



# SEEDS OF HOPE

A public-private partnership to domesticate a native tree, *Allanblackia*, is transforming lives in rural Africa.



World Agroforestry Centre  
TRANSFORMING LIVES AND LANDSCAPES

Trees for Change

No 2

## **About the World Agroforestry Centre**

The World Agroforestry Centre, an autonomous, non-profit research organization, aims to bring about a rural transformation in the developing world by encouraging and enabling smallholders to increase their use of trees in agricultural landscapes. This will help to improve food security, nutrition, income and health; provide shelter and energy; and lead to greater environmental sustainability. We generate science-based knowledge about the diverse roles trees play in agricultural landscapes, and use our research to advance policies and practices that benefit the poor and the environment.

We are one of the 15 centres of the Consultative Group on International Agricultural Research (CGIAR). Headquartered in Nairobi, Kenya, we operate five regional offices located in Brazil, Cameroon, Indonesia, Kenya, and Malawi, and conduct research in eighteen other countries around the developing world.

We receive our funding from over 50 different governments, private foundations, international organizations and regional development banks. Our current top ten donors are Canada, the European Union, Finland, Ireland, the Netherlands, Norway, Denmark, the United Kingdom, the United States of America and the World Bank.



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Allanblackia, is transforming lives in rural Africa.



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Front cover: Allanblackia harvesters sorting seeds in the East Usumbara Mountains, Tanzania  
(Photo © Charlie Pye-Smith)

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## FOREWORD

This booklet tells a remarkable story. At one level, it is about the domestication of an African tree whose seeds contain an oil with unique properties. At another, it is about a public-private partnership – the Novella Project – which could provide a model for the development of new crops.

The *Allanblackia* tree has been used by villagers for centuries as a source of cooking oil, medicine and timber, but till recently it was of little interest beyond equatorial Africa. This is now set to change. In 2000, Unilever began using *Allanblackia* oil to make small quantities of soap in Ghana. A sample was sent back to Europe for analysis. The oil, it turned out, possessed properties which made it a ‘food technologist’s dream,’ ideally suited to the manufacture of white spreads like margarine.

The demand for *Allanblackia* oil could exceed 200,000 tonnes a year, but there are nowhere near enough trees in the wild to satisfy demand. To address the problem, the Novella Project launched a major domestication programme. By 2009, around 10,000 smallholder farmers, most in Ghana in Tanzania, had planted 100,000 ‘superior’ *Allanblackia* trees. Tens of millions more will be planted over the coming decades.





By tapping the expertise of organisations involved in scientific research, wildlife conservation and social welfare, the Novella Project is ensuring that the domestication of *Allanblackia* will not only provide industry with an edible oil, but significantly increase the incomes of hundreds of thousands of Africa farmers. By planting massive numbers of trees, the farmers will encourage biodiversity and sequester, or soak up, significant amounts of carbon – thus playing a part in the battle against global warming. In short, this is a story with a great many winners.

We would like to express our gratitude to ICRAF's partners in the Novella Project, especially Unilever, the World Conservation Union (IUCN), the Netherlands Development Organisation (SNV), Novel Development Ghana Ltd, Novel Development Tanzania Ltd, the Forestry Institute of Ghana, Amani Nature Reserve and the Tanzania Forestry Research Institute. Unilever has provided the largest share of the financial support, but we have also been generously supported by the Austrian Development Agency (ADA), the Audemar Piguet Foundation, the UK Department for International Development (DFID), programma samenwerking opkomende markten (PSOM) and the State Secretariat for Economic Affairs (SECO).

Dennis Garrity,  
Director General,  
World Agroforestry Centre

◀ *Beatrice Allen weighing her *Allanblackia* seeds at the collection centre in Kwezitu village, Tanzania.  
(Photo © Charlie Pye-Smith)*

# Introduction

In 2003, Wallace Kimweri, a small farmer and father of seven, began harvesting seeds from a tree that grows wild around his village in Tanzania. It was, he recalls, an excellent decision. “With the money I’ve made from Allanblackia seeds,” he says, “I’ve been able to buy things I could never afford before.”

Last year he bought a cow for 160,000 Shillings (US\$120). It recently calved and it now supplies milk for his family. The profits from the Allanblackia harvest have also paid for iron sheets to re-roof his house and his children’s school fees. Little wonder, then, that he is prepared to spend three months a year roaming the fields and forests in search of the seeds, for which there is a guaranteed market and price.

