

Small farmers or big investors? The choice for Mozambique

Research report 2

Making money farming in Manica

Joseph Hanlon & Teresa Smart
j.hanlon@open.ac.uk
21 May 2013

"I earn more from my pigs than from my ordinary salary," a prominent academic told us. Others have left government and private jobs for commercial farming. In stark contrast to a research visit seven years ago, some Mozambicans now see that money can be made from farming. In Manica province there are probably several hundred small and medium commercial farmers (often called "emergent farmers").

There are two keys to the growth in the number of emergent farmers. First has been hands-on management and step-by-step progress. Even the academic tends his pigs every morning before he goes to work. Second has been outside support, often linked to contract farming.

But two groups are failing. So far no large foreign agricultural investors have succeeded in Manica. Prio Foods, with 24,000 ha and €6 million investment, was the latest to fail, in January -- following the trail blazed by Sun Biofuels and others. Pouring in money and smart foreign managers has not, so far, been a recipe for success. The other group who are not productive are the elites who grab high quality land along the main roads and do not use it.

A few hundred small and medium commercial farmers is tiny compared to neighbouring Zimbabwe. But it reflects a change in attitude, and perhaps the neighbour's influence, with some of the new farmers going to Zimbabwe for meetings or to buy supplies. It also reflects a growing culture of planning and reinvestment. As we note below, there are huge problems of lack of capital and limited support for small and medium farmers. But the growth of emergent farmers is significant, and could point a way forward.

Manica province is one of Mozambique richest agricultural areas. But wars with white ruled South Africa and Rhodesia from 1976 to 1992 hugely disrupted agriculture and commerce. Policy in the post-war period was that farming was for the private sector and that state intervention would disrupt the market. There were short term interventions by aid agencies, but the lack of consistent and structured support meant post-war farming recovery was slow.

No outside solution

The problems confronting agriculture and poverty reduction seemed overwhelming and intractable: insecure markets, inadequate inputs, little technical assistance, and no credit and investment. The first response from government and others was to attract foreigners with skills and capital. After Zimbabwe's land reform in 2000, Mozambique welcomed white farmers who had lost land and offered them land in Manica. Of 50 original farmers, just three remain. Mozambique and donors

have been encouraging large corporate agribusiness investment, but so far, none has succeeded. What went wrong?

The first problem is attitude. One of the remaining white Zimbabweans said "big companies with their expatriate culture simply don't understand. They think they can buy success." A Mozambican farmer said you cannot start big. "You have to grow slowly with the business and the farm. It takes time." Another comment was that US and European investors have a fundamentally racist and neo-colonial attitude – that white experts can fly in and do things which Mozambican farmers are incapable of doing.

The second problem is much lower support than was offered to farmers in the past, and is not specific to Mozambique. *The Economist* recently (13 April 2013) reported that of 18 white Zimbabwean farmers who settled in Nasawara state, Nigeria, seven years ago at the invitation of the then governor, only one family is still there. The survivor, Bruce Spain, explained: "There's just no organised marketing here. No marketing boards, nothing – in Nigeria you're on your own. In Zimbabwe you knew what your pre-planting price was – and the government guaranteed to buy what you grew. There are no support structures... In Zimbabwe you'd send a soil sample to the fertiliser company and they'd tell you what sort would be best. There's nothing like that here." And there is no credit so it is hard to find investment capital. In our 2008 book *Do Bicycles Equal Development in Mozambique?* we wrote a chapter "The Manica Miracle is Over" which pointed to Zimbabweans failing in Manica for exactly the same reasons. And two of the white Zimbabwean farmers remaining in Manica made the same point: In colonial Rhodesia "there was 20 year credit at 3% interest for irrigation and other infrastructure, and 5 years credit for machinery. There is nothing like that here in Mozambique." Indeed, policy favours foreign investors over domestic small and medium companies; UNCTAD's Investment Policy Review for Mozambique calls for "reform of fiscal policies which currently favour mega-projects." (UNCTAD/PRESS/PR/2013/14 2 May 2013) Nevertheless, at a Manica province investment conference in South Africa (*Notícias*, 29 April 2013), the investors said Manica would need to offer even more incentives if they expected foreign investment.

Struggling against a climate in which white Zimbabwean farmers and European investors fail, and which South Africa investors say is unattractive, it is all the more remarkable several hundred Manica commercial farmers are succeeding. In the rest of this paper, we show how it has happened, point to important changes over the past six years, and highlight ways forward.

