

Cotton as Catalyst?: Mali's Silent Maize Revolution



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Cotton Field in Southern Mali



Why do farmers embrace cotton cultivation when they are well aware of the difficulties that they may confront while doing so?



We can understand this paradox by conceptualizing cotton growing as part of larger systems of which farmers value cotton production for more than its potential or actual income alone (Koenig 2008).

Our study's approach

Multi-scale history of cotton and maize production

- Quantitative Data

- FAO national data 1961-2007
- IER-Mali regional data 1984-2007
 - Crop area, production and yield
- IER-Sikasso data from 1994-2006
 - ~100 household/farms
 - 9-12 villages in 3 sub-regions: Koutiala, Kadiolo, Bougouni



- Qualitative Data 2010

Interviews with farmers in 4 villages in CMDT and OHVN zones

A Brief History of the Cotton-Maize Connection

- Early 1980s: Introduction and Promotion of Intensive Maize Growing
 - In 1981 Malian cotton company,(CMDT) launched the Maize Intensification Project
 - Developed fertilizing formula based on existing fertilizers that were available for cotton
 - Subsidized prices for maize and access to credit for fertilizers led to an increase in production



New maize varieties

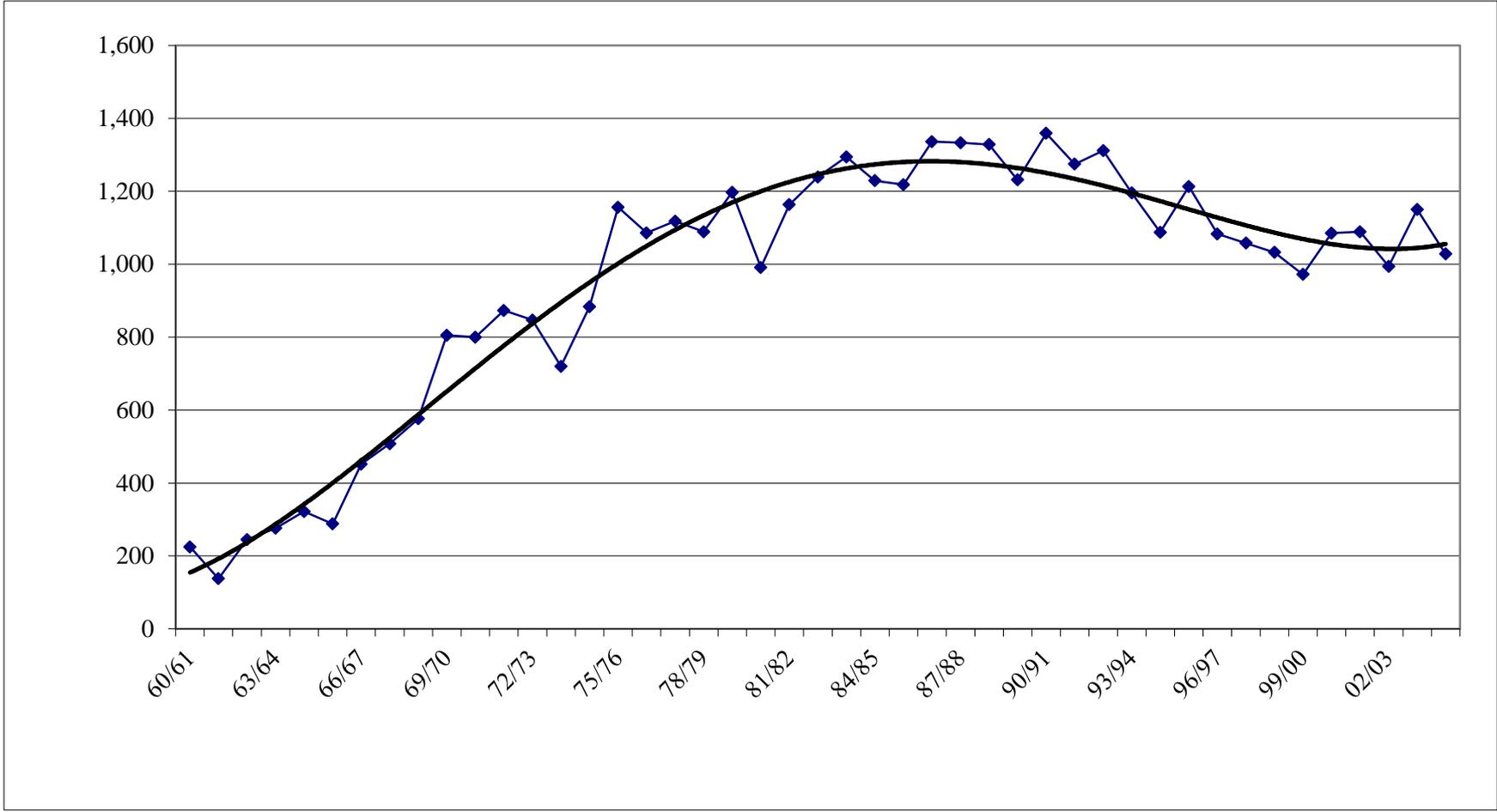
A Brief History of the Cotton-Maize Connection

- 1990s: Currency Devaluation and Expansion
 - 1994 the West Africa currency (CFA) devalued 50%
 - Cotton price rises as cost of does fertilizer
 - Expansion of **both** fertilizer use and area farmed
 - Cotton production increases and maize booms, millet and sorghum growth is flat.
 - Cotton yields fall and the argument is made that cotton area expands too rapidly resulting in yield declines (Benjaminsen).



