid growth of the cocoa, free fertilizer)**

Rate of mortality and replacement of cocoa seeds/seedlings (%)

	Forest clearing		Fallow land (C. odorata)	
	Direct sowing	Nursery Seedling	Direct sowing	Nursery Seedling
1 st year	25	20	40	40
2 nd	25	20	30	30
3 rd	10	0	20	20
4 th	0	0	10	10
Cumul	60	40	100	100

Sources: Freud et al, 2000.

2. Labour :

- **convert a source into a ressource**
- **Capacity to innovate**

Smalholders reinvent a multitude of labour institutional arrangements to adust the supply and demand of labour

- Annual workers, paid per year
 - Monthly workers, pais per 3 to 6 months
 - Abusa/Abuna/Abougnon: kind of sharecropping
 - Piecework
 - Daily contract
- ** Planter-Partaher (Pland & Share)**

3. Capital, social Innovation and imitation

The showcase of “Planter-Partager”

Madame Eritchi Benie' resident à Affi'hou, reconnaît avoir confié un terrain de 8 ha 4/5 à monsieur Yatra Noura resident à Affi'hou pour planter du cacao.

Madame Eritchi a esigé une somme de 100000 (cent mille francs) représentant les frais d'attribution du terrain.

Si le cacao commence par produire monsieur Yatra Noura doit récolter le cacao pendant deux ans pour prendre avant de partager la plantation en deux parties égales dont une partie reviendra à madame Eritchi Benie' et l'autre partie à monsieur Yatra Noura. Si les cacaoyers meurent, le terrain reviendra à madame Eritchi Benie'.

Professional
Non
Professional

Of course, a
'amateur' for

A very
incomplete
contract

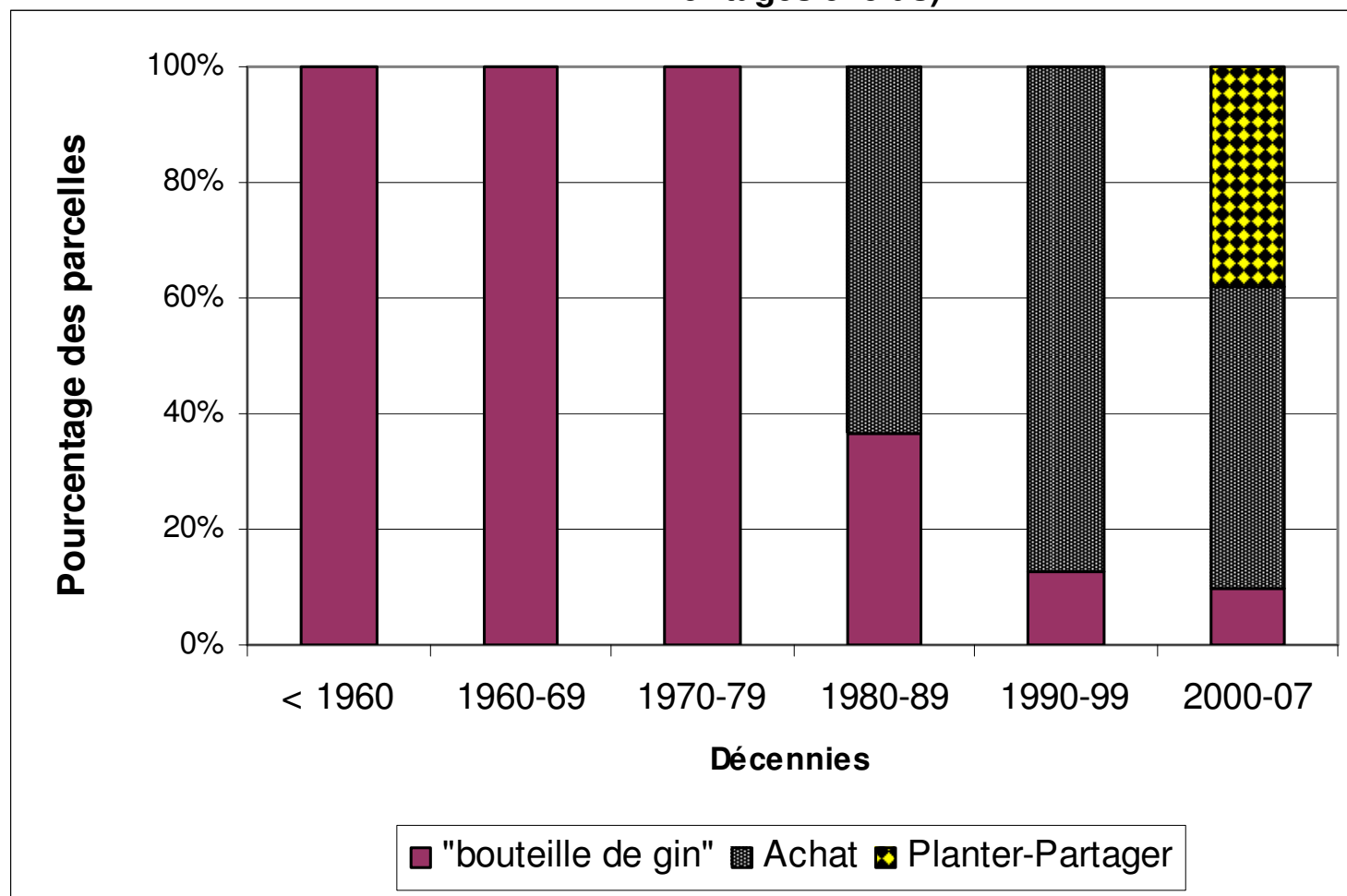
But a great
innovation

If coca tree
die..

