

2001-02 Targeted Inputs Programme (TIP)

Main Report of the
Evaluation Programme

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Submitted to:

The Ministry for Agriculture and Irrigation (Malawi)
and
The Department for International Development (UK)

August 2002

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This document is an output from a project funded by the UK Department for International Development (DFID) for the benefit of developing countries. The views expressed are not necessarily those of DFID.

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- Development of training programmes in statistics for researchers in agriculture, animal production and forestry
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Acknowledgements

Sarah Levy and Carlos Barahona thank all the members of the 2001-02 TIP evaluation teams – consultants, research assistants, field supervisors, enumerators, data entry clerks and supervisors – for their commitment to achieving high quality work in challenging conditions.

We thank Harry Potter, Joanne Manda, Jimmy Kawaye and Cecilia Cruz at DFID for making the programme possible and for providing support to the evaluation teams at critical points. We would like to extend our thanks also to Charlie Clark and his team at the TIP Logistics Unit, who provided us with vital information, including access to the TIPLU database.

Thank you also to Cathy Garlick, Lorna Turner, Pam Autherson, Gail Ashton and Alex Owen at the SSC for your dedication and patience.

Last but not least, we would like to express our thanks to the Malawian farmers who shared their experiences and thoughts with us so that their government and the donor community might learn useful lessons for the future.

List of acronyms

AIDS	Acquired Immuno Deficiency Syndrome
DFID	Department for International Development, UK
EPA	Extension Planning Area (of the MoAI)
FEWS	Famine Early Warning System
HIV	Human Immunodeficiency Virus
IHS	Integrated Household Survey
MoAI	Ministry of Agriculture and Irrigation
M&E	Monitoring and Evaluation
OFD	On-Farm Demonstration
OPV	Open Pollinated Variety
PRA	Participatory Rural Appraisal
SP1	First year of Starter Pack (1998-99)
SP2	Second year of Starter Pack (1999-2000)
SSC	Statistical Services Centre (The University of Reading)
TIP	Targeted Inputs Programme
TIP1	First year of TIP (2000-01)
TIP2	Second year of TIP (2001-02)
TIPLU	TIP Logistics Unit
VDC	Village Development Committee
VTF	Village Task Force

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Part 1: The approach

Section 1: Introduction

Starter Pack and TIP

The 2000-01 and 2001-02 Targeted Inputs Programmes (TIPs) provided rural smallholder households with one Starter Pack containing 0.1 ha-worth of fertiliser, maize seed and legume seed. The TIPs followed on from the Starter Pack campaigns in 1998-99 and 1999-2000. A key objective of these campaigns was to increase household food security amongst rural smallholders in Malawi. The 1998-99 and 1999-2000 SP campaigns (SP1 and SP2) were designed to cover all rural smallholder households, providing 2.86 million packs each year. The 2000-01 TIP (TIP1) was enough for roughly half this number of beneficiaries, while the 2001-02 TIP (TIP2) was further scaled down to 1 million beneficiaries.

The TIPs had a number of objectives which were the same as those of SP1 and SP2:

1. Increasing national food production, in particular for maize;
2. Promoting the use of chemical fertiliser by smallholder farmers (to improve yield);
3. Reducing household food insecurity, particularly for the poorest farm families; and
4. Provision of legume crops to improve soil fertility and diet.

However, there were some key differences:

- The TIPs asked rural communities to select the poorest households as beneficiaries of the programme through community targeting.
- TIP1 replaced hybrid maize seed with the more sustainable OPV maize seed, which can be recycled for up to three years. It was the intention to continue using OPV in TIP2, but insufficient supplies were available, so many areas received hybrid.
- The amount of fertiliser provided was reduced from 15 kg under Starter Pack to 10 kg under TIP on the basis that OPV maize seed requires less fertiliser than hybrid.
- The extension campaign for TIP2 included not only leaflets and radio messages, but also on-farm demonstration (OFD) plots to teach farmers how to use TIP inputs.

The evaluations

For the past three years, Calibre Consultants (UK) and the Statistical Services Centre of The University of Reading (UK) have managed Starter Pack and TIP monitoring and evaluation programmes on behalf of the Malawi Ministry of Agriculture and Irrigation (MoAI) and the UK Department for International Development (DFID). This report presents the findings of the 2001-02 TIP evaluation programme. It also draws on the previous years' research.

The SP2 and TIP1 evaluations were large-scale programmes involving five or six teams of local consultants. The modular design of these programmes¹ – in which each team researched a particular topic of interest – meant that Starter Pack and TIP were researched from a variety of angles, with large amounts of information collected and processed by nationwide surveys and participatory research exercises.

¹ See Levy and Barahona, 2001.

After two years, we felt that most of the key issues had been well researched and that the policy recommendations had been clearly stated. Therefore the TIP2 evaluation comprised only two modules, one focusing on ‘core’ information about food production and security, and the other looking at areas which had been modified after the experience of TIP1: beneficiary selection and community targeting, agricultural extension and health messages. Thus the TIP2 evaluation consists of:

- **Module 1:** A study of **Food Production and Security** carried out by Clement Nyirongo of the National Economic Council (the Team Leader) with Hiester Gondwe, Frederick Msiska, Humphrey Mdyetseni and Frank Kamanga of the MoAI. The work was split into two parts: a pre-harvest survey carried out in April-May 2002, and a post-harvest survey in August 2002. This report draws on the findings of the pre-harvest survey only.
- **Module 2:** A study of the **TIP messages** based on participatory research techniques. The work was carried out by a team based at Chancellor College led by Blessings Chinsinga, with Christopher Dzimadzi, Michael Magalasi and Lawrence Mpekansambo.

Section 2: Methodology

Sampling

The final report for each module contains an outline of the sampling strategy for that module. The following general principles were shared by both modules, even though Module 2 was based on structured participatory research methods rather than surveys:

1. Random selection of villages within districts and – for surveys – households within villages.
2. The largest number of sites possible were selected within the resources available.

This makes it possible to claim that the samples are ‘representative’ and allow us to reach generalisable conclusions. Including a large number of sites allows us to capture as much variability as possible and improves the precision of our generalisations. We can also compare variations between regions and poverty categories.

The Module 1 pre-harvest survey visited all 27 districts of Malawi. Five villages within each district were selected at random from the TIP Logistics Unit (TIPLU) register, making a total of 135 villages. All households in these villages were listed, and a total of 2,952 households were selected for interview (1,541 TIP2 recipients and 1,411 non-recipients). In addition, Module 1 carried out 326 field visits to TIP farmers’ gardens.

The results of the Module 1 survey can be presented at regional level or in clusters of districts, but the sample size is not large enough to analyse the findings at district level.

The Module 2 study visited one village in each of 21 districts – five in the northern region, seven in the central region and nine in the southern region. The villages were selected at random from the TIPLU register. Information on food security, beneficiary selection and community targeting was collected for all households in each village: 1,343 households (280, 383 and 680 households in the northern, central and southern regions respectively).

Much of Module 2’s work on agricultural extension and health messages was based on participatory focus group discussions. It is not possible to select participants at random for this type of research. However, as the study team recorded information about participants, it is possible to compare their characteristics with those of the general population or groups of interest to establish whether they are ‘representative’. In addition, the agricultural extension

component of Module 2 used individual case study type interviews with key stakeholders (agricultural extension staff and farmers).

Information collection tools

As we wanted to combine results from a number of locations, the methodology had to be standardised at all locations. This is easy to achieve with surveys, which use questionnaires and other data collection forms. The Module 1 pre-harvest survey used a village listing form, a household questionnaire, an individual questionnaire and a field visit form².

However, it is difficult to achieve standardisation with participatory studies. Non-standardised PRA approaches usually produce ‘case study’ type information that is hard to analyse in a comparable manner across a large number of sites. Module 2 adapted PRA techniques to more ‘structured’ versions because of the need to produce information which can be analysed in a comparable manner between sites and to produce generalisable conclusions.

The key participatory techniques used by Module 2 were social mapping, a ‘card game’ and scoring. In addition, participants were presented with leaflets with the text blocked out (for the health leaflet focus groups) and challenged with ‘provocative statements’ on HIV/AIDS. All focus group discussions and individual interviews were carefully structured in advance using a field manual, and information was consistently recorded using debriefing documents³.

The disadvantage of fully standardised approaches is that they run the risk of missing important elements by asking the wrong questions or an incomplete set of questions. Therefore the design of our evaluation modules normally comprises:

- a preliminary phase in which flexible methods are used to explore the issues, informing the design of standardised instruments for use in the main phase; and
- a main phase in which standardised instruments are used to collect comparable information.

Module 2 of the TIP2 evaluation comprised a preliminary phase and a main phase. However, this year Module 1 did not have a preliminary phase because the data collection instruments were modified versions of those developed by the TIP1 evaluation teams. Nevertheless, the Module 1 team ‘pre-tested’ their data collection instruments in the field before finalising them for use in the main phase and translating them into Chichewa and Tumbuka.

² See Nyirongo *et al*, 2002, Chapter 2.

³ See Chinsinga *et al*, 2002, Chapter 2.

Part 2: The findings

Section 1: Beneficiary selection and community targeting

The failure of poverty targeting

In TIP1 and TIP2, efforts were made to distribute packs to the poorest smallholder farmers only using community targeting. In 2000-01, community poverty targeting failed to give preference to the poorest: Table 1 shows that the poverty profiles of TIP1 recipient and non-recipients were almost identical. However, policymakers and donors felt that this might have been because rural communities had not been properly sensitised about beneficiary selection criteria and procedures – so in 2001-02 a countrywide sensitisation campaign was undertaken involving district and MoAI personnel. This was designed to ensure that the Village Task Forces (VTFs) – those in charge of beneficiary selection at the village level – would have a clear idea of the procedures and criteria to be used in targeting for TIP. Nevertheless, the outcome in 2001-02 was the same as that of the previous year: the poverty profiles of TIP2 recipient and non-recipients were almost identical (see Table 2).

Table 1: Poverty profiles of TIP recipients and non-recipients, 2000-01

Poverty category	TIP recipients %	Non-recipients %
Category 1 : Poorest	29.2	26.4
Category 2 :	18.3	13.6
Category 3 :	17.1	18.9
Category 4 :	14.0	16.6
Category 5 : Least Poor	21.4	24.5
Total	100.0	100.0
No. of responses	1441	1566

Source: 2000-01 TIP Evaluation, Module 1 report.

Table 2: Poverty profiles of TIP recipients and non-recipients, 2001-02

Poverty category	TIP recipients %	Non-recipients %
Category 1: Poorest	22.8	19.7
Category 2:	21.2	20.5
Category 3:	21.6	22.2
Category 4:	16.7	19.3
Category 5: Least poor	17.7	18.3
Total	100.0	100.0
No. of responses	1541	1411

Source: 2001-02 TIP Evaluation, Module 1 report.

Table 3: Correlation between receipt of TIP and food security status

Food security status	TIP recipients (%)	Non-recipients (%)
Food secure	21.2	33.5
Food insecure	38.5	39.7
Extremely food insecure	40.3	26.8

Source: 2001-02 TIP Evaluation, Module 2 report.

Module 2 of the TIP2 evaluation considered food security to be a close proxy for poverty. It collected information about the food security status of all TIP2 recipients and non-recipients.

Table 3 shows that there was a slight preference for food insecure and extremely food insecure households in the TIP beneficiary selection process. However, the report points out that there should have been no food secure TIP recipients and no extremely food insecure non-recipients.

Why did targeting fail?

The TIP1 evaluation⁴ established that the main reasons for the failure of community poverty targeting were:

- Resistance within communities to singling out the poorest families, because differentiation among the poor is culturally unacceptable. Village society is egalitarian, and targeting is seen as creating social divisions. Resistance to targeting is greater for this type of intervention (free inputs) than for social welfare interventions such as cash or food handouts that are considered appropriate only for the most vulnerable households.
- Little or no correlation with poverty of the key criteria in the official guidelines for TIP targeting – the elderly, widows/widowers and families keeping orphans.
- VTF members favouring themselves (self-selection), their relatives and friends.

The TIP1 evaluation observed that community targeting would be possible if sufficient resources were allocated to facilitating and monitoring the process in every village in Malawi. However, this would be prohibitively expensive. Without it, targeting would continue to fail and allegations of unfairness would continue to undermine the authority of village heads.