Manica's emergent farmers

Peter Waziweyi, known to everyone simply as "Senhor Peter," has 80 ha and his main crop is litchis – and litchi seedlings for other farmers. His profit last year was over \$30,000, and he now has two tractors. He is a Mozambican with a business degree from the University of Zimbabwe. He later worked for an NGO in Chimoio, but in the late 1990s took up farming in Catandica. Now, he says, "I am a businessman; I want profit and income". Sr Peter is founder of the Catandica Emergent Farmers Association, which now has 10 members.

Jaime Time Chilumbana had 30 hectares near Catandica on which he produced maize seed, which gave him a profit of almost \$10,000. This year he has switched to 10 hectares of soya and 10 ha of maize seed, which should give a similar profit. With his profits he has invested in a maize mill and opened a small rural shop.

Antonio Xavier had worked on a state farm in the 1980s but after the war obtained land near Sussendenga and began growing tomatoes for sale in Chimoio and Beira. He realised that tomatoes sold for five times as much in Beira as in Sussendenga, and that if he joined with other producers they could profitably hire a lorry to go to Beira to sell their crop. Seven years later, the association Siwama is a collection of 53 associations with more than 1000 members. And Xavier is both president of Siwama and the largest farmer, with 70 ha of maize, soya, tomato and cattle.

There is no formal definition of "emergent farmer". The average cash income in rural Mozambique is a tiny \$30 per person per year. We take as a rough definition that an emergent farmer produces primarily for the market and has a net income or profit of more than \$1000 per year. For grain producers, this means more than 5 ha of farmland. For a banana producer, that might only be ½ ha.

There is no typical emergent farmer. Many are older and have experience as workers in other sectors, but some are young and some are recent graduates from the new agricultural training institutions. Manica borders Zimbabwe and there is extensive movement across the border; experiences of, and attitudes toward, small scale commercial farming in Zimbabwe seem to have had some influence.

And there is no single crop. Emergent farmers we interviewed were growing soya, seed (maize and soya), litchi, bananas, vegetables, pigs, and goats.

Undercapitalisation and lack of credit is obvious. There are a few tractors. South of Chimoio, near Sussendenga, animal traction is quite common; north of Chimoio near Catandica, animal traction is used much less and most land preparation is done by hand (with a hoe – enxada – and often with hired labour), even of quite large farms.

Siwama

Special note should be made of Siwama, the association based in Zembe, south of Chimoio, mentioned above. It groups 53 associations with more than 1000 members, and which is important at four levels. Some of its members are emergent farmers, the association itself is a producer, by bringing together large and small farmers it is creating important collective marketing power, and it has come into conflict with large investors.

Only founded in 2006, the association is largely for marketing and input supply. It sells maize and soya from its members to Abel Antunes for chicken feed, and to the World Food Programme. This year it has an Mt 530,000 (\$18,000) loan from Banco Oportunidade for working capital, so it can pay cash to its members.

Siwama's main project now is promoting soya production, with the assistance of Technoserve. It is producing seed for its members and offering the seed and fertiliser on credit. Last year it expanded seed production too fast. Threshing soya had traditionally been done by hand which takes a long time, and the unthreshed seed was affected by a fungus which reduced germination. So Siwama bought a thresher, to use first for its own soya, and then for members. It has also bought pipe and pump to irrigate the seed production. Siwama seems to be learning from its mistakes and staying together.

Siwama explicitly encourages farmers to increase their size, and prioritises larger farmers with seeds, equipment and marketing.

In an era in which government and many donors implicitly prioritise large foreign investment, Siwama represents an alternative. And because it is working in an area with good land, it has twice been harmed by large foreign investors:

- **LAND CONFLICT:** Siwama wants to expand its seed production and 45 ha just south of Sussendenga had been identified; Siwama was in the process of obtaining the occupancy licence (DUAT) and actually began planting last year, when suddenly the land was instead allocated as part of a 183,000 ha package for the Portuguese company Portucel to plant trees to make paper bags for Europe. There was no public discussion about the alternative uses of this land, nor about allocating good farmland for trees.
- **FAILURE OF INDIRECT SUPPORT:** Using aid money to support large investors to work with Mozambican farmers is part of the strategy of several donors. AgriFuturo is a USAid project in Mozambique and one of its flagship programmes was to work through a large Portuguese investor, Prio Foods, to support it to work with emerging farmers. Farmers, particularly Siwama members, with more than 10 ha, were to be assisted by Prio and Technoserve for mechanisation and planting. But Prio collapsed and some USAID funded

machinery is still locked up in a Prio warehouse. Siwama showed its power on the ground by forcing a collapsing Prio to plough some land before its final demise. Would it not have been more productive for AgriFuturo to have simply funded Siwana? Why did it need a foreign agribusiness as intermediary?

