

The cash crop versus food crop debate

Colin Poulton, Ramatu Al-Hassan, Georg Cadisch, Chinnappa Reddy and Laurence Smith

This paper revisits the debate on the promotion of cash and food cropsⁱ in the light of recent developments in agricultural markets and the current interest in sustainable livelihoods. Given this latter context, it focuses on the meso and micro, rather than macro, strands in the debate and also on cash crop production by smallholders, although this could include participation in outgrower or contract farming schemes linked to a nucleus estate.. Large-scale production of cash crops, whilst good for generating foreign exchange and/or keeping food prices low, is unlikely to make much contribution to rural poverty reduction, except possibly in remote, land-abundant areas where there is little other economic activity and where a large scale of operations is necessary to encourage market linkages and to justify investments in supporting infrastructure. In more accessible areas, competition for land between commercial and smallholder producers may exacerbate rural poverty.

Conclusions and research needs

The basic attraction of cash crops is higher returns to land and labour. Increased production of cash crops is an inevitable part of the rural development process. This need not jeopardise food security, either at national or household level, and may have significant benefits for soil fertility. However, the benefits from cash crop production are likely to be unevenly distributed, both across and within households, and there may be other environmental costs. Priorities for further research include the following.

- Continued efforts to improve the performance of food marketing systems, so as to reduce the costs and risks for poor, food-deficit households of relying on food purchased from the market.
- Continued research into contract farming schemes and other forms of interlocked transactions, as means both to broaden participation in cash crop production and to provide access to inputs for enhanced food crop production. The sustainability of such schemes (overcoming strategic default) and the terms of contract offered to smallholders are critical issues.
- Research into market opportunities and appropriate technology for local crop processing, as a means of increasing rural employment, particularly for women.

Different types of cash crop

For the purposes of this paper, cash crops are defined as “crops that are intended entirely or primarily for market”, whereas food crops are “crops that are intended entirely or primarily for home consumption”. This focuses attention on the fact that poor rural households (including tenant farmers) are often both producers and consumers of agricultural products, who satisfy their food consumption requirements both through own production and through market purchase. To rely wholly or partly on market purchase, however, they have to acquire the means to buy food either through sale of other crops or via other income-generating activities.

These definitions mean that the characterisation of a crop might depend both on the type of household concerned and on the area of production, not just on the crop itself. For example, as marketing liberalisation is

proceeding in sub-Saharan Africa, production of maize for market is becoming concentrated in a few accessible, high potential areas (see Box 1 for Ghana) and amongst a small number of larger farmers in other regions.

However, almost all households in maize consuming areas still grow some maize for own consumption, even if many do not attain self-sufficiency. Similar observations may be made for basic vegetables, legumes and oilseeds in some countries.

In some areas certain varieties of maize or rice are grown for sale, whilst others are grown simultaneously by the same households as food crops. Crops such as cassava, sorghum and millet are largely grown for own consumption, although there may be demand from livestock feed producers or brewers of traditional beer. By contrast, export crops, including non-food and beverage commodities, are universally cash crops, as are many non-traditional horticultural products.

ⁱ See Maxwell and Fernando (1989) for an earlier review of the debate.

Box 1: Food and Cash Crops in Ghana

In Ghana, as in many countries in Sub-Saharan Africa, agriculture accounts for a large share of GDP (45%), employment (60%) and foreign exchange earnings. Stimulating production for both domestic and external markets thus occupies a central place in the national economic strategy (Vision 2020), even though the eventual aim is to diversify the economic base into manufacturing and services. Since 1985 the real exchange rate has been allowed to depreciate, taxes on export crops have been reduced, and production and marketing activities (for example in palm oil and cotton) have been privatised and/or liberalised. However, the government still retains monopoly control over export of cocoa, the country's main foreign exchange earner, thus maintaining some control over quality standards.

All regions of the country produce some cash crops, although traditionally cash cropping activity has been concentrated in the forest and transitional agro-ecological zones of the south and centre. Even maize exhibits a high degree of commercialisation, with the main surpluses produced in the transitional zone (where the main staples are roots and tubers) for sale to southern markets. Cash cropping is least in evidence in the densely-populated and dry Upper East Region, where livelihoods are heavily dependent on remittances, trading activity and, recently, mineral prospecting.