Mr Kimweri is one of around 10,000 farmers in Africa who are benefiting from the emerging trade in Allanblackia oil, whose special properties are attracting multinational food companies like Unilever. Some, like Mr Kimweri, collect on a large scale – last year he sold 800 kg of seeds – while others make a more modest income. For example, Beatrice Allen, who lives in the same village in the East Usumbara Mountains, collected just 30 kg of seeds in 2009, but this still fetched enough money for her to buy household goods like kerosene, cooking oil, soap and salt. “It also meant I didn’t have to ask my husband to give me money,” she says with satisfaction.

However, there is a problem with the wild harvesting of Allanblackia. For one thing, there aren’t nearly enough trees to satisfy demand, from either collectors or buyers. For another, Allanblackia’s flowering and fruiting behaviour is erratic. “Last year, we bought 435 tonnes of seeds from harvesters in Tanzania,” explains Fidelis Rutatina of Novel Development Tanzania Ltd, the company which manages the country’s supply chain, “but 2009 has been a very poor fruiting year and we’ll be lucky if we get 100 tonnes from the same trees.”



To counter these problems, Unilever, the World Agroforestry Centre (ICRAF) and their national partners in the Novella Project are promoting the domestication of *Allanblackia*. The aim is to increase production by bringing the best traits found in the wild – regular fruiting, large fruit, vigorous growth – together in ‘superior’ trees. There is nothing unusual about this: rubber, cocoa and many other trees have been turned into domestic crops. What makes the Novella Project unique is its focus on developing a crop which will benefit Africa’s smallholders, as well as the balance sheets of big business.

“When we realised the potential value of the oil, there were two ways we could have gone,” says Harrie Hendrickx of Unilever. One would have been the old-fashioned way, transforming *Allanblackia* into an industrial crop, similar to oil palm, with scant consideration for the environment or rural communities. “But together with our partners, we deliberately said: ‘No, that’s not the way we’re going to do it,’” recalls Hendrickx. “We wanted to make *Allanblackia* a crop which would benefit large numbers of African farmers and local biodiversity at the same time.”

In 2008, farmers planted 100,000 *Allanblackia* seedlings in Ghana and Tanzania. Before long, it is hoped that 1 million superior seedlings will be planted in these two countries each year. The Novella Project is also expanding its activities in Liberia and Nigeria.

The rewards are potentially enormous: smallholders in Africa could eventually earn US\$2 billion a year from the crop. This represents approximately half the annual value of West Africa’s cocoa crop, the region’s most important agricultural export. Mr Kimweri and Mrs Allen are blazing a trail that hundreds of thousands of African farmers could soon be following.



Photo © Harrie Hendricks

# 1. AN OIL FOR THE FUTURE?

For many years, a factory in Ghana owned by Lever Brothers, a subsidiary of Unilever, produced ‘sink soap’, known as Gift, from scrap oil. This was what remained after the top-quality palm oil had been used up making soap for premium brands such as Lux and Key soap. However, by 2000 the factory was making such a good job of using its scrap oil that there wasn’t enough left to make sink soap for the local market. The company director suggested to his staff that they should send word around the villages: if you’ve got any vegetable oils you’d like to sell, we’ll consider buying them. That way the factory could continue to produce sink soap and the villagers could earn some money.

“Before long, we started receiving a white vegetable fat,” recalls Harrie Hendrickx, the development manager at the time, “and we managed to make a very nice soap with it.” Some of the best samples of fat had been extracted from *Allanblackia* seeds, which local people have been using in a variety of ways for generations.

“I remember my grandparents harvesting seeds to make their cooking oil, and we’ve continued to do that every year,” explains Yaw Obeng, who now acts as a local buyer for *Allanblackia* in the village of Agyei Krom in Ghana’s Central Region.



▲ Yaw Obeng, a farmer in Agyei Krom, Ghana, with cooking fat made from *Allanblackia* seeds. (Photo © Charlie Pye-Smith)

*Allanblackia* trees have other uses too. Traditionally they have been valued in Ghana for their medicinal qualities, and you will sometimes see them stripped of their bark, which is ground into a paste and used in the treatment of boils, dysentery and respiratory tract infections. The trees are also appreciated by hunters as the nutritious fruit attracts wildlife, hence some of *Allanblackia*'s local names. In Ashanti it is known as *kusie adwe*, giant rats' nuts, and *osono dokono*, elephants' porridge. In Cameroon, villagers call *Allanblackia nsangomo*, which means a group of porcupines.