Finally, Siwana points to an important exception in Manica aid history. It is interesting how few of the aid projects that we saw in our 2006 visit made any impact or left any trace. One exception was a USAID-funded joint project of three US NGOs, ACDI/VOCA, CLUSA and TechnoServe. Siwana president Antonio Xavier said it was these three NGOs that first taught them how to calculate costs and determine if they were making profits, which he underlines as absolutely central to their progress. The NGOs then helped them form the association. Finance Committee head Rui Calcov, himself a former textile mill worker who now has 50 ha, pointed to the importance of the joint project sending six of their people on a visit to successful associations in Nampula province.

Siwana is not the only successful association in Manica. Many international NGOs have tried to organise groups, often failed because they were organised in isolation, in the belief that organisation itself is good. But where groups have a clear benefit because they are linked to markets and value chains, more become viable.

Everything is missing

For the would-be emergent farmer, the challenges are daunting. Markets are lacking and prices low. The farmer carries all the risk of weather and uncertain markets. Inputs are expensive and hard to find. There is little technical support. And there is no rural credit, either for infrastructure such as irrigation, or for inputs such as fertiliser. Government policy has been to support large outside investors, who are expected to bring everything with them – markets, technology, inputs, and money. In such unpropitious circumstances, it is remarkable that there are several hundred emergent farmers in the province.

Two fiscal problems also face farmers. The government has kept the Rand exchange rate low (currently Mt 3.2 = Rand 1) because most Maputo food is imported from South Africa and when the rate was allowed to appreciate and food prices rose, there was a riot – but the low exchange rate makes it very hard for Mozambican farmers to compete with South African imports. This is linked to the other issue – Mozambique is still so poor that the price of food is what matters and the number of people who will pay extra for higher quality is very small. Thus there are very few niche markets for more expensive products.

Contract farming has been used in Manica since 2000, and could be an important answer to some of these constraints. Under contract farming, a contract company agrees with individual producers or a group that the company will provide inputs, technical assistance, and sometimes ploughing, on credit. The farmer, often known as an "outgrower", must sell their crop to the contract company, which then deducts the costs of the inputs and services. But, most importantly, it is a guaranteed market.

Key to the contract relationship is shared risk. The contract company spreads its risk across hundreds of producers and needs to invest substantially less than if it produced the crop itself. But the contract company provides credit and a market, which reduces the risk for the producer.

In Mozambique, contract farming has been used for decades in cotton and since 2000 for tobacco. It has substantial problems and has a mixed history in Manica. An initial boom in tobacco contract farming petered out as tobacco companies concentrated on Tete and Niassa. At the peak, there were 13,500 families growing burley (air or barn-cured) tobacco, promoted by the tobacco companies. Several other contract projects came and went: 3600 farmers growing sunflower, more than 3000 farmers growing paprika, and over 100 groups were organised to grow baby corn and other export vegetables. All have disappeared, although many of the emergent farmers gained their start through these contract programmes, and some tobacco farmers have moved to soya.

The most recent failure is Prio Foods, which collapsed in January 2013, and had 800 outgrowers for sunflower and soya. It is unclear how many of these farmers will continue on their own.

Semoc

The biggest remaining contractor is the state seed company, Semoc (Sementes de Moçambique). Production Inspector Virgilio Pascoal said that Semoc has 141 maize seed producers in Manica province: 70% have more than 10 ha and most are between 10 ha and 15 ha, but the largest has 80 ha. At least one has a tractor and three hire tractors; only eight use animal traction. All the rest do land preparation by hand, which can involve teams of 30 people or more. A few use fertiliser, but most do not. All are individuals; Semoc does not work with associations. Semoc is steadily shifting to larger farmers; in 2012/13 the minimum was 5 ha and in 2013/14 it will be 10 ha. This is a conscious attempt to promote larger farmers, and Pascoal says they hope that smaller farmers will increase their area rather than drop out.