Sustainable
Non-
Sustainable
Rather an
encourage

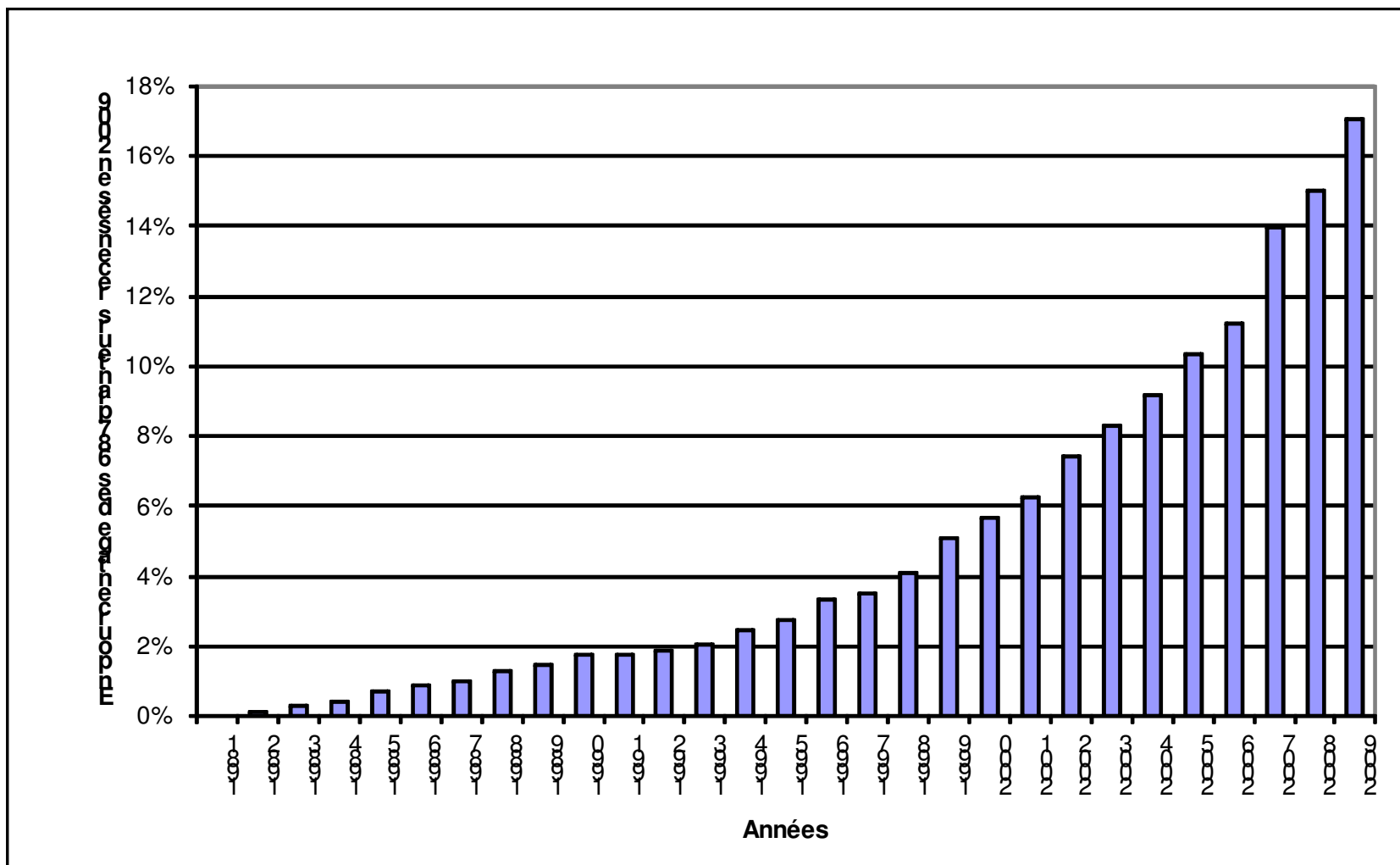
Evolution de l'accès à la terre dans trois campements allogènes du Centre-Ouest, 1958-2007

(133 parcelles) (source : Ruf, 2008; Colin et Ruf 2011
Héritages exclus)



Evolution du nombre de planteurs de cacao accédant à la terre par le contrat de P&P pour au moins une parcelle. 1981 à 2009

Innovateurs et imitateurs = entrepreneurs



4. The case of fertilizers

Is professionalism hampered by ‘habits’?

A few groups of smallholders (heterogeneity of smallholders’ situations):

“Oui, le cacao peut laisser la place à l’hévéa car le cacao meurt et il n’y a plus de forêt”

(After optimizing the forest rent, can smallholder innovate and adopt new technologies to replace it ?)