Within producing areas, surplus production is inequitably distributed. However, significantly, three national Living Standards Surveys conducted during 1987-92 found that the poorest households were also the most dependent on agricultural income. Expanding productive capacity and access to market opportunities can thus play a major role in poverty reduction. Overcoming imperfections in rural credit markets (for example, through contract farming and outgrower schemes) is a current policy priority, as the start-up and recurrent costs for many profitable cash crops can be considerable.

In general, men control cash crop marketing, as well as rights to land. Women play a major role in food crop production and also supply labour for their husbands' cash crop activities. On the other hand, domestic assembly, wholesale and retail trading activities are all dominated by women, with powerful associations protecting trading margins through control over access to urban wholesale markets.

Although the crop is not particularly labour intensive, the cocoa sector has always attracted large numbers of migrant labourers from the north (and even from neighbouring countries) to work as sharecroppers and managers on cocoa plots. However, rural consumption linkages have been weakened by a tendency to invest the lump sum proceeds from crop sales in trading and real estate in urban areas.

Urban growth and rising incomes provide particular opportunities for marketing of horticultural and livestock products (including dairy), although the latter are not covered by this paper.

Direct benefits of cash cropping

In theory, production of cash crops may enable farm households to obtain more food and income than they could obtain by devoting the same household resources to own food production. This is because:

- the crops produced for cash have a higher value than those consumed for food within the household and/or,
- production for market is made possible by (a degree of) specialisation in production that raises the overall level of efficiency of resource use.

Additionally, both production of higher value crops and specialisation in production are conducive to intensification of production methods (greater use of improved seed, organic and inorganic fertiliser, family and hired labour, crop protection chemicals, draft power and, where available, irrigation water), which tends to increase returns for those able to achieve it.

Although there are exceptions, household level studies generally show that returns to land and labour are higher under cash cropping than under traditional food production, and even that households give cash crops priority in terms of land, labour and fertiliser allocation. It is important to note, however, that where households are net buyers of food, high food marketing margins increase the opportunity cost of cash crop production in terms of the value of food production foregone - even where there is little risk surrounding the physical availability or pricing of food.

Cash cropping, public policy and rural development

Increased production of crops for market is both an inevitable feature of rural development and essential if the agricultural sector is to support economic development more generally. The accompanying greater productivity and higher household incomes are a sign of such development, but at the same time may eventually feed back into higher prices for land, which in turn demand further productivity increases from producers.

Public policy that reduces transport costs, improves information flows and reduces the transaction costs of economic exchange thereby encourages cash cropping (amongst other things). There has often also been a tendency (less desirable from a sustainable livelihoods perspective) to promote large-scale production, for example through providing subsidised credit or export assistance that only larger operators can take advantage of.

In addition, the following trends - all of which have been observed across a wide range of developing countries in recent decades - may encourage moves towards cash cropping:

- production of higher value crops, specialisation in production and intensification are all encouraged by rising rural populations, which tend to reduce average farm sizes over time and force producers to achieve a higher return per unit of land;
- increasing demands for cash, e.g. for school fees and health care, encourage sale of agricultural produce by households for whom crop sales are a major source of income;
- real devaluation of a country's exchange rate make production of internationally tradable crops relatively more profitable than production of crops sold only on local markets (or largely consumed at home);
- long-term changes in the relative prices (on international markets) of crops that households grow for cash and consume themselves may encourage a greater market orientation, if these changes are transmitted down to local level.

Maxwell and Fernando (1989) showed that, over the previous two decades or more, the prices of basic food commodities on world markets had declined relative to most other crops. There are reasons to believe that this trend could be reversed in coming decades. However, predictions that it would happen in the 1990s have not come to pass. Meanwhile, trade and marketing liberalisation reforms as part of structural adjustment programmes mean that international price changes are increasingly likely to be transmitted even to smallholder households.

Taken together, these considerations suggest that the real questions for research programme management are:

- what can be done to ensure that the increasing market orientation of agricultural production minimises costs and maximises benefits to the poorest households; and,
- what support should still be given to subsistence food production?

Relationships between food and cash crops

Although food and cash crop production are often seen as mutually exclusive alternatives, increased cash crop production need not reduce food production at household level. Govereh *et al.* (1999) note the following complementarities between cash and food crop production:

- under credit and input market failures, participation in cash cropping (especially where there is a contract farming scheme or other form of input-output interlocked transactions) may improve farmers' access to inputs to the benefit of food crop production;
- the spread of input-intensive cash crops may induce investment in input distribution systems,

infrastructure and human capital that brings benefit to food crop production; and,

- income from cash cropping may enable households to invest in lumpy assets such as animal traction.