The tractor and animal traction farmers produce between 1.5 tonnes and 2 tonnes per hectare; the others average 1.2 t/ha. Both are above Mozambican average, but not high by regional standards.

Semoc advances money for land preparation, weeding, and harvest. But Pascoal notes that increasingly producers are saving money from one year to the next, so that they can pay their costs without borrowing and paying interest.

Many of these seed outgrowers are now emergent farmers. A farmer with 20 ha and 1.5 t/ha would produce 30 t of maize at \$300/t, or \$9000, of which the profit could be \$6000 or more, which is a substantial amount of money. Some are buying motorcycles and other consumer goods. But others are investing. Pascoal reports that one grower has bought two minibuses from seed money and now runs a transport (chapa) service.

AgDevCo

The main newcomer in Manica is AgDevCo, a UK based not-for-profit agricultural development company, which directly finances agribusiness hubs which support smallholder farmers either by creating markets or through contract farming.¹ Finance is direct investment, long term loans, or support to obtain working capital from local banks. Thus ECA (discussed below) has \$323,000 in equity and debt finance from AgDevCo, plus a seasonal loan from Banco Terra for working capital to buy maize.

Several medium-size farms and businesses are supporting contract farmers because it is the only way to obtain money – AgDevCo will provide capital at a reasonable rate, but only in exchange for contracting. When the loan is finished, will the companies drop contract farming, or will they have developed a long term relationship with their suppliers?

In Europe, half of all businesses fail in the first five years. (Eurostat: Business Demography Statistics) Similarly, one must accept a high rate of failure of both emergent farmers and contract farming. Nevertheless, where it works – cotton in Nampula, tobacco in Tete, Semoc in Manica – it has a significant economic impact. Thus, despite its problems, we see contract farming as a very important support mechanism for emergent farmers.

¹ AgDevCo (www.agdevco.com) manages a Catalytic Fund (CF) which has recently been registered by the Bank of Mozambique as an investment company, which will take over some of these loans and investments.

The maize conundrum

"Soya is the only profitable crop; maize does not provide enough income," comments Sulemane Hosseni of AgDevCo.² It is a comment made repeatedly; only seed maize is commercially profitable. Yet for our recent book *Zimbabwe Takes Back its Land*, we found that emergent farmers just over the border start with maize, the staple food crop they know, and with fertiliser, better seed, and more careful weeding steadily increase production until they earn a significant profit and are largely commercial producers. Then they move to other more profitable crops. That easier transition is not available to Mozambican emergent farmers, so they have to jump immediately into new crops for commercial farming.

We look at this problem in some detail here because of the importance of maize as a staple food, as a peasant crop, and as a stepping stone to commercial production. There are five different problems: price, market, seed, fertilizer and rain.

The world market **price** for maize has been \$280-\$320/tonne over the past year. In Zimbabwe the Grain Marketing Board (GMB) is buying at \$295/t while private traders are offering \$350/t. (*Herald*, 19 Apr 2013) That is equivalent to a Mozambican price of Mt 9-12/kg. Yet Mozambican traders offer only Mt 3-5/kg. The price for seed paid by the state company Semoc is Mt 10/kg – roughly the world market price for maize for consumption. In Zimbabwe the marketing board (GMB) sets a price near the world market price which acts as a floor price; in Mozambique traders seem satisfied to buy smaller qualities at low price from non-commercial peasant producers selling small surpluses. Price clearly matters – commercial farmers can make a profit at the world market price which is paid for seed maize, but not at less than half as paid in Mozambique.

Three buyers pay somewhat more. The UN World Food Programme pays closer to the world market price, for clean dry maize in larger quantities, which has made maize potentially profitable for Siwana. Agriterra³ is a new large investor, with cattle ranch Mozbife and trading arm DECA which is becoming a large maize buyer to feed their own cattle as well as to sell to others like the World Food Programme. They were offering Mt 6/kg for maize. ECA (see below) was offering Mt 7/kg. But this is still below the world market price.

Insecure **markets** remain a worry for producers. Although there are increasing numbers of buying posts, there is still no guaranteed market system for maize. Farmers must accept the price offered by the passing buyer, and must wait for a buyer to show up. By contrast, soya has a sure market because of the demand by local chicken producers. Traders buy at Mt 15 /kg (\$450/t). For larger farmers, chicken producer Abel Antunes offers Mt 20/kg for larger quantities of good quality, clean soya delivered to the company in Chimoio. This makes soya a much more attractive crop.