In Tanzania, *Allanblackia* oil also has a long history of local use. During the First World War, it was used as a substitute for cocoa butter in the manufacture of chocolate, and in the 1970s and 1980s small but significant quantities, most of it harvested in the East Usumbara Mountains, were exported to Europe. *Allanblackia* has also been widely harvested for its timber.

However, it was only after a sample of oil had been sent for analysis at Unilever's Research & Development division in Holland that its real potential was recognised. "It turned out to be a food technologist's dream," explains Tony Simons, the World Agroforestry Centre's Deputy Director General. He recalls how Harrie Hendrickx described it to him when they first met: "Imagine a painter like Renoir not having the colour red on his palate – and then, all the sudden, he has. For a food technologist, having *Allanblackia* oil is a bit like that. It's a key missing ingredient."

The oil consists almost entirely of stearic and oleic acids and it has a very sharp melting point, around



▲ Many farming families in Tanzania are now planting superior varieties of *Allanblackia* on their land. (Photo © Charlie Pye-Smith)

34 degrees C. This means that it remains solid at room temperature, but melts in the mouth, which is exactly what is required of a yellow fat or cream-based spread like margarine. Unlike palm oil, it does not need any further modification. This reduces the number of processing steps and simplifies the manufacture of margarine.

Once Unilever recognised *Allanblackia*'s value, it decided to use it in its consumer products, with the aim of switching some of its vegetable oil consumption from palm oil to *Allanblackia* oil. All that was needed now was a regular – and very large – supply. In 2002, the Novella Project was established to promote the sustainable harvesting of *Allanblackia*, and create the organisations and infrastructure needed to collect, transport and process the seeds. This public-private partnership initially comprised Unilever, the World Conservation Union (IUCN) and the Netherlands Development Organisation (SNV): in short, an international consortium with the expertise to promote a business which would benefit both people and nature.

## Getting to know *Allanblackia*

The genus *Allanblackia* is named after a 19th century Scottish botanist and it consists of nine species, all found in the moist forests which stretch across Africa from Liberia to Tanzania. So far, the Novella Project has focused on three species, *Allanblackia parviflora* in Ghana, *Allanblackia floribunda* in Nigeria and *Allanblackia stuhlmanii* in Tanzania.

An individual tree can produce up to 300 fruits a year, with the average bearing 100–150 in a good season,



▲ A male *Allanblackia* tree in flower. (Photo © Idowu Ajibolu)

each containing up to 40 separate seeds embedded in a pinkish pulp. Harvesters generally collect fallen fruits early in the morning and the extracted seeds are laid out to dry on a raised platform. They are encouraged to leave any unripe fruits and sufficient quantities for regeneration. Ten fruits yield approximately 3 kg of dried seeds containing around 1 kg of *Allanblackia* oil, although this varies from species to species.

When the Novella Project was launched, very little was known about the biology or distribution of *Allanblackia*. To get a better idea about its availability, the project commissioned the Forestry Research Institute of Ghana (FORIG) and the Forest and Beekeeping Division within Tanzania's Ministry of Environment and Tourism to carry out inventories. The initial results seemed promising.

"By the time I joined the project in late 2003," recalls Fidelis Rutatina of Novel Development, "surveys had already been conducted in Tanzania, and they indicated that 1 million *Allanblackia* trees were accessible to harvesters." Assuming a harvest of 40 kg of seeds per tree, this suggested that Tanzania's *Allanblackia* trees could provide an annual yield of some 40,000 tonnes.

A team drawn from Unilever, SNV and a local partner with experience in agricultural markets, Faida Market Linkages, held a series of meetings in the villages around Amani Nature Reserve in the East Usumbara Mountains. They hoped to convince the local farmers that there was good money to be earned harvesting *Allanblackia* seeds. However, the farmers took some convincing.



▲ Harrie Hendrickx of Unilever has played a major role in developing the trade in *Allanblackia* oil.  
(Photo © Florentine Hendrickx)

Many of the older people had harvested seeds to sell to GAPEX, a state-owned company which collapsed when Tanzania liberalised its economy in the 1980s. When GAPEX collapsed, so did the trade in *Allanblackia* seeds. Recent experience with Moringa, a tree whose seeds are also valued for their oil, had also left a bitter taste. A few years before the Novella team arrived, a locally-backed campaign had encouraged local farmers to grow Moringa, but enthusiasm turned to anger when buyers failed to appear. Understandably, the villagers were somewhat wary when they heard about the Novella Project. “Many of them feared this was going to be another Moringa,” recalls Rutatina, “but eventually they realised we were reliable.”