Clear impact of fertilizers on cocoa production

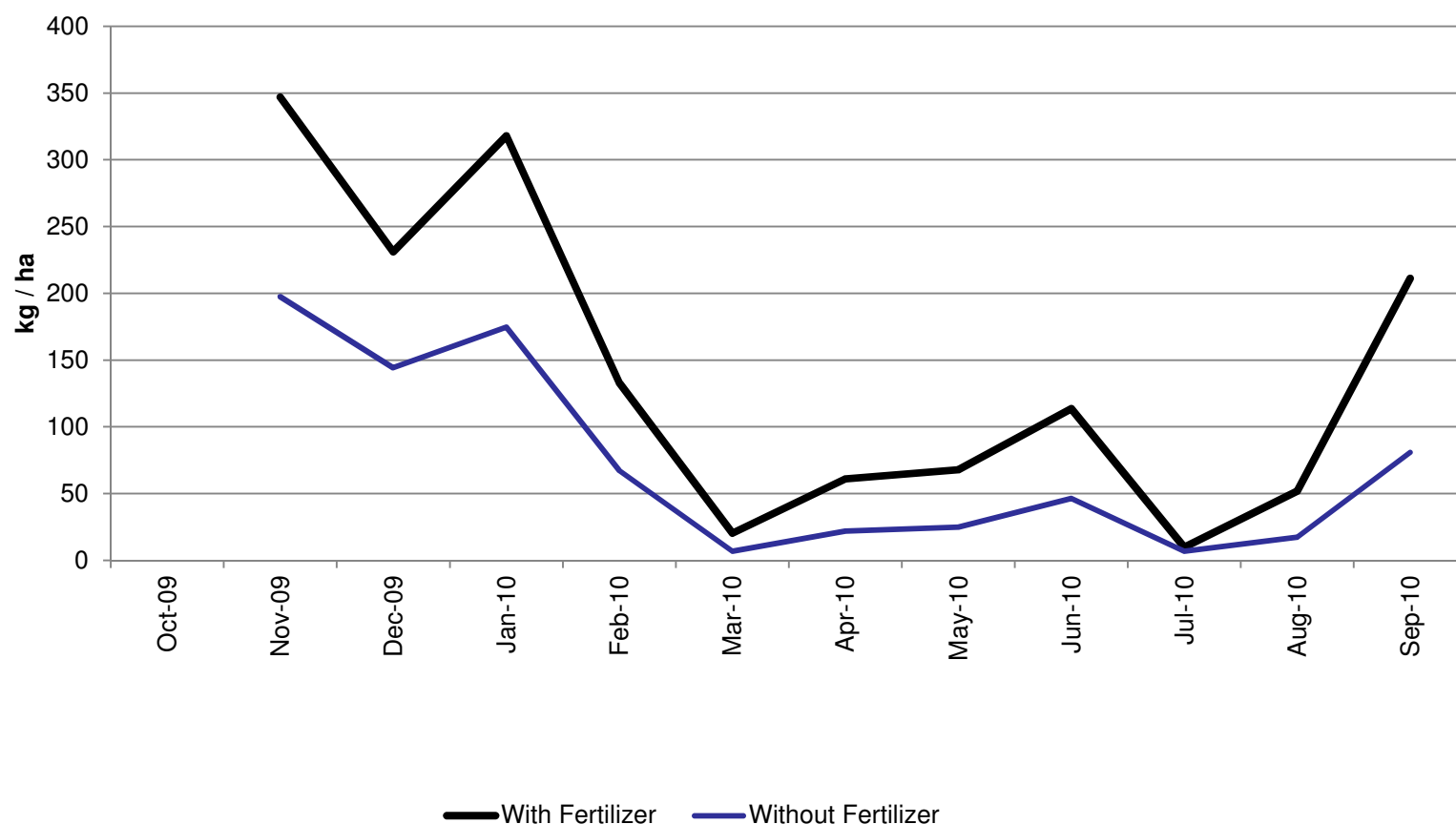


Number of pods and production



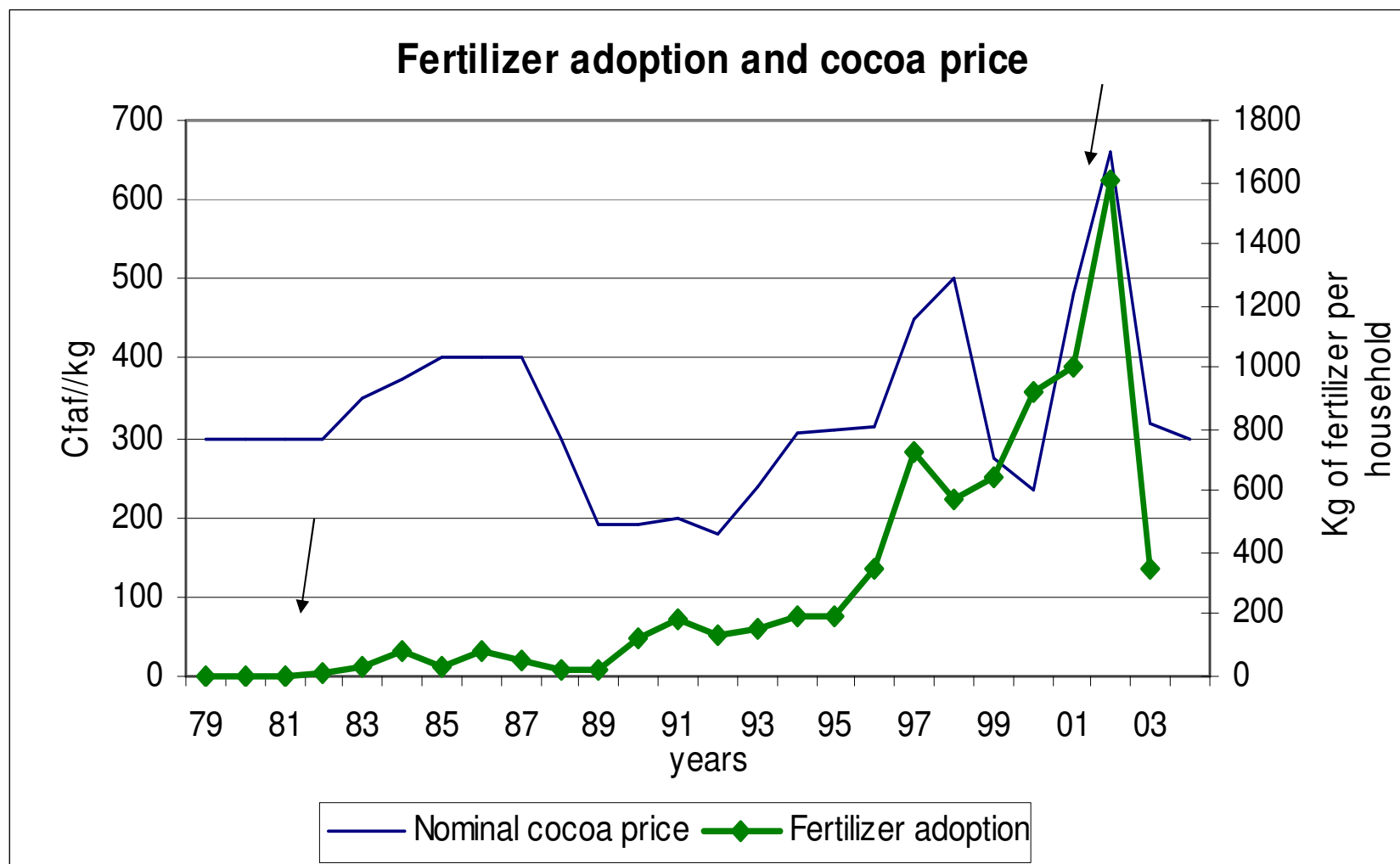
Impact on production: the case of Duekué,
(Sub-sample of 2 x 10 quadrates in 10 different farms)
