

The Future of Cultivation as a Source of Food: The Ideology Underlying Every Day Choices

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Abstract

This paper discusses the role played by cultivation as a source of food. Specifically, the paper focuses on the production process at the household level by looking at the interrelatedness in farm practices, the incongruity in approach and the ideology underlying the choices that are manifest in people's everyday lives. Data show that the farm practices that are manifest in rural households are neither 'modernised' nor 'incorporated'. Instead, commodity relations are interwoven into people's livelihoods and, the enrolment of anyone practice is subjected to very specific considerations and, the choices made are not necessarily dependent on those practices that are already as it were, common knowledge. The paper concludes that cultivation as a source of food is an embodiment of how households conceptualise 'available' resources, a process that shapes and is, in turn, shaped by everyday experience. Consequently, homogeneous farm practices give way to heterogeneous yields and at the same time, similar unit outputs follow from diverse agronomic practices.

Introduction

This paper argues that food output is embedded in a multiplicity of farm practices and these necessarily function as part of a household's life-world, an embodiment of how opportunities and challenges are conceptualised. In an attempt to balance between available opportunities and challenges, farmers bring on board only those facets of farm management, such as cropping and crop husbandry practices that resonate with their perceived reality. During production, individual farmers and households define what is important, which they then translate into practical procedures and both the coordination of tasks and the specific definition of each separate task become a social process (Ploeg van der, 1990: 28). What farmers put into practice is then an outcome of a diversity of experiences that form part of their empirical reality and how goals are translated into practical realities comes to constitute a style of farming. The style defines how work must be done, advantages are weighed against disadvantages and alternatives are deliberated upon (Ploeg van der, 1990: 28-33).

However, as much as farming emerges as a way of life, it is also a source of livelihood (sustenance, knowledge, identity and belonging). Rural communities therefore aim at much more than a sufficient output. To this end, resources are translated into those practices that are perceived as important in realising multiple goals. But, the choice of these practices is guided by what is practicable and this is influenced by elements within and beyond the production unit.

The rest of this paper focuses on who these farmers are, how they work to produce the harvests that they realise, and the nature of variations that there are between and amongst them. We argue that what could go for homogenous farm practices can result in heterogeneous yields but, similar unit outputs could also flow from diverse agronomic practices. The discussions are based on secondary data and several months of observations made between August 1995 and September 1996 and the intermittent revisits in 2002 and 2003. Taking maize cultivation as the starting point, we 'tracked' this activity, taking note of what the selected farmers do, how and when. This is presented through the life experiences of six case studies depicted in the names of: Sarah, Sabina, Josephine, Chris, Yobensiah, and Kerubo. We also

interviewed a random sample of 240 households and visited the Farm Management section in the Department of Agriculture, Kisii so as to be able to differentiate the actual from the ideal.

The Social Relations of Production

The organisation of the production process has come under scrutiny as the basis on which rural households will experience the desired leap towards higher yields. This is conceptualised in terms of a modernised production process; largely the drive towards commercial farming. However, contrary to emphasis put on this 'scientific' direction, farmers have continued to adopt recommended practices within their own circumstances. What we see then is diversity in farm practices resulting from the interweaving of these externalities with the day-to-day experiences of farm households. This brings several issues to mind, including the need to look into ways in which farmers interpret and organise resources at hand, how they arrive at the choices that they make, how they cope with uncertainty, and how they deal with the external world (Bennett, 1980). The social relations of production is here used to refer to how farmers interweave their experiences for purposes of obtaining livelihoods (see Hebinck and Ploeg van der, 1997: 209). These issues are contextualised in the discussions here below.

