

Small-holder farmers in Kiambu West district improve their livelihoods following adoption of the KH500-31A variety from Leldet Ltd.

Project update: April 2011

Background: Maize is the preferred food of small-holder farmers in Kiambu West district, but crop productivity is very low. There are 3 major constraints to increased crop productivity in this district:

- (i) Use of inappropriate varieties; farmers conventionally grow the late-maturing highland varieties marketed by Kenya Seed Co. (e.g. H614) which take 6 months to mature, and due to increasingly low and poorly distributed rainfall, are often affected by late season drought;
- (ii) Maize Streak Virus (MSV); the Kenya Seed Co. varieties are highly susceptible to the disease
- (iii) Poor soil fertility; use of manure and/or fertilizers are required to achieve high yields

The KH500-31A maize variety, bred by scientists at the Kenya Agricultural Research Institute (KARI) station at Muguga, with the support of the Alliance for a Green Revolution in Africa (AGRA), is resistant to the Maize Streak Virus (commonly known as Gikware). It is high-yielding and matures earlier than the conventionally-grown H614 variety. The variety is also tall, and provides good fodder for livestock in the area. KARI has licensed the variety to an emerging seed company, *Leldet Ltd.*, which works with FIPS-Africa to promote the variety in small pack sizes (60g, 400g, 2kg) to encourage farmers to experiment with the variety with little risk in an affordable way. In the 2009/10 rainy season, FIPS-Africa's team of 5 Village-based Advisors (VBAs) in Kiambu West district sold seed to approximately 500 farmers. Farmers experienced a big increase in productivity, and claim that they have not harvested so much maize for 20 years or more. As a result of this initial success, FIPS-Africa recruited another 10 VBAs in advance of the 2010 long rainy season commencing in March. A total of 1920 x 2 kg and 543 x 400 g packets were sold to approximately 2,000 farmers. They also promoted *Mavuno* fertilizers, in small 1 kg packs, and advised farmers on correct fertilizer application and seed spacing. In July, farmers who had purchased the seed were visited and interviewed about the performance of the variety, and the impact that it has had on their livelihoods. Testimonials are documented in the following pages.



Image: Maize crop productivity is constrained by the maize streak virus, use of inappropriate late-maturing varieties, and poor soil fertility.

For more information, contact FIPS-Africa, PO Box 5523, 00200-Nairobi. Tel/fax: +254 20 2730700; e-mail: fipsafrica@yahoo.com; web: www.fipsafrica.org

1. Mary Kagwa, Gacoiri Village; 2160m, S00.98166°, E036.72336°

Mary Kagwa, a mother of two, used to be a house-wife and a farmer. She used to grow the late-maturing H628 variety. The previous season, she had purchased 3 x 2 kg packets of the KH 500-34A variety. "I harvested two times more maize from the KH500-34A, than what I used to get with the H628 variety. It also matured faster. I sold green maize worth about KSh 4,000 and I saved 2 bags of grain for my family. I also gave 40 kgs of grain to less fortunate people in the village. I managed to re-invest some cash back on the farm while increasing stock in my hardware shop in Kagwe ".

In February 2010, Mary joined FIPS-Africa as a VBA, and is working in four Villages. "I started by distributing the new varieties to farmers. At the beginning it was not easy as farmers did not know about them. But I could talk about the new varieties from my own experience, and so was able to get many farmers to buy the seed." said Mary. Mary also says that her social life has improved in her new role, and she is now able to interact with people freely. "My own home has also benefited as I have been able to support my husband in paying school fees for our 2 sons and cost of buying food has reduced as we have enough maize to last us for the next 3 months" said Mary.



Mary with part of her harvest from the KH500-34A variety.



Mary at her hardware shop in Kagwe. "I have been able to increase the stock at my shop and have created a job for my son who now runs the shop".



Mary on another piece of land where she planted 2 x 2 kg packets of KH 500-31A variety this April. "The variety is ready after only 4.5 months, whereas the H628 takes 6 months."



Mary on her tea plantation where she used Mavuno fertilizer. "I had been using CAN but I opted to try Mavuno and it has done a better job.

2. Monica Wanjiru, Kavweti Village, Kaniai Location; 1793m, S01.06196°, E036.81768°



Monica purchased 4 kg seed of the KH500-31A variety in February and planted 2 seeds per hole, spaced at 25cm x 75cm and applied *Mavuno* fertilizer. She started selling green maize cobs in May and earned KSh 5,000. She also earned KSh 3,000 from selling dry maize and sold two pick-up loads of fodder worth KSh 7,000. With the income, she purchased two improved breed rabbits for KSh 3,000, and increased her stock at her mini-supermarket.