Module 2 of the TIP2 evaluation explored the reasons behind the failure of poverty targeting in further detail. The study found that:

- VTFs existed in most of the sites visited. In the northern region, every village had a VTF, and most were Village Development Committees that had been set up as part of the new, decentralised local government system. However, in the central region VTFs were handpicked by village heads and in the southern region they were appointed secretly.
- The VTFs were not properly sensitised on the concept of community targeting and beneficiary selection, and in the northern and central regions the guidelines were provided in verbal form only, leading to some misunderstandings.
- Although the criteria used in the process of TIP beneficiary selection were mainly those of the official guidelines, there was a strong tendency for village heads to include their relatives and for VTF members to select themselves. In 12 out of 14 sites with VTFs, the study found that VTF members had selected themselves to receive packs.
- The selection processes were hardly ever transparent, and workshop participants tended to see them as window dressing exercises (even when done in open village meetings).
- The targeting caused social divisiveness and undermined relations between non-recipients and the village authorities. Non-recipients often threatened not to participate in development work. There were reports of witchcraft and occasionally physical conflict.

Our conclusion from the work of the TIP1 and TIP2 evaluations is that the current community poverty targeting strategy is not appropriate for TIP. There are several flaws to the approach which make it impossible to achieve a successful outcome:

⁴ Findings of the Monitoring Component, Module 2 Part 2 and Module 4, summarised in Levy and Barahona, 2001.

- First** It relies on village-level political authorities being capable of and willing to implement beneficiary selection in a fair and transparent fashion. This is clearly not a valid assumption. When they act unfairly or secretively it undermines their standing within the community, which has a knock-on effect on other initiatives.
- Second** It assumes that communities accept that if resources are scarce, they should be targeted to the poorest. This concept is alien to most rural communities in Malawi – at least as far as assistance for growing food is concerned. The cultural values of such communities dictate that such resources should be *shared*.
- Third** It assumes that it is possible to distinguish one-half (TIP1) or one-third (TIP2) of the households that are poorer than the rest. However, the poverty line in Malawi is around 65-80%⁵. Therefore, attempting to introduce a cut-off line at one-half or one-third of households makes it inevitable that many households will be unfairly excluded, causing justifiable resentment.

Is there an alternative?

If the Government of Malawi and donors do not have enough resources to provide a Starter Pack with inputs for 0.1 ha for each smallholder farm household, this does not automatically imply that it is necessary to do community poverty targeting. Possible alternatives are to:

- Provide a *smaller* pack for every smallholder household (universal Starter Pack). This means that there will be an ‘inclusion error’ as some wealthier farmers who do not need packs would receive them.
- Target geographically, excluding whole areas of the country. This would be politically unpopular. It would also cause ‘exclusion errors’, because even in wealthier or generally food secure areas, there are some very poor/extremely food insecure households, and these households would be excluded from receiving a pack due to geographical location.
- Rotate receipt of the packs between households within villages or between areas, so that over a period of time (two or three years) everybody gets a pack. The schedule would have to be established in advance, so that those excluded in Year 1 would know that they would be included in Year 2 or Year 3.

Is there a ‘right number’ for targeting?

If community poverty targeting were to continue to be used in future to allocate free inputs, we would argue that policymakers should try to get the numbers of beneficiaries right. Failure to do so will have serious consequences, both because of the exclusion of many of the poor who deserve assistance and because it will continue to undermine the social fabric of rural communities. These are serious matters, and deserve careful consideration.

Is it possible to ‘get the numbers right’? Module 2 did some groundbreaking work on what proportion of rural households could be included/excluded from TIP⁶, and concluded that it is possible to *exclude* households that communities can agree to be ‘undeserving’ of free inputs. This would be perceived as fair by all stakeholders at village level.

The result would be a ‘near-universal’ Starter Pack programme covering 80% of rural households. This is higher than the proportion that actually deserve to receive a pack (around 65%). It takes into account inclusion errors related to political power structures and cases

⁵ This is based on the 1998 IHS and our own studies in the last three years. The dividing line varies from region to region (with the north much less poor than the centre and south) and over time.

⁶ Chinsinga *et al*, 2002, Chapter 5.

where there is disagreement between stakeholders. However, anything less than this proportion of households would give rise to an unfair outcome and the accompanying resentment that has characterised TIP1 and TIP2.

There are, however, several disadvantages to this approach:

1. Although the proportion that could be agreed on as TIP recipients is 80% of households at national level, it varies from 60% in the north to 87% in the centre and 89% in the south. The north might be seen to lose out under this approach, causing political problems.
2. Within regions, there is substantial variability between sites, which would still give rise to allegations of unfairness at local level.
3. We do not know at present what is the absolute number of households in rural areas, so we cannot translate the proportion of households to be included under this approach into absolute numbers. The 1998 census found 1.95 million households in rural Malawi (average size 4.4 people), but a ‘ground truth’ study carried out for the 1999-2000 Starter Pack evaluation⁷ estimated that there were 2.78 million (average size 4.1 people). The number may have changed since 1997-98 or 1999-2000, and there may also be significant year to year changes caused by food availability⁸. Module 1 found evidence to suggest that the total number of households in rural areas was lower in 2001-02 (a year of food crisis, and the year on which the Module 2 calculations are based), than in previous years (see Section 2).

In addition to these disadvantages, the cost of organising community targeting might be greater than the savings that can be made on distribution if 20% of households are excluded from TIP. This would depend on the specific costs in a particular year.

We believe that any form of targeting – even a ‘near-universal’ approach – would be inappropriate at present, in view of the need to maximise the food security potential of Starter Pack to reduce the impact of the food crisis (see Section 7). However, the ‘near-universal’ approach may be an option in the medium term, as part of an exit strategy (see Section 8).

Section 2: Registration, distribution and receipt of packs

Registration

After the TIP2 beneficiaries had been selected in a village, the village authorities compiled a register of names and sent it – via the District Commissioner – to the TIP Logistics Unit (TIPLU) for inclusion in the TIPLU database. If a village exceeded its quota, names had to be removed from the register by the district authorities. Once the registers had been finalised by TIPLU, two copies were returned to the District Commissioner together with the requisite number of vouchers entitling the bearer to collect one TIP pack⁹. The vouchers were supposed to be distributed to those named on the registers.

Module 1 of the TIP2 evaluation found that there were serious problems with this process. Receipt of a voucher almost always guaranteed receipt of a pack, but many of those who were registered did not receive a voucher. The result was that the number of households found to have received TIP packs in the villages visited by Module 1 represented only 81% of the total number of households on the TIPLU register for those villages, for which vouchers and packs were distributed (see Table 4). This means that the vouchers and packs were either given to

⁷ Wingfield Digby, 2000.

⁸ Some households appear to have merged in 2001-02, possibly to share scarce food resources.

⁹ TIPLU, 2002.

unregistered households that did not admit to having received them, or they leaked from the system before reaching the village level.

Table 4: Comparison of numbers registered by TIPLU and receiving TIP

Region	Received TIP (No. of households)	On TIPLU register* (No. of households)	Recipients as % of registered
North	1088	1181	92
Centre	1237	1619	76
South	2523	3163	80
Malawi	4848	5963	81

Source: 2001-02 TIP Evaluation, Module 1 report.

Some blame may attach to the distributors, since around 2% of those who received vouchers did not get packs. However, as most of the leakage is associated with the voucher distribution, the problem was probably caused in the main the village and/or district authorities, who were responsible for distributing the vouchers. It would not be difficult to give some of the vouchers to people whose names did not appear on the registers, particularly in view of the secrecy surrounding the beneficiary selection process.

In order to reduce the scale of this problem, a number of measures should be considered:

- Promotion of transparent beneficiary selection processes, with lists of registered beneficiaries displayed publicly in each village. This might be accompanied by civic awareness campaigns, in which communities are encouraged to report abuses.
- High-profile spot checks on voucher distribution at district and village level.
- Reporting to the police any local government officials found misallocating vouchers.

If serious abuse continues, it may be worthwhile considering a radical alternative suggested by TIPLU: the appointment of an independent voucher distribution agent¹⁰.

Distribution

In two key areas, TIP2 showed a major improvement on TIP1: assembly of packs and timing of delivery. Module 1 of the TIP2 evaluation found that:

- 99% of beneficiaries received the maize and fertiliser, and 97% received the legumes (in TIP1, only 82% of packs contained all the inputs);
- Only 1% of TIP2 beneficiaries were unable to use the seed due to late delivery, compared with 20% the previous year. Distribution was almost complete by the end of December.

However, two areas of logistics remained a problem in the 2001-02 season:

- Procurement of maize and legume seed. Lack of supplies of OPV maize seed forced TIPLU to substitute hybrid maize for OPV at the last minute, and it also proved impossible to source the type of legume most appropriate for each district.
- Quality of legume seed. While the maize and fertiliser received by farmers was perceived as good quality, almost 20% of TIP farmers felt that the legume seed was of poor quality.

Distribution of inappropriate or poor quality seed clearly reduces the production impact of TIP (see Section 4). Therefore, we recommend that:

¹⁰ TIPLU, 2002.

- Procurement be organised *well in advance* for both maize and legume seed. In order to be sure of sourcing enough OPV maize seed and appropriate types of legume, the seed needs to be grown. This means that seed multiplication programmes should be organised during the previous main growing season.
- Germination tests should be carried out before any uncertified seed is accepted from suppliers to ensure that the seed distributed in the TIP packs is of good quality¹¹.

What proportion of households received packs?

SP2 distributed 2.86 million packs. This was seen as a universal scheme: 2.86 million was thought to be roughly the total number of smallholder households in rural Malawi¹², and the idea was that every smallholder household should get a pack. The evaluation estimated that there were in fact 2.78 million smallholder households in rural Malawi in 1999-2000¹³. Some households received more than one pack, while others were left out completely.

In TIP1 and TIP2, the coverage of the programme was scaled down. The TIP evaluations have collected data which allows us to estimate the what proportion of smallholders received packs in TIP1 and TIP2:

- TIP1 distributed 1.49 million packs and recovered 1.43 million vouchers¹⁴. If the total number of households in Malawi was 2.78 million, this would have covered 51-54% of households (depending on whether we work on the basis of packs distributed or vouchers recovered). However, the two main evaluation surveys¹⁵ estimated that less than half of rural households received TIP packs.
- TIP2 distributed 998,499 million packs and recovered 973,362 million vouchers¹⁶. If the total number of households in Malawi was 2.78 million, this should have covered 34-35% of households. However, the Module 1 survey estimated that 42% of households received TIP packs. Only 0.6% of recipients received more than one pack.

This information suggests that the total number of smallholder households in rural Malawi was higher than 2.78 million in 2000-01 and considerably lower in 2001-02.

At first sight it seems surprising that the number of smallholder households in rural Malawi fluctuates in this manner, rather than showing a consistent trend in one direction. The explanation may lie in the food security situation. Households appear to merge in order to share scarce resources in bad years. After a good harvest, it seems that sub-groups within the household reclaim their independence. When the SP2 evaluation data was collected, smallholders were enjoying the fruits of the good 1999 harvest, and when the TIP1 data was collected their food security had been further strengthened by the excellent 2000 harvest. By contrast, when the TIP2 evaluation data was collected, households were in the midst of a severe food crisis. Module 1 of the TIP2 evaluation found that while average household sizes

¹¹ We understand from TIPLU that this has been done for the 2002 Winter TIP.

¹² The figure of 2.86 million comes from the SP1 registration exercise of 1998-99.

¹³ Wingfield Digby, 2000.

¹⁴ TIPLU, 2001.

¹⁵ Module 1 and Module 2 Part 1 survey results based on village listings, discussed in Levy and Barahona, 2001. The village listing process involves listing every household in the village and recording whether or not it received TIP.

¹⁶ TIPLU, 2002.

had not changed much since the previous year, the *distribution* of household sizes had changed significantly: there had been an increase in large households, compensated (in terms of the average) by a decrease in medium-size households¹⁷.

We believe that more detailed research is needed on this subject. Our key conclusion for the time being is that year-to-year fluctuations in numbers of rural households will make it difficult to determine (without a full registration exercise) the number of packs that should be distributed in future free inputs programmes, whether universal or targeted.

Section 3: Who are the beneficiaries?

There is a common misconception about the type of farmer who receives Starter Pack/TIP. Wealthier, medium-sized farmers with a few hectares of land have never been part of the target group. From the start, Starter Pack was aimed at *smallholder* farmers. The size of the pack, which contains enough inputs for 0.1 ha, makes it unattractive for medium-sized farmers. Thus, Starter Pack has been broadly poverty targeted from the beginning. This section presents information about the type of farmer who receives Starter Pack/TIP in terms of land area cultivated, crops cultivated and main constraints.