Once the villagers had expressed their willingness to supply the Novella Project with *Allanblackia* seeds, Rutatina and his colleagues began to organise a supply chain. With the help of local NGOs, harvesting groups were established and individuals identified who would act as clerks. Chosen by members of the harvesting groups, the clerks buy the seeds and store them until there are sufficient quantities to be transported to a crushing plant in Tanga.

In Ghana, the Novella Project partners went through a similar process. “We began by organising regional meetings with the paramount chiefs in Central and Western Regions,” explains Samuel Henneh, the operations manager for Novel Development



▲ Delivering seeds to a collection centre in Tanzania. The market for *Allanblackia* seeds has helped women like these to increase their incomes. (Photo © Charlie Pye-Smith)

Ghana Ltd, a private company established in 2006 to manage the *Allanblackia* supply chain. “The paramount chiefs then educated the sub-chiefs about the value of *Allanblackia*, and encouraged them not to let people fell the trees for timber.”

## An early setback

Tanzania’s first commercial harvest took place in early 2004. It yielded just 4 tonnes – a tiny fraction of the potential yield indicated by the previous year’s inventory. There were several reasons why the collection was so meagre. There was a gold rush in the hills that year, and many farmers preferred to go in search of a fortune, rather than collect seeds for a modest income. Some villagers, with the Moringa debacle much in mind, were yet to be convinced that there was a market for the seeds, and they decided to wait till later. But it was also clear that the inventories had greatly over-estimated the number of trees that could be harvested, in both Tanzania and Ghana, due in part to the fact that many trees were in remote forest reserves.

“There simply weren’t a million trees available with fruit to harvest,” explains Rutatina. Half of those identified in the inventory were probably male; and of those which were female not all would have been good fruiting trees. The Novella Project also failed to take into account the issue of density. “The greater the distance between trees, the less incentive there’d be for harvesters to collect their fruit,” explains Hendrickx. Many of the trees that appeared in the inventories were therefore of no commercial interest.



▲ There are no problems with late payment. *Allanblackia* harvesters in Ghana get cash on delivery. (Photo © Harrie Hendrickx)



“By early 2004, all the expectations about existing stocks of *Allanblackia* being able to meet the demands of the market had been shattered,” says Tony Simons. It was now clear that if the Novella Project was to succeed, *Allanblackia* would need to be brought out of the forests and on to farmers’ fields. It was at this point that the World Agroforestry Centre, with its long experience of domesticating wild fruit trees in Africa, was invited to join the project.



▲ *Moses Munjuga, a scientist from the World Agroforestry Centre, provides technical advice to local research partners in Tanzania.*  
(Photo © Charlie Pye-Smith)



Photo © Charlotte Pyle-Smith

## 2. IN FROM THE WILD

The easiest way to create large numbers of trees is by growing them from seed, but early trials in Ghana were unpromising. After 12 months, less than one per cent of seeds had germinated. Furthermore, the fruit harvested from natural forests was coming from trees which were large and old, and as far as researchers could tell Allanblackia began fruiting after 12–15 years: a period of time that would sorely test the patience of farmers who decided to grow trees from seed. The researchers faced other problems too, not least the dwindling populations of Allanblackia, and possibly a loss of genetic diversity, in the wild.

“And that just about sums up scientific knowledge about Allanblackia when we joined the project,” says Simons. At the time, just 20 websites mentioned Allanblackia.

Now, it features in over 17,000 websites. This can be attributed, in part, to the intense commercial interest in Allanblackia oil. There is also a growing body of research on Allanblackia, much of it related to the Novella Project and its domestication programme.

After the World Agroforestry Centre joined the project, research in Ghana and Tanzania initially focused on working out how to get Allanblackia seeds to germinate swiftly. Some experiments were outright failures. For example, when growth hormones were applied to break seed dormancy, a commonly used practice, the entire batch of 80,000 seeds died. However, a process of trial and error, assisted by the knowledge of local farmers, eventually began to bear fruit.