Balancing Life Chances

The account below (Box 1) introduces us to what takes place on the farm vis-à-vis maize cultivation. In particular, Sarah's narrative brings to the fore how farm decisions are arrived at, the challenges that people face as individuals and household units, the fears that

Box 1: Sarah's Life - World

Sarah estimates that she is 40 years old. She is the eldest of Stephen's two wives. Her oldest child is 28 years and the youngest is 12. When Sarah married Stephen in 1967, he had only the 2.5 acres of land which he had inherited from his father. In 1973, Stephen purchased an additional 4 acres. Both Sarah and her co-wife now live on this piece of land but they also farm the 2.5 acres that Stephen inherited. Sarah became an active farmer in 1973. Before then, she lived with her husband at his place of work and she depended on her mother-in-law for maize supplies. Although Sarah now lives on the same compound with her co-wife, she operated independently, but Sarah's anatomy over farm activities is limited. Each year her husband shows her, just like her co-wife, where to cultivate. He also decides what is to be grown, when and where on the farm. He provides farm inputs, mainly fertilizers and the High Yielding Variety (HYV) maize seed for the main season's crop. In 1995, the long rains crop brought Sarah eight bags of maize, that is, 4 bags per acre. In the short rains, she harvested a total of five bags from the same acreage. Whenever she has pressing needs, Sarah sells some of her maize. This she does without consulting her husband. She uses money from such sales on longer term projects such as hiring in additional land for herself. Sarah's two eldest children are already employed, and the daughter assists with several things, including paying school fees. However, the son does not assist at all although Sarah continues to send food to each of them.

pre-occupy them and the odds that they have to struggle with. We witness how technical practices are actually socially determined and the negotiations and trade-offs that characterise this process. Sarah's account also brings out the different forces that underlie the decision to take up cultivation as a source of food.

The narrative reveals that the search for food security is a winding one. Although 'privileged' by extension, with an off-farm income and cash crops, she had to contend with several restrictions. Nevertheless, Sarah's household was one of those that successfully depended on cultivation for all its food. This 'success' was as a result of her ingenuity. Although her husband provided farm inputs only for the main season's crop, Sarah was able to manage another maize crop during the short rains. To overcome possible financial constraints on account of farm inputs, she used local seed and much as this did not enhance her yield, she was comfortable with the fact that she could harvest some additional maize. The extra maize brought Sarah cash income and it also enabled her to continue being of assistance to her close relatives.

Sarah's account, in box 1, demonstrates the interplay between access to resources and food security. It is evident that while augmenting land size may appear as a positive contribution for food crop cultivators; there are underlying dynamics that govern actual access and which come to impact on cultivation as a source of adequate food. For instance, while the purchase of an additional 4 acres of land highly augmented the 2.5 acres that Sarah's husband had inherited, this economic opportunity did not benefit Sarah for long. Seven years later her husband decided to take a second wife and this reduced Sarah's entitlements.

The narrative also brings out Sarah's skills and her success in creating some room for manoeuvre in what would otherwise have been a tightly controlled production process. For example, although both Sarah and her co-wife were subjected to similar opportunities, Sarah harvested more maize compared to her co-wife but, she enjoyed a lower surplus. The explanation is rooted in their diverse approaches to what appears like a reasonably uniform life chance. Sarah enjoyed remittances, she had a bigger labour force but, she too had a larger consumption unit: her eight children, a residing niece, her parents and a sister.

Seemingly, among the most salient factors to come into play in assessing the future of cultivation as a source of food are social relations, land allocation, crop husbandry practices, input application, availability of labour and one's organisational skill as a farmer. We will now take each one of these factors for a detailed discussion, focusing mainly on how access to each shapes and gets shaped by farm practices and how this, in turn, influences farm output and the possibilities that cultivation offers as a source of required food.

Cropping Patterns: A Technical Procedure Socially Conceived

In the study area, cropping patterns reflected two, but intertwined goals; production for subsistence and cash income. Conventional cash crops such as tea and coffee were grown alongside subsistence-cum-market crops, mainly maize. Therefore, what governs land use and the extent to which this explains food output is crucial to understanding the contribution of cultivation as a source of food. This entails looking at the amount of land that goes into maize production relative to what is available and directed to other uses. For instance, if cultivation is so fundamental to food security, as implied within the 'Gusii's frame of thinking' (Omosa 2006: 21), what do the land use patterns reveal about the future of cultivation as a source of food? And, between cropped area and unit output, which one should be of a more immediate concern to the future of cultivation as a source of food and rural livelihoods in general?