The studies presented in von Braun and Kennedy (1994) suggest that household participation in cash crop production need not reduce own food production or nutritional status, although it is equally naive to expect that enhanced income from cash crops will automatically translate into improved nutritional status. Perhaps predictably, the impact of cash crop production on household food production and nutrition depends on a number of factors that are specific to each location and context:

- whether land is scarce or relatively abundant;
- whether attractive available technology exists to permit more intensive food crop production on smaller parcels of land, using the higher incomes available from cash cropping to purchase inputs and/or hired labour;
- the gender balance within the household and whose priorities prevail in production and expenditure decisions (see below).

Soil fertility

As populations rise and fertiliser subsidies are/have been scrapped throughout sub-Saharan Africa and South Asia, the ability of cash cropping to support fertiliser use becomes increasingly significant. Under crop rotation, fertiliser residues from one season's cash crop activity might enhance the following season's food crop. Alternatively, as above, cash cropping may allow households to obtain fertiliser directly for food production, either on a cash or credit basis. Ownership of draft animals, made affordable by cash crop production, may also dramatically increase the amount of manure that households are able to apply to their land, as manure not only becomes more plentiful, but can be more readily transported to the field.

One of the lessons of studies of sustainable intensification (e.g. Tiffen *et al.*, 1994) is that cash income is important in permitting labour hire and input purchase. Such income can be obtained either from non-farm employment or from crop sales. In parts of South Asia, rural industrialisation is assuming increasing importance. However, in sub-Saharan Africa, excluding the polar extremes of most remote and most accessible areas, cash cropping remains the most important income source.

When considering soil fertility impacts, the nature of the crop (both food and cash) is obviously important. For example, legumes not only have the potential to fix nitrogen, but their organic residues in the soil can enhance the efficiency of fertiliser nutrient use by subsequent crops. Tree crops tend to be associated with lower levels of nutrient mining than annuals. Crop

prices are also important, however, as low prices may discourage use of inorganic fertiliser. Moreover, it cannot be assumed that higher returns will automatically be reinvested in soil fertility. In a Kenyan study, de Jager *et al.*, (1998) found no relationship between net farm income and the farm-level nutrient balance, whilst greater production for market could at times exacerbate nutrient mining. Other studies have suggested that security of land tenure is critical if long-term investments in soil fertility are to be made.

Who benefits from cash crops?

Unfortunately, not everyone shares equally in the benefits of the spread of cash cropping. Participation in market exchange carries costs and risks, as do investments in purchased inputs and hired labour. Given that markets for capital and insurance are either imperfect or missing in rural areas of developing countries, these tend to exclude the poorest households.

Production of cash crops often requires considerably more working (or, in the case of tree crops, investment) capital than food crops. In addition, the transaction costs associated with marketing activities can be considerable, particularly in the absence of an efficient market information system. The cost of discovering prices and market requirements (especially with regard to quality) is essentially fixed, so weighs most heavily on small producers. These costs are most burdensome when crops are perishable (so prices most volatile) and markets most competitive (such that opportunities and threats are constantly changing). Horticultural products pose particular problems here. However, for high value products, contract farming arrangements may remove some of the burden from smallholders. Given the need to access and use information for risky business decisions, education levels may also influence successful participation in cash cropping.

Whereas households producing food for own consumption are subject to output risk, those producing for market are also subject to price risk. In closed economies and/or isolated local markets, price and output risk may be negatively correlated, thus smoothing incomes. However, this is not necessarily the case for internationally traded commodities. Variable income streams imply a particularly high level of financial risk where costs of production are high. Furthermore, the risk entailed in a market-oriented production strategy is not confined to product sales. In addition to the high food marketing costs mentioned earlier, intra- and inter-seasonal variability in food prices may explain the reluctance of many poor households to diversify into cash crops.

As access to credit often requires either land title or reliable and sizeable marketed surplus, inequalities in access to land can be an important factor influencing participation in cash cropping. In turn, cash cropping may reinforce existing inequality, including, where there is an active land market, increasing the concentration of

land holdings. As potential returns to land rise, poor tenants may be faced with higher rents, even if they themselves cannot grow cash crops, or may find that renting opportunities are simply discontinued. Up to now these land price effects have been more evident in South Asia and Latin America than in sub-Saharan Africa. However, the gradual privatisation of land markets in high potential areas of Africa means that such effects will one day be felt there, too.