▲ Years of research have gone into establishing the best means of propagating Allanblackia. These seedlings will be used as rootstock for grafting. (Photo © Charlie Pye-Smith)

Some of the Tanzanian villagers who had sold seeds to GAPEX during the 1970s and 1980s had planted *Allanblackia* on their farms, and they told the Novella researchers how they had got the seeds to germinate. “They’d noticed what happened to seeds that had been buried by giant rats,” explains Moses Munjuga, a researcher with the World Agroforestry Centre. “If the rats forgot about these caches, the seeds would germinate, so the farmers mimicked the process by burying whole fruit in the ground. Once the seeds germinated, they’d plant them in their nurseries.”

Researchers in Ghana also benefited from indigenous knowledge. When Samuel Henneh of Novel Development first met Yaw Obeng, a young cocoa farmer, he described the problems FORIG was having with its germination experiments. “Yaw told me that by removing the seed coat with a sharp knife he’d encouraged *Allanblackia* to germinate,” recalls Henneh. Another farmer had stored some seeds in a black polythene bag; when he opened the bag some weeks later, he found that they had germinated.

These two methods of encouraging germination – seed-coat removal and storage in black bags – were now adopted at FORIG with good results, and in many *Allanblackia* nurseries you will see black bags of seeds hung from branches and roof joists like rows of hibernating bats. The project is now getting seeds to germinate from four weeks onwards.



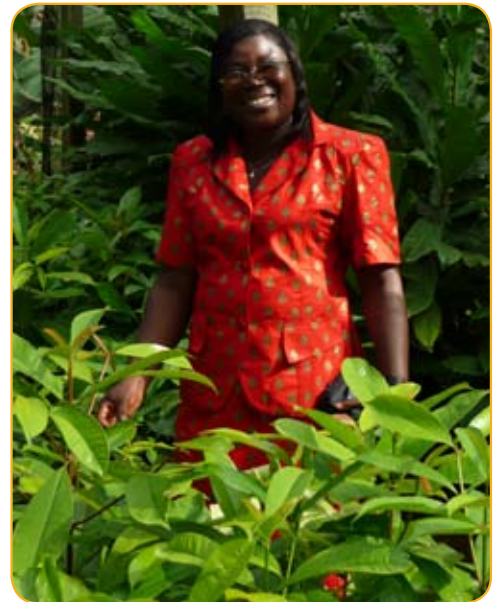
▲ Storing seeds in black plastic bags encourages quicker germination.  
(Photo © Charlie Pye-Smith)

## Changing tack

If the domestication of a wild species simply entailed planting the largest numbers possible, then propagation by seed would be the answer. But it has serious disadvantages. It is impossible to determine the sex of *Allanblackia* seeds, and half those planted will produce males: fine if you want to grow timber trees or hedging material, but not if you want fruit. And, as we have seen, trees grown from seed will not produce fruit for at least 12 years.

The alternative is vegetative propagation. This also has its drawbacks. It requires infrastructure in the form of nursery beds, propagators and greenhouses, as well as the skills required to manipulate cuttings and graft superior genetic material. However, vegetative propagation has many advantages. Scientists and farmers can capture the most desirable traits by identifying them in the wild and reproducing them in seedlings. Vegetative propagation can also produce trees which will bear fruit in four to five years. These were among the factors which encouraged the World Agroforestry Centre to start focusing on vegetative propagation. *Allanblackia* plants are still raised from seed in nurseries, but most are now used as rootstock for grafts, instead of being planted directly in farmers' fields.

In Ghana, researchers identified 633 trees which appeared to have the traits which would be favoured by farmers. "What we were looking for were female *Allanblackia* which produced large quantities of fruit of a high quality, with as



▲ Scientist Theresa Peparah in the FORIG nursery, with *Allanblackia* plants awaiting distribution to farmers. (Photo © Charlie Pye-Smith)

many seeds as possible,” explains Daniel Ofori, principal scientist at FORIG. “By talking to local people, we also learned about which trees fruited most regularly.” Ofori and his colleagues conducted an analysis of 150 different ‘characterisations’ in the sample of 633 trees, and the 58 trees which scored highest were selected for cloning. Using a similar methodology, 90 trees were selected for cloning in Tanzania.

This involved coppicing the trees 50–75 cm above the ground. Some six months later, the researchers returned to harvest the shoots, or scions, which had sprouted from the stumps. In Ghana, these were then taken back to FORIG’s nursery, where the cuttings were planted in propagators. Once they had taken root, they were transplanted into pots and hardened off. The cuttings were then ready to be planted in farmers’ fields or used to create breeding stock in ‘mother blocks’. Gene banks were also created to conserve *Allanblackia*’s genetic diversity.

