Facilitating Market System Change in Malawi’s Oilseeds Sector

– A Case study on incentive-based contract farming and other scaled innovations

August 2017
Introduction

Attempts to link input supply with output production have dominated many smallholder-based agricultural production systems globally. These have been especially important in internationally traded commodity sectors – such as cotton – where high quality and significant volumes are required to compete successfully in crowded and volatile global markets.

This case study traces the emergence of innovative, incentive-based contract farming (IBCF) models in the cotton market system in Malawi, and a similar model that has also been successful in soybean, led by the Agriculture Commodities Exchange for Africa. These models have overcome the common and often deal-breaking challenges of side-selling and default faced by buyers who invest in grower input supply. IBCF shifts the norms of doing business towards medium-term, value-adding, mutually beneficial relationships among growers and buyers by using loyalty-building mechanisms to create season-on-season partnerships.

These new models are the result of the DFID-funded, Adam Smith International-implemented Malawi Oilseeds Sector Transformation (MOST) programme, which since 2013 has sought to improve the competitiveness of Malawi’s oilseeds market systems. MOST has facilitated the introduction and scaling of a number of sustainable innovations, including IBCF, which address systemic constraints in the oilseeds markets and generate significant benefits for low-income farming households. The case study describes MOST’s trials and tribulations of facilitating market system change in the volatile cotton market, and its ultimate success in finding impact in Malawi’s aid-intensive, government interventionist and thin private sector context.

The case study also covers other important inter-related innovations and changes in the oilseeds market systems that MOST has facilitated, which have contributed to the significant impact that MOST has been able to create. It reviews the crucial changes to the system of cotton price determination, which is providing new hope and impetus for the private sector in this deeply troubled sector in Malawi. The case study also discusses efforts to re-establish commercial seed stocking and cash sales business among distributors to increase access for farmers not adequately served by the Government of Malawi’s Farm Input Subsidy Programme, or contract farming arrangements. Finally, the case study considers how the liberalisation of production and distribution of oilseed inoculants is enabling large numbers of growers to increase their yields significantly with only small amounts of additional investment.

Results so far have been encouraging, especially given the poor weather conditions in 2014/15 and 2015/16 and other factors that have made local conditions over the period of the programme intensely challenging, especially in the cotton market system.

Background about MOST: The Malawi Oilseed Sector Transformation (MOST) programme is a £ 6 m, four-year market systems development programme. Between 2013 and 2017, it has increased the income of more than 60,000 poor women and men working in Malawi’s cotton, groundnut, sesame, soybean and sunflower markets. MOST has sought to have a transformational impact by supporting changes in the market system that fundamentally alter the way business is done to ensure greater benefits for the poor. MOST has worked with a range of market actors – from small-scale rural entrepreneurs to multilateral companies – to pilot and scale up new business models and stimulate a more competitive market system.

MOST’s portfolio of interventions focusses on facilitating improved access to farm inputs and access to finance, including better quality seed and crop protection products, and improved access to agronomic information. MOST is also expanding rural value addition opportunities, by promoting access to threshing, shelling and processing of oilseeds, and developing marketing and distribution systems in farm input and crop output markets. MOST programme results do not only rely on direct delivery. Instead, MOST uses small risk-sharing investments and technical assistance to encourage market actors to pilot and scale up innovative and inclusive business practices. This avoids market distortions, and ensures that MOST’s impact is sustainable beyond its lifetime.

On the robustness of reported results: The results and impact reported in this case study are drawn from the findings of MOST’s in-house monitoring and results measurement (MRM) unit, whose systems follow the standards of the Donor Committee for Enterprise Development (of which DFID is a member). DCED audited MOST’s soybean MRM system in July 2017 and MOST achieved outstanding scores of 97% of MUST compliance criteria and 93% of RECOMMENDED compliance criteria. The audit scores reflect that the results and impact that MOST reports – including its projections – are independently credible, using appropriately robust methods to ensure accuracy and attribution.
Impact Highlights

Incentive-Based Contract Farming: Incentive-based contract farming (IBCF) models that MOST has promoted with cotton ginners Toleza and Afrisian, and with the Agriculture Commodities Exchange for Africa (ACE) have to date increased the incomes of more than 5,400 cotton and soybean farming households by a total of almost £420,000. Based on their experiences so far, Toleza, Afrisian and ACE are scaling up their schemes in 2017. The Cotton Council of Malawi, while initially sceptical, now supports the approach and promotes its adoption, and at the time of writing Malawi Cotton Company (MCC) among other ginners is preparing to copy the approach in the forthcoming season. More than 13,000 new growers are expected to join the schemes in the 2017/18.