Labour demand and consumption linkages

For the poorest rural households, any benefits from expanded cash crop production are more likely to come from greater opportunities to hire out their labour and from increased demand for other rural goods and services that they provide, than from direct participation as cash crop producers. The labour requirements of cash crop production obviously vary from crop to crop. However, there is plentiful evidence that many cash crops require considerably more labour than traditional food crops (see Box 2 for Karnataka in India) and

Box 2: Food Crops and Cash Crops in Karnataka, India

In Karnataka food crops - paddy rice and finger millet (*ragi*) - account for approximately 50% of the gross cropped area of 12.35 million hectares. Cash crops including vegetables, fruit, flowers, sugar cane, cotton and perennial plantation crops account for the remainder. Other commercial enterprises include sericulture, livestock, and timber plantations. PRA exercises conducted in four villages in Kolar and Bangalore districts revealed that a high proportion of farmers engage in cash cropping activities, particularly vegetable production for urban markets. Primary motivations for this are purchase of consumer goods and costs of education.

The following factors influenced small farmer involvement in cash cropping:

- Establishment costs are too high for some crops for smaller farmers with limited access to credit/capital. However, even the smallest farmers are able to produce those vegetables with the lowest input costs. After vegetables, sericulture is the second most popular commercial enterprise for small farmers because of its relatively low costs and risk. However, mulberry cultivation is normally limited to 50% or less of irrigated area per holding because of the management and labour intensive production requirements.
- As distance to urban markets increases, perishability of the products grown and the proportion of cropped area devoted to cash crops declines.
- Participation by younger household members in agricultural decision-making favours cash cropping.
- State government supply of subsidised inputs and dissemination of technology, including tubewells for irrigation, has prioritised small farmers and vulnerable caste/tribal groups.

Some have access to formal sector credit from commercial banks and co-operative societies

sometimes provide employment not just for local resource-poor households but also for large numbers of migrant labourers. Where crops are marketed,

processing activity is much more likely to be a source of income and paid employment than when consumption takes place on-farm, although the extent of such employment varies considerably from crop to crop and market to market.

There is currently considerable debate about the role of the agricultural sector in stimulating rural non-farm employment and growth. Experience suggests, however, that good infrastructure and dynamic agriculture are likely to generate significant non-farm employment opportunities for those rural households with the fewest investible assets and lowest levels of education. In Asia the Green Revolution has created large numbers of low-barrier-to-entry jobs in processing and marketing, whereas in sub-Saharan Africa such jobs are still relatively scarce.

Benefits from cash cropping arise from higher farm returns to land and family labour, and increased employment of hired labour (see Box 3). Rising demand for agricultural labour combined with rising labour demand in urban areas has led to an increase in agricultural wage rates. Farmers report reduced indebtedness and thus greater self-esteem and independence among poor and vulnerable groups.

Box 3: Farmer estimates of labour requirements and net cash income for common cash and food crops		
	Workdays/ha	Net Rs/ha
Tomato	375	25000
Beetroot	150	12500
Knol Khol	130	10500
Paddy Rice	175	6400
Ragi (irrigated)	163	2700
Ragi (rainfed)	100	700

Though requiring confirmation, it is believed that household food security has improved through increased income, adequate availability of staple foods and a more diversified and higher quality diet. Farmers generally continue to produce sufficient staples for own consumption. Food purchase still carries a social stigma (though this is rapidly changing as commercialisation proceeds) and is largely restricted to labourers and marginal small farmers in the lean/summer months.

Cash crop incomes are subject to both production and price risks, especially from erratic power supply for irrigation and vegetable supply gluts reported to occur in two years out of five. Women share more in decision-making on smaller farms, but may have an estimated additional workload of up to 60 days per year given the requirements of cash crops. One or two milk cows are owned by about 90% of small farms, important for women who control this source of reliable income. Apart from increased and possible misuse of crop chemicals, the main environmental problems reported by farmers are the drawdown of groundwater and decline in addition of organic matter to the soil.