CFA Devalued 50%

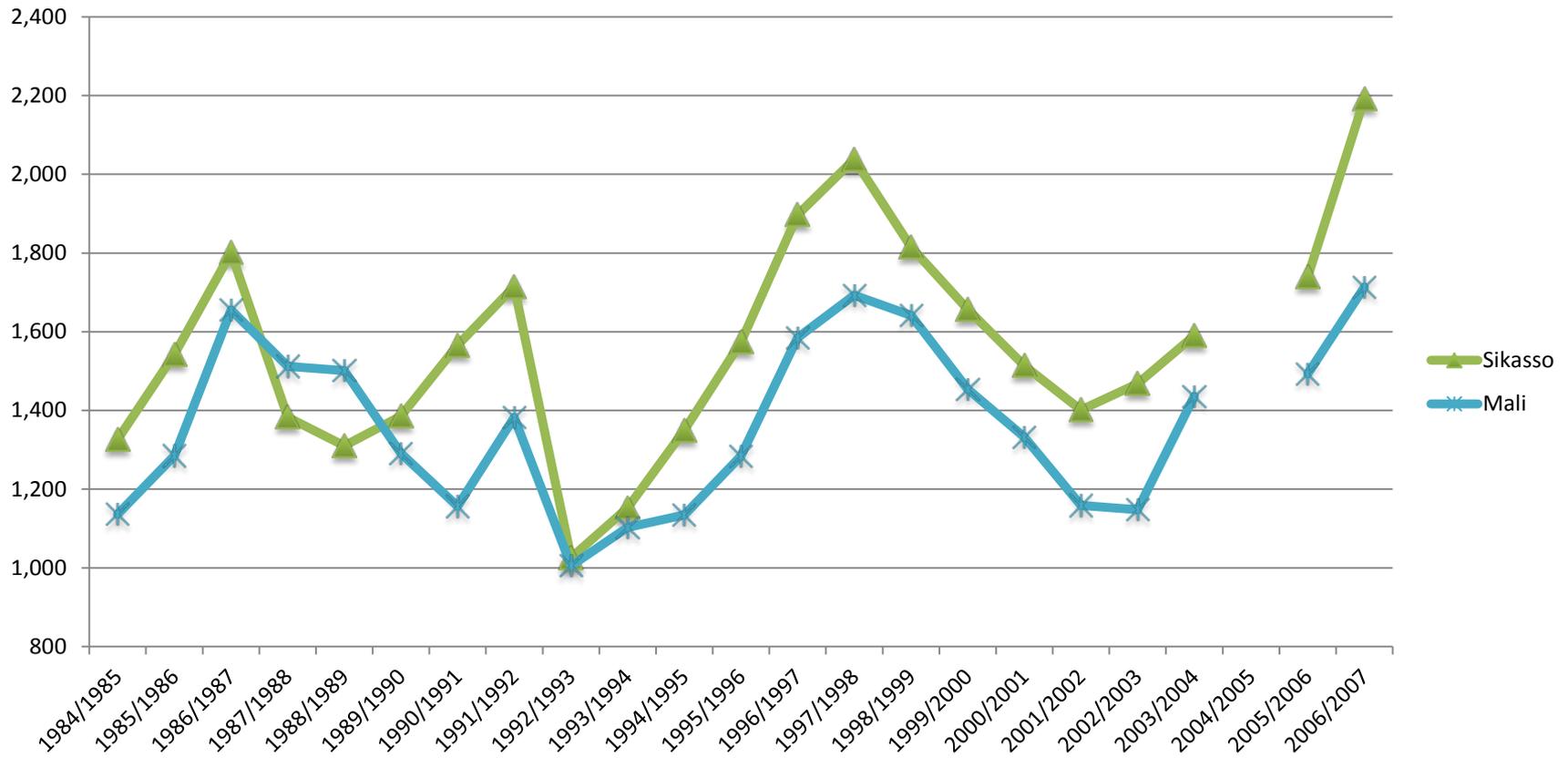
CMDT Cotton yields





Maize Yields

Maize Yields



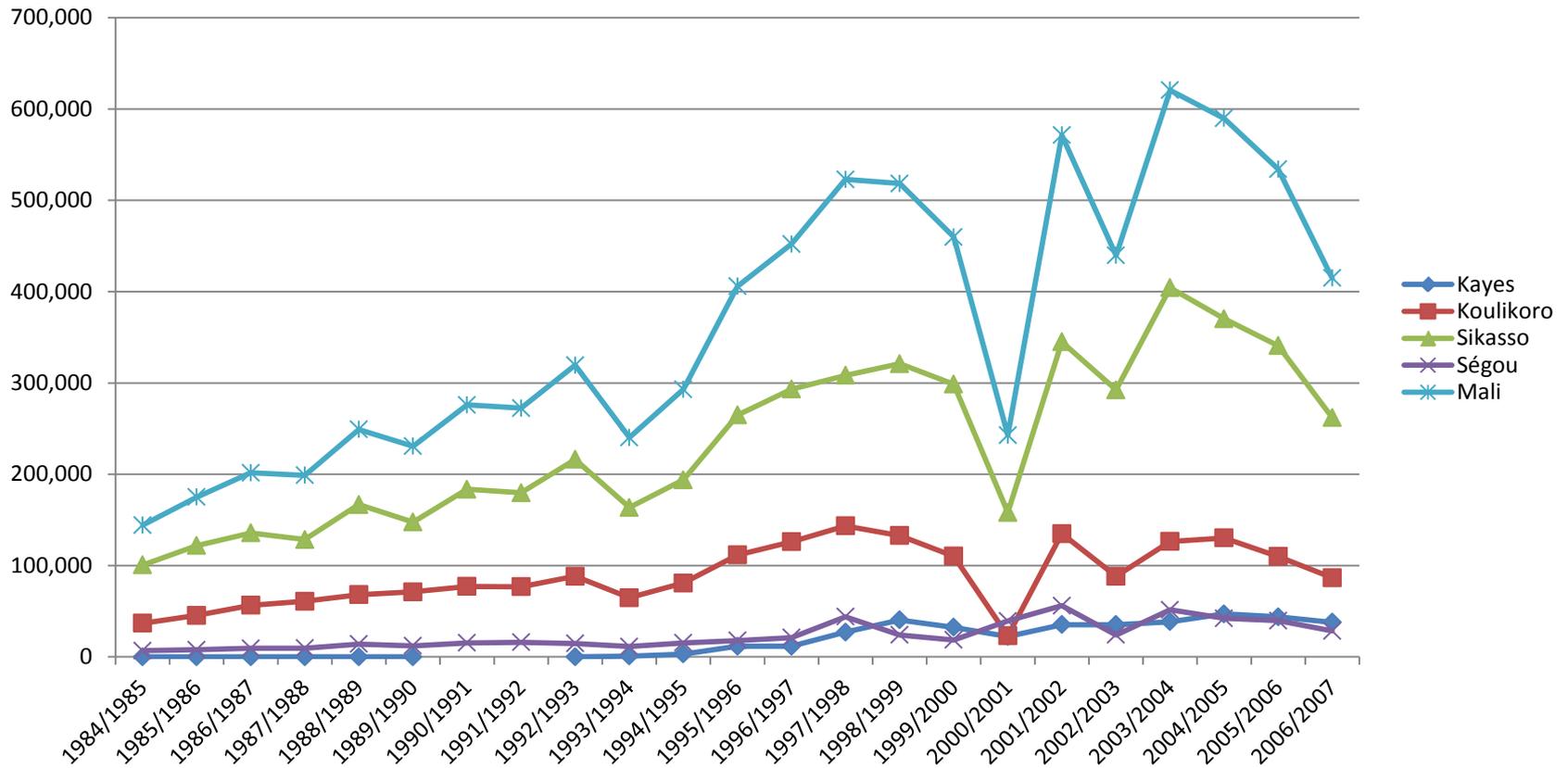


A Brief History of the Cotton-Maize Connection

- 2000s: Cotton strikes and the collapse of cotton prices
 - 2000 Strike results in sharp drop in cotton and maize production and rise in traditional grains
 - Strike ends cotton production continues to grow, maize grows even faster
 - Maize yields increase, while cotton yields are stagnate
 - 2008, Farmers “strike” again