Monica with her two rabbits.



Monica at her supermarket.

3. Rahab Wanjiru, Rwimuti Village, Kaniai Location; 1872m, S01.05598°, E036.81278°



Having planted the H513 maize variety in the previous season which performed poorly, it was not an easy task for the area VBA to convince Mrs. Wanjiru to try something different. “I thought it would perform even worse. My harvest from the H513 was poor and I feared my money and labour would go to waste if I bought the KH500-31A”, says Rahab. But Rahab is now about to harvest an estimated five bags of maize from the 4 kg of seed she planted in early March. “This variety cannot in any way be compared to the local varieties. It takes less time in the *shamba*, requires little rainfall and is also ‘gikware’ (maize streak virus) resistant”.

4. Mary Nyambura, Kimera Village, Kaniai Location, 1805m, S01.06150°, E036.81766°



Mary purchased a 2 kg pack of KH500-31A and gave her mother-in-law 1 kg. She has been harvesting green maize to prepare ‘*mukimo* and *githeri*’ for the past month and estimates she will harvest one bag of grain from the remaining crop. “I have been saving money as I do not need to buy flour or maize from the shops. I also have enough fodder for my cows that will last a whole month” said Mary.

5. Milka Mukami, Kameria Village, Kanjai Location; 1760m, S01.06132°, E032.81736°



Images: Milka on a plot where she planted with the local 'gikuyu' variety from which she does not expect to harvest anything (left). With part of her harvest from the KH500-31A variety (right).

Milka received 1 kg of seed of the 500-31A variety from her daughter and opted to purchase a further 2 kg of the local variety which she planted at the same time in early March. "I should have known better. I have already harvested a bag from the KH500-31A yet the 'gikuyu' variety is far from yielding anything", she said. Milka has also sold 30 kg grain for about KSh 1,000. "I have kept the money for purchasing seed for planting in the next season. I do not want to struggle," said Milka.

6. Naomi Kihara, Maguna Village, Kanjai Location; 1769m, S01.06131°, E032.81738°



Naomi purchased a 2 kg packet of seed of the KH500-31A variety in February this year. She planted 2 seeds per hole and applied farmyard manure. "I started harvesting green maize in mid-May. I have never seen such a thing from the local variety", Tabitha says. With 3 grandchildren under her care, Tabitha says the children enjoyed the taste of her 'mukimo'. "It's too bad I've run out of the green maize. They still nag me wanting the "mukimo". When Naomi harvested one bag of dry maize, she decided to share with 15 women in her locality. "I have given out much of the harvest to the less fortunate in my village. It is the first time I am doing so as the harvest was high as compared to the other local varieties that I have been growing in the past", she said.

7. Priscilla Kabure, Maguna Village, Kiaria Location



Priscilla planted 4 kg of seed of the KH500-31A variety in early March and by early June she had harvested 3 bags of grain. Unfortunately, she lost her mother-in-law at harvest time, and had to prepare 'Githeri' for over 50 people a day. In just one week including the burial day, Priscilla had fed over 300 people, which is the whole village from her harvest. "My husband was impressed by my hard work. It would not have been easy to purchase food for these visitors. I still have enough grain for my family that can last a whole month. I also have enough fodder for my cows." said Priscilla. This was her first major harvest from any maize variety.

8. Jane Waithera, Maguna Village, Kaniai Location, 1748m, S01.06564°, E036.82400°



Jane Waithera's land had been unproductive for too long. She had been growing the local maize varieties which yielded little. "My family, especially my husband, used to complain a lot" says Jane. In February, however, Jane planted 2 kg seed of the KH500-31A variety. "I didn't apply any fertilizer or manure as I didn't have money. I am amazed at how well the variety has performed. I have been using the harvest for food for my family for the past month and I have shared with about 10 of my neighbours. I no longer need to ask for money from my husband to buy food as I have enough," said Jane. She has also enough fodder for her cows that will last a whole month and she estimates its value to be KSh 4,000.

9. Cecilia Nduta, Ngewa Location, 1406m, S01.07349°, E036.82326°



Images: Cecilia with part of her harvest (left) and showing the cow she bought with her savings (right). “My husband still can not believe it”.