Seed inoculant: Since inoculant became more readily available on the market thanks to the liberalisation of its production and distribution that MOST facilitated, soybean inoculant sales have risen from less than 10,000 sachets in 2013/14 to more than 150,000 in 2016/17. Agriculture Input Supplies Limited (AISL) alone is expecting to sell 250,000 sachets in 2017/18. Up to 2016/17, almost 39,000 smallholder farmers have benefited from now using inoculant on their soybean seeds and increasing their yields, generating for themselves an additional £3,935,790 income. 64% of those farmers are women. MOST conservatively expects that the increased access to and use of inoculant by smallholder farmers will have increased the incomes of more than 65,000 growers by 2018. In June 2017, the Permanent Secretary of the Ministry of Agriculture launched a new groundnut inoculant in Malawi at the country’s first inoculant conference. At the conference, the National Union of Farmers also made a call to action for the Department of Agriculture Research Services to heed the testimonials from farmer on the success of the soybean inoculant on their yields and to accelerate the process of release of other inoculant strains. (MOST’s seed inoculant work is discussed in more detail on p. 16).
Overview of cotton and soybean sectors in Malawi

Cotton is the fourth largest agricultural export after tobacco, sugar and tea, typically engaging over 300,000 farming families. The main growing areas are in four agro-ecological zones suitable for cotton production, namely low altitude (the Shire Valley), lakeshore, medium altitude and high altitude. Cotton is grown principally for lint production, with crude and refined cotton oil and cotton cake making valuable by-products mostly for domestic markets. Over 95% of lint is exported.

Malawi’s cotton sector has experienced a very difficult recent few years. Following the introduction of a Cotton Council of Malawi-managed, levy-based system in 2011 – made possible with the Government of Malawi’s (GoM) upscaling initiative that injected MWK 1.6 billion (US $10m) into the sector – production reached a high of over 100,000 MT in 2012. Production levels subsequently returned to the historical average of around 50,000 MT as the system failed to deliver sufficient resources to finance inputs. GoM also began to set minimum prices for farmgate cotton at above the equivalent world market prices. Combined with the severe drought in 2015-16, there has been a collapse in confidence among Malawi’s lint processors (called, ginners), including several exiting the market and ceasing any input support to smallholder growers. As a result, production has fallen to only 10,000 – 15,000 MT between 2015 and 2017.

The cotton sector has a medium impact on women. Women supply labour on smallholdings (for example, although men typically perform spraying work, women draw the water), but their control of income is limited in non-female-headed households as men control the selling of cotton at market. Women constitute around 25% of labour in processing facilities.

Soybean – a small grain legume processed into a wide variety of end-use ‘soy’-products including livestock feed and human foodstuff (oil, milk, flour, meal and textured soy protein) – has been promoted in Malawi since the late 1980s. A price collapse in the early 1990s slowed sector growth, however. Production received a boost in 2000, when the GoM imposed import quotas for poultry to protect domestic producers. This policy stimulated poultry production and, as a result, the domestic feed industry, to which soybean cake is an important input. Although at present, soybean remains a relatively small portion of GDP, soybean is recognised as an important oilseed and pulse crop in GoM’s strategies both for domestic consumption and – especially in the context of export diversification away from the dominance of tobacco – for export. Output has been on a steadily rising trend from around 55,000 MT in 2006 to 120,000 MT in 2015, driven primarily by increased area under cultivation rather than significant improvements in yield. Exports have been limited historically due to periodic export restrictions put in place to promote import substitution and later, domestic consumption.

Most of Malawi’s soybean output comes from between 150,000 and 250,000 smallholders who grow it as a cash crop, concentrated in the Central Region, particularly Kasungu and Lilongwe Agricultural Development Divisions, which account for over 80% of national output. Women more commonly lead soybean production, in part because many soybean-growing households also grow tobacco. Tobacco is typically the primary cash crop and is generally the responsibility of men in the household, with soybean grown as a secondary cash crop and for consumption, and thus is generally the responsibility of women. As with cotton however, control of income is limited unless households are female-headed.
**MOST’s vision and opening portfolio of interventions**

MOST initiated its interventions in the cotton market system in early 2014, following a period of analysis (see box for key findings of MOST’s cotton market systems analysis). MOST’s vision was that – on the supply side – by facilitating smallholder access to certified seed cotton, reliable crop protection inputs and access to information on good agronomic practices (GAP), adoption of those better farming practices, increased utilisation of certified seed and better control of pest and diseases would increase productivity and returns. Smallholder farmers would potentially double current yields and improve the quality of seed cotton. On the demand side, increased margins would be derived primarily from higher prices due to better quality lint, helping to secure the export market. By facilitating an improved tax environment, particularly for formal oil products, costs could also be lowered. This would ultimately result in higher incomes for poor households engaged in cotton production.

In its opening portfolio of interventions in 2014, MOST therefore pursued partnerships to pilot: (1) New extension support systems; (2) Price-differentiated buying systems that reward better quality; (3) Redesigns to farmer registration systems; (4) Innovative chemical distribution systems; (5) Seed supply systems. MOST would also seek to persuade GoM to review the taxation system for edible oils by supplying ministries with information on the costs / benefits of the existing regime and alternative tax scenarios.