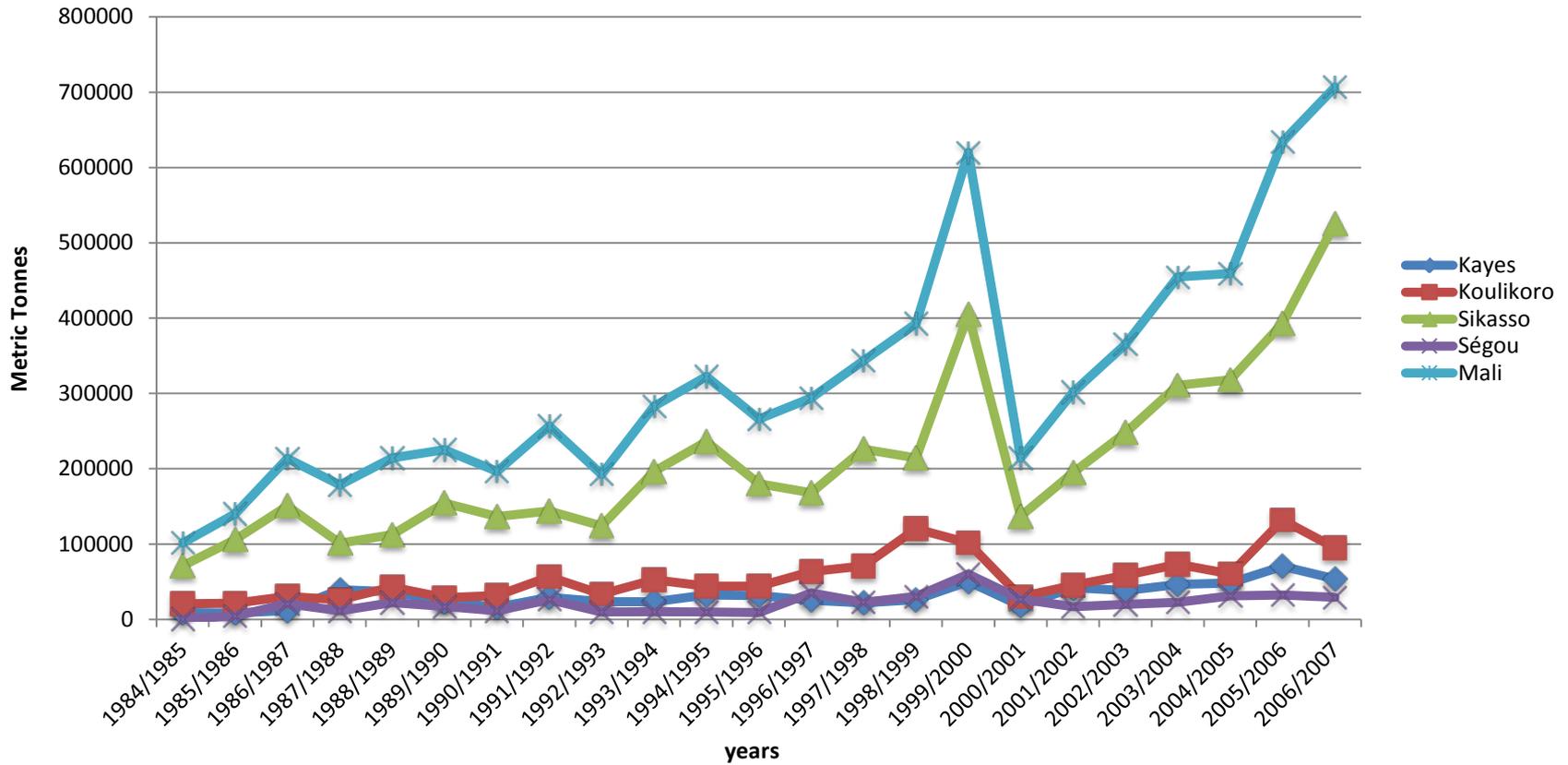
Mali Cotton Production

Cotton Production

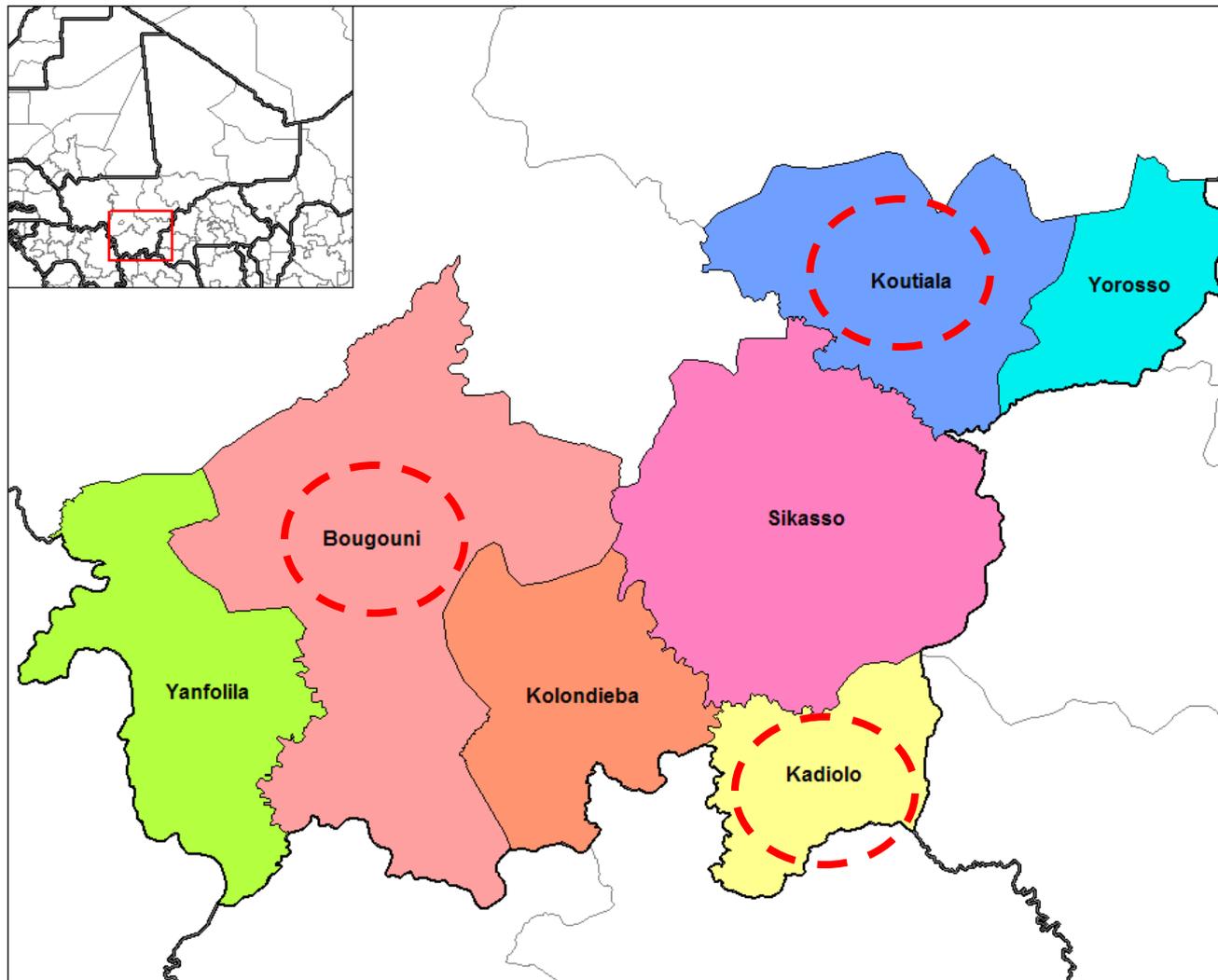