Land and crops

Module 1 of the TIP evaluation found that 72% of TIP recipient households and 79% of non-recipient households in the southern region cultivated less than 2 acres (0.8 ha) of land in 2001-02¹⁸. Average land area cultivated in the south was 1.9 acres for TIP recipients and 1.6 acres for non-recipients. The south has the smallest land areas cultivated, while the north has the largest areas cultivated. Even so, around half of farmers in the northern region cultivated less than 2 acres of land, and average area cultivated in the north was only 2.7 acres for TIP recipient households and 2.5 acres for non-recipients.

The main staple food crops grown by smallholder farmers are maize (nearly 100% of smallholders), sweet potatoes (38%), cassava (30%) and rice (just under 15%). Other staple food crops – sorghum, millet and bananas – are specific to the far north (Chitipa) and south (Mulanje, Thyolo, Mwanza, Chikwawa and Nsanje). European potatoes are also highly localised; they are grown by less than 2% of farmers nationally. The other main crops (i.e. crops grown by substantial numbers of smallholders) are tobacco, vegetables and legumes – groundnuts, beans, soya beans, pigeon peas and cowpeas. The pattern of legume cultivation has been greatly influenced in recent years by Starter Pack and TIP (see Section 4).

Production constraints

Smallholder farmers suffer from lack of land and insufficient labour with which to cultivate it. Land is a particularly serious constraint in the southern region, where smallholders cultivate over 80% of the land they have. Labour is also a problem, particularly for small households, the elderly, the sick and disabled and single mothers with young children. Often poor households have to do *ganyu*¹⁹ for immediate survival; they neglect their own farms at key points in the agricultural cycle such as land preparation and weeding, and – as a result – they face greater food insecurity during the next season.

¹⁷ Nyirongo *et al*, 2002, Chapter 3.

¹⁸ Nyirongo *et al*, 2002, Chapter 3. 1 acre = 0.4047 ha.

¹⁹ Seasonal piecework associated with little payment and seen as degrading.

The other key constraint is agricultural inputs: improved seed and chemical fertiliser²⁰. In the context of infertile soils and degraded seed stocks that is found in much of Malawi, crop yields are very low without improved seed and fertiliser. Farmers are aware of the need to buy improved seed and fertiliser²¹, but in both TIP seasons (2000-01 and 2001-02) the evaluation found that two-thirds of farmers could not afford to do so. Only one-third of those who did not receive a TIP pack used improved seed or fertiliser.

In 2000-01 and 2001-02, the main factors affecting inputs purchases were perceived as lack of cash and the price of fertiliser²². There was a slightly greater emphasis on the price of fertiliser in 2000-01 – the year that fertiliser prices rose sharply due to the rapid depreciation of the kwacha – and on availability of cash in 2001-02, when dramatic food price increases meant that food purchases absorbed much of smallholder households' available resources (see Sections 5 and 6).

Section 4: Production impact

Maize

Module 1 of the TIP2 evaluation found that on average farmers produced 140 kg of maize from the 2 kg of TIP maize seed provided in 2000-01, and 129 kg from the same amount of seed in 2001-02. These findings are based on farmers' production estimates.

The *net contribution* of TIP at household level (output in addition to that which the farmer would have produced anyway) was an estimated 0.7 50 kg bags on average in both 2000-01 and 2001-02²³. This was lower than the contribution of the free inputs in SP1, estimated at around 3.5 50 kg bags²⁴, and in SP2, estimated at 1.4-2.4 50 kg bags²⁵.

The main reasons for the low net contribution of TIP at household level in 2000-01 were the poor weather conditions and late delivery of the packs. In 2001-02, the main reasons were poor weather conditions (again) and widespread pre-mature harvesting. Module 1 of the TIP2 evaluation found that 66% of households ate *nsima* from green maize in 2001-02. Most harvesting of green maize was associated with hunger, theft or fear of theft²⁶.

Average smallholder household production of maize from all sources including TIP fell by around 10% to 7.2 bags in 2002, from an estimated 8.0 50 kg bags in 2001. This follows a decrease of around 40% in the 2001 maize harvest compared with that of 2000²⁷. The estimate of 7.2 bags on average for 2002 is in fact a *forecast*, as the data was collected in April-May 2002, just before the harvest in most parts of the country. It will be revised using data from a post-harvest survey, which is taking place in August 2002. This survey should be able to

²⁰ Manure is currently being promoted as an alternative to chemical fertiliser, but with very low levels of livestock ownership – especially by poor farmers – the impact is unlikely to be felt in the short term.

²¹ Van Donge *et al*, 2001.

²² Nyirongo *et al*, 2002, Chapter 6.

²³ Nyirongo *et al*, 2002, Chapter 7.

²⁴ NSO, 2000. This estimate was based on farmers' recall, without the benefit of a 'control' group.

²⁵ Sibale *et al*, 2001; Nyirenda *et al*, 2000.

²⁶ Nyirongo *et al*, 2002, Chapter 7. The factors behind pre-mature harvesting were explored during field visits.

²⁷ Levy and Barahona, 2001. Sibale *et al*, 2001. The Sibale *et al* (2001) data is not directly comparable with the Nyirongo *et al* (2002) data as the questions were asked differently in the two surveys.

gauge the full impact of pre-harvest losses and provide an estimate of the extent of post-harvest losses, including those associated with storage of pre-mature maize.

Legumes

The inclusion of maize seeds in the TIP pack does not affect the smallholder crop production pattern. As almost all smallholders grow maize (see Section 3), TIP simply adds to output by providing good quality inputs which help to improve yield. By contrast, the inclusion of legume seeds in the TIP packs has had a positive impact on crop production patterns. Module 1 of the TIP2 evaluation found that:

- for 34% of TIP farmers, the TIP legumes were their only source of legume seed; and
- legume cultivation patterns in 2000-01 and 2001-02 reflected the content of the TIP packs, with changes in numbers of farmers receiving groundnuts, beans, soya beans and pigeon peas clearly reflected in the percentage of farmers growing these legumes.

However, Module 1 also found that:

- average household production of groundnuts, beans, soya beans and pigeon peas was generally *lower* for TIP recipients than for non-recipients in 2000-01 and 2001-02; and
- one-third of TIP farmers did not plant any of the legume seed received in 2001-02, even though it was received in time for planting – instead they ate the TIP legume seed.

These findings indicate that the legume component of the TIP packs has a high potential to diversify crops by introducing legume seed that smallholder farmers would not plant in the absence of TIP. However, they also show that the legume component is under-performing. The main reasons for the underperformance are:

1. a high proportion of packs contain poor quality seed (for example, seed that does not germinate); and
2. the legume seed distributed is frequently not the farmers' preferred type of legume – in TIP2, a consultation process with districts ascertained the preferred legumes for each area, but it was not possible to source the right varieties in the time available (see Section 2).

An aggravating factor in TIP1 and TIP2 was that the instructions about how to use the inputs were based on the Sasakawa Global 2000 technology, which favours monocropping maize. No instructions on use of legumes were provided. Our recommendation is that in future years the TIP instructions include use of the legumes (see Section 10).

In general, we believe that the Starter Pack and TIP campaigns have tended to focus on maize and underemphasize the legume component. We recommend that in future, greater efforts are made to ensure that the legumes provided are appropriate and of good quality, and that the extension message highlights the importance of the legumes. This should increase the legume production impact, which is particularly important in view of the benefits to food security of diversifying away from dependence on a single food crop (see Section 6).

Fertiliser

The key finding of the TIP2 evaluation with regard to the fertiliser component of the TIP packs in 2001-02 was that most smallholder farmers applied the fertiliser incorrectly. The TIP extension campaign's message about fertiliser application failed to get through to farmers.

The basal fertiliser should have been applied at the time of maize planting, while the top dressing should have been applied three to five weeks later. Module 1 found that 43% of TIP

beneficiaries mixed the basal and top dressing fertiliser and applied them together, generally quite late. Of those who applied the two fertilisers separately, 87% applied the basal at the wrong time, while 37% applied the top dressing at the wrong time. Module 2, which conducted semi-structured interview with 112 TIP farmers on how they used the TIP fertiliser (how and where it was applied as well as time of application), found that only 3% of farmers in the centre and south and 22% in the north had applied the fertiliser correctly.

Fertiliser is a valuable resource, and a key component of Starter Pack/TIP. However, it is clear that the beneficiaries are seriously wasting its potential. It should be possible to increase the maize production impact of TIP considerably by increasing the percentage of farmers who use the TIP fertiliser correctly. Therefore, we recommend that the 2002-03 TIP leaflet and other parts of the extension campaign (radio, extension workers, etc.) should focus on the use of fertiliser. They should provide clear, user-friendly instructions. Some work has already been done on this as part of the TIP2 evaluation (see Section 10).

Section 5: Smallholder farmers' interactions with markets

Market linkages

Smallholder farmers in Malawi are not 'subsistence' farmers in the sense of depending entirely on their own farms for survival and having little relationship with markets. The TIP1 and TIP2 evaluations showed that smallholders have strong linkages with the markets as:

- sellers of goods and services – mainly crops, livestock, small businesses, crafts and *ganyu* labour – see Table 5;
- buyers of food and other basic needs goods – 86% of households in the TIP2 Module 1 survey bought maize or maize flour in the first 3-4 months of 2002; and
- buyers of inputs – farmers are aware that they need to buy inputs in order to farm successfully, even though the majority were unable to do so in 2000-01 and 2001-02.

Table 5: Sources of income for smallholder households, 2001-02

Sources of income	TIP recipients %	Non-recipients %
Crop sales	55.5	54.6
Small business	30.2	34.6
Artisan work	15.5	14.1
Sale of livestock & products	20.8	18.6
Remittances	21.8	15.8
Pension	1.4	1.1
<i>Ganyu</i> wages	47.0	53.5
Salaried employment	6.6	10.3

Source: 2001-02 TIP Evaluation, Module 1 report.

Does TIP crowd out private suppliers?

The TIP1 and TIP2 evaluations looked for evidence on whether free inputs damage private traders of inputs in rural areas by reducing farmers' demand for the inputs that they supply. We found evidence of slightly reduced demand for fertiliser and improved seed owing to TIP. The TIP1 evaluation found that in 2000-01:

“There was some difference in the number of TIP recipients and non-recipients buying fertiliser (26% and 32% respectively), and non-recipients spent around 20% more on average on buying fertiliser than did recipients... Another expensive input

is improved seeds, which were purchased by 15% of TIP recipients in our sample and 24% of non-recipients²⁸.

Module 1 of the TIP2 evaluation found that in 2001-02, the median amounts spent by recipients and non-recipients on fertiliser and improved seed were very similar, but slightly more non-recipients than recipients of TIP bought these inputs:

- 23% of TIP recipients and 28% of non-recipients bought fertiliser with cash; and
- 12% of TIP recipients and 22% of non-recipients bought improved seed with cash.

This indicates that TIP depressed the demand for inputs somewhat, since some of those who received inputs did not buy fertiliser and seed, as they would have done in the absence of TIP. However, we found that private suppliers of fertiliser suffered far more from weak farmer purchasing power – due to low incomes and rising prices of inputs and consumer goods – than from crowding out by TIP. Farmers simply cannot afford to buy enough fertiliser and improved seed. In 2001-02, in the absence of TIP:

- only one-third of non-recipients used any fertiliser, and the median amount spent by those who did buy was MK1,250 – indicating that they bought only one 50 kg bag; and
- only one-third of smallholders used any improved seed, and the median amount spent by those who did buy was only MK250.

Module 1 of the TIP2 evaluation also found evidence to suggest that the shortage of maize in the 2001-02 season had an impact on farmer purchases of fertiliser and seed. Firstly, a higher percentage of farmers were affected by lack of cash than in 2000-01 – probably because they had to spend more of their available resources on food as maize prices rose. Secondly, availability of seed appeared to be a greater problem than in 2000-01.

We conclude that TIP does have a small crowding out effect on private suppliers of fertiliser and seed, but that this effect is relatively insignificant compared with the problems caused by weak demand and/or supply shortages. If policymakers wish to have a positive impact on inputs markets in rural areas, they should address the key limitations to its development:

- low farmer incomes;
- sharp increases in prices of consumption and investment goods; and
- unreliable supplies of improved seed.

Section 6: Food security in Malawi

What proportion of rural households is food insecure?