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<th>Key findings of the cotton market system analysis</th>
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<td>Producers lacked access to agronomic and market information: Traditional extension methods were costly and inefficient. The government and private sector were unable to employ and deploy adequate personnel to serve producers, with the current producer-to-extension worker ratio at 1:3,000, in comparison to a recommended 1:500.</td>
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<td>Buying system dis-incentivised investment in quality improvement by producers: Malawi cotton was known to be of average quality, free from significant levels of contamination. Lint quality could be inconsistent, with variation among bales. Despite the publishing of minimum prices for two cotton grades by GoM, in practice, farmers no longer graded or sorted their seed cotton. This is because heavy competition at buying points meant that cotton of all qualities was purchased at the same price, removing the incentive for grading at farm level. Instead, ginners performed this function at their facilities by employing labour to remove foreign matter and stained cotton on entry to the ginnery.</td>
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<td>Producers lacked affordable and timely access to chemicals: Insect pests were the major cause of low cotton yields and poor lint quality. Most smallholders, particularly the poor and female-headed households, had difficulties accessing spraying equipment. Only 10% of cotton smallholders owned their own spray equipment. They relied on hiring sprayers from better-off smallholders for which they had to wait, and therefore they often were not able to spray on time. Their alternative was to use traditional broom sprinkling of pesticides, or worse, not to spray at all. This had a negative effect on crop quality and productivity: un-sprayed cotton yields less than 300 kg/ha of low quality cotton; partially sprayed cotton yields 600-800 kg/ha, while well spray cotton can yield 1,500 kg/ha. Under the levy system of managed input distribution, small growers received none or inadequate quantities inputs from the ginners because of the flawed and unreliable farmer registration system, with duplications and exaggerations in terms of the number of farmers and their corresponding landholdings. Smallholders could not procure additional chemicals in the market because commercial chemical distribution had been undermined by the managed input distribution system.</td>
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<td>Producers lacked access to certified seed: Quton – a domestic seed producer owned by SeedCo was the sole domestic multiplier of seed cotton. The model at that time was inefficient and had resulted in inadequate domestic supply. Seed was imported from Zambia to meet the deficit. Coordination between Quton and ginners was poor, resulting in low and unreliable supply of seed recovered from multiplying smallholders to Quton. Only around 50% of certified seed recovered through the ginners was meeting the benchmark for germination performance, suggesting that commercial cotton was mixed with seed cotton from the contracted smallholders.</td>
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<td>The taxation regime undermined domestic production and limited industry expansion: Value Added Tax (VAT) on domestically produced edible oils limited competitiveness of formal, compared to informal, oil processors. It was alleged that crude oil importers might be able to reclaim input VAT when this is not valid. Thus, informal oil processing and import of crude oil was favoured by the taxation system, creating a disincentive for domestic production and limiting formal sector growth. Formal processors were required to deduct Withholding Tax (WHT) from suppliers, which disadvantaged them compared to informal processors/buyers that ignored these rules. In practice, the formal buyers had to pay more in order to buy produce, as the producers/traders would otherwise sell to informal buyers when they had the opportunity, as the net price is higher.</td>
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Early lessons and pivot

By March 2015, at the end of the first year of implementation, MOST had significantly increased its understanding of the cotton market system. The local conditions and dynamics had also changed. In particular, global lint prices were falling substantially. MOST had found ginners unwilling to provide substantial inputs and agronomic information to smallholders, and quality-based buying was not feasible:

- Against a history of high levels of side-selling and default on input loan repayment by smallholders, there was significant distrust between ginners and smallholders, and ginners had low levels of confidence in receiving a return on such an investment. This resulted in over 60% of smallholders (about 50,000) being unable to access certified seed.
- Many ginners were operating at around 20% of their capacity and were not discriminating on the quality of cotton that they bought. They bought what was available irrespective of quality, seeking to maximise capacity utilisation of their ginneries. Quality-based buying was therefore not feasible in these conditions.
- In the light of global price reductions, there was also an increased need to assist producers to relate poor domestic price offers to wider industry conditions. This information function was to be taken up by a consortium formed by the nascent statutory Cotton Council of Malawi (CCM) in collaboration with the Farmers’ Union of Malawi (FUM), the Cotton Farmers’ Association of Malawi (COFAM) and ginners, but this body was not yet operational at the time. It would begin to operate in the 2015-16 financial year and MOST would disseminate a study it had commissioned on regional farm-gate pricing to the consortium in order that these stakeholders could take this activity forward.

There had been more success, though still mixed, in pilots focusing on improving seed supply systems. There had been improvements in Quton’s seed recovery rates thanks to the initial success of a consignment tagging system piloted for seed multiplication, which MOST had supported. Quton’s system still appeared to be inadequate however, and higher cost imported seed continued to make up for shortfalls in domestic seed multiplication activities. An early-season irrigated seed multiplication pilot that MOST was considering to support Quton to pursue was suspended due to a land dispute, and more broadly had little potential for scale-up.

Another constraint that became apparent was that because Quton traditionally only supplied certified seed to ginners, and so there was no downstream commercial availability of seed at agro-dealers for those not able to access the ginneries or that wanted to supplement what they did receive. This had a profoundly restricted the access of smallholders to sufficient seed, given the limited options for growers to join contract farming schemes, which had mostly broken down. This disadvantaged the more serious growers, due to the poor targeting of the distribution via ginners. With no source of seed to buy via input dealers, these smallholders were less able to grow the volume of cotton they are capable of producing. A biometric registration system that would have improved access to inputs for serious growers through ginners was not workable in a reasonable timescale because there seemed little scope that all smallholders could be registered in a single pre-season period at an acceptable cost under the existing process.