in kg of **FRESH** beans

**Cocoa yield per month. Pinhou (Duekué),
2009/10 (2nd year of fertilizer application)**



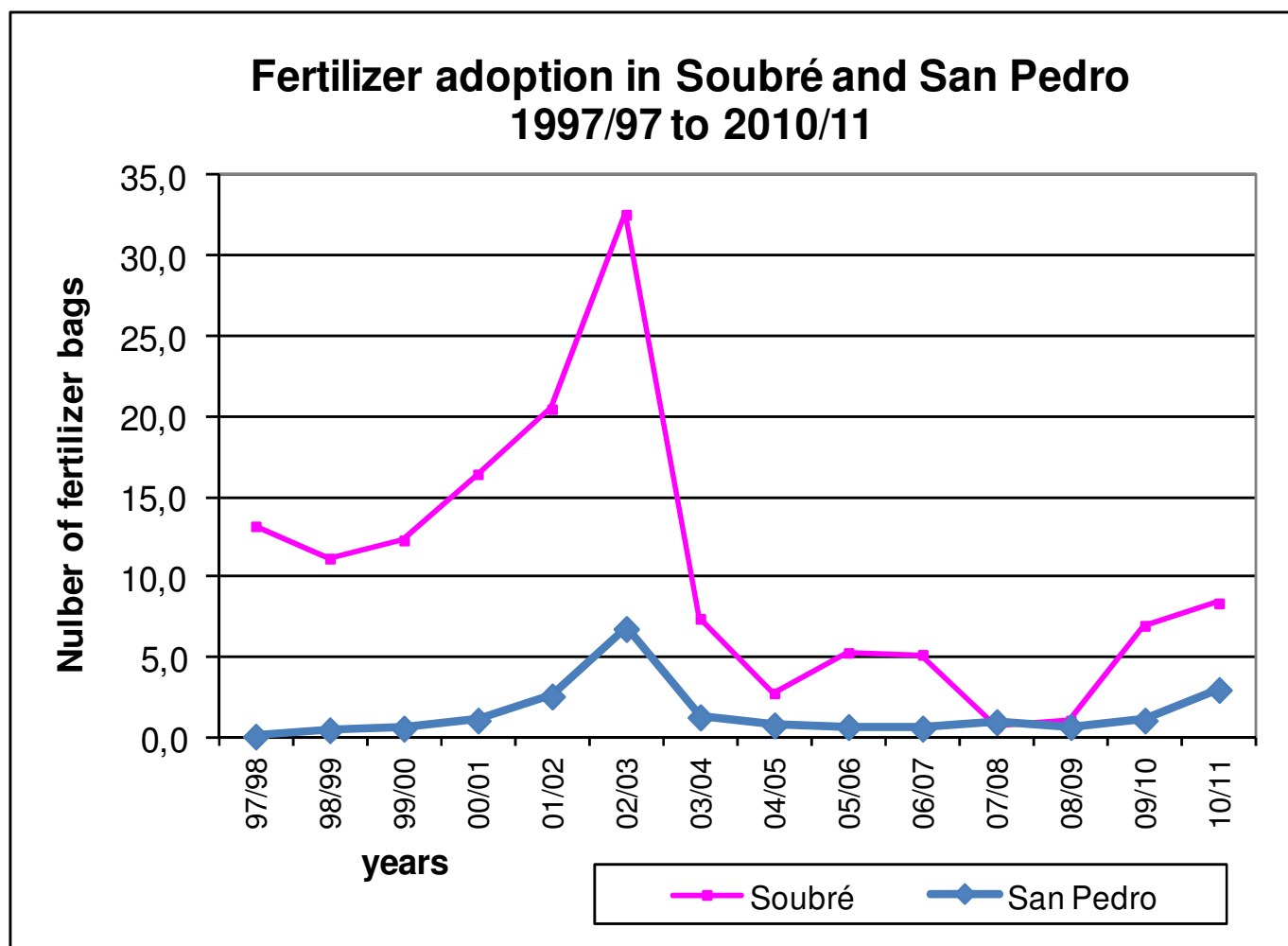
Smallholders as innovators and imitators. Fertilizer adoption managed by true professionals