Any research carried out in Malawi in 2001-02 was bound to be affected by the context of food shortages. The TIP2 evaluation deliberately included a greater focus on food insecurity than in previous years. Modules 1 and 2 collected information on food security.

Module 2 used social mapping to categorise every household in the 21 villages visited by the study (1,343 households) as food secure, food insecure or extremely food insecure. The categories were defined according to the length of time that households had to resort to using coping strategies, including doing *ganyu*, in order to have enough to eat (see Table 6). The communities considered 29% of households to be food secure in 2001-02, while 71% were seen as food insecure. Nearly one-third were categorised as extremely food insecure.

²⁸ Nyirongo *et al*, 2001.

Table 6: Module 2 findings on food security

	Definition	% of total households
Food secure	Enough to eat throughout the year – from harvest to harvest.	29
Food insecure	Enough food to last from harvest up to Christmas, but not between Christmas and the next harvest.	39
Extremely food insecure	A longer period of not having enough to eat – these households start facing food shortages before Christmas.	32

Source: 2001-02 TIP Evaluation, Module 2 report.

Module 1 looked at food self-sufficiency, access to food from market and non-market sources and food security (the ability of households to feed themselves, whether from their own production, food purchases or other sources). Module 1 measured food security in terms of type of coping strategy used when households did not have enough food (moderate or extreme²⁹) and the length of time that households had to resort to these coping strategies. The data was collected from 2,952 households. Module 1 found that:

- 17% of households (the food secure) never used any coping strategies;
- 26% of households used moderate coping strategies from January 2002 onwards;
- 7% of households used moderate coping strategies in December 2001 or earlier;
- 29% of households used extreme coping strategies from January 2002 onwards; and
- 20% of households (the most food insecure and vulnerable) used extreme coping strategies in December 2001 or earlier.

Depending on the market

The Module 1 study confirmed a key finding of last year's TIP evaluation³⁰:

- Most smallholder farmers are not self-sufficient in maize (an estimated 95% and 98% of farmers had a maize deficit in 2000-01 and 2001-02 respectively); and
- The majority of smallholders have to buy maize – in the 2000-01 season (after a good harvest), the average household maize deficit was 4.5 months and 60% of households bought maize; in the 2001-02 season (after a bad harvest), the average household maize deficit was 5.7 months and 86% of households had to buy maize in the 2002 lean period.

The 2000-01 TIP evaluation concluded that:

“Since poor farmers are probably net purchasers of maize overall – and are certainly net purchasers in the lean period, a surplus of maize keeping prices down is actually a *pro-poor policy* in rural areas (contrary to the received view that low maize prices lead to a welfare loss for rural areas in favour of urban areas)”³¹.

The 2001-02 season, in which food prices increased dramatically, showed how important this mechanism is. Poor smallholder households produced less maize than in 2000-01, their real food purchasing capacity was massively eroded by the increase in prices, and crisis resulted.

²⁹ **Moderate coping strategies** comprise: eating *nsima* from green maize (*chitibu*); eating *madeya* or *gaga*; and eating only fruit, vegetables or sugar cane (no *nsima*). **Extreme coping strategies** comprise: eating *nsima* from maize cobs; eating only wild roots, tubers, wild fruit, mushrooms, etc (no *nsima*); and eating nothing for the whole day.

³⁰ Sibale *et al*, 2001. Nyirongo *et al*, 2001.

³¹ Levy and Barahona, 2001.

The situation for cassava growers in 2001-02 was better than that for maize growers. For households growing cassava as a staple food, Module 1 found that 35% of TIP recipient and 42% of non-recipient households did not run out of cassava at any point in the 12 months prior to the survey, and another 24% only suffered 1 month without cassava³². Only 8% of households in the Module 1 sample bought cassava. Module 1 found that:

“the pattern of cassava production is unfavourable for selling to those without maize in the months which see the greatest maize shortages...for households with a cassava deficit, the worst months in 2001-02 were December-April, coinciding with the peak of the hungry period for maize growers”³³.

Food insecurity by time of year and region

The degree of food insecurity in Malawi varies by time of year and by region. Figures 1-3 show the percentages of food insecure and extremely food insecure households (i.e. those using moderate and extreme coping strategies respectively) in each region for every month from May 2001 to April 2002. Traditionally, the ‘lean’ or ‘hungry’ period is thought of as January-April. However, if we define the start of this period as being when at least 10% of households are food insecure, in the 2001-02 season it started in November in the southern and central regions and December in the northern region.

Figures 1-3 show that by February 2002, in the southern region over 80% of households were food insecure and nearly 50% were extremely food insecure; in the central region the situation was even worse, with nearly 90% food insecure and nearly 60% extremely food insecure. The northern region had lower proportions of food insecure and extremely food insecure households. Nevertheless, over 50% of households were food insecure by March 2002, and extreme food insecurity affected nearly 30% of households.

Does this evidence support a case for geographical targeting of free inputs or food aid? Clearly the highest proportion of food insecure and extremely food insecure households is located in the central and southern regions. The north appears to be relatively better off. However, if the northern region were to be excluded from receiving assistance, the 30% of households in the north which undoubtedly qualify for support – as they suffered from extreme food insecurity in 2001-02 – would be excluded.

If the type of data collected by Module 1 were consistently collected at a district or sub-district level³⁴, it might be possible to identify areas which do not need support. It would then be possible to implement geographical targeting by excluding these areas. However, on the basis of our experience, we believe that the number of such areas is very limited. A more realistic solution – if political agreement could be reached – would be to vary the amount of assistance provided to different areas on the basis of the proportion of households that local communities can agree to exclude from Starter Pack (see our discussion of a ‘near-universal’ Starter Pack in Section 1). This might be part of a medium-term exit strategy.

³² Nyirongo *et al*, 2002, Chapter 10.

³³ Nyirongo *et al*, 2002, Chapter 10.

³⁴ It would be necessary to increase considerably the size of the sample of households in the survey.