In light of lessons learned in the first year of interventions, MOST focused its strategy to improve smallholders’ access to high quality seed in 2015 on continuing to strengthen Quton’s seed supply systems (multiplication), and improving availability of certified seed outside of contract farming arrangements. In particular,

- It doubled down on tag-based out-grower system with Quton. The tagging system allowed Quton to identify smallholders and their seed, and it had success in enhancing contracting models for seed multiplication by reducing the risk of side-selling;
- It piloted commercial seed stocking initiatives in agro-dealers in cotton areas, where smallholders could buy seed for cash (see Promoting Cash Seed Sales at Agro-Dealers section).

While MOST focused less on buyer-linked models, which remained out-of-reach in the current conditions, MOST did believe that the Quton tagging system’s success might, in time, provide the impetus for the ginners also to reconsider contract arrangements and input provision themselves. MOST therefore ensured that it communicated its work with Quton with ginners pro-actively, and continued to seek to establish new forms of contract farming with interested ginners.

In the area of chemical inputs market, MOST’s spraying services pilot had had some success in the first year of implementation (2014/15). It had demonstrated that it was possible to shift chemical supply functions from ginners who
were cagey about investing in growers, and promote successful, independent spray services providers (SSPs). What remained unclear was the long-term sustainability and scalability of the training the trainer model for developing SSPs, which during the pilot had been led primarily by MOST itself.

MOST was also generating interest for developing key product and packaging innovations that would make use of crop-protection products easier for farmers. This included mono-dose sachets and multi-product bundles, which could make it safer, easier and more affordable for smallholder farmers and SSPs to apply chemical inputs accurately and more safely.

In 2015 MOST therefore doubled down its focus on proving and scaling the SSP model through partnerships with CropLife Malawi – the association of agro-chemical input suppliers in Malawi – and to pursue product and packaging innovations with its members. As with seed supply, MOST would remain open to working with ginners that had expressed interest in purchasing these services for the smallholders and supply them under contract.

**Drought of 2015/16**

Over the 2015/16 season, the cotton sector was severely impacted by a major drought in key cotton growing areas, notably the Shire Valley, destroying crops in the field. There was also a major outbreak of pests, particularly mealybug, exacerbated by poor access to pesticides. Total production collapsed to about 15,000 MT from a typical 50,000 MT, two major ginners closed down and another did not purchase that year. These negative market dynamics reverberated through MOST’s market facilitation efforts.

Although Quton adopted tagging as a standard operating procedure for seed multiplication – a significant success for MOST, the poor weather conditions meant that an initial involvement of 12,000 smallholder seed growers was scaled back to 4,000 because of the loss of the planted cotton in Dolo EPA in Chikwawa District to drought, and reduced seed requirements by Quton.

MOST’s attempt to promote commercial seed distribution made some progress. Quton established a commercial seed distribution network through agro-dealers in cotton areas for the first time and targeted five MT of cash sales through this network. Unfortunately, largely due to late delivery by Quton and poor marketing of the seed availability, sales were disappointing, only reaching one MT.

In the area of innovative chemical distribution and application through SSPs, 32 SSPs were trained in partnership with Crop Life Malawi, and many of these micro-entrepreneurs had subsequently experienced good margins and provided improved access to spraying services for smallholder. Demonstration plots were established to showcase crop-protection agents as well as ‘Nyonga’ packs (complete package of chemical inputs) in a partnership between input company Farmers Organisation Ltd. and ginner Great Lakes Cotton Company (GLCC), but these were suspended due to the late and erratic rainfall at the beginning of the season which would limit yields of cotton grown under these stressed conditions, so the companies did not want to risk proceeding.

As hoped, MOST’s efforts in other areas of the cotton market system did generate interest from the most forward-thinking ginners, and MOST was able to initiate its first contract farming pilots with GLCC and Toleza. In these pilots, farmers who were given input loans were also promised rewards at the end of the season to incentivise them not to default. Unfortunately, the most severe impact of the drought was GLCC suspending its planned scheme covering 3,000 smallholders, because it felt that input provision would not bring about the yield improvements necessary for smallholders to repay their input loans in the context of poor rainfalls during planting and the hiatus after planting.

The other participating ginner - Toleza – did proceed with to contract 4,000 smallholder farmers in the Balaka area. The effects of the drought were less pronounced in Balaka, and Toleza had strong relationships with growers there. Toleza achieved high loan repayment rates and a good supply of cotton.
**Emergence of the incentive-based contract farming model**

The cotton sector had experienced an abysmal year in 2015/16 following the drought. Many market actors were at a point of despair, MOST’s results from its interventions over the past two years were severely impacted. Nonetheless, the year had generated significant learning on root causes of market failure and provided evidence on what could work going forward:

- **Under the current conditions of low volumes,** ginners were generally not interested in providing input loans to producers. Because of the very high competition for what little cotton was available, there was a justified perception that this scarcity would lead to side selling and defaulting on loans.