Area under Maize

Study findings show that whereas households that depended on cultivation only allocated more of their available land to maize compared to those that combined food harvests with supplies from elsewhere, this was not absolute. And, whereas most households that depended on cultivation only were better endowed with land resources, the differences in the amount of land allocated to maize farming were not significant. This suggests that in addition to amounts of land owned, there are other concerns that come to determine how much land actually goes into maize cultivation.

As is shown in Table 1, during the long rains of 1995, Chris and Josephine put about three acres of land each under maize. But for Josephine, this was only about half of what she had access to while for Chris this was almost three quarters of the land available to him that year. While this may look only sensible given that each ended up with a fair amount of land under maize, it did not apply to others. Yobensiah put only one fifth of her three acres under maize that season and Kerubo allocated about one third of her three quarters of an acre to maize. Moreover, while some households doubled area under maize through bimodal cropping, others increased this only slightly. For example, Sarah and Kerubo put an equal amount of land under maize in each rainy season while both Yobensiah and Chris varied this by one half and, Sabina reduced it by more than 80 percent.

Table 1: A comparison of total land available to acreage allocated to maize by each of the six households

Household Name	Total Acreage	Long Rains	Short Rains
Josephine	6	3.5	3
Sabina	12	5	1
Chris	4.5	3	1.5
Yobensiah	3	0.5	1
Sarah	6.5	2	2
Kerubo	0.8	0.25	0.25

What comes into play while allocating land? Again Sarah's case provides some insights. In addition to having access to less than one third of the family land, the decision to allocate the entire two acres of land that Sarah received to maize cropping came from her husband. This was guided by her husband's desire to avoid spending his cash income on food purchases as was once the case. But in response, Sarah managed to create some leeway. She hired in additional land and in so doing, she was able to realise a cash income from the additional maize without jeopardising her food self-sufficiency levels.

Diversity in Cropping

In order to explore further the diverse ways in which resource allocation is conceptualised, we took a sub-sample of households that were faced with 'equal' opportunity - uniform land size. We based their selection on land distribution patterns and because the majority of surveyed households had access to 3 acres of land, this group became the target for further analysis.

In spite of having access to a uniform amount of land in the long rains of 1995, area under maize varied between 0.5 and 3 acres. Of the 28 households with a total of three acres of land each, 9 of them put half an acre of land under maize, 10 had one acre, 3 had one and a half acres, 4 had two acres and only one household put their entire land under maize. Another one household did not even plant maize that year (Table 2).

Table 2: Land use patterns for the 28 households with 3 acres (n=28)

Area (Acres)	Land Use Activities						
	Maize	Millet & Sorghum	Tea	Coffee	Pastures	Vegetable	Residence
0.0	1	0	9	0	10	3	5
0.25	7	10	7	1	3	-	-
0.5	20	4	2	1	1	-	-
0.75	10	10	7	0	1	-	-
1.0	7	19	2	-	-	-	-
1.5	7	21	0	-	-	-	-
2.0	0	26	2	-	-	-	-
3.0							

The fact that households with the same amount of land at hand pursue different cropping patterns suggests that land use is couched in how opportunities and challenges are conceptualised. Contrary to the general assumption that households could grow all or some of their food or, with returns accruing from other land uses, they can purchase food; the data shows that most people put their land to various uses, for reasons other than the two above. For example, Bathseba switched to a different cropping pattern in an attempt to compel her husband to spend some of the family cash income on her by purchasing maize, as a way of avenging his decision to take a second wife.