Figure 1: Southern region food insecurity

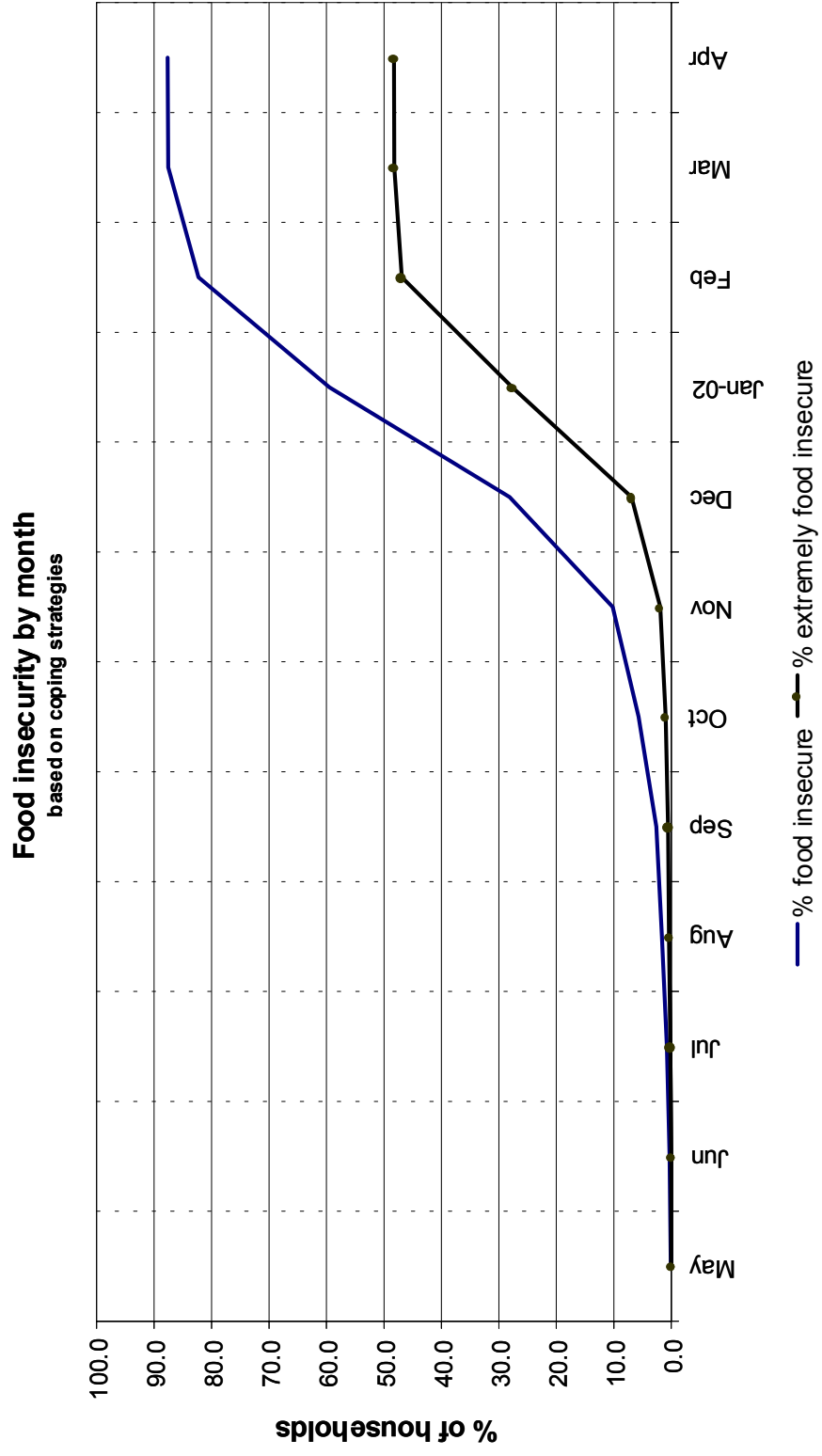


Figure 2: Central region food insecurity

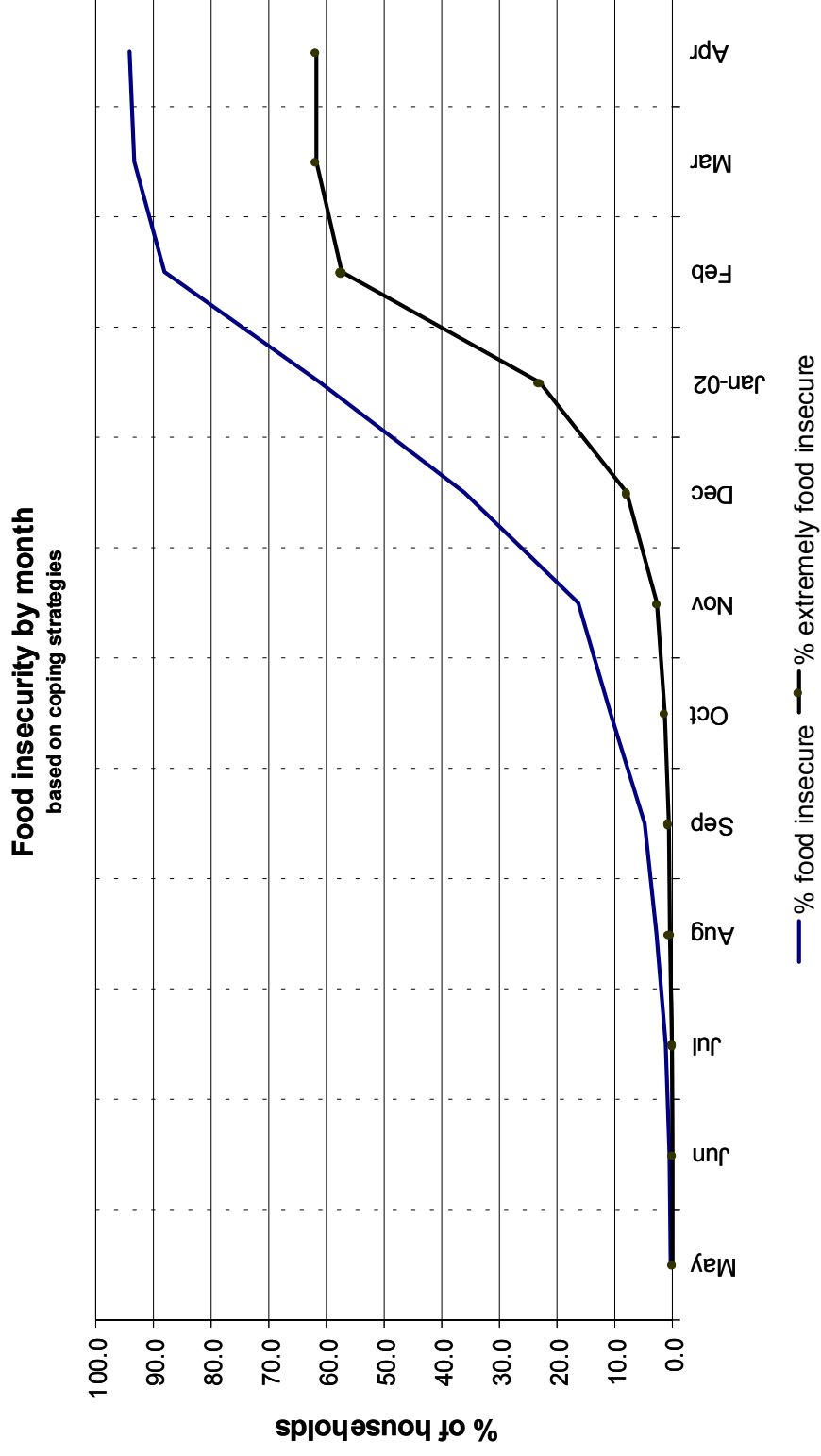
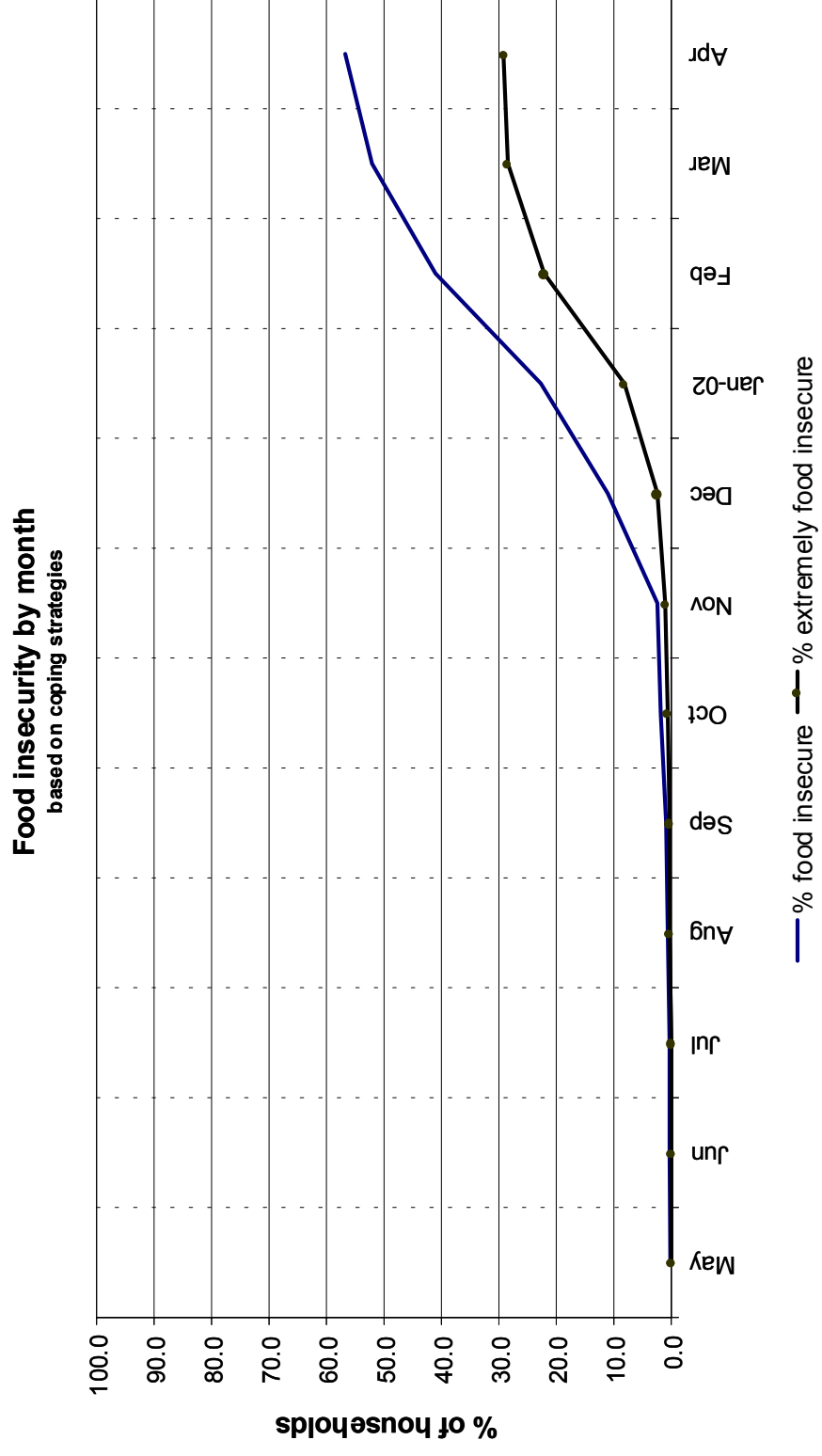


Figure 3: Northern region food insecurity



Food security and diversification

TIP1 Module 2 found that workshop participants associated food security with diversification of a household's activities into cash crops, livestock, small businesses and off-farm employment. In the north, food security was also associated with growing a variety of food crops with overlapping seasons, so that before one type of food runs out another is harvested.

The Module 1 team used the data from Module 1 of the TIP1 evaluation as well as its own data to classify districts according to which staple food crops (maize, cassava, rice, sorghum, millet and bananas) are grown there:

- Districts that grow maize and very little else (less than 5% of households grow other staple food crops) were classified as 'maize only' districts – Blantyre, Dowa, Kasungu, Lilongwe, Mchinji, Ntcheu, Ntchisi, Zomba and Salima.
- Districts where over 50% of households grow another staple food crop in addition to maize were classified as 'maize + other significant crops' districts – Chitipa, Karonga, Likoma, Nkhata Bay, Nkhotakota and Nsanje.
- Districts where less than 50% but more than 5% of households grow another staple food in addition to maize were classified as 'maize + other minor crops' districts – Rumphu, Mzimba, Dedza, Balaka, Machinga, Mangochi, Phalombe, Chiradzulu, Mulanje, Thyolo, Mwanza and Chikwawa.

The results show that there is little difference in terms of food security between 'maize only' and 'maize + other minor crops' districts: both recorded over 90% food insecurity in 2001-02. However, the 'maize + other significant crops districts' had only 54% food insecurity. Module 1 concluded that:

“...areas that are highly dependent on maize suffer most from food insecurity, in particular in a season like 2001-02 when a low harvest of maize (in 2001) led to maize shortages and sharp price increases. Those who cultivate a variety of crops can eat other foods if maize is not available”³⁵.

Section 7: The macro-level

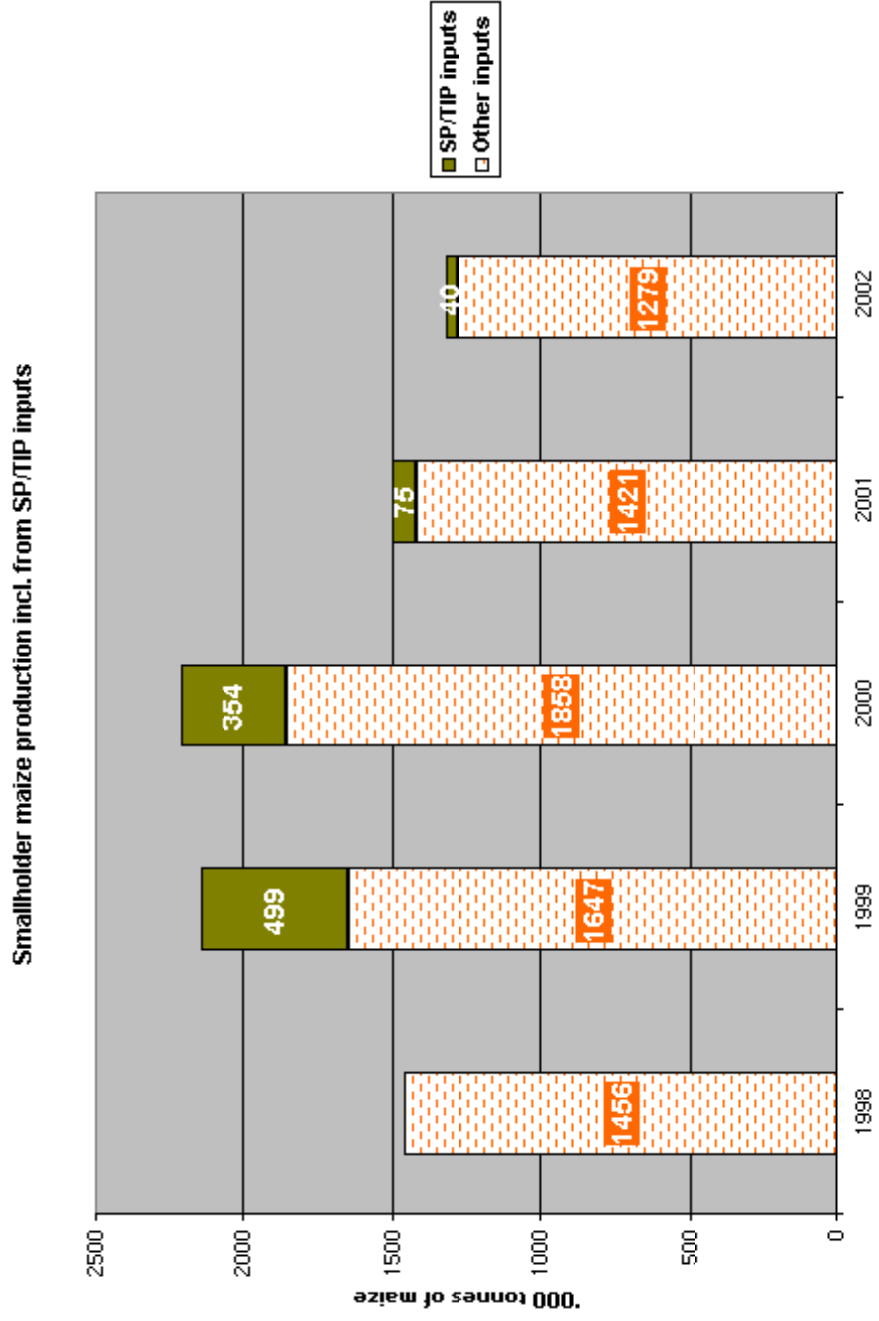
In the 1990s, Malawi's farmers experienced a transition from a interventionist government policies such as fertiliser subsidies and price stabilisation to a liberalised agricultural policy environment, where prices of staple foods and inputs fluctuate sharply and there are no subsidies or guaranteed prices. In this context, the majority of smallholder farmers are unable to afford to buy the fertiliser and seed that they desperately need (see Section 3). Moreover, in the last two growing seasons they have faced a sharp increase in inputs prices (2000-01) and in the price of maize (2001-02), of which they are net purchasers (see Section 6). In addition, the free inputs programme, which (as SP1 and SP2) had helped to sustain output in 1998-99 and 1999-2000, was scaled down to half the size in TIP1 and one-third of the size in TIP2.

The macro contribution of Starter Pack and TIP

Figure 4 shows smallholder maize production in the main harvest over the past five years. The total tonnage produced comes from MoAI crop estimate survey data provided by FEWS. The graph also shows the proportion of output that is attributable to Starter Pack and TIP inputs, based on the household-level maize production figures (net contribution of the packs) from the Starter Pack and TIP evaluations (see Section 4).