Maize Production

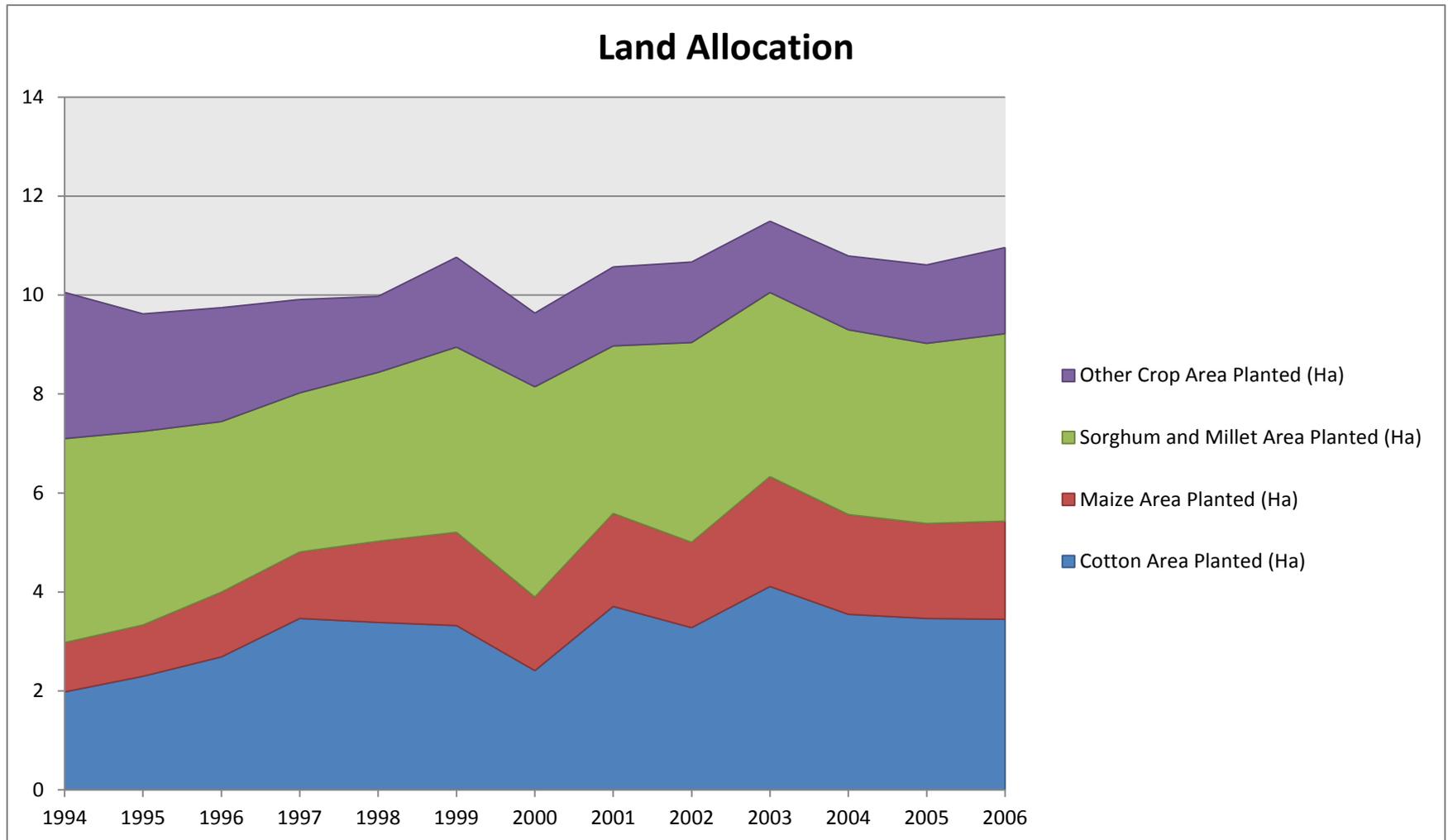
Maize production



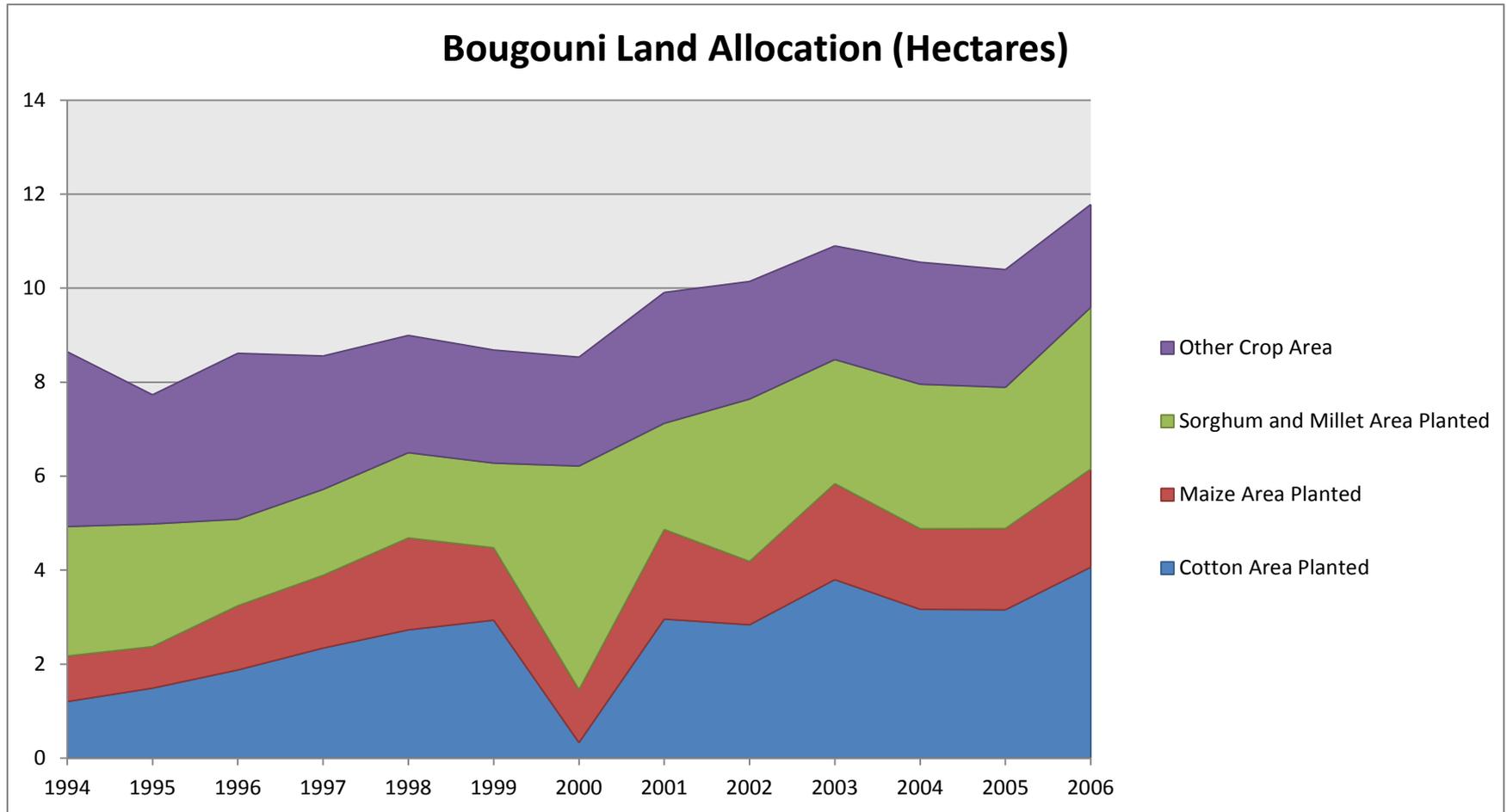