Côte d'Ivoire 1983/84 to 2002/03



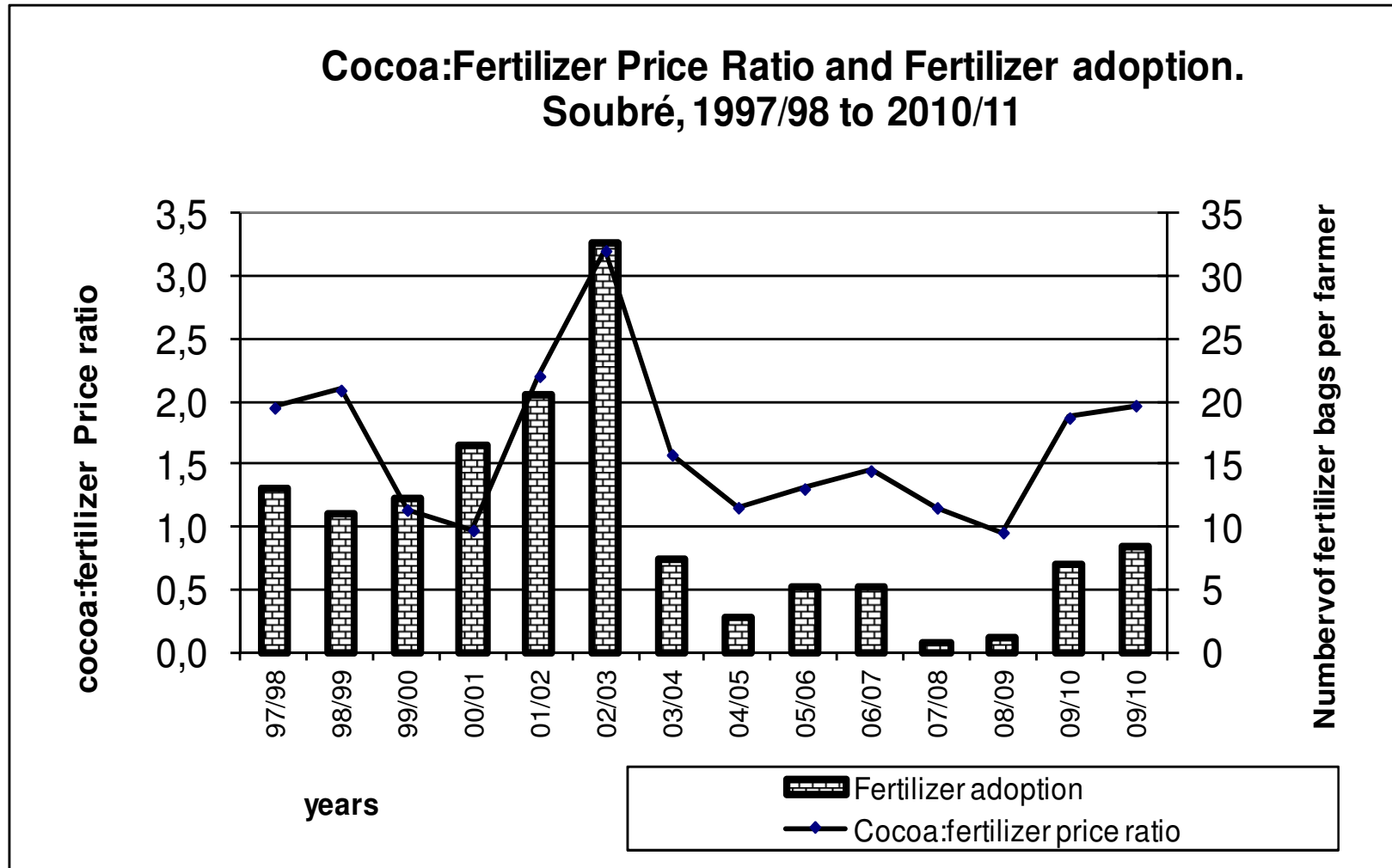
But why did the number of fertilizer bags used by cocoa farmers collapse?