Fertiliser is imported into Mozambique in quite small quantities, which means it is not easy to buy and is quite expensive (up to double the cost in neighbouring Zimbabwe).

Hybrid maize **seed** is available in Manica from Zimbabwean companies Pannar and Seedco, but it is still not widely used. A new local company, Phoenix Seeds, has produced a hybrid seed which is more drought tolerant and more suitable to the climatic conditions of Manica province, and is in use by some farmers, but it has not yet been approved for sale by the Instituto de Investigação Agrária de Moçambique (IIAM). Sementes de Moçambique (Semoc)⁴ supplies open pollinating varieties

² Lucas Mujuru of SóSojà estimates that he obtains 1.5 t/ha and that his costs are Mt 13,000 per hectare, including leasing a tractor for ploughing. He sells the soya at Mt 16/kg, earning Mt 24,000 (\$800)/ha, giving him a profit of Mt 11,000 (\$370)/ha, which would be hard to obtain from maize. See also Research Report 1 in this series: "Soya boom in Gúruè has produced few bigger farmers – so far".

³ It is too early to say much about Agiterra.

⁴ Semoc was renationalised in 2012 following the failure of the 2000 privatisation, and is only now restructuring

(OPV) of maize, mainly Matuba. It sells primarily to the state, which distributes free or cheap seed via district administrators. Thus farmers do not have the habit of buying seed, instead receiving it free and keeping their own OPV seed for subsequent years. The cost of hybrid seed and fertilizer combined with market and weather risk clearly puts off small farmers. Also, Virgilio Pascoal of Semoc told us that whereas Matuba can be easily stored for three months or longer, hybrid maize is less easy to store and must be sold more quickly, which is seen as a disincentive.⁵

Agriculture in Manica is largely rain-fed and the average rainfall is good. But the rainfall can be very variable, with gaps of one or two weeks of no rain in the middle of the rainy season, as well as drought years. Scientists predict that climate change will make rainfall more variable, and there are hints that this may already be happening in Manica. Commercial farming will require irrigation, at least to fill the rainfall gaps. The capital costs of irrigation can be \$3000 per hectare or more. That is not unreasonable because extra production will more than justify the cost. But there are no soft loans for farmers to install irrigation.

Selling maize at half the world market price can still be profitable in good years, even with more expensive inputs. But once the farmer factors in the risk of poor rain and unsure markets, it is simply not worth investing significant money in ploughing and buying improved seed and fertiliser. Without a floor price close to the world market price, maize will never be a commercial crop in Mozambique.

ECA – can contract maize work?

There is one experiment under way with small scale maize growers (not emergent farmers) with an average of .75 ha. ECA (Empresa de Comercialização Agrícola) is trying to apply the tobacco outgrower model to maize; it had 936 growers in the first year (all using credit) and 2200 in the second year (half using credit)⁶.

ECA is building its own warehouse and supporting communities to build local grain stores. It has a contract to sell maize to Cervejas de Moçambique (SAB Miller) for Chibuku beer; the brewery wants "grits" which is high quality ground maize with husks and germ removed (which in turn can be used for animal feed). But the miller in Beira produced poor quality grits, so ECA is installing its own mill. Partly because of the beer contract, ECA paid Mt 7/kg for good quality maize – clean, undamaged, with moisture below 12.5%.

AgDevCo is providing much of the funding. Grant and Allison Taylor, who run ECA, do not have their own farm; Grant says "managing outgrowers is a full time job and you cannot do both".

ECA provides three packages: good seed only (either OPV or hybrid; Mt 850/ha, \$28), good seed plus top dressing fertiliser (MT 3120/ha, \$100), and good seed plus basal and top dressing fertiliser (Mt 5200/ha, \$175). Because of very high interest rates in Mozambique, farmers who take the packages on credit and pay at the time of sale pay 27% interest and fees. Farmers are in credit groups and in the first season there was a 100% repayment rate. Inputs cost about 20% less than if bought from local dealers.

⁵ We could not confirm this.