- **The business model of contract farming was attractive however, in cases where the growers could be trusted and ginners had strong loan recovery rates** – as in the case of Toleza which had strong relationships with its contracted farmers.

- **The crux of the challenge was thus to find ways of building loyalty among growers,** so that ginners could be confident that investment in growers in the form of pre-financed inputs would not be lost through defaults and that the sought-after cotton would actually be available to them. Incentives for performing farmers could build this trust. Stepped pre-financed packages – whereby performing farmers were offered larger packages in subsequent years, alongside risk reduction insurances (weather and death risks) – seemed particularly promising.

- **Identifying performing growers to be rewarded could be a problem because there was no national farmer identification system.** Promisingly, the success of the tagging concept adopted Quton as a batch identifier suggested it might also work as an identifier for contracted farmers. This was generating interest with a number of ginners, namely GLCC, Toleza, MCC and Afrisian, and the ACE.

From 2016/17, MOST has therefore concentrated on the continued development of incentives and appropriately stepped repayment rewards for use in contract farming. It also explored the incorporation of SSPs and the new chemical products into the incentive structures. In 2016/17, it did this in a continued partnership with Toleza, and initiated a partnership with Afrisian. In 2017/18, it is likely IBCF schemes will progress with Afrisian and MCC. The CCM supports the approach and promotes its adoption.

MOST has also been in touch with Zambia’s ginner association about IBCF, after poor contract compliance in 2016/17 there.
Reform of the system of cotton price determination

A critical constraint undermining the cotton market system in Malawi in recent years has been the government-led system of price determination. Purportedly setting *minimum* prices under which ginners are not allowed to buy at in order to protect farmers from loss, in practice this price was often significantly higher than regional prices and makes ginning in Malawi highly unattractive. The effects of this system were particularly pronounced in 2015 when the price was set at MWK 375 for the 2015/16 season, significantly above regional parity. These price restrictions have contributed to the historically low levels of production in 2016 and 2017 as more than half of the ginners dropped out of the market – abandoning input pre-financing schemes in 2015.

In 2017, following several years of lobbying from MOST and its partners, including an exposure visit facilitated by MOST to Zambia where the sector is in a much healthier state, the CCM asked MOST to provide them advice on a different system of price determination. MOST successfully convinced the CCM to hold back from setting a minimum price for the 2017-18 season, and to licence only those ginners that had provided inputs to farmers. For the first time in years, the private sector was able to determine the price, through negotiation between ginners and farmers representatives at a joint summit. A market-wide price of MWK 320 was agreed after initial demands for MWK 275 from the ginners and MWK 375 from farmers. This price remains above regional parity, but the difference is much less pronounced than before.

MOST hopes that improved performance of the sector in the 2017/18 season will encourage the CCM to continue to review its system of price determination, and move further towards the kind of deregulated market successfully in place in Zambia where each ginner negotiates directly with its registered farmers.
How Incentive-Based Contract Farming Works

Incentive-based contract farming models that MOST has facilitated in Malawi oilseeds market systems have so far overcome the common challenges of side selling and default faced by buyers who invest in grower input supply. IBCF shifts the norms of doing business towards medium-term, value-adding, mutually beneficial relationships among growers and buyers by using loyalty-building mechanisms to create season-on-season partnerships. This section explains how the models work.

The two primary actors involved in IBCF are the output buyer (in the case of cotton, the ginner) and the growers. Secondary actors are the input suppliers and service providers that the output buyer collaborates with to deliver the package of inputs and services to the growers (e.g. seed supplier, agro-chemical distributor, and insurance provider).

The objective of IBCF is to increase productivity and quality by ensuring appropriate access and use of inputs by growers through pre-financing, and to ensure a reliable supply (volume and quality) for the buyer. The unique characteristics of IBCF seek to overcome the moral hazard of grower side selling and default common in other forms of contract farming and pre-financing by creating long-term loyalty among growers towards the pre-financing buyer.

The first step in IBCF is that during the pre-season, the output buyer recruits and registers growers to join the scheme. It is important that the output buyer is, in future, able to identify the registered farmers. At this time, the buyer seeks out reliable, capable farmers, typically at first among those with a track record of supply and paying input loans. The buyer then provides to the registered growers an initial package of inputs on credit that enables growers to grow according to good agriculture practices, in return for supply of crop and repayment of input finance. The size of the package and level of crop required for repayment is set at a level that is realistic for most smallholders to achieve, so it is below the average for a smallholder with access to these inputs.

There is an explicit statement at the outset that compliance in year one of IBCF will lead to a more extensive package of inputs and support in year two and year three. The aim is to create a series of steps, and a habit of compliance so as to get something more next time.