Household Data Analysis, Sikasso Region 1994-2006



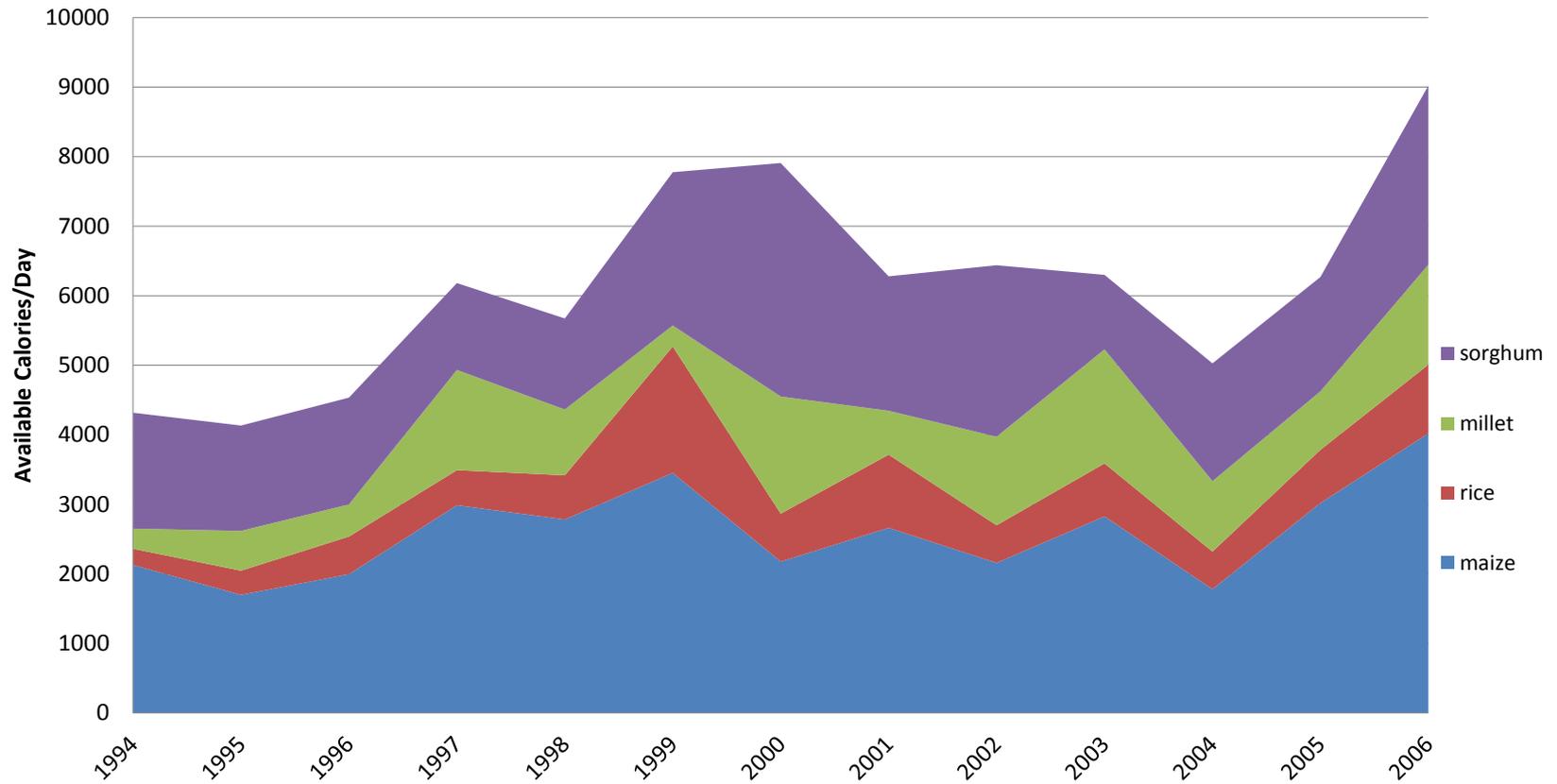
Land Allocation: Sikasso Region Households