⁶ Conservation agriculture has become fashionable with donors, and ECA contract farmers must practice a zero tillage form of conservation agriculture which involves digging holes on a 45 cm by 50 cm grid, putting three seeds and fertilizer in each hole, and removing one plant if all three germinate. ECA provides measuring ropes and cups. The problem so far is that maize is normally weeded once or twice during the season, whereas this zero tillage method requires weeding three or four times during the season, and some farmers fell behind, leading to reduced maize production. Weeding is mostly done by women, so conservation agriculture increases women's labour; many farmers hire labour, but not all have the money to do it

The best farmers are raising their production to 3 t/ha. Most are doubling production, from 0.7t/ha to 1.5t/ha.⁷ But is it profitable? Our calculations suggest that maize is marginal, even with ECA support. The full package, on credit, costs Mt 6600 (\$220)/ha which at a maize sale price of Mt 5/kg requires an extra 1.3t/ha; even at the higher Mt 7/kg ECA pays, it still requires producing 950 kg extra. And that does not take into account the cost of weeding, which is often done with hired labour. At these levels ECA contract maize may not be profitable for most farmers. The Taylors say that some of these farmers should be able to produce 6t/ha, at least in good rainfall years, but is that enough to make maize profitable at substantially below world market prices?

ECA is clearly successful in that small farmers want to join the programme, they repay their debts, and this year many are using their own money. It is worth noting that ECA farmers report a higher than average income before joining the programme, and unusually many already used fertiliser on maize (perhaps because of a history of having fertiliser for tobacco). But they are also small and many take only small quantities of fertiliser and seed – these are not emergent farmers. Is this a case of small farmers earning a bit of extra money, or does it provide a route to commercial farming?

New contract farming

Although a few farmers have been able to pull themselves up by their bootstraps and fund their own expansion through reinvestment, most have needed outside help. One of the biggest drivers has been contract farming, where the contract company provides market, inputs, technical assistance and credit. Most use outgrowers who farm their own land, but some now use what they are calling "ingrowers" who farm on contract company land, often just for a year or two as part of training. The contract farming companies below show huge variation. Some, but not all, are supported by AgDevCo.

Frutimanica

Malcolm Clyde-Wiggins at Frutimanica is a highly successful farmer who produces his own bananas and has 9 ingrowers on 5 hectares. His own banana plantation is a complex mix of himself, a Mozambican partner, and Matanuska (the banana company of the Zimbabwean company Rift Valley Holdings which has extensive interests in Mozambique), using land that was once part of a Lonrho gold mining venture. Bananas are normally picked green and then ripened; Matanuska ripens the bananas and exports, mainly to Zambia. Clyde-Wiggins assumed the domestic market would work that way. But it did not. Instead he discovered the women traders preferred to come to him, and choose and cut their own bananas. The banana "stem" contains up to 20 "hands" of bananas – consumers normally buy a "hand" in which each banana is a finger. But Clyde-Wiggins found that he had 40 or more traders coming to the farm each day, and demanding to choose and cut their own stems and take responsibility for ripening. He sells bananas at the farm gate at Mt 5/kg, and the traders can sell for Mt 10/kg or more,

The economics are good, even for the ingrowers. He estimates that it costs \$10,000/ha to set up a plantation and then \$5000/ha/year to maintain it – bananas need daily water and fortnightly fertiliser. A banana tree takes 19 months to mature, which means the set-up costs are substantial. But the banana tree will produce for 8 years. Production is about 60 tonnes/ha which at Mt 5/kg is \$10,000/ha, which gives a profit of roughly \$4000/ha. Initially, Frutimanica system allocated 0.5 ha per farmer, but the best farmers have shown they can do more.

The women traders coming to the farm have already had an unexpected impact on the ingrowers. The traders choose which banana they want, and they choose the fatter bananas from the farmers who have best managed the water and fertiliser. The others complain, but Clyde-Wiggins stresses that commercial farming is for the market, which decided. A harsh lesson, but being learned by the best of the new farmers. The plan is to move the 9 ingrowers on his land to become outgrowers on

⁷ Data in the baseline survey is inconsistent and admits that in some cases yield reports may be exaggerated. This is our guess based on an interview and the baseline survey.

neighbouring land, and extend the irrigation system to include them, expanding at the rate of 15 hectares per year. More ingrowers would then be taken on, slowly expanding the production network.