Grafting has also been used as a way of capturing the best traits of wild *Allanblackia*. This involves collecting scions from good mother trees and coppiced stumps, or from established mother blocks or gene banks, and grafting them on to rootstock, in other words onto the stem of another plant. The technique is particularly useful when researchers, or farmers, wish to create *Allanblackia* trees with both male and female flowers, thus doing away with the need to have separate male trees occupying space on valuable farmland. The World Agroforestry Centre began its research on grafting *Allanblackia* in Cameroon, in 2004, and before long survival rates exceeded 70 per cent.



▲ Samuel Henneh collecting scions from a superior *Allanblackia* tree. (Photo © Charlie Pye-Smith)

## From nurseries to the farmers' fields

In Tanzania, the first planting of superior *Allanblackia* seedlings, raised through vegetative propagation, began in 2008. As an incentive, the Novella Project paid farmers US\$0.15 for every sapling that survived the first year, and the same again for the second year. "We made it clear to the farmers that they were being paid for being part of the research effort," says Simons. "This was not a free hand out." In 2009, the project planned to distribute 40,000 seedlings to 150 farmers in three districts in Tanzania.

The farmers were chosen in collaboration with the village governments, with the number of seedlings allocated depending on the size of their holdings and their ability to tend them. "I asked for 100 seedlings," explains Abasi Hassani, a smallholder in Mikwinini village, "but I only got 38." His disappointment was tempered by the knowledge that within a few years his *Allanblackia* trees could provide him with a significant income. "I know that I'll definitely be able to sell the seeds," he says, adding that in recent years he has often had to travel as far as Dar es Salaam, a day's journey from the East Usambara Mountains, to sell his cardamom and cloves. In contrast, he will be able to sell his *Allanblackia* seeds within walking distance of his farm, at a price guaranteed by Novel Development.

If Africa's small farmers are going to produce enough *Allanblackia* oil to meet demand, they will need to plant tens of millions of trees. Tony Simons reckons it could be 10 to 15 years before 'elite material' is made available for everyone. In the meantime, he says, it is important to keep farmers interested and retain their enthusiasm. The best way of doing that is by ensuring there is a guaranteed market for the wild harvest, and that seedlings with the better traits, if not the best, are readily available.



Photo © Charlie Pyle-Smith



## 3. BENEFITING BOTH PEOPLE AND NATURE

When the Tanzanian staff of the Netherlands Development Organisation (SNV) first heard about Unilever's plans to use Allanblackia oil, they immediately saw how it could improve rural livelihoods. "Most small farmers are living below the poverty line," says Monsiapile Kajimbwa, SNV's Portfolio Coordinator, "and the trade in Allanblackia seeds has the potential to significantly increase their incomes."

The wild harvest is already making a difference to thousands of farmers in Tanzania, and its timing – Allanblackia trees fruit between January and April – is particularly important. One of the most difficult times for people on meagre and erratic incomes is the end of the year. "Many people have spent all their money on Christmas, leaving them little or nothing for the weeks and months which follow," explains Munjuga, who has worked closely with farmers in the East Usambara Mountains.

Talk to any of the people – the majority are women – who harvest Allanblackia seeds, and they will tell you much the same story: the extra cash during the first few months of the year means that they can buy food if they are short of food, pay school fees for their children, and purchase items they couldn't afford in the past. This explains why so many harvesters are keen to plant Allanblackia trees on their farms, even though it will be several years before they see the benefit.

In Ghana, the Allanblackia harvest also comes at a critical time of year, providing extra income when many farmers have no crops to sell. Just as importantly, Allanblackia is proving to be the ideal crop to plant with cocoa, the main cash crop in the region.

Kofi Abijye first learned about the virtues of *Allanblackia* when he got a part-time job working in the nursery at Anwon Rural Resource Centre. “I could immediately see that it would fit in very well with my cocoa crop,” he explains as he leads us around his farm, pointing out grafted *Allanblackia* saplings that are already chest-high. “I harvest my cocoa between June and December, and once the *Allanblackia* is mature, I will be able to harvest its seeds from January through to April.” Between them, his cocoa and *Allanblackia* will guarantee a steady income for some 10 months a year.

While Mr Abijye’s *Allanblackia* trees are growing, the cocoa trees provide the shade they need to thrive; and when they are fully grown, they will act as shade trees for his cocoa. This is the botanical equivalent of a marriage made in heaven. Or, as Mr Abijye puts it, “I will get double the amount of benefit for the same amount of work.”