Are Cocoa farmers lacking professionalism and sustainability objectives through this poor adoption of fertilizers after 2003 ?



On the opposite:

cocoa: fertilizer price ratio as a key indicator of the almost perfect rationality of cocoa farmers as entrepreneurs and professionals



Non-price changes

- Increasing falsification and cheating (sand mixed with fertilizers, etc)
- increasing infestation of Black pod
- Need to protect the capital itself: the cocoa tree

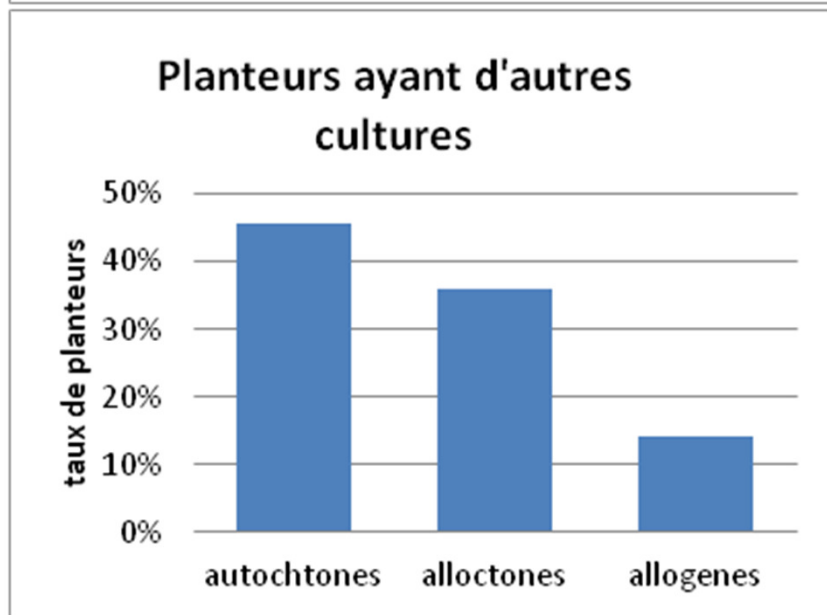
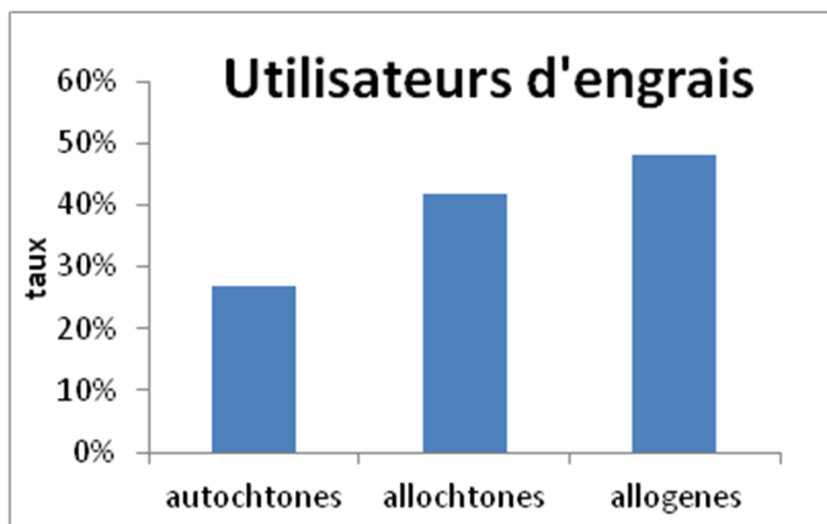
A slow reactivation of fertilizer purchases in the late 2000s/early 2010s eventually expresses rational choices made by professional cocoa farmers in heterogeneous situations

Site	Cabosses atteintes de pourriture brune	
	% carré engrais	% carré témoin
Agnibilekrou	16%	24%
Abengourou	26%	22%
Aboisso	7%	10%
Adzope	1%	1%
Hiré	0%	0%
Yamousoukro	0%	2%
Ouragahio	8%	12%
Issia	5%	8%
Daloa	1%	1%
SP Krémoué	4%	4%
SP Nando	3%	7%
SP Moussadougou	1%	3%
Duékoué	1%	2%



Rubber alternative/complementarity and risk management.

A slow reactivation of fertilizer purchases in the late 2000s/early 2010s eventually expresses rational choices made by professional cocoa farmers in heterogeneous situations



Sources: Stemler 2012

Variable returns on investment in Côte d'Ivoire

(Simulation showing the need of a **cocoa:fertilizer price ratio around 3 or above** and thus the farmers' rationality : they were right NOT to adopt fertilizer adoption in the mid-late 2000s.