Meanwhile, Manica is one of the best places in the world to produce litchi, but it has a very short season, only November and December. By coincidence, this is the period when banana production falls in Manica (but not in Nampula, which produces all year). So the two crops go together. Clyde-Wiggins already has 1000 trees, and – again totally unexpectedly – traders wanted to come and pick their own litchis. At Mt 35/kg, the price is low compared to Mt 90/kg in Maputo, but profitable for the farmer.

So far litchi production is entirely for the local market, but with a growing number of producers and higher volumes, European companies are now expressing interest. Bananas and litchi underline the importance of a local market before trying to export. Once systems are working, the best fruit can go for export, the next quality for the local market, and damaged fruit can be pulped and used for juice. Producing purely for export is much more difficult and riskier.

Xicocha

Antonio Manjate is a former Semoc manager and is now a university teacher with a 400 ha farm, Xicocha, which he is developing as a base for in- and out-grower contract farming for soya and hybrid maize. He ploughs, provides seed and buys the production. He is using animal traction for ploughing, seeding, and weeding. He charges Mt 2400 (\$80) per hectare for ploughing.

Manjate points to two keys to success. His experience at Semoc taught him to control costs. And he stresses the need to make friends with his neighbours, which means he does not need guards and does not have thefts.

Panda Farms

Lukman Hassam comes from an Asian-origin trading family, and he started trading in oil and oilseeds for his father's oil press. His father also has a farm, and Lukman decided to produce his own oilseed. He has 36 larger outgrowers (with more than 5 ha) and 150 smaller ones. His main products are soya, sesame, and sunflower. Jaime Time Chilumbana, cited above, is one of his large outgrowers.

Lukman produces seed on Panda farm and supplies seed and some ploughing to contract farmers (charging only Mt 1250/ha - \$40), sprays for contract sesame growers, and lends money to pay for day labour (ganha-ganha). Hassam does not charge interest to his outgrowers. His working capital is provided by a Mt 500,000 (\$16,000) soft loan – interest is only 12%, one-third of what is normal for farm loans in Mozambique.

Soya is known to be highly profitable. Sesame can also be very profitable, but it is a difficult crop with precise timing for harvest and drying. Sesame sells for Mt 30/kg and production is about 700 kg/ha. With a sale price of Mt 21,000/ha and production costs of Mt 5000/ha, it can earn substantial profit if harvested and dried correctly. However sunflower had proved less profitable because the oil content of locally available seeds is too low.

Tsetsera

Johan Furie, one of the three remaining white Zimbabweans, is a pig farmer with his own butchery in Chimoio, where he says he sells 1 tonne per week. He has only recently started with contract farming and now has a separate building with 8 pig pens, each of which can hold 20 pigs. Each is managed by a different person, who receives 20 weaned piglets. Furie then sells the fully grown pigs from his butchery. So far this is an "ingrower" project, with people selected by the local chief. Furie stresses that management is key, and admits that the chief's pigs are better than his. The next step is for these ingrowers to become outgrowers with 80 pigs each, spaced in such a way that there will be a steady flow of pigs through the butchery. There is an issue, however, of whether local production can compete with cheaper imported pork from South Africa.

Markets and value chains

Another key aspect of the work of AgDevCo and the Beira corridor has been building markets and value chains. It is working with:

- Moz-Agri, to become a major goat processor, with a \$150,000 abattoir built on a five year loan. Electricity reaches the farm because of a Danish rural electrification project. It currently slaughters 220 goats a week and sells 8 tonnes of frozen meat per month to a Maputo trader. So far, all goats are bought from the surrounding community, although it is beginning to also raise its own goats. Kalahari Red goats have been introduced to raise the breeding stock in the community, which has also been taught how to fatten and select the right young goats. Three local producers have also become large goat traders, selling to Moz-Agri.
- Cervejas de Moçambique (SAB Miller) to buy maize for Chibuku beer and cassava for Impala beer.
- Tropigalia, Mozambique's largest distributor of branded food products, to sell high quality honey under its Gourmet brand.
- Sumo+Compal, a Portuguese company⁸, which on 22 May 2013 opened its €8 million factory in Boane, near Maputo. It packages fruit juice made entirely from imported concentrates. The plan is to create a pulp plant, perhaps a portable plant which could be brought to producers in season, and produce pulp which would have a much lower volume and longer shelf life, and could be shipped to Boane to replace imported concentrate.
- SóSojà, which produces soya milk and yogurt. Lucas Mujuru is a former Coca Cola employee and has received assistance in 2009 from Adipsa (a now closed NGO) and AgDevCo now to buy machinery. To improve marketing, he buys plastic bottles and packaging materials in Zimbabwe. And he is supplied with soya by his own farm, and now a network of outgrowers.