Growers receive training in agronomy during the season. At the end of the season, growers repay the value of the package to the buyer. Growers are incentivised to repay the package by getting a reward in the form of access to a more interesting (larger) package in the subsequent year. In addition, farmers can be offered additional incentives to sell more to the buyer beyond what is required in order to repay the package. This was done very successfully by Afrisian, supported by MOST, which offered additional cover on funeral expenses to the spouse and children. Over 75% of farmers received the incentive by delivering more than the minimum specified in the contract.

There is need for setting the price to reflect market conditions at the time of buying, so that the smallholder is not faced with a better offer by a third party with the choice of more money for the crop against the cost of losing access to the IBCF. Some firms see contract farming as a means to buy cheaply or at least at a guaranteed price, but they will fail if their price is out of line with the market. Output buyers should see that they make more money in processing and sales from a predictable volume and quality of raw material, than saving small amounts on the buying price.

In this way, loyalty is built through positive incentives in the form of long-term rewards for repayment and significant sales (in terms of volumes and quality) with the background threat of negative, punitive measures (future exclusion) in the case of default. Loyalty can be built further by offering bridging rewards in the off-season, such as continued funeral expense insurance cover, and through the perks of differentiated packages.

Effective communication about IBCF and its unique features is very important in its early seasons and takes time, as growers, as well as staff of the output buyers and other stakeholders tend to presume it is like previous schemes. There should be incentives for staff of the output buyer that align with seeking compliance by smallholders (proper selection, effective delivery of inputs, effective monitoring, and encouraging delivery of crop and repayment of finance).

Output buyers need to act consistently according to a longer-term approach. They have to avoid the temptation to reject excess volumes by increasing quality standards, and vice versa, or offering to cancel loans if smallholders bring the crop rather than side sell.
In the case of cotton, packages might include certified seed, crop protection chemicals, foliar fertiliser, free spray scouting services and access to spray services. Other products and services – such as weather index input insurance, funeral expenses insurance, and even participation in end-of-season raffle draws (for bicycles and sprayers for example), can be included in the package to differentiate the buyer’s offer from its competitors to encourage the best farmers to sign up and remain loyal. What the package includes differs with circumstances. In Malawi, the levels of trust between ginners and growers were so low that in 2016/17 the schemes that MOST assisted Toleza and Afrisian to offer productivity increasing foliar fertiliser on credit, but did not include seed and crop protection, which farmers had to buy for themselves with cash to demonstrate commitment. This is likely to change over time as the ginners experience good results (high levels of repayment and significant trade) and gain confidence in the model's ability to create loyalty among farmers. Toleza and Afrisian also used a discount on the price of seed in 2017/18 as a reward for growers for selling additional volume in 2017.

A successful IBCF scheme can only be built over 2-3 years of operation. Output buyers have to appreciate that they make more money from a predictable supply of the right quality as this leads to processing efficiencies and ability to tie up contracts compared to making short-term savings by buying cheaper. IBCF requires investment and time to pay back that investment.

The diagram on the next page presents the concept of IBCF for cotton.

The concept of IBCF for cotton
IBCF at the Agriculture Commodities Exchange

MOST partnered with the Agriculture Commodities Exchange for Africa (ACE) to pilot IBCF in soybean. This section presents the experiences of Chithumba – ACE’s IBCF scheme for soybean, which has – as of August 2017 – run for two seasons. To date, as of August 2017, Chithumba has generated £174,981 of additional income for more than 2,200 farming households growing soybean.

How ACE’s model differs to cotton IBCF

ACE’s Chithumba model maintains the same, basic principles of IBCF as in cotton but differs in a number of ways to suit the differences in the crops:

Firstly, whereas in cotton, new seed is necessary every year for good quality output, growers of soybean in ACE’s scheme can recycle seed for two years before they need new seed. This means that pre-financed packages of inputs in the growers’ second and third year of participation in the scheme do not need to include a replenishment of seed. ACE must therefore consider alternatives to make up these packages – which in order to provide rewards for loyal participants must still be designed to be larger in value than the previous year’s package:

- One option ACE is experimenting with is to offer diversification packages for different crops, e.g. groundnut and sesame for growers who received inputs for soybean in the first package.
- Another option is to offer packages to cultivate larger areas since initial packages are for small parcels of land, typically significantly less than the average land available to a smallholder farmer),
- Finally, ACE is also offering new, higher value inputs, such as crop protection, in the larger packages for loyal growers.

Secondly, farmers participating in the Chithumba scheme repay their package in grain, rather than in cash, with volumes agreed at the beginning of the season. Getting the multiple right has been challenge, such that farmers feel the repayment is realistic relative to what they received as inputs and to what they harvested.
Two seasons’ of promising performance for Chithumba

In 2015/16, ACE piloted IBCF as a means of increasing volumes traded through the exchange. MOST supported ACE by funding the cost of a coordinator at ACE to lead the initiative, provided technical assistance to design the model, and bought down ACE’s risk by guaranteeing to cover any shortfall ACE could face. MOST also provided the raffle prizes for the draw for those farmers that paid in full.