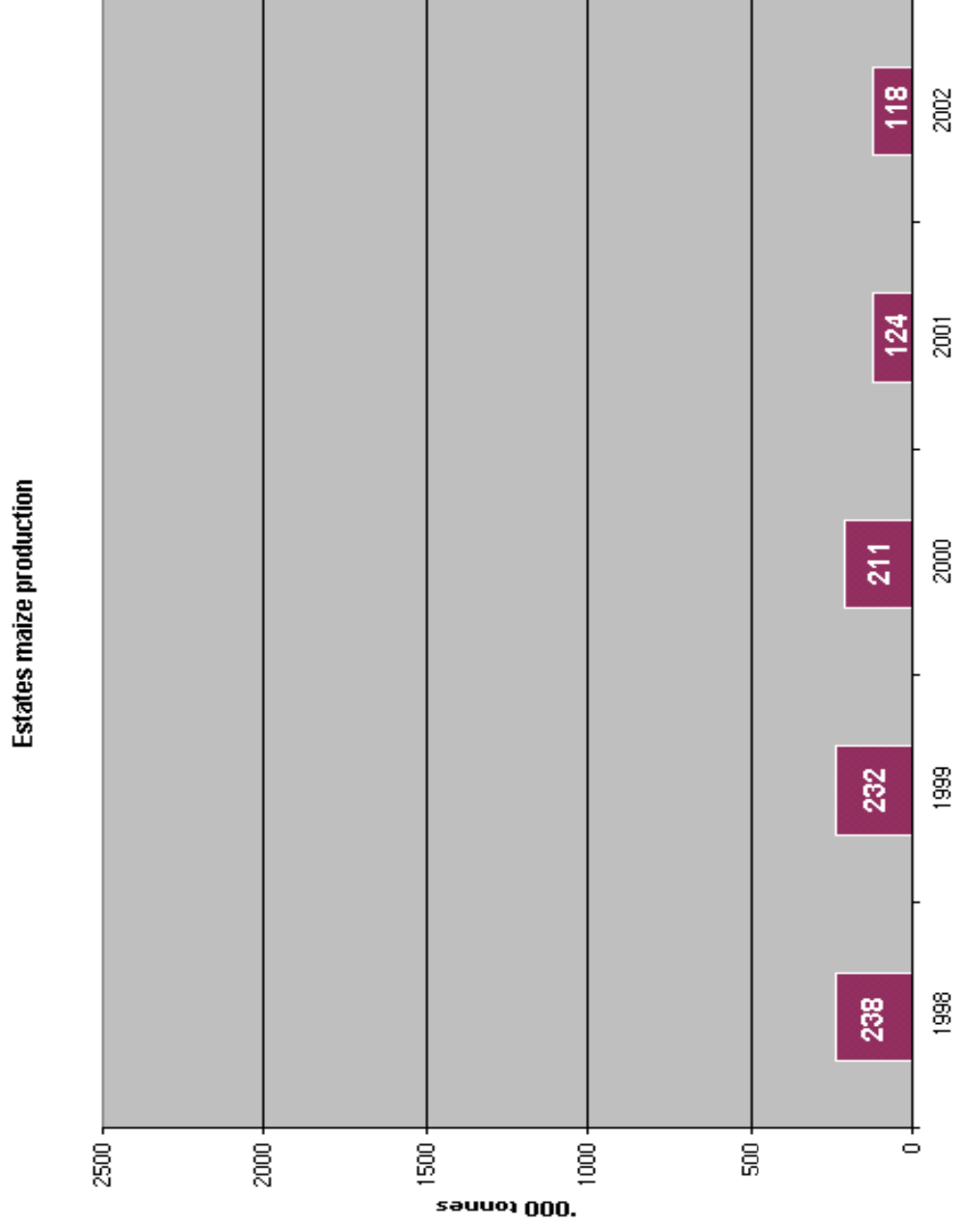
³⁵ Nyirongo *et al*, 2002, Chapter 10.

Figure 4: Smallholder maize production 1998-2002



Source: MoAI/FEWS and Starter Pack/TIP evaluations.

Figure 5: Estates maize production 1998-2002



Source: MoAI/FEWS.

Figure 4 allows us to distinguish between the ‘weather factor’ and the contribution from Starter Pack and TIP. It is clear that 1998 – before Starter Pack was introduced – was a bad year, with the smallholder sector producing less than 1.5 million tonnes of maize. The following two harvests were good, as the weather was favourable. In the absence of SP1 and SP2, they would have produced 1.65 and 1.86 million tonnes of maize respectively. However, the additional output from SP1 (around 500,000 tonnes) and SP2 (around 350,000 tonnes) raised total output to between 2.1 and 2.2 million tonnes. In these two years, the country was reported to have a slight surplus in maize production, and prices fell to around MK6 per kg.

The next two years saw a combination of bad weather and price shocks. Underlying production fell to 1.42 million tonnes in 2001 and an estimated 1.28 million tonnes in 2002. As universal Starter Pack was replaced by ever-smaller targeted inputs programmes, the contribution from free inputs fell to 75,000 tonnes in 2001 and around 40,000 in 2002. The price of maize rose to MK17 per kg in September 2001 and as high as MK36 per kg in the central region by February 2002³⁶. Prices in the 2002-03 season are likely to be at least as high as in 2001-02, although imports and better management of food reserves may reduce the pressure somewhat.

Maize production and price incentives

Some observers have expressed concerns that the 1999 and 2000 harvests were too big in the sense that they created a surplus of maize and drove down prices. The logic of this argument is that agricultural producers will respond to low prices of a particular crop by planting less of that crop next season because it is not likely to generate a profit. Thus, a surplus year leading to low prices will be followed by a year of low output. Boom and bust cycles will result.

The problem about this argument is that although commercial farmers, such as medium/large-scale farmers and estates, may respond in this way to price incentives, smallholders in Malawi do not³⁷. Most of the maize that smallholders produce is for consumption rather than sale. In the smallholder sector, maize has the lowest market ratio (sales as a percentage of output) of any of the main crops³⁸. Module 1 of the TIP2 evaluation found that despite the price incentive in the 2001-02 season there was only a slight increase in the market ratio compared with the 2000-01 season. If smallholder production decisions are not based on output prices, we need not fear that lower maize prices following a good harvest will act as a disincentive to smallholder production in the following season. On the other hand, low maize prices are good for smallholder food security because smallholders are net purchasers of food (see Section 6).

If a universal Starter Pack programme boosts output of maize by smallholders and reduces prices, this may lead to a reduction in maize production by the estates³⁹. However, in our view, if the policy objective is food security, the focus should be on maximising food production in the smallholder sub-sector. The estates only account for around 1/10th of total maize production (see Figure 5), so it is highly unlikely that any decrease in estates’ production will offset the gains in the smallholder sub-sector.

³⁶ FEWS, May 2002.

³⁷ The TIP1 evaluation found that the logic of maize production in the smallholder sub-sector – unlike commercial farming – is not determined by output prices. The aim of the smallholder farmer is to produce as much food as possible, given the constraints that he/she faces. This attempt to maximise food production is explained by smallholders’ risk adversity (the view that it is risky to depend on the market for food, as it might become scarce or too expensive) and their cultural values (the view that growing your own food makes you respectable). Smallholders generally *subsidise* maize production with income from other sources – mainly sale of cash crops and livestock, *ganyu* labour, small businesses and remittances. See Van Donge *et al*, 2001; Levy and Barahona, 2001.

³⁸ Nyirongo *et al*, 2002, Chapter 8.

³⁹ There may be other factors involved too. Further research is needed on estates’ production decisions.

Section 8: A medium term strategy

The food crisis of early 2002 was not a one-off event. It was a reflection of Malawi's inability to feed itself. The country is facing chronic underproduction as a result of the smallholder sub-sector's inability to adjust to agricultural liberalisation (see Section 7). The 2001 harvest in the smallholder sub-sector fell by 30-40% compared with the previous year⁴⁰. The result was a maize deficit which the donors estimated at around 600,000 tonnes. The 2002 harvest is estimated to have been some 10-12% lower than the 2001 harvest. Following the logic on which the previous season's maize deficit estimates were based⁴¹, the country faces a deficit of around 780,000 tonnes of maize in the 2002-03 season (before imports, use of grain reserves, etc).

In this section, we argue that *universal free inputs programmes* like SP1 and SP2 should be part of Malawi's *medium term strategy* for rural areas:

- They should not be seen only as a short term crisis intervention, nor should they be viewed in isolation from other initiatives.
- They should be part a broad rural development strategy which would eventually reduce dependence on free inputs and allow 'exit' from Starter Pack.
- The Government of Malawi needs to give urgent priority to developing a medium term rural development strategy focusing on the smallholder sub-sector.

Food security, poverty and development

Free inputs programmes like Starter Pack address food insecurity. They are not development programmes. In the sense that hunger is closely associated with poverty, they can have an important poverty alleviation effect. However, if the intervention is withdrawn, the beneficiaries are back where they started in terms of poverty status.

Nevertheless, food security is a *pre-requisite* for any medium-term poverty reduction and development efforts. In 2001-02, poor households sold off their assets (if they had any) to meet immediate food needs, and hungry children failed to turn up for school. The same pattern will be repeated in 2002-03 (following the bad 2002 maize harvest) and – unless food insecurity can be drastically reduced – each year for the foreseeable future.

We believe that food insecurity must be addressed not only because of the immediate suffering caused but because it threatens to undermine medium-term poverty reduction and development efforts. The evidence presented in this report suggests that a *universal free inputs programme* is an effective way of enhancing food security at both household and macro-level. The same objective could be achieved by importing food, but large quantities of food would have to be imported every year, and this would be much more expensive than providing farmers with the inputs with which to grow it themselves. Thus, a universal Starter Pack is good value for money. *Not* having such a programme is, in our view, fiscally unsustainable.

⁴⁰ The exact percentage decrease depends on which source is used – the MoIA or our own estimates.

⁴¹ This estimate is based on the MoAI (Round 3) crop estimates, which show production of smallholder maize in the main 2002 harvest of 1.319 million tonnes, 177,000 tonnes lower than in 2001 (with production in the estate sector almost unchanged). If the 2001 harvest led to a 600,000 tonne maize deficit, then a rough calculation suggests that the 2002 harvest would lead to a deficit of 600,000 + 177,000 tonnes = 777,000 tonnes. Another way of looking at it is that the zero-deficit level of maize production in the smallholder sector is around 2.1 million tonnes, and 2.1 million minus 1.319 million is 781,000. Either way, the maize production deficit comes to around 780,000 tonnes. This figure does not, however, take into account the winter maize harvest.

An integral strategy

A universal free inputs programme should be part of Malawi's medium term strategy for rural areas. However, Starter Pack on its own is not enough. It should be part a broad rural development strategy designed to reduce poverty and dependence on free inputs. Although this is not an area that we have researched as part of the Starter Pack/TIP evaluations, our evidence suggests that the strategy should include a focus on improving smallholder farmers' livelihood opportunities and incomes. Some components which might be included are:

- programmes to promote cash crops and livestock ownership;
- establishment of marketing channels for cash crops and livestock sales;
- support for trade, small business and crafts initiatives, including access to credit;
- employment creation, including public works programmes;
- improvement of rural infrastructure; and
- enhancement of security in rural areas.

Some of these initiatives already exist, but they are not co-ordinated as part of a medium term strategy for development of rural areas, nor are they linked to food security interventions such as Starter Pack. If such a strategy were able to strengthen smallholder farmers' incomes to the point where a substantial number of farmers could afford to buy fertiliser and seed from private traders, it would be possible to 'exit' from Starter Pack without undermining food security. This would signal a move to the next level of development.

We believe that, as part of the medium term strategy for rural areas, indicators should be agreed upon for measuring when an area should 'graduate' from receiving free inputs and qualify for a different type of support. We believe that this is unlikely to be possible for most parts of southern and central Malawi within the next five years, although some parts of the northern region might 'graduate' within five years.

We recommend that the Government of Malawi make it a priority to develop a medium term strategy for rural areas and to define the role of Starter Pack within the strategy.

Section 9: Sustainable agriculture

The medium term rural development strategy described in Section 8 should, in our view, include a specific emphasis on injection of good seed and on crop diversification to enhance food security (see Section 6). This section highlights the importance of these elements⁴².

Improved seed

One of the main contributions of the free inputs programmes to the smallholder farm has been the injection of high quality seed and new germplasm. This is particularly the case for TIP1, which distributed OPV maize seed. OPV has several advantages over the hybrid maize seed distributed in SP1 and SP2: it retains its high yield potential when the farmer selects seed from the field for the next planting season; it has lower requirements of fertiliser to achieve good yields in smallholder farmers' field conditions; and the culinary characteristics of the varieties distributed match the preferences of the rural population in Malawi. However, insufficient OPV maize seed was available for TIP2, so many areas received hybrid seed. This experience seems likely to be repeated in the 2002-03 season.

⁴² Much of this section is taken from Levy and Barahona, 2001. The evidence of the TIP2 evaluation strengthens the case put forward in that report.

The free inputs programmes also distributed legume seed. However, this component underperformed in TIP2 (see Section 4). We believe that future programmes should give greater emphasis to the legume component. They should ensure that the legume seed provided is of the right variety for each area of the country and of good quality.