Cecilia joined FIPS-Africa this year as a VBA. She used to remain at home most of the day. “These days I am always busy. I sell seed to farmers and follow-up on their crops at least three times a week”, she says. Cecilia has now purchased a cow from savings from her monthly income supplemented with the commission on sales of seeds. She says her next aim is to start a rabbit project. Apart from buying a cow, Cecilia has also helped her husband to pay school fees for their son at a local school. “Working with FIPS is a blessing not only for me but my family and the community as well. The livelihoods of the farmers who have bought seeds from me have changed. Their farms have become more productive and they have enough food for their families,” said Cecilia. She also practises what she preaches. She planted 1 kg seed of the KH500-31A variety and she harvested one bag of grain in June.



10. Margaret Nyaguthii, Miguta Village, Ngewa Location;



Margaret is about to harvest 3 bags of grain from her crop of maize grown with the seed of the KH500-31A variety. Margaret planted 2 kg seed of the KH500-31A variety in early March and applied *Mavuno* fertilizer and farmyard manure. She estimates she will harvest 3 bags of grain. The mother of four intends to keep her harvest for food for her family that she says will last up to December. She has, however, been consuming the green maize by preparing 'Mukimo' for her family. Apart from the grain, Margaret has enough fodder for her cows that can last two months.

11. Francis Gitau, Gacoiri Village, Nyanduma Location; 2172m, S00.98127°, E036.72307°



Francis is a rabbit breeder and has over 20 rabbits of improved breeds. Feeding them is not easy and in July this proved to be the case when he ran out of pellets and growers mash feeds. "I had planted 2 kg seed of the KH500-31A variety in March, and I had just harvested 3 bags of grain. I sold two bags for KSh 4,000 and I managed to buy food for my rabbits for a whole month," says Francis. He said he used the rest of the harvest for food for his family and he also got fodder for his cows.

12. Eunice Wangui, Gacoiri Village; 2158m, S00.98076°, E036.72204°



Eunice purchased 2 kg seed of the KH500-31A variety in March. She planted on a 0.25 acre piece of land while leaving another 0.5 acre idle as she didn't have money to purchase more seed. However, the maize performed so well that she sold some green maize cobs for KSh 3,000. "I bought potato seed for KSh 600 (local variety) and fertilizer and have planted it on the plot that lay idle. I also managed to buy some *sukuma wiki* (kale) seedlings for transplanting for KSh 500. I also was able to meet labour expenses without asking for a single coin from my husband," says Eunice. She has been consuming and selling the maize from the farm. "It has reduced the cost of buying food and my husband has been able to concentrate on other family issues".



Eunice showing her seedlings of *sukuma-wiki* which she purchased from sales of her maize.



Eunice on a plot where she planted the local 'Nyayo' potato variety. She purchased the seed from the sales of maize.

13. Regina Njeri, Ciboni Village, Nyanduma Location; 2184m, S00.98124°, E036.71876°



Regina purchased 2 kg of seed in March and planted 4 seeds per hole as she was hoping to get fodder for her cows . “But now I will get a good maize harvest as well. I never expected to get anything because I didn’t apply any fertilizer or farmyard manure. I have been preparing ‘Mukimo’ for my family using the green maize.” says Regina. She expects to sell one bag of grain for KSh 3,000.

14. William Kagai, Gathaci Village, Gacoiri Location; 2199m, S00.98074°, E036.71604°



William purchased a small 400 g pack of seed of the KH500-31A variety for KSh 60 in March. They have been using the harvest as food for the past 6 weeks and they have been feeding the stalks to their cow for the past month. “We have managed to save KSh 3,000 that we would normally have had to spend on buying food”, William said.

15. Miriam Kagai, Gathaci Village, Gacoiri Location; 2208m, S00.98168°, E036.71454°



Miriam, who is 70 years old, purchased 4 kg seed of the KH500-31A variety in March. She claims she has a better harvest than what she got from the previous season using the H628 variety. “At my age, I work hard to keep fit. I have also been enjoying the taste of green maize in my ‘mukimo’. I only have a few teeth left, so soft food suits me well!,” she said. She sold some green maize for KSh 5,000 and purchased a full pick-up of farmyard manure for planting next season. “My sons and daughters in-law look to me for moral support and I have to keep on showing a good example for them to follow when I am gone. I have enough food for myself and my larger family as well” said Miriam.

16. Patrick Wamae, Githongo Village, Gacoiri Location; 2156m, S00.98905°, E036.72149°



Patrick purchased a 2 kg pack of seed of the KH500-31A variety in early April. He has sold some green maize for about KSh 3,000. The cost of buying food has decreased sharply. “I have been selling the maize that I planted in March from my house. I have so far got KSh 2,000 that we have re-invested back on the farm by either meeting the cost of fertilizer, insecticides and labour expenses. “I will use the remaining part of the harvest as food for the family,” he said.