Cropping patterns are also an outcome of macro level policies. For instance, the introduction of coffee growing in Kisii prompted every young adult male to take up coffee farming at the earliest opportunity, alongside subsistence production. The question is, however, whether in diversifying farmers actually plan or even accept the possibility that they may not, as a result of their cropping patterns, meet all their food needs through cultivation. Generally, the farmer desires to maximise on both ends, an expectation that continues to guide the general attitude towards equating food security with food self-sufficiency.

Agronomic Practices and What Underlies Choice

Modernisation of agriculture has inspired many as central to improved production (see Alarmgir & Arora, 1991; Bachuman & Paulino, 1979; Cowen, 1983). In addition to introducing new crops, specified farming methods are identified as the only way to attain higher yields (see Jones 1984; Bernstein, 1977; Pingali & Rosegrant, 1995; Braun, 1995). Farmers are therefore urged to adopt these packages in full and success continues to be based on how close they get to implement these recommendations unabridged (Schultz, 1964; Clayton, 1964; Swaminathan, 1983).

In Kisii, 'proper' maize husbandry is viewed by the Ministry of Agriculture as involving timely preparation of land for planting, use of clean and viable seeds, effective use of recommended inputs, and careful handling of the crop at harvest. Below, we examine what actually informs the decision to adopt or not to adopt recommended farm practices.

Findings show that farmers enlist only those farm practices that they find practically essential, largely because these fit within their life-worlds. What then looks like deviation from the 'norm' is really a conscious decision borne out of the fact that such packages and any other intervention has to be weighed against other costs and benefits that exist in the individual's life.

We also observe that what goes on in a farm may be a technical procedure but it is socially constructed. This takes place at two levels. One, an external recommendation is taken up and adapted to people's everyday lives, which means that the initial technology acquires 'new' meaning or, the same ideology underlying this choice results in such a technology being 'rejected' in its totality. Most agronomic practices at the household level reflect the first scenario as evidenced below.

Cultivating Maize in Maize

While diminishing land size and a shift in cropping activities featured as reasons why farmers were increasingly growing maize-in-maize, it is also apparent that some of the households that nevertheless ended up re-using the same piece of land for their second maize crop were not caught unawareness. Instead, the cropping calendar was subjected to one's skill as a farmer and individual realities, than a mere shift in rainfall patterns.

For example, both Sarah and Yobensiah planted maize twice a year but in 1995, Yobensiah engaged in planting maize-in-maize. Yobensiah explained that she did not have enough money to hire labour and so she did not prepare land for the long rains crop until February, the same month that she planted. Her harvest from the long rains crop did not fall through until late August and by this time she needed to have prepared land for the second cropping. The rains arrived and she had to plant in August. Similarly, Kerubo planted maize-in-maize out of a practical delay. Although she started preparing her land for the long rains crop in January, she could not plant in time because she was also engaged elsewhere, providing casual labour for a wage. Working for pay was necessary to enable her raise money for farm inputs, among other urgent needs. In spite of growing maize-in-maize, both Kerubo and Yobensiah realised better yields per unit area as compared to Sarah who had never faced such delays as to occasion planting maize-in-maize. Sarah, however, continued to enjoy food self-sufficiency which neither Yobensiah nor Kerubo could. Moreover, both Yobensiah and Kerubo realised a similar yield per acre, they differed in some of their farm practices. Unlike Yobensiah who used both line and staggered planting, Kerubo always planted her maize in lines.

Line or Staggered Planting

In as much as line planting and timely weeding form some of the major practices of the improved maize seed package, only a few farmers (27%) had taken up line planting in totality. The greater majority (44%) oscillated between lines and staggered planting while others (29%) never changed from the staggered method. Households associated line planting with higher yields, while some practised it just because extension staff recommended it or it made weeding and har-vest-ing easy. Others felt that the lines allowed for more crop or they prevented maize from falling in heavy wind. Some farmers stated that the staggered method was the only procedure known to them, or they continued to use it because it was easy and faster to apply, it required less labour to undertake or because everybody else used it.