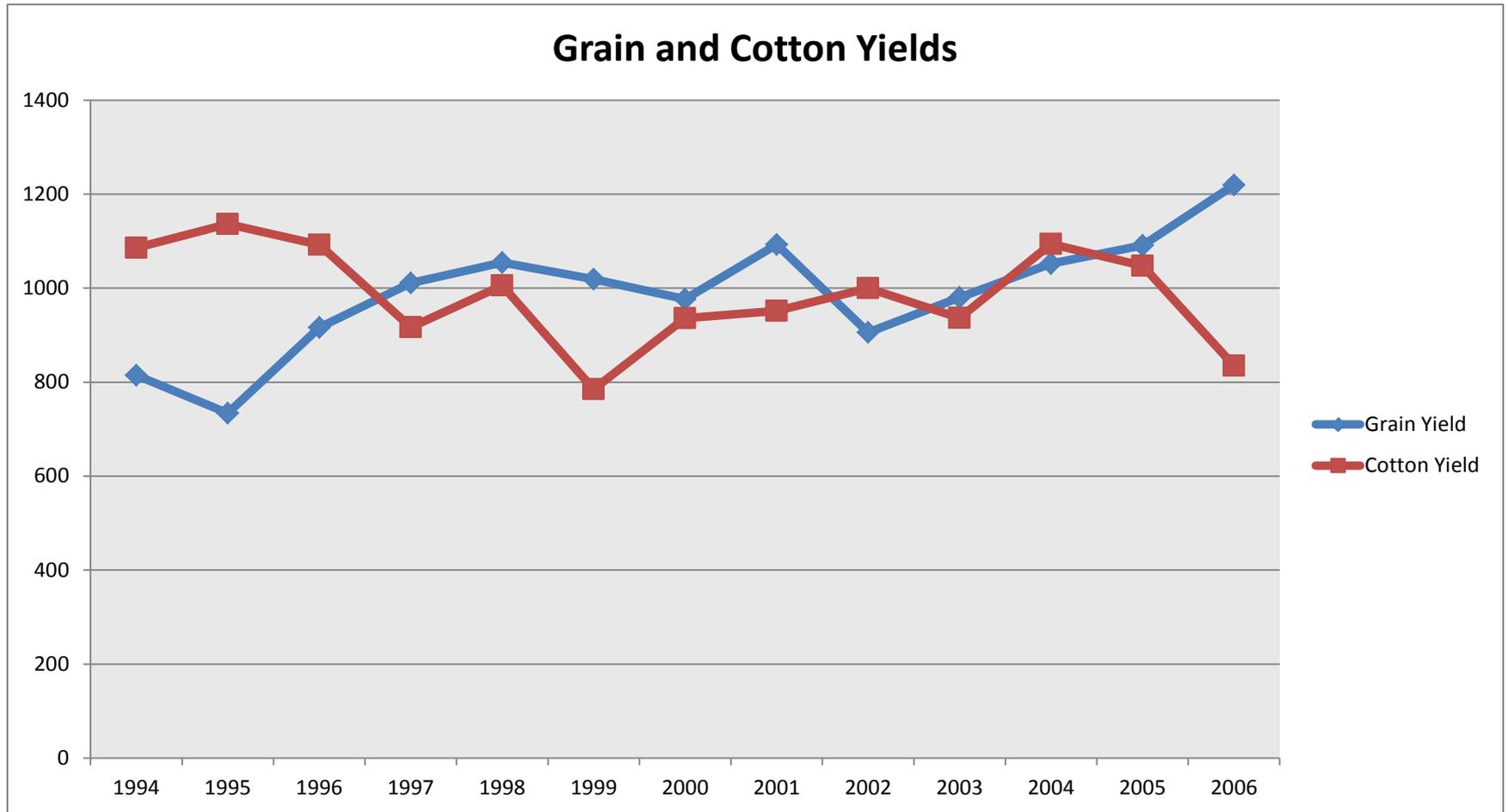
Bougouni Land Allocation



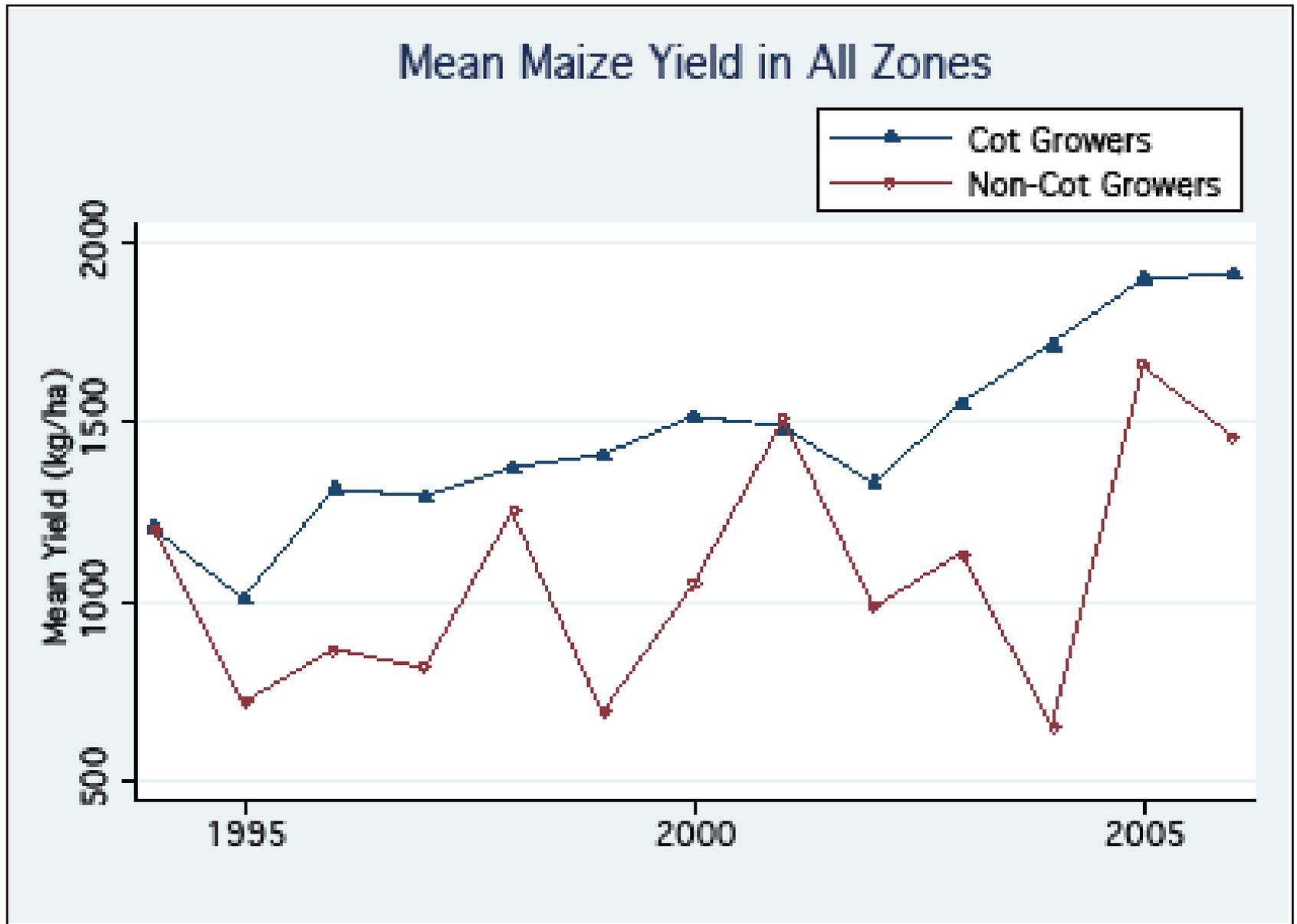
Bougouni



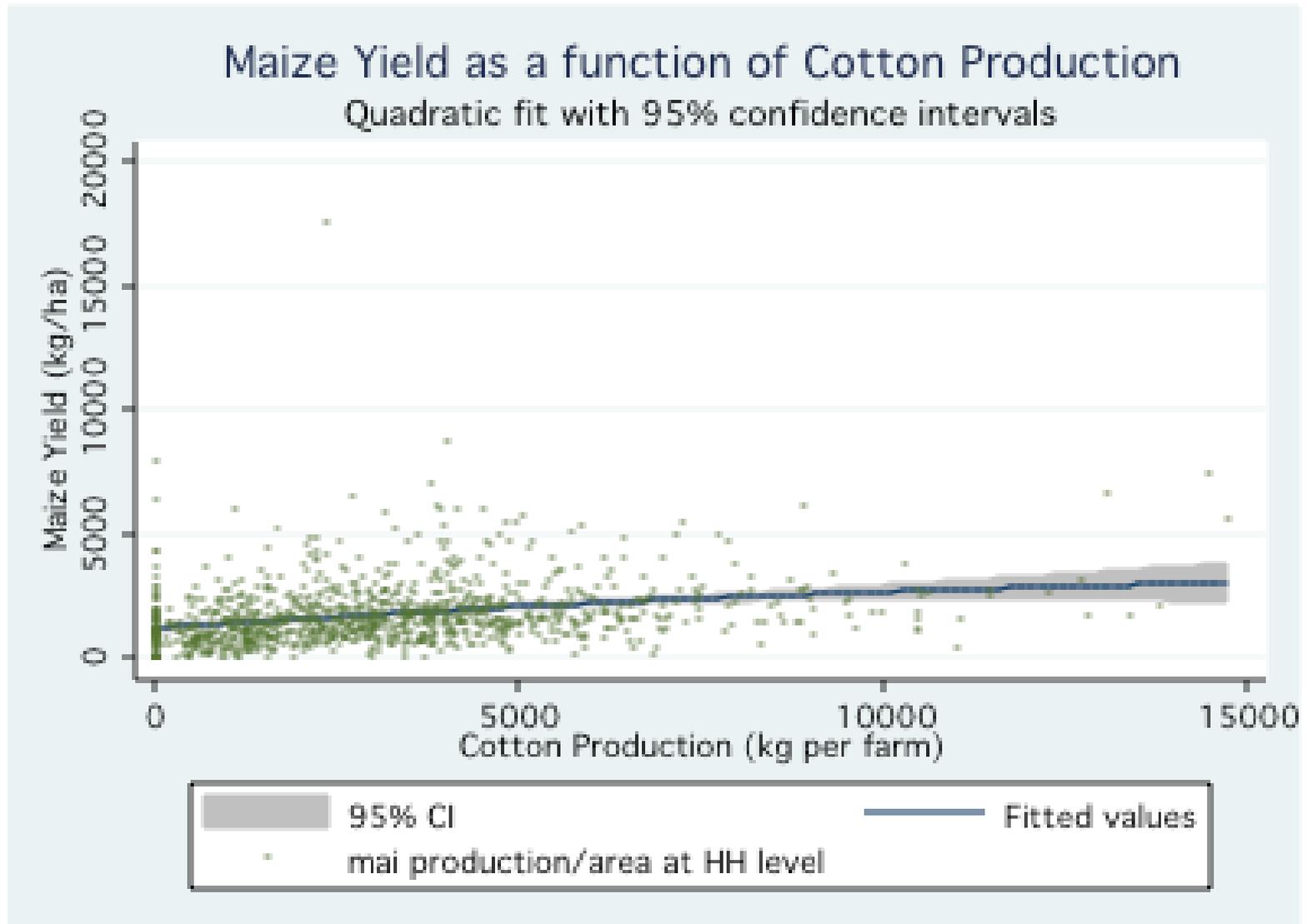
Sikasso Grain and Cotton Yields



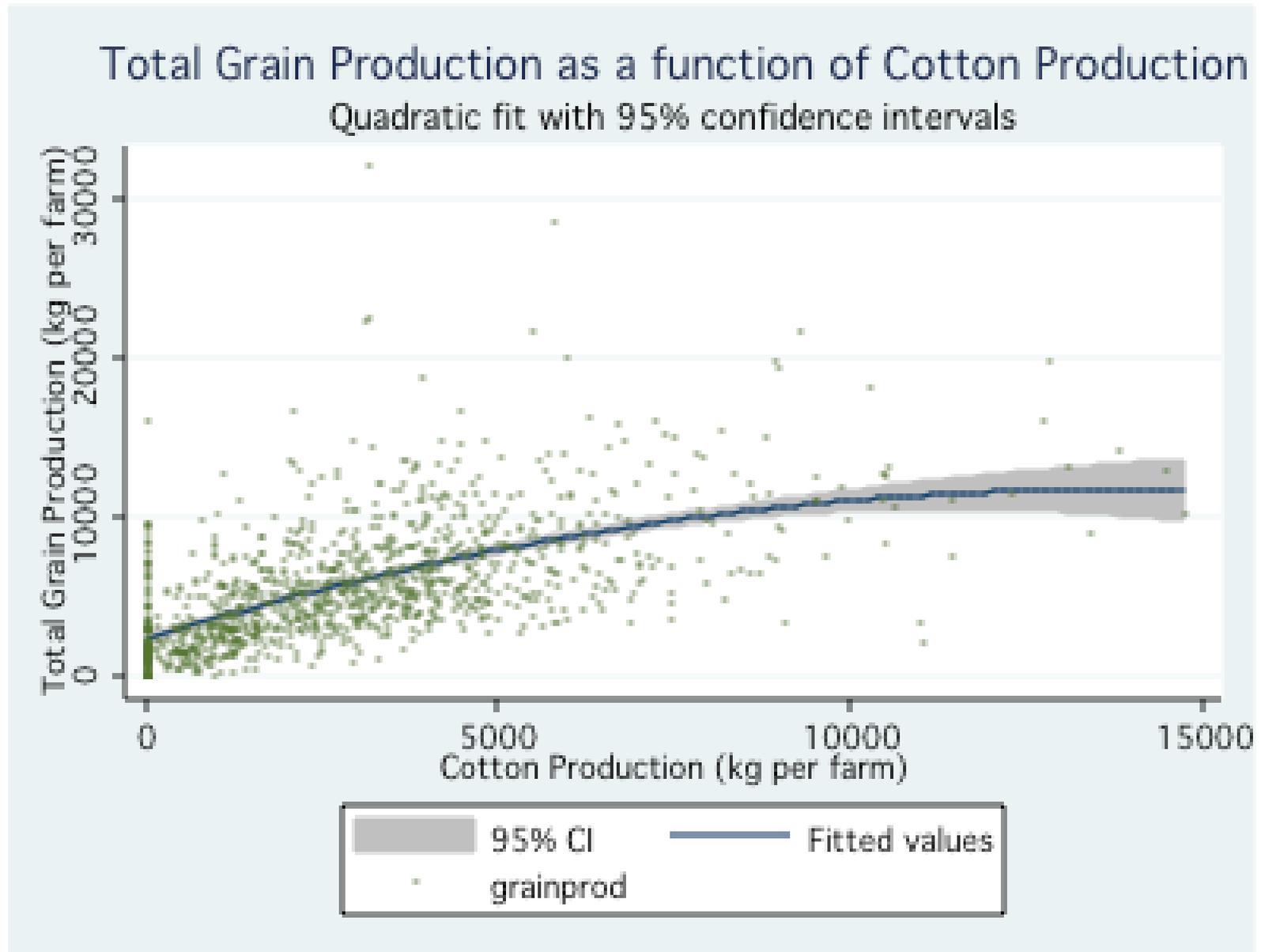
Cotton and Maize



Maize Yield and Cotton Production



Grain Production and Cotton Production





Summary of household data results

- Findings:
 - Area farmed increases but only slightly
 - Cotton and grain (especially maize) production increases throughout period and synergistic
 - Cotton yields fall but maize and overall grain yields rise



Focus Group and Individual Interviews





What Do Farmers Say?

- *You can't grow corn without cotton. You take some of the cotton fertilizer and put it on your corn. If you do not do this, you do not get a corn harvest.*
- *This also has to do with fertilizer because if you do not get enough, corn may not be supported. Corn is also fast to mature if it gets the right inputs. If I had more fertilizer I would have done more corn, but if you do not grow cotton, you can't get fertilizer.*