17. Ann Njeri, Miathathia Village, Ngewa Location; 1764m, S01.08211°, E036.83554°



Ann joined FIPS-Africa as a VBA in February this year. She started to sell seeds to farmers in her area. At first farmers were reluctant to accept the new seeds. "I would walk distances without selling. It was challenging but I was determined to change my standard of living," said Ann.

From her income, she has been able to buy two improved breed rabbits for KSh 6,000 and one is due to deliver anytime. She has also been able to pay school fees for her son who is a pupil at a local nursery school. She says she is saving to start her own business selling firewood and charcoal. About 20 young women have asked her how they can join FIPS. Ann is also a farmer. She planted 2 kg of the KH500- 31A variety in April and she harvested 2 bags of grain. I have 70 kg remaining and have saved KSh 2,500 towards starting my business," she said.

18. Beatrice Gathoni, Miathathia Village; 1757m, S01.08244°, E036.83548°



Beatrice with part of her harvest (left), and feeding her cow with the stover from her crop of maize (right).

Beatrice purchased 2 kg seed of the KH500-31A variety in March and started harvesting green maize in June. This helped her reduce expenditure on food. She says she has enough maize for making 'ugali' and 'githeri'. She sold green maize for about KSh 3,000 which she used to pay school fees for her daughter. She saved KSh 1,000 for buying seeds for planting next season. She says she has also benefited from getting fodder for her cows that would have cost KSh 4,000. Beatrice admits that the product takes less time to mature than any local variety. She says that her neighbours, who discouraged her from buying the seed, are ashamed now that they have seen the results of her hard work.

19. Titus Njuguna, Miathathia Village, Ngewa Location; 1758m, S01.08255°, E036.83731°



Titus and Josephine Njuguna bought 10 kg of seed of the KH500-31A variety in April. “We actually thought we would only get fodder for our cows but we have so far harvested two bags that we have been using as food whilst sharing with our friends and relatives,” says Titus. He says he applied 10 kg *Mavuno* fertilizer and is expecting to harvest a further 10 bags of grain. They intend to sell half of their harvest and keep the rest for food. They also have enough fodder, worth KSh 8,000, for their cows that will last up to 3 months.

20. Esther Wairimu, Miathathia Village, Ngewa Location; 1751m, S01.08216°, E036.33822°



Last season, Esther had planted the local ‘*Gikuyu*’ maize variety that failed to yield anything. This season, she was persuaded to buy 2 kg seed of the KH500-31A variety that she planted on the same area. She says she been harvesting and consuming green maize since July. This has saved me money buying food and I still expect to harvest a bag of grain. She also said she has enough fodder for her cattle. She says the variety matures earlier and so requires less rainfall. It has produced more than any other variety she has ever planted.

21. Hannah Ndua, Gibiviva Village, Ngewa Location; 1736m, S01.08538°, E036.83926°



Hannah planted 4 kg seed of the KH500-31A variety on a half acre plot. She expects to harvest 3 bags of grain that she intends to sell at the local market. She will also sell fodder for about KSh 4,000.

22. Tabitha Wanjiru, Mitahato Village, Kari Location; 1740m, S01.08515°, E036.83373°



Tabitha, who is 78 years old, works hard to feed her 11 grandchildren who live within her compound. Tabitha purchased 2 kg of seed of the KH500-31A variety in March and planted in early April. She has been harvesting the green maize to make 'mukimo' since July. She says she has enough food for her family and enough fodder for her cattle for the next two months.



Summary

1. In this district, farmers have been growing the late-maturing (6 month) highland varieties marketed by the Kenya Seed Co.
2. Increasingly unreliable rainfall, and late season drought, often results in maize crop failure.
3. There is increasing incidence of the maize streak virus (MSV) in the area which also reduces yields. The Kenya Seed Co. varieties are highly susceptible to MSV.
4. The KH500-31A variety, bred at KARI (Muguga), is both early-maturing (5 months) and resistant to MSV, and gives high yields of grain and fodder.
5. FIPS-Africa's innovative promotion methodology and close links with *Leldet Ltd.* have empowered two thousand farmers to benefit from the improved variety as quickly and cost-effectively as possible.
6. FIPS-Africa's innovative methodology has also created 15 jobs for both men and women, advising their neighbouring farmers at the Village level.
7. Farmers are benefiting from improved food security, improved income generation from sales of green maize, and improved fodder production for dairy cows in the farming system.

Acknowledgements: This work was conducted with the support of the Alliance for a Green Revolution in Africa (AGRA). Leldet Ltd. provided small packs of seed for sale on credit.