Module 4 of the SP2 evaluation recommended: “It is particularly important that varieties are chosen carefully and attention is paid to the physical quality of the seed put into Starter Pack because of their significant impact on crop diversity”. It pointed out that this has planning implications for the free inputs programmes, specifically that:

“Tenders for Starter Pack seed must specify varieties as well as crops. Ideally seed quality assessors should be involved in the tender-awarding process, to ensure the seed procured is of the correct variety and physical quality”⁴³.

The importance of organising procurement – including seed multiplication programmes where necessary – *well in advance* has been highlighted by the past three years of Starter Pack and TIP evaluations. However, procurement of appropriate maize and legume seed for the packs has continued to cause major problems (see Section 2). The importance of getting this right cannot be overemphasised. It is vital if the potential contribution of free inputs programmes to sustainable agriculture is to be maximised. Box 2 (below) presents a proposal for decentralised seed multiplication programmes which may help in the medium term.

The need for diversity

Smallholder farming in Malawi is a high-risk environment for production. The limited diversity of food crops grown – in particular, dependence on a single staple food crop – increases the incidence of food insecurity (see Section 6). This accelerates the degradation of off-farm resources, as hungry farmers search for sources of food in forest areas and the bush.

A free inputs programme reaching large parts of the rural population in the country has the potential to introduce diversity into the smallholding and reduce risks of failure for the farm enterprise. Policymakers thinking about the future of free inputs should give serious consideration to their diversification potential. One suggestion is presented in Box 1 (below).

Box 1: ‘Unpacked packs’ for roots and tubers

One problem about Starter Pack is that many consider it to overemphasise maize production. While we recognise the importance of maize for smallholder farmers in Malawi, we believe that greater efforts should be made to increase production of other staple foods, as food security is clearly enhanced by not depending on one food crop only (see Section 6).

The second and third most widely cultivated staple foods in Malawi are sweet potatoes and cassava (see Section 3). These present problems for inclusion in Starter Packs, as they are propagated by cuttings rather than by seeds.

We believe that as part of the medium term strategy for rural areas, it would be possible to promote ‘unpacked packs’ for roots and tubers. These would consist of plots of land in each suitable EPA on which good varieties of cassava and sweet potatoes would be grown. The plots would be managed by extension workers, who – when the crops were ready – would invite farmers in the area to collect samples for tasting and cuttings to plant in their gardens.

⁴³ Cromwell *et al*, 2000.

Box 2: Maize seed banks

We propose that, as part of future free inputs programmes, village maize seed banks should be set up. The idea is that beneficiaries would ‘pay’ for their Starter Packs with maize seed. For instance, if they receive 2 kg of maize seed during the planting season, they would pay back 2 kg of maize seed after the harvest.

The scheme would only work with OPV maize seed – not hybrid – as hybrid maize should not be recycled. It would require the support of the MoAI’s extension workers, who would advise farmers on seed selection at harvest time. This support would be essential in order to ensure that the village maize seed bank receives good seed.

The scheme would be managed by Village Task Forces (VTFs). The VTFs would be required to ensure that every beneficiary of the programme pays back the amount of seed that they received, and to make sure that the farmers in the village get support on seed selection from the MoAI extension staff. They would oversee storage of the maize seed and re-distribution of the seed the following season.

We would like to highlight a number of advantages of this proposal:

- It would make the free inputs programme self-targeting, since any household that did not agree to pay back seed would be excluded.
- Unlike the idea of inputs-for-work programmes, the village maize seed banks do not require the setting up of major public works programmes, and they do not penalise work-constrained households.
- For the past two years, the VTFs have been given the unpopular task of beneficiary selection. The seed banks would give them a positive role in the community. Where VTFs are in fact Village Development Committees (which is usually the case where VDCs have been set up), this would strengthen the local government decentralisation process.
- Once the village seed banks are functioning in an area, it would be possible not to distribute maize seed to that area every year in the Starter Packs. For example, OPV maize seed might be provided in Year 1 and recycled by the village seed banks in Years 2 and 3. New injections of seed via the Starter Packs would only be required every three years (assuming that OPV can be recycled for three years). In the intervening years, other seed might be provided to promote diversification of food crops or cash crops. Or the emphasis might be on promotion of ‘unpacked packs’ for roots and tubers (see Box 1).
- The village seed banks would avoid the need for the MoAI to organise centrally-managed OPV maize seed multiplication programmes every year. Alternatively, small-scale annual programmes could be organised centrally, producing enough OPV maize seed for 1/3 of the free inputs programme beneficiaries each year.

However, it should be pointed out that it would not be possible to set up village maize seed banks in every village in Malawi overnight. We would envisage piloting the idea in 2002-03 in a sample of villages where OPV maize seed is being distributed and where VDCs are already established as part of the decentralisation process. Emphasis would need to be placed on building the relationship between VDCs and MoAI extension staff to ensure that farmers are taught to select good seed; on storage and management of the seed banks; and on re-distribution of seed in the next planting season. If the pilot were successful, the seed banks could then expand to other areas in the following two or three seasons.

Section 10: Agricultural extension

The message

The message which the TIP extension campaign intended to transmit to farmers was that they should adopt farming practices for maize advocated by Sasakawa Global 2000. The TIP2 guidelines distributed by the MoAI say:

“... the technologies being advocated by Sasakawa Global 2000 will be adopted in the Programme. Thus the Sasakawa planting system of one seed per 25cm along the ridges spaced at 75cm apart will be re-enforced [sic] in the Programme. This will enable farmers attain the recommended 53,000 plants per hectare”⁴⁴.

This approach emphasises intensive cultivation of maize, maximizing plant population per hectare. It is not compatible with intercropping of maize and legumes. Therefore, as in TIP1, the 2001-02 extension campaign neglected the legume component of the TIP packs. In our view, this is incompatible with the food security and soil fertility objectives of Starter Pack and TIP (see Section 1). Moreover, it is inappropriate for the land and labour constrained farming conditions of the smallholder sub-sector in Malawi, particularly in the central and southern regions.

What sort of message should be transmitted to farmers who receive free inputs? This is a matter that should be debated at the highest levels in the MoAI. It is not recommendable to allow decisions of such importance to be taken by a single department or individual. The message which goes out with Starter Pack/TIP reaches every village in Malawi. If it is adopted by farmers, it could have a substantial impact on farming practices and agricultural production.

We suggest that the 2002-03 free inputs programme should focus on the following messages:

- how to apply the fertiliser correctly;
- the benefits of intercropping the legumes with the maize; and
- how to select seed for recycling (for farmers receiving OPV maize seed).

The evaluation evidence suggests that if farmers understood these three messages, the production and food security benefits of the programme would be greatly enhanced.

The extension system

The TIP1 evaluation found that the TIP extension campaign had little impact on farmers and that few farmers understood the instructions on use of TIP inputs⁴⁵. For TIP2, a major effort was made to increase the impact of the extension message. The MoAI developed an improved leaflet on use of the inputs for inclusion in the packs, and the Ministry’s extension workers were trained and given targets of establishing 15 on-farm demonstration plots (OFDs) per section to demonstrate the recommended farming practices to the TIP beneficiaries.

Module 1 found that 83% of TIP recipients received a readable leaflet in 2001-02, compared with only 65% in 2000-01. However, the evidence collected by the Module 1 and Module 2 teams shows that that the extension campaign was largely ineffective in terms of uptake by farmers:

- Both modules found that only some 7% of farmers nationally applied the fertiliser correctly.

⁴⁴ “An outline of the 2001/2002 Targeted Inputs Programme (TIP)”, booklet distributed by the Agricultural Communication Branch of the MoAI, October 2001.

⁴⁵ Dzimidzi *et al*, 2001.

- Both modules found that the majority of farmers ignored the advice to monocrop maize: Module 2 found that 77% of the 112 TIP farmers' gardens that it visited were intercropped, while 57% of farmers in the Module 1 survey admitted to having intercropped.
- According to Module 2's findings from the field visits, only around 10% of farmers followed the instructions on ridge spacing and spacing between planting stations. The Module 1 team observed (during visits to 326 TIP farmers' gardens) that 23% followed ridge spacing instructions and 18% followed the guidelines on spacing between planting stations.

The low uptake of instructions was partly because there was little contact between extension workers and TIP farmers and very few OFDs were set up. Module 1 found that only 18% of TIP farmers met their extension worker regularly (weekly, fortnightly or monthly) and only 9% visited a TIP OFD. Module 2 looked for OFDs in 21 villages, but found them in only four – and only one of these was established as the TIP extension campaign intended.

Other key reasons identified by Module 2⁴⁶ were:

- The leaflet was *too technical* for most farmers – even those with high standards of literacy – while the heavy use of text made it virtually incomprehensible for illiterate farmers;
- Farmers resisted moving to the Sasakawa Global 2000 technology because it was seen as *inappropriate in view of their land, labour and resource constraints*:
 - it is too labour-intensive – particularly if the farmer wishes to rotate maize with other crops such as tobacco and rice (he/she would then have to rearrange the ridges);
 - intercropping is seen as the best strategy for maximising use of limited land available; and
 - as far as wider adoption is concerned, it is felt to be beyond the reach of most smallholders, as it depends on purchasing expensive inputs.
- *Poor relations between farmers and extension workers* in many cases, with farmers accusing extension workers of lack of commitment to the job, and extension workers feeling that farmers are conservative and resist any changes.
- *Late delivery of the packs*. Although few farmers were unable to plant the seed provided by TIP (see Section 2), most had prepared their fields by the time that TIP arrived, making it difficult for extension workers to suggest a change in ridge spacing.

The Module 1 report notes that another contributory factor is:

“... the low ratio of extension workers to farmers in most parts of the country (currently estimated at 1:1,780 instead of the recommended 1:500). According to the Extension Department of the MoAI, the problem is particularly acute in the southern region, where the ratios are as high as 1:2,709 (Machinga ADD) and 1:3,013 (Blantyre ADD)”⁴⁷.

Module 2 found several cases of extension workers overseeing more than one section, and in four instances up to 3 sections. There were also complaints from extension workers that they were under-resourced. Many lacked basic equipment, and allowances for transport and meals were not received. Some extension workers also pointed out that there was a problem with the culture of incentives⁴⁸. They are unwilling to spend time on their core activities if NGOs or other projects are offering alternatives that are accompanied by better financial incentives.

⁴⁶ Chinsinga *et al*, 2002, Chapter 6.

⁴⁷ Nyirongo *et al*, 2002, Chapter 5.

⁴⁸ Chinsinga *et al*, 2002, Chapter 6.

What needs to be done

The TIP2 evaluation highlighted a number of aspects of agricultural extension in which changes are needed. The discussion was set in motion during a workshop in July 2002 that was attended by representatives of the MoAI's extension and crop production departments, its Agricultural Communication Branch (ACB) and Chitedze Research Station. However, we believe that further debate is needed at the highest level in the MoAI, and that the Ministry should translate the conclusions of this debate into action as soon as possible.

We would like to make some specific recommendations, based on the TIP2 evaluation experience:

1. The extension campaign should focus on key messages which – if understood and applied by farmers – will considerably increase the impact of the free inputs programme. These messages should be appropriate for the land, labour and resource-constrained farming conditions of smallholders. In our view, in 2002-03 the key messages should be:
 - how to apply the fertiliser correctly;
 - the benefits of intercropping the legumes with the maize; and
 - how to select seeds for recycling (for farmers receiving OPV maize seed).
2. The TIP leaflet that accompanies the packs in the 2002-03 season should be attractive and simple, so that farmers can understand it. We have produced a draft of the leaflet (see Appendix 1) which was designed at the July workshop. This uses cartoon-style pictures to catch the attention of farmers and explain the key messages. It minimises the amount of text so that the semi-literate and illiterate are not put off reading it.
3. A conscious effort should be made to improve relations between extension workers and smallholder farmers. This might include training sessions in which some of the problems are discussed and solutions proposed. It might also include a radio campaign promoting good relations by making farmers aware of how extension workers can help them.
4. Under-staffing should be tackled by the Ministry (we understand that a start has already been made on recruiting large numbers of new extension workers), and there should also be a serious effort to address the problem of lack of resources at EPA level.
5. Efforts should be made to co-ordinate with NGOs and other projects to prevent the extension workers from neglecting their core duties because of more attractive financial incentives. It may also prove necessary to reassess the way that the MoAI's financial incentives are structured, in order to reward those who do a good job.
6. There should be independent monitoring of the work of the MoAI extension department, to ensure that targets are met and to identify problem areas.