- *Maize farming is good, but the only problem is fertilizer. Millet, if I farm it, I do not get enough food. All I need is fertilizer, without it you can't farm corn. I have farmed corn every year for 10 years.*

A new farming system

Cotton introduced technology, fertilizers and herbicides to farmers that they now use to grow maize.





Cotton/Maize Connection

- *If you take some fertilizer from cotton, will it do well?*
It will do well, but, it won't be the best because it does not get enough fertilizer.
- *How do you get fertilizer for maize? Can you go to OHV to get support (a loan) without growing cotton?*
Poor farmers can't get enough fertilizer for cotton and corn, thus you divide the fertilizer between your cotton and corn fields. Both fields will do well, but cotton will not do as well as if you put the full amount of fertilizer on. You will get some but not a big amount.

Cotton crop waiting for pick-up





2008 Cotton “Strike”

Where did you get money for fertilizer last year without growing cotton? I just farmed an old cotton field without adding more fertilizer. I had no loan for fertilizer.

Will you farm cotton this year? Yes, two hectares.

Why did you decide to grow this year? I will grow cotton this year for the fertilizer. I will divide it between cotton and maize, it is the only way to get a loan for fertilizer and I have no hard cash.

The farming system has changed— cotton as catalyst



We can't farm without fertilizer today! Maize needs to be treated with care and sprayed on-time. In part this is because the fields are poor now. It is also because the youth have gone elsewhere, only three of them work today. All the rest went in search of money.



Conclusions

- The farming system in southern Mali has changed substantially in the past 20 years. Farmers have integrated new crops into their farming system which in turn has altered the role of cotton.
- There has been an **intensification** of agriculture and grain yields and production are up, as are fertilizer and herbicide use
- Farmers need access to credit for fertilizers to grow grains
- Choices about cotton production are linked to choices about food production in a two-way relationship