It is too early to say precisely how much money African farmers will make from *Allanblackia*, but the portents are good. A study by SNV and Novel Development Ghana, conducted in 2007, compared the costs and benefits of planting *Allanblackia*, cocoa and oil palm. The initial investment per acre for *Allanblackia* is greater than for the other two crops – US\$400 compared to US\$150 and US\$285 – while the annual cost of management is considerably less, just US\$50 compared to US\$250 and US\$270 respectively. The key figure in the calculation is the net annual cash benefit per acre, which works out at US\$340 for *Allanblackia*, US\$320 for cocoa for US\$150 for oil palm.



▲ By combining *Allanblackia* with cocoa cultivation, Ghanaian farmers like Kofi Abijye will get a steady income for 10 months a year. (Photo © Charlie Pye-Smith)

Harrie Hendrickx has a simpler way of putting it. He suggests that each superior grafted seedling might cost US\$2. After seven or eight years, the mature trees will yield an annual income of around US\$6. “So even if a farmer has only got 10 trees, that will provide him with an extra US\$60 a year,” says Hendrickx. “That’s not a lot of money, but it will help to pay the school fees. And just imagine what a difference 100 trees would make!”

## Wildlife will benefit too

The Novella Project seeks to ensure that wild harvesting of *Allanblackia* does not harm the environment, and that the domestication programme enhances biodiversity. “When you plant trees like *Allanblackia* on open farmland,” explains Daniel Ofori of FORIG, “you will be encouraging more wildlife, not less.” As its local names – giant rats’ nuts, elephants’ porridge – suggest, *Allanblackia* is very attractive to wildlife. Indeed, when it is found in deep forest, animals tend to devour the fruit before human collectors get there, which is why most of the wild harvest comes from trees growing on farmers’ fields or the forest fringes.

Big mammals such as elephant and chimpanzee may be absent from Ghana’s cocoa agroforests, but smaller herbivores are often plentiful. Take, for example, Daniel Larye’s 5-ha plot of secondary forest near the village of Apea Suman. A migrant from the north, he is waiting for his cocoa and *Allanblackia* trees to mature. “We get a lot of wild animals, including porcupine, rat, squirrel, antelope, guinea-fowl and grasscutter,” he explains. At times, he says, some of these can be pests, but he doesn’t seem unduly worried. Indeed, he often uses his dogs to flush out grasscutter, a large rodent which he bags for the pot.

In Tanzania, one of the project's key local partners is Amani Nature Reserve, which occupies over 8,000 hectares of magnificent, heavily wooded land in the East Usumbara Mountains. Listed as a world biodiversity hot spot, the area is famous for endemic species like the legless frog; it is also rich in *Allanblackia*. There are 19 villages around the edge of the reserve with a population of 30,000 people. They could pose a threat, but an enlightened programme of management ensures that they derive tangible benefits from the nature reserve.

The cultivation of *Allanblackia* is one of several income-generating activities which Amani Nature Reserve has encouraged. Working with the World Agroforestry Centre and the Tanzanian Forestry Research Institute (TAFORI), its staff are at the forefront of the research and development of superior varieties of *Allanblackia*, which are now being planted in farmers' fields.

“One of the reasons why we're supporting the *Allanblackia* project is because we believe that if it benefits the local communities, they will be more likely to respect the nature reserve and support our conservation activities,” explains the reserve's curator, Stephen Mmasi. A further incentive comes from the annual allocation to the villages of 20 per cent of all the revenues taken by Amani Nature Reserve.

Another project partner, IUCN, has produced guidelines on best practice for the harvesting of



▲ Many species of wildlife visit the smallholding where Daniel Larye, a Ghanaian farmer, has planted cocoa and *Allanblackia*. (Photo © Charlie Pye-Smith)

*Allanblackia*. Among other things, the guidelines suggest that organisations and individuals involved in harvesting should encourage the regeneration of *Allanblackia*, refrain from felling *Allanblackia* trees and respect existing wildlife legislation. When it comes to domestication, the Novella Project believes that every effort should be made to resist the establishment of large-scale monocultures.



◀ *The heart of the matter – Allanblackia seeds embedded in yellow pulp.*  
(Photo © World Agroforestry Centre Archives)



## 4. PARTNERS FOR A BETTER FUTURE

As soon as Unilever recognised the potential of *Allanblackia* oil, it decided to establish a public-private partnership. “We wanted to ensure that *Allanblackia* benefited small farmers and the environment,” recalls Harrie Hendrickx, “and we realised that we needed the help of organisations which had the skills and experience to make this happen.” Unilever began by enlisting the support of SNV and IUCN. When it realised that its local research partners in Ghana and Tanzania – FORIG and TAFORI – needed guidance, it invited the World Agroforestry Centre to join the partnership.