Whereas both staggered and line planting are meant to be two extremes, with line planting perceived as superior, farmers conceptualised these differences variously. In both cases, they were more concerned about the labour demands of any one method, especially the ease and speed with which the selected method could be applied. One farmer dismissed line planting with the simple reason that she did not own a rope to guide her in making the

necessary rows. On the other hand, staggered planting was rejected by some as old fashioned and unsuitable for the improved seed. This group of farmers took up line planting because it was modern and appropriate in the application of HYV seed. They even argued that line planting yields more grain. However, for most farmers, both staggered and line plantings were taken up as and when it was appropriate and the two methods were applied almost on an alternating basis or on different land parcels during the same season.

High Yielding Variety Seed and Fertilisers

Over 90 percent of the households interviewed had used fertilisers at one time or another and the first person applied them almost ten years earlier than hybrid seed. However, the movement towards application of fertilisers did not take just one direction. In 1995, some of the households that were already dependent on fertilisers withdrew. They argued that the application of fertilisers weakens soils and, once the soil gets used to such boosts, the practice has to continue otherwise yields will drop even more drastically. However, farmers who leased in land and could afford fertilisers, continued to apply them to their maize crop. They explained that since the land did not belong to them, they did not see much risk if they were not able to afford fertilisers the next time round.

Table 3 below shows that only 58 percent of the 218 households that applied fertilisers in 1995 also used the HYV maize seed that year. The rest (37%) had discontinued the use of this seed and for some, this happened several years ago. On the other hand, 77 percent of the households that applied fertilisers in 1995 also used the local maize seed during the same period. Others that applied fertilisers had never used local seed (9%) or, they had discontinued its use (15%).

Table 3: Type of seed used by households that applied fertilisers (n=218)

When Seed Type was Used	Used HYV Maize Seed		Used Local Maize Seed	
	%	Frequency	%	Frequency
In 1995	58.3	127	76.6	167
Previous Years	37.1	81	14.7	32
Never Used Seed	4.6	10	8.7	19
Column Totals	100.0	218	100.0	218

Generally, there was overlap between the choice of maize seed and the application of fertilisers. Some of the households that applied fertilisers to their maize crop used both the local and the HYV seed while others did not use the HYV seed. Generally, the choice and combination of technologies is not always out of an individual's own decision, and neither is a lack of awareness of its existence the main constraint.

For example, Josephine was engaged in a kind of low external inputs cultivation. She had never used the HYV seed, she never applied line planting and she never used paid labour. But, Josephine sometimes used fertilisers when these were given to her as a gift. Josephine saw the application of fertilisers as an added advantage but whenever the cousin who supported her did not provide; she never purchased fertilisers although there is likelihood that she could afford them. The possibility that her failure to apply fertilisers had a negative impact on Josephine's farming was not self evident because, her 'extensive' cultivation concealed her low output per unit area.

Conclusion

Among the things that are assumed in the literature when farmers who have been able to attain technically recommended yields are encountered is that they are a unique group and modern. Those others that do not attain recommended outputs must then be engaged in practices that are off the mark. However, discussions in this paper suggest that the application of technologies that are considered modern and efficient does not, on its own, explain variations in food yield. Unit output is a product of the ways in which crop husbandry practices are socially moulded, resulting in diversity, incongruity and co-existence in farm practices.

In general, the amount of land available to households remains central to the future of cultivation as a source of food. Findings show that an overwhelming majority of farmers operated below the recommended unit output, but this was overshadowed by the fact that some of them continued to be food self-sufficient, due to the large amount of land that they were able to put under cultivation. On the other hand, households that were comparatively more efficient but with smaller land holdings did not achieve desired food outputs. However, we cannot postulate what the exact situation is likely to be in the future. This is because some of the households that had inherited small land parcels were able to augment them enormously whereas for others, their meagre endowment marked the beginning of a delicate and downward trend in their search for adequate food. Therefore, until such a time that yields can be optimised and in the absence of off-farm income, the amount of land available to a household will remain the most decisive element among those with an inclination towards cultivating some or all their food.

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