Hypothèse prix engrais		Hypothèses prix cacao (Fcfa / kg)			
/sac de 50 kg	/ kg	300	500	700	900
25000	500	- 150 000	- 50 000	50 000	150 000
20000	400	- 90 000	10 000	110 000	210 000
15000	300	- 30 000	70 000	170 000	270 000
12000	240	6 000	106 000	206 000	306 000

Hypothèse prix engrais		Hypothèses prix cacao (Fcfa / kg)			
/sac de 50 kg	/ kg	300	500	700	900
25000	500	-100%	-20%	14%	33%
20000	400	-60%	4%	31%	47%
15000	300	-20%	28%	49%	60%
12000	240	4%	42%	59%	68%

Cocoa: fertilizer price ratio

Price of cocoa (/ kg) **725**

Price of fertilizer
per bag per kg

15000 300 2,4

13000 260 2,8

12000 240 3,0

5. Lack of Professionalism ?

Access to information about new products,
but an independent information system is not easy to organize

Super- -cao	STEPC	"Sac blanc"	"Sac rouge"	"00-23"	"00-18"	"NPK"	Urée	"Engrais Ghana"	Nourri- -cao	Fumier Poulet	Engrais liquide
39	16	4	14	28	10	44	16	9	2	19	14

Professionalism ?

Maybe in terms of dialog and exchange
of information with farmers



Showcase 1

An extension worker advised me to dig in a little bit around each cocoa tree to apply fertilizer. I did it on a few trees to compare with my own method (apply at “one cutlass distance of each tree). No match. The extension worker’s method generated mortality of the cocoa trees while mine was successful

Showcase 2

Farmers’ perceptions : **75%** of cocoa farmers state that fertilizer should be applied only every 2 or 3 years at the same place. Otherwise, cocoa trees may/will be uprooted by themselves and/or may produce too many leaves.

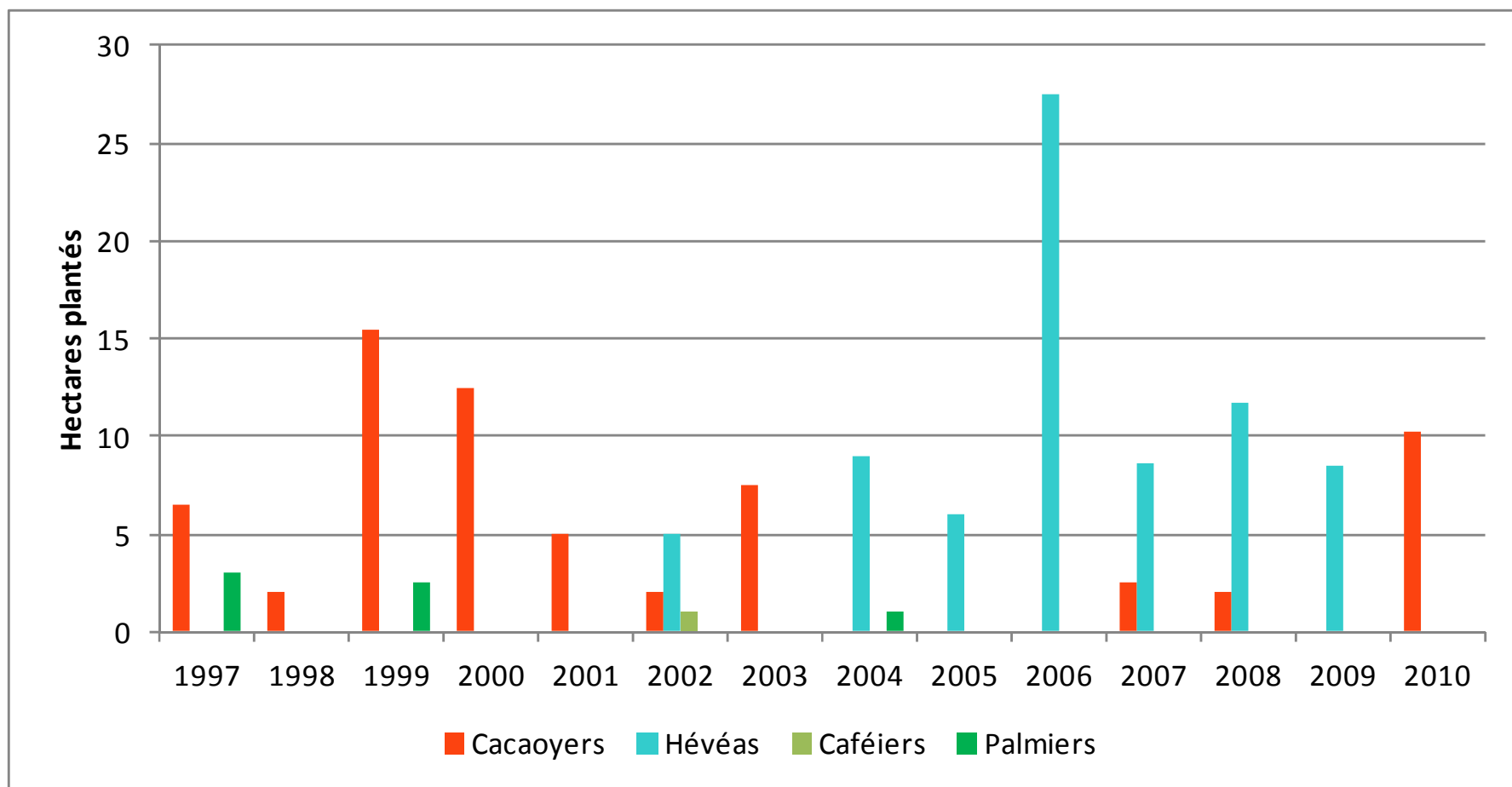
Our observations after 3 years of continuous fertilizer application every year during 3 to 4 years:

Uprooted trees Less than **5%**.