According to Roger Leakey, an agroforester who has played a leading role in the World Agroforestry Centre’s research on the domestication of wild fruit trees, Unilever’s approach is unusual. “Very few multinational companies have done what Unilever has done,” he says. “Instead of thinking in terms of establishing vast plantations, the company took the decision to work directly with African communities to develop greater social and economic sustainability for the producers.”

It says much about the open nature of the Novella Project that one of Unilever’s competitors in the edible oil business, Aarhus Karlsham (AAK), has also joined the partnership. At the same time the number of local partners has steadily grown. At the first yearly review meeting there were less than 10 people; now, over 60 attend, and between them they represent a broad range of environmental, social and marketing interests.

Had it not been for the involvement of international institutions and significant donor support, the Novella Project would probably never have got off the ground. However, it is very much an African venture, with African research institutes, universities and NGOs playing a key role in domesticating *Allanblackia* and establishing the supply chains. Working alongside harvesters, farmers, buyers, oil-seed crushers and others in the private sector, they are helping to turn the dream of a new crop into a commercial reality. “If we don’t make a success of *Allanblackia* as a new tree crop for Africa,” says Ramni Jamnadas, a geneticist at the World Agroforestry Centre, “then there is probably no hope for the commercially driven domestication of any indigenous African trees.”

Although the Novella Project remains a work in progress, the achievements have been considerable. Under the domestication programme, 500 superior accessions, or distinct varieties, have been established in four gene banks; protocols for vegetative propagation have been developed and field tested; 10 large-scale commercial nurseries have been established; over 100,000 superior trees have been delivered to farmers. A range of experiments in laboratories and in the field have helped scientists to gain a better understanding of the genetic variation, reproductive biology and distribution of *Allanblackia*.

In 2008, the European Food Safety Authority concluded that *Allanblackia* seed oil was safe for human consumption, and by the end of 2009, Tanzania alone had shipped 10 containers of



▲ By 2009, over 100,000 superior *Allanblackia* trees, most raised in nurseries like this one, had been delivered to farmers by the Novella Project. (Photo © Charlie Pye-Smith)



Allanblackia oil to Europe. Over 10,000 farmers in Ghana and Tanzania have received training in sustainable seed collection and approximately the same number have planted Allanblackia on their farms. Over 250 buyers are now providing a link between the harvesters and the buyers. Fifteen rural resource centres are providing seedlings for farmers and training in propagation techniques such as grafting. The Novella Project has also begun work in Liberia and Nigeria.

Since 2002, the Novella Project has spent over US\$10 million on domesticating Allanblackia and establishing a supply chain. This is a considerable investment, yet it is dwarfed by the potential value of the Allanblackia trade. "Within 10 years, we're hoping that 200,000 African farmers will be growing 25 million Allanblackia trees," explains Tony Simons of the World Agroforestry Centre. There is an additional bonus here: 3–5 trees planted on previously unforested land could sequester, or soak up, 1 tonne of carbon dioxide, and thus play a part in the battle against global warming.

The Novella partners also hope that some 10,000 hectares of degraded land will benefit from reforestation schemes using Allanblackia and other species. Besides encouraging biodiversity conservation in areas where Allanblackia is grown, the Novella Project has the goal of doubling farm income for those involved in Allanblackia cultivation by 2017. Eventually, the project partners believe that several million farmers in Africa could benefit from the trade.



▲ Sacks of Allanblackia seeds, a whole fruit and a pot of Allanblackia cooking fat in a village in Ghana. (Photo © Charlie Pye-Smith)

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This is a public-private partnership with real potential to make a difference to the livelihoods of African small-scale farmers.



In Africa the oil-rich seeds of the Allanblackia tree have been harvested for generations to make cooking oil. However, it has only been in recent years that the unique properties of Allanblackia oil have been recognised beyond the countries where the tree grows. Major companies like Unilever have started to use it as an ingredient in food spreads, but at present demand far outstrips supply. This booklet tells the story of the Novella Project, a public-private partnership that is domesticating Allanblackia and encouraging smallholder farmers to grow the tree in their fields. Before long, hundreds of thousands of African farmers – and their environment – could benefit from the new trade.

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