For the pilot in the first year (2015/16), ACE identified farmer groups with whom it had existing relationships around four of its depots through its existing marketing agents. 954 farmers participated in the scheme. Once selected and given identification tags, farmers received a package containing 15kg of seed and inoculant, which they would pay back in the form of 50 kg of grain at the end of the season. ACE held three farmer interactions at each of the depots. These were gatherings where ACE provides farmers with reminders on good production practices and raised awareness of the opportunity for them to sell additional crop through the commodity exchange if they wished. To make the interactions interesting, third parties were invited to come to provide other information. For example, a soymeal manufacturer came to provide cooking demonstrations, and input supply company Farmer Organisation Limited, used the meetings to promote its crop protection products.

The pilot was a success in spite of the difficult climatic conditions that year. 94% of the 954 participating soybean growers honoured the agreement and sold significant additional portions of their harvest through the exchange. ACE and MOST had modelled the scheme on the basis of a conservative 60% repayment rate to cover inputs (but not overheads), so ACE generated MWK 6m surplus over the input cost, because of the higher-than-expected repayment rates. It placed this surplus into a sustainability fund for use in case of shortfall in future years. Furthermore, ACE had predicted a sale price on the exchange for the grain recovered from the farmers at MWK 320, but in the event was able to sell it at MWK 360. To promote goodwill for the model and loyalty, ACE decided to give this difference back in cash to growers at the end of the season. At this time, ACE also had a raffle, where some farmers won some sprayers, gumboots, and bicycles.

In spite of the success of the IBCF model for ACE and the farmers involved, MOST found that farmer productivity remained below what they had expected from the use of inputs that farmers secured through the arrangement. The big take-away for the following year was for MOST to work with ACE to improve the agronomic advice farmers received.

In 2016, ACE sought to extend the scheme. ACE and MOST expected the prices it would be able to secure in the market in 2017 would be lower than in 2016, and modelled the scheme accordingly (with expected prices at MWK 205 per kg). This created some tension with existing participating farmers who saw the terms of agreement worsen: an equivalent package of 15 kg of seed would this season require 70 kg of grain for repayment in 2017 instead of 50 kg in 2016.

Nonetheless, ACE was able to recruit 4,456 farmers with both soybean packages. Half these came through a subcontract with ATL, supported by USAID, who replicated the model, its methodologies and management plans that MOST had supported ACE to put in place in the previous year. MOST continued to provide support to ACE directly. In addition to ongoing cost-sharing of ACE’s contract farming coordinator (at a reduced level) and technical assistance to ACE to develop the model, MOST’s support focused on helping ACE improve the farmer embedded advisory services received through participation in the scheme.

As in the first year, repayment levels have been very impressive. With the exception of one cluster of 200 farmers in Machinga, repayment rates overall have been over 95%. However, even though the scheme for the year had been modelled on lower sale prices than in 2016, prices at the end of the season have been less favourable than expected, and as the result, the scheme fell just short of covering the costs of its inputs.
**Lessons so far and the future of Chithumba**

**A great deal for farmers:** The ease of growth in subscribed farmers between 2015 and 2016 and the very high repayment rates (95+%) demonstrate that even in years where oilseeds prices fall as part of their commodity price cycle, IBCF remains an incredibly attractive scheme for farmers. Appropriate use of seed, inoculant, other inputs and advice provided through the *Chithumba* packages deliver at least 40% increases in yield for farmers compared to traditional practices and significant income gains. With loyalty rewarded with larger pre-financing packages, and other incentives, farmers keep coming back.

**Importance of proximity:** In the 2016/17 season, while the rest of ACE’s Chithumba portfolio saw repayment rates of 95% in the 2016/17 season, the cluster of 200 farmers that ACE contracted with in Machinga experienced low rates of repayment of 30%. This poor performance reflects the difficult for ACE to maintain the level of engagement with farmers in remote locations. It highlights the need to focus on expanding the model around existing depots while progressively expanding to proximate locations.

**Operational viability:** To date, ACE has not been able to make *Chithumba* cover its operational costs – which in the first two years of operation, MOST has subsidised. In order to achieve viability of the model, it is therefore necessary to find ways of reducing operational costs and/or increasing revenues. One area where operational costs can be significantly reduced is around smallholder engagement and training, where in the past ACE has incurred significant costs in running large, in-person gatherings at its depots. ACE is now planning to harness digital learning and social media to train smallholders at significantly reduced costs by using short good agronomic practice video clips that MOST has developed. In order to increase revenue, MOST and ACE are also exploring whether *Chithumba* is a service that they can offer for a fee to stakeholders seeking to have sustained impact on smallholder farmers, particularly the tobacco industry and NGOs.

**Bearing the risk:** The *Chithumba* models carries two main areas of risk: commodity price volatility and loan portfolio under-performance. In the first two years of operation, MOST has underwritten these risks for ACE. If *Chithumba* is to be viable in the long-term however, ACE will need to take on and manage these risks itself. ACE is therefore in the process of establishing an indemnity fund to protect itself from these risks.
Promoting Cash Seed Sales at Agro-Dealers

Alongside efforts to develop viable models for output buyers to supply seed on credit to producers, MOST also sought to address the problem that small-scale producers could not access quality seed for cash at their local agro-dealers to supplement other sources.