Strong development of the foliage

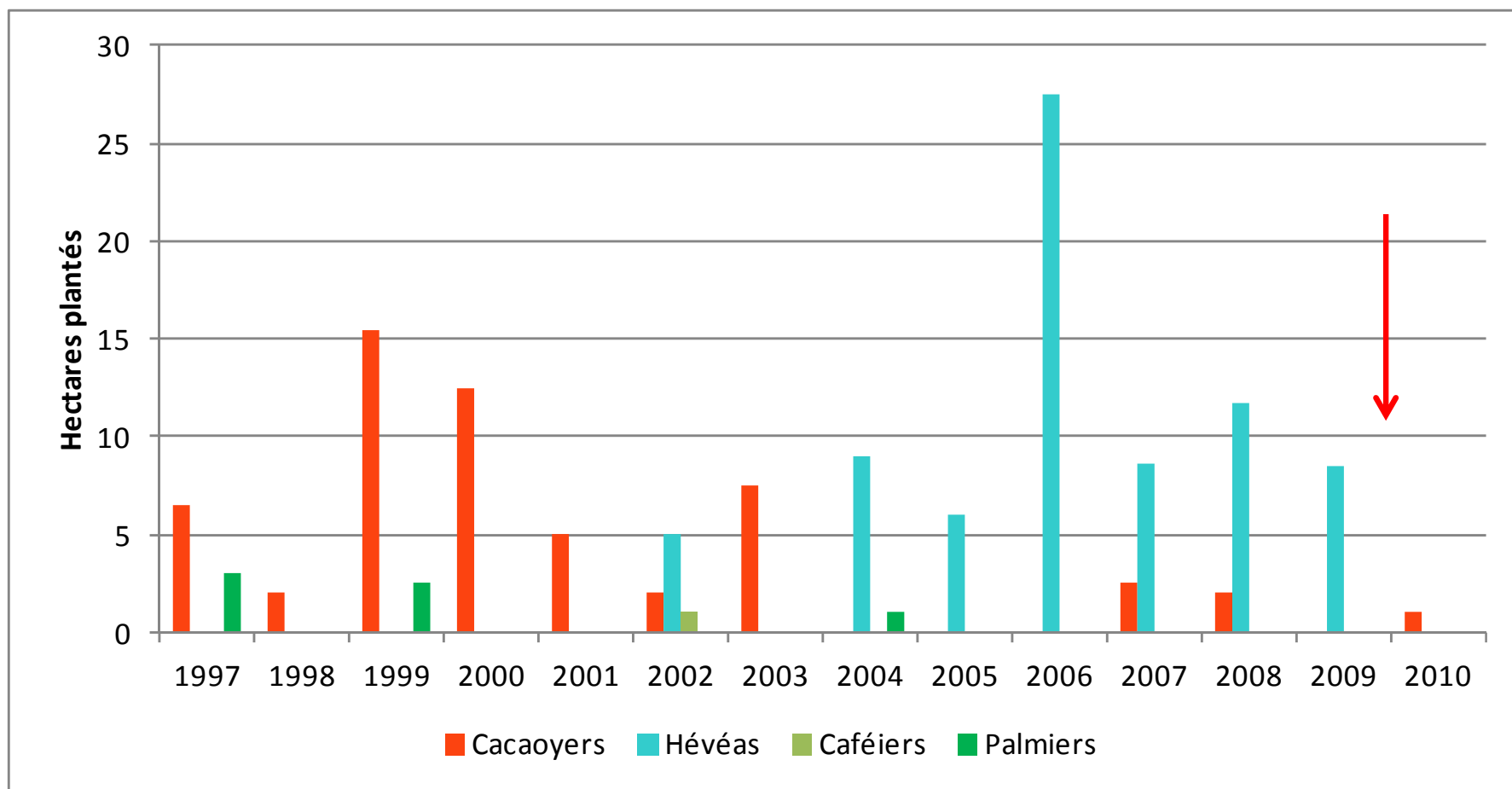
A lack of professionalism within the smallholder communities or outside?

Showcase 3 : a former 'cocoa village' almost turned into a 'rubber village'. A project seemed successful to convince farmers to re-invest in cocoa in 2010.



Finally, lack of professionalism within the smallholder communities or outside?

But two years later, almost all new cocoa has gone (termites, inappropriate soils, planting material? No evaluation, no “follow-up”, more importantly, no farmers’ participation)



Conclusion

- When farmers do not adopt ‘new’ technologies or ‘good practices’, it is usually not because they lack professionalism and entrepreneurship capacity, but rather explained by their perfect rationality facing an unfavorable and risky price and non-price environment.
- A large population of smallholders, with all its diversity (age, geography, autochthon/migrant status, gender, wide range of knowledge and lack of knowledge, etc ..) builds a professional capacity, combining what professional/entrepreneurs require;
 - innovation (own experiments) and imitation
 - Managing risks for themselves and this for the country and its economy

Finally, the concept of ‘professionalizing’ seems relevant in some areas

- Independent information about new products
- Capacity building through coops and certification
- More importantly, under the condition of farmers’ participation to projects.