Intra-Household Considerations

One of the most problematic areas for cash cropping is within the household. Control over the marketing of cash crops and over the revenue generated is often assumed by men, even when the resources of all household members have been used in production. Where a crop changes from being essentially a food crop to being a significant source of regular household income, this can deprive women of a source of cash from previous occasional sales. Moreover, there is evidence that women typically spend such income on food and other basics, whereas men may spend more of the proceeds of cash crop sales on consumer durables or alcohol. Where a new cash crop is introduced, women's labour input may be demanded on top of their existing food production and other household responsibilities, with the result that time spent on child care and food preparation is reduced. Profitable marketing opportunities may also lead men to take over good land that had previously been farmed by women. The welfare of (some) women and children within the household may thus fall, even as aggregate household income rises with cash crop production.

Such effects vary across cultures and households and are not immediately amenable to change through policy intervention. Legislation could seek to strengthen women's right to land and interventions might seek to support women-only marketing associations. Alternatively, efforts to support women's livelihoods might be concentrated on activities other than agricultural production. In some countries women dominate retail and even wholesale trading (see Box 1). Very often they dominate local processing activity and the production of a variety of goods and services, demand for which is stimulated by cash crop income. Strengthening their capacity to carry out these activities should not only enhance their livelihoods, but also strengthen their bargaining position within the household over, say, labour input into cash crop production.

Other environmental considerations

Finally, production of some cash crops raises concerns about inappropriate and uncontrolled pesticide use. Poor smallholder households are least likely to have good information about appropriate pesticide use and are most vulnerable to both pest build-ups and market discrimination (on actual or potential quality grounds) induced by misuse. Groundwater pollution and health problems raise particular problems in areas of low rainfall and few public services.

Conclusions

Shifts towards greater reliance on cash cropping are inevitable as populations increase and the transactions and other costs of trade come down. This need not undermine food security at household level and generally will not within the household. Rather, as long

as states do not try to prescribe what producers should grow, households will tend only to invest in cash crop production where they have some means of maintaining their existing food entitlements. Moreover, cash crop incomes are becoming increasingly important to the maintenance of soil fertility, as the intensity of agricultural production activity increases and fertiliser subsidies are eliminated.

However, the benefits from cash crop production are often quite unequally distributed, both between and within households. This results from unequal access to land, and from imperfect or missing markets for capital and insurance, where cash cropping entails greater costs and risks than food production for own consumption. Public policy may seek to widen access to land and capital and to increase information flows about markets and prices (although none of these are without their difficulties). However, often it has reinforced existing market imperfections favouring large producers.

For the poorest rural households, benefits from expanded cash crop production are more likely to come from greater opportunities to hire out their labour and from increased demand for other rural goods and services that they provide than from direct participation as cash crop producers. Targeted interventions, such as microfinance provision, can increase the capacity of poor groups to take advantage of such opportunities. A balance thus needs to be struck between efforts to improve the performance of (and broaden participation in) cash crop marketing systems, so as to generate demand for rural goods and services, and efforts to improve the capacity of the poorest to provide them.

References

Govere, J, Nyoro, J, *et al.* (1999). Smallholder Commercialisation, Interlinked Markets and Food Crop Productivity: Cross-Country Evidence in Eastern and Southern Africa. Michigan State University, Michigan, USA.

de Jager, A, Kariuku, I. *et al.* (1998). Monitoring Nutrient Flows and Economic Performance in African Farming Systems: Linking Nutrient Balances and Economic Performance in Three Districts in Kenya. *Agriculture, Ecosystems and Environment* 71: 81-92.

Maxwell, S. and Fernando, A. (1989). Cash Crops in Developing Countries: The Issues, The Facts, The Policies. *World Development* 17(11): 1677-1708.

Tiffen, M, Mortimore M., *et al.* (1994). More People, Less Erosion: Environmental Recovery in Kenya. John Wiley and Sons, Chichester, UK.

von Braun, J and Kennedy, E. (Eds). (1994). Agricultural Commercialisation, Economic Development and Nutrition. Johns Hopkins University Press, Baltimore, Maryland.

Contacts:

Colin Poulton, Ramatu Al-Hassan, Georg Cadisch, Chinnappa Reddy and Laurence Smith

Department of Agricultural Economics
Imperial College at Wye
Wye, Ashford
Kent TN25 5AH
c.poulton@ic.ac.uk

DFID Department for
International
Development

This publication is an output from a research programme funded by the United Kingdom Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

NR
INTERNATIONAL

The Crop Post-Harvest Research Programme is managed by Natural Resources International Ltd, Pembroke, Chatham Maritime, Chatham ME4 4NN
t.donaldson@gre.ac.uk

website:<http://www.cphp.uk.com>