This market failure is the result of the distortional effect of the GoM’s Farm Input Subsidy Programme (FISP). FISP provides subsidised seed and fertiliser to farmers through agro-dealers using a voucher system. FISP is the biggest input buyer on the market by far, and seed companies pursue FISP business at the exclusion of other markets, especially cash sales to smallholders through distribution networks. However, redeeming FISP vouchers is very slow – the Government might take a minimum of 8 months or more to pay suppliers, and outstanding balances after 3 or 4 years are not unheard of. This forces seed companies to increase the price at which they sell seed to farmers significantly, inflating the price of seed available at agro-dealers even if farmers want to buy it in cash instead of with FISP vouchers. Pack sizes were also dictated by GoM willingness to subsidise rather than fitting the needs of farmers.

MOST has therefore sought to prove the business case for seed companies to sell seed for cash through agro-dealers at reasonable prices not inflated to cover the cost of waiting for FISP to pay and risk of not doing so.

In order to facilitate this innovation among seed companies, MOST bought down the risk of distribution (offering to cover spoilage and costs of transport to recover unsold seed). MOST also provided considerable technical assistance to build the skills that seed companies needed to take on this profoundly different way of doing business. Initially, MOST’s partners ran into difficulties in getting stock to agro-dealers in time for periods when farmers had cash in hand (after sales from the previous season), and identifying and reallocating to other points of sales standing stock was not moving. This involved strengthening capabilities in areas of inventory management, marketing, and agent network management.

Early initiatives in 2015/16 and 2016/17 also ran into trouble because as some seed distributed purportedly for cash sales was exchanged for FISP vouchers (highlighted by the red portion of the figure above). MOST has working with seed companies to package seed for cash sales in different-sized packages than those used in FISP as a means to better target farmers seed needs and to overcome the challenge of off-taking seed designated for cash sale with vouchers.

By 2017, a few smaller seed companies without FISP contracts – Global Seeds in particular – have overcome initial difficulties and have proved that the smallholder cash-sales market works for them. Larger companies with FISP contracts have up until now still only take tentative and inadequate steps to make this market work for them. They have taken notice of the success of their smaller competitors however, and in 2017 a number are planning to target this market more pro-actively. The figures show the results and projections for this initiative, capturing cash sales of soybean, groundnut, cotton and sesame seeds.
Liberalising Inoculant Production and Distribution

Concurrently to facilitating new contract farming models, MOST has also focused on improving availability of key inputs for oilseeds growers. The case study has already touched on efforts to improve seed supply and access to crop-protection chemicals. MOST’s most impactful success, however, has been in the area of inoculant. MOST has successfully catalysed a significant increase in the access and use of seed inoculant by poor soybean farmers in particular, by facilitating the transfer of its production and distribution from public hands to commercial agro-chemical firms, through Agriculture Input Supplies Limited (AISL).

A critical problem that MOST identified in a number of its oilseeds market diagnostics was the low use of seed inoculant. Inoculants are bacteria that naturally occur in the soil and that help legumes such as soybean and groundnut to grow larger roots, enhance nitrogen fixing, leading to harder crops and significantly improved yields. The low use was because the government Department of Agriculture Research Services (DARS) was the sole producer and distributor of soybean inoculant and no other cop inoculants were being produced. DARS was not geared up to producing and distributing at scale. Production fell well short of demand (10,000 sachets against projected and growing requirement of 4 up to 800,000 sachets) and distribution was poor.

In 2014, MOST convened a dialogue between DARS and a private sector firm (AISL) to secure the release of the inoculant for private sector production and distribution. Over the past 3 years, it has provided subsequent targeted support to AISL in the form of technical assistance and risk-sharing to support the development of production and distribution capacity. It has also continued to convene key public and private players to create awareness of the benefits of inoculant use, with the objective of streamlining DARS’ slow, expensive and unreliable process of approval of new inoculant products.

Since inoculant became more readily available on the market thanks to the liberalisation of its production and distribution, soybean inoculant sales have risen from less than 10,000 sachets in 2013/14 to more than 150,000 in 2016/17. AISL is expecting to sell at least 300,000 sachets in 2017/18. Inoculant forms part of the IBCF packages that ACE offers.

Inoculant only costs a farmer £5 per hectare and MOST has shown through its impact assessments (using a difference-in-difference methodology with a control group) that when used properly on certified seed, it almost doubles yields. Up to 2016/17, almost 39,000 smallholder farmers have benefited from now using inoculant on their soybean seeds and increasing their yields, generating an additional £3,935,790 income. 64% of those farmers are women.

MOST conservatively expects that by 2018, the increased access to and use of inoculant by smallholder farmers will have increased the incomes of more than 65,000 growers in total by over £8,800,000. In June 2017, the Principal Secretary of the Ministry of Agriculture launched a previously un-commercialised groundnut inoculant at the country’s first inoculant conference. At the conference, the Farmers Union of Malawi also made a call to action for DARS to heed the testimonials from farmer on the success of the soybean inoculant on their yields and to accelerate the process of release of other inoculant strains.