Money, machinery and time

Lack of money and machinery are the biggest constraints for the new small commercial farmers. It is obvious they are undercapitalised and cannot find finance. AgDevCo's mix of loans and investment range from \$50,000 to \$400,000 and there is no equivalent source of domestic finance for agriculture. Start-up costs are high. ECA picked a place close to an electricity line, but the connection still cost \$36,000. Irrigation costs several thousands dollars per hectare and a small dam can cost \$100,000. Meeting modern food hygiene standards requires relatively expensive processing machinery and environmental conditions. Tree crops such as litchi, mango and macadamia nuts require three years before they begin to be productive. AgDevCo shows what can be done, but it remains small. Many other countries have land or agricultural banks providing long term subsidised credit, and it is hard to see how domestic commercial agriculture can develop in Mozambique without such finance.

Serious commercial farming will require mechanical ploughing to allow expansion of area and irrigation to deal with variable rainfall. Both need money and technical support that is not available. Tractors are currently so expensive that only a few farmers can afford them. Power tillers are increasingly used in other countries for ploughing and weeding and at \$5000 cost much less than four-wheeled tractors which cost \$15,000 and up. The World Bank in a recent report on Tanzania⁹ notes that "Mechanization plays a critical role in agriculture commercialization" and that the number of tractors is actually falling in Africa, while it is increasingly sharply in Asia. It points to a Tanzanian government programme with farmer groups that in two years provided 3,562 power tillers and 169 tractors to groups which paid only 20% of the cost.

⁸ 90% owned by Sumol Comal Portugal, which is in turn controlled by Refrigor. The other 10% is held by Mozambican companies Soico (O Pais, STV) and Tropigalia (both, in turn, run by Portuguese entrepreneurs settled in Mozambique for more than a decade).

⁹ *Agribusiness Indicators: Tanzania*, World Bank, November 2012.

But the answer is not simply to hand out tractors, because it is difficult to find spares and mechanics. In places like Catandica and Sussendenga there is a need for a service and repair centre. It also might be more sensible to offer contract ploughing. In a classic chicken-and-egg problem, the private sector will not move in because there is no market because there are so few tractors, so groups do not buy tractors and tillers because they cannot be maintained. Providing the start up finance and initial subsidy for the first couple of years would be an ideal project for an aid agency.

Animal traction is common in Manica and this could be expanded, but again needs training and veterinary services. And irrigation is more than just handing out a few pumps – it is teaching people how to manage water, and having someone who can repair pumps and motors. Diesel irrigation is too expensive, so there is a need for electricity connections. And there is no long term low interest credit for tillers, tractors, pumps, and electricity lines. Undercapitalised small commercial farmers simply cannot find the money to expand.

With government and most donors still reluctant to support small commercial agriculture and small agribusinesses as part of the value chains, big foreign investment may seem the easy way to promote agricultural development, because foreign investors are expected to bring everything with them. But they expect very high rates of return, create relatively few jobs, and in Manica province large scale foreign farm investment has so far consistently failed. In contrast, there are several hundred small commercial or emergent farmers in the province and the number is increasing. The expansion is largely in response to better markets and contract farming opportunities. Mozambique's staple food crop maize is not profitable for small commercial farmers (in contrast to neighbouring Zimbabwe), so emergent farmers are producing soya, sesame, sunflower, bananas, litchi, pigs, goats, cattle, rabbits and other commodities.

Filipa Carvalho Serfontein, the Mozambican partner of Moz-Agri, points to the failure of the foreign investors that want to start big and move quickly. She stresses that the lesson of the successful farmers is that "you have to grow slowly with the business and the farm. It takes time and you need to work closely with local people."

So the question for government and donors is: Does Mozambique keep looking for foreign investors, in the hope that some will finally get it right? Or do they support the small commercial farmers who are showing that they know how to make money farming? Support for smaller Mozambican commercial farmers is not easy – it will be complex and many new farmers will fail. But in a climate in which South Africa investors demand even more incentives to invest in Mozambique, is it time to look more closely to emergent Mozambican farmers who can make better use of such incentives?