Part 3: Summary and recommendations

Beneficiary selection and community targeting

Community poverty targeting failed in TIP1 and TIP2: the evaluations found no difference in the poverty profiles of TIP recipients and non-recipients. Without an expensive programme of facilitation and monitoring for every village in Malawi, attempts to target free inputs will continue to fail and – as they do so – to undermine the social fabric of rural communities.

Alternatives include providing smaller packs, geographical targeting and rotating the benefit. It is also possible that community poverty targeting might work if policymakers were to ‘get the numbers right’. The evaluation research shows that this implies a programme covering 80% of households, but this ‘near-universal’ approach still has several disadvantages.

We argue that any form of targeting would be inappropriate at present. A universal Starter Pack programme with maximum food security potential is needed to reduce the impact of the food crisis. However, the near-universal approach may be an option in the medium term, as part of a strategy of exit from Starter Pack.

Registration, distribution and receipt of packs

There were serious problems with the process of beneficiary registration and voucher distribution in 2001-02. Only 81% of the households on the TIPLU register for the villages visited by the Module 1 study received TIP packs. Either the vouchers and packs were given to unregistered households that did not admit to having received them, or they leaked from the system before getting to the villages. We recommend taking action to reduce the scale of this problem:

- Promotion of transparent beneficiary selection processes, with lists of registered beneficiaries displayed publicly in each village. This might be accompanied by civic awareness campaigns, in which communities are encouraged to report abuses.
- High-profile spot checks on voucher distribution at district and village level.
- Reporting to the police any local government officials found misallocating vouchers.

Assembly of packs and timing of pack delivery showed a significant improvement in the 2001-02 TIP compared with the previous season. However, procurement of maize and legume seed and the quality of the legume seed remained problematic. Inappropriate or poor quality seed reduces the production impact of TIP. Therefore, we recommend that future inputs programmes:

- Organise seed procurement well in advance, including seed multiplication programmes in the previous main growing season.
- Carry out germination tests before accepting uncertified seed from suppliers.

The number of households in rural Malawi appears to be fluctuating. Households probably merge to share resources in bad years, with sub-groups within households reclaiming their independence in good years. More research is needed on this subject. Substantial year-to-year fluctuations in numbers of smallholder households will make it difficult to determine the number of packs required for future free inputs programmes without a full registration exercise each year.

Who are the beneficiaries?

Starter Pack has been, from the beginning, a broadly poverty targeted programme, with the packs going to *smallholder* farmers. Medium-sized farmers have never been part of the target group.

The evaluation found that nearly 100% of smallholders grow maize. Other important staple foods are sweet potatoes, cassava and rice. Tobacco, vegetables and legumes are also grown widely, but sorghum, millet, bananas and European potatoes are specific to certain parts of the country.

Smallholder farmers face three main constraints: land, labour and agricultural inputs. Farmers are aware of the need to buy inputs because of infertile soils and degraded seed stocks, but in the 2000-01 and 2001-02 seasons, only one-third of those who did not receive TIP used improved seed or fertiliser. The main reasons were lack of cash and the price of fertiliser.

Production impact

The *net contribution* of TIP at household level was an estimated 0.7 50 kg bags of **maize** on average in 2000-01 and 2001-02. This was lower than the contribution in SP1, estimated at around 3.5 50 kg bags, and in SP2, estimated at 1.4-2.4 50 kg bags. The main reasons for the low net contribution of TIP to maize output at household level in 2000-01 were poor weather conditions and late delivery of the packs. In 2001-02, the main reasons were poor weather and widespread pre-mature harvesting.

Average smallholder household production of maize from all sources including TIP fell by around 10% to 7.2 bags in 2002, from an estimated 8.0 50 kg bags in 2001. This follows a decrease of around 40% in the 2001 maize harvest compared with that of 2000.

The **legume** component of the packs has had a positive impact on crop production patterns in 2000-01 and 2001-02, but did not have a positive impact on yield. Average household production of groundnuts, beans, soya beans and pigeon peas was generally *lower* for TIP recipients than non-recipients, and many TIP recipients ate the legume seed rather than planting it. This was because many packs contained poor quality seed, and the seed was frequently inappropriate in terms of farmers' preferences. Also, TIP provided no instructions on use of legumes. We recommend that in order to increase the production impact:

- Greater efforts are made to provide appropriate, good quality legumes.
- The extension message should include legumes and should emphasise their importance.

The **fertiliser** provided in TIP is a valuable resource, but the beneficiaries are wasting its potential because most do not understand how to apply it correctly. It should be possible to increase the maize production impact of TIP considerably by increasing the percentage of farmers who use the fertiliser correctly. Therefore, we recommend that in 2002-03 the extension campaign emphasise fertiliser application, providing clear, user-friendly instructions to farmers.

Smallholder farmers' interactions with the markets

Smallholders in Malawi do not depend only on their own farms for survival. They have strong linkages with the markets as sellers of goods and services (including crops, livestock and *ganyu* labour); as buyers of food and other basic needs goods; and as buyers of agricultural inputs.

The evaluation found that TIP has a small crowding out effect on private suppliers of fertiliser and seed, but that this effect is relatively insignificant compared with the problems caused by weak demand and/or supply shortages. If policymakers wish to have a positive impact on inputs markets in rural areas, they should address the key limitations to its development:

- low farmer incomes;
- sharp increases in prices of consumption and investment goods; and
- unreliable supplies of improved seed.

Food security

Modules 1 and 2 of the TIP2 evaluation used different approaches to measuring the proportion of households that are food secure, food insecure and extremely food insecure in Malawi. The Module 1 survey estimated that 17% of households were food secure in 2001-02 because they never had to use any coping strategy to deal with food shortages. Module 2 found that 29% of households were seen by the communities as food secure on the basis that they had enough food to eat all year round. At the other extreme, Module 2 estimated that 32% of households had begun facing food shortages in December 2001 or earlier, while Module 1 found that 27% of households had used coping strategies in December or earlier.

The TIP2 evaluation confirmed a key finding of the TIP1 evaluation: that most smallholder farmers are not self-sufficient in maize, and depend on the market to cover their production deficit. In 2001-02, the average household maize deficit was 5.7 months, and 86% of households bought maize in the 2002 lean period. In the 2001-02 season, rural households' food purchasing capacity was massively eroded by the increase in maize prices, and crisis resulted. We conclude, as we did last year, that *policies that help to keep maize prices low are pro-poor policies*.

Cassava growers were found to be in a better position than maize growers, with much lower levels of food insecurity in 2001-02. However, the pattern of cassava production is unfavourable for selling to those without maize in the months of greatest maize shortage (December to April).

Food insecurity in Malawi varies by month and by region. In 2001-02, the 'lean' or 'hungry' period began in November in the southern and central regions and December in the north. By February 2002, nearly 50% of households in the south and 60% in the centre were using extreme coping strategies to deal with food shortage, compared with only 30% of households in the north. The evidence does not support a case for geographical targeting of free inputs or food aid in the sense of completely excluding certain areas.

The TIP2 evaluation looked at the relationship between crops grown in each district of Malawi and food security. The results support the case for diversification: those districts growing mainly maize experienced over 90% food insecurity in 2001-02, while those with other significant staple food crops in addition to maize experienced only 54% food insecurity.

The macro-level

Smallholder farmers have been hit by agricultural liberalisation in the 1990s and sharp increases in prices of fertiliser and maize since 2000. In addition, in 2000-01 and 2001-02 they faced the scaling down of the free inputs programme which had provided support for poor farmers and helped sustain maize output in 1999 and 2000.

We can clearly distinguish between the 'weather factor' and the contribution of Starter Pack/TIP to total maize production in Malawi between 1998 and 2002. SP1 and SP2 provided additional output of around 500,000 tonnes and 350,000 tonnes of maize respectively, raising total output to 2.1-2.2 million tonnes and reducing maize prices. In 2001, underlying production fell sharply to 1.4 million tonnes, TIP1 contributed only around 75,000 tonnes, and maize prices rose sharply. In 2002, underlying production of maize and the TIP contribution fell further. Upwards pressure on prices is likely to continue in the 2002-03 season.

The logic of producers responding to price incentives does not apply to smallholder production of maize in Malawi. Smallholder production decisions are not based on output prices. Therefore, we need not fear that low maize prices will act as a production disincentive in the smallholder sub-sector. Low prices may lead to lower production by the estates, but as the smallholder sub-sector accounts for around 9/10th of total maize production, the focus of policy should be on maximising food production by smallholders, rather than by the estates.

A medium term strategy

The 2002 food crisis was not a one-off event. Malawi is facing chronic underproduction as a result of the smallholder sub-sector's inability to adjust to agricultural liberalisation. The country faces a deficit of around 780,000 tonnes of maize in the 2002-03 season.

Although free inputs programmes, in isolation, do not lead to development or poverty reduction, they address food security, which is a *pre-requisite* for the success of any medium term poverty reduction and development efforts. We recommend a return to a *universal* free inputs programme because this is an effective, low-cost way of enhancing food security. However, such a programme should be part of a broad rural development strategy which would eventually reduce dependence on free inputs and allow 'exit' from Starter Pack.

In our view, the Government of Malawi should give priority to developing a medium term rural development strategy focusing on the smallholder sub-sector. The role of Starter Pack within the strategy should be defined. The strategy should include measures to improve smallholders' livelihood opportunities and incomes. Indicators should be agreed for measuring when an area should 'graduate' from receiving free inputs and qualify for a different type of support.

Sustainable agriculture

The medium term rural development strategy should include emphasis on:

- Injection of good seed – OPV maize seed and good quality legumes of appropriate varieties.
- Crop diversification to reduce risks of failure for farmers and combat food insecurity. This might include 'unpacked packs' for roots and tubers, i.e. plots in suitable EPAs growing good varieties of cassava and sweet potatoes for distribution to smallholder farmers.

We propose that village maize seed banks be set up as part of future free inputs programmes where OPV maize seed is distributed. These would require Starter Pack beneficiaries to 'pay' for their packs at harvest time with the same amount of maize seed that they received in the packs. The seed banks would be managed by VTFs/VDCs, and the scheme would require the support of MoAI extension workers to help farmers select good maize seed from their fields. It would only work in areas where OPV seed was distributed, but it could eventually function as a decentralised seed multiplication programme. A pilot is recommended for the 2002-03 season.

Agricultural extension

The message that accompanied TIP1 and TIP2 was based on the technology of Sasakawa Global 2000. It emphasised monocropping of maize, and neglected the legume component of the TIP packs. In our view, it was incompatible with the food security and soil fertility objectives of Starter Pack and TIP, and inappropriate for the farming conditions of the smallholder in Malawi. We recommend that the MoAI debates at the highest levels the message which goes out with future free inputs programmes. The message reaches every village in Malawi, and, if adopted by farmers, could have a substantial impact on farming practices and agricultural production.

Despite efforts by the MoAI to intensify the TIP extension campaign and improve the TIP leaflet after the experience of TIP1, the TIP2 evaluation found that there was little uptake of the messages by farmers who received the TIP packs. The main reasons were:

- Few farmers (18%) had regular contact with extension workers and even fewer (9%) visited a TIP OFD plot;
- The TIP2 leaflet was too technical and text-based for smallholder farmers;

- Farmers rejected the Sasakawa technology because of land, labour and resource constraints;
- There were poor relations between farmers and extension workers;
- The TIP packs were delivered after land preparation (ridging) had been done; and
- The MoAI's extension department is under-staffed and under-resourced at local level, and faces competition from NGOs and other projects offering better financial incentives.

We conclude that changes are needed in agricultural extension. We specifically recommend that:

1. The extension campaign should focus on key messages which – if understood and applied by farmers – will considerably increase the impact of the free inputs programme. In our view, in 2002-03 the key messages should be:
 - how to apply the fertiliser correctly;
 - the benefits of intercropping the legumes with the maize; and
 - how to select seeds for recycling (for farmers receiving OPV maize seed).
2. The TIP leaflet that accompanies the packs in the 2002-03 season should be attractive and simple, so that farmers can understand it.
3. A conscious effort should be made to improve relations between extension workers and smallholder farmers. This might include training sessions and a radio campaign.
4. The lack of staff and resources for extension work at local level should be addressed.
5. Efforts should be made to prevent extension workers from neglecting their core duties because of more attractive financial incentives elsewhere. It may also prove necessary to reassess the way that the MoAI's financial incentives are structured.
6. There should be independent monitoring of the work of the MoAI extension department, to ensure that targets are met and to identify problem areas.

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Appendix 1: The new TIP leaflet