Voices from the Field

A DFID-supported communications initiative to promote Good Agricultural Practice and stimulate accurate media coverage of smallholder export horticulture

Bridging the GAP between farmers, exporters and journalists

Voices from the Field

WREN*media* is a specialist communications company that brings journalists and other stakeholders together to improve media coverage of agriculture and development issues in order to influence policy and secure and enhance smallholder livelihoods. The UK Department for International Development (DFID) invited WREN*media* to design and manage an initiative in Kenya.

The problem – Kenyan smallholder export horticulture looked bleak in 2004

- EurepGAP was coming into effect
- inaccurate media reporting contributed to the sense of panic
- farmers feared they would fail to comply with standards and cease to export

The process – building working relationships 2005-6

Bridging the GAP

Over 70 key stakeholders – farmers, advisors, exporters, government agencies, NGOs, policymakers and the media – took part in regular WREN*media* workshops.

Voices from the Field

WREN*media* selected prominent radio, television and print journalists and took them to visit smallholder farmers and their technical advisors in three different districts, guiding them to see, hear and understand the practices and procedures necessary to achieve the standards required for successful certification to EurepGAP or other retailer standards.

The product – case study collection and increased reporting in the media

Journalists were commissioned to research and write **Voices from the Field** case studies for use by the industry and to compile written features and programmes for publication or broadcast in the Kenyan media.

The results – in 2007 – enclosed in this information pack

- quality, depth and frequency of reporting in the Kenyan media on smallholder horticulture has improved
- case studies have been welcomed by the horticultural industry as a useful training, discussion and lobbying tool
- voices of farmers – their achievements and ongoing challenges – have been brought to the fore

more details overleaf …

Voices from the Field: published articles & case studies

In the selection of articles enclosed, published in various Kenya newspapers, it is farmers' voices from the field that are prominent.

Print, radio and television reports since the farm visits reveal the journalists' improved understanding of the issues.

Themes of case studies:

1. Keeping pests away
2. Focus on best hygiene standards
3. Chemical control – the steps before use
4. Safe spraying with pesticides
5. Procedures after spraying
6. Managing soil fertility
7. Proper records – a farmer's story
8. Hygiene on the farm
9. Using chemicals carefully
10. Proper records – for farmers' group
11. Using inputs wisely
12. Group gains marketing muscle
13. Using inputs safely
14. Quality needs attention to detail
15. Attention to detail at every stage
16. Group management and training
17. Effective scouting
18. Appropriate use of fertilizers
19. Good handling – harvest to grading

The case studies are not intended to be a manual for EurepGAP protocols. Rather these are examples of aspects of good agricultural practice which are intended for sharing experiences and promoting discussion in Kenya and beyond.

With the exception of 12, 14 and 15, these case studies have been researched and written by Kenyan journalists. Editing and design was by WREN*media*.

These case studies may be freely photocopied and duplicated. For the original pdf file please email s.thorp@wrenmedia.co.uk.

Acknowledgements

WREN*media* sincerely thanks everyone involved in the workshops, especially:

Journalists:
Kimani Chege, Eric Kadenge, Weldon Kirui, Steve Mbogo, Zablon Odhiambo,
Catherine Riungu, Nicholas Waitathu, Josephine Wareta, and Ocihieng Ogodo

Farmers:
Kanguka Self Help Group
Karikoini Farmers Self Help Group
Nandarasi Gate Self Help Group
Nyakima Self Help Group
Kathita Farmers Group
Muringa Horticulture Group

Exporters:
Jane Bunoro & Joseph Okumu, VegPro Ltd
Rosemary & Gerald Muthoni, Meru Greens
Apollo Owour, KHE Ltd
Caroline Nkirote, EAGA Ltd
Jacque Njonjo, Homegrown

Others:
Timothy Mwangi, Kenya Horticulture Development Programme (KHDP)
Cosmas Kyengo, Fresh Producers Exporters Association, Kenya (FPEAK)
Kevin Billing, Business Services Market Development Project (BMSDP)
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Bridging the GAP

supporting smallholders in Kenyan export horticulture

best practice examples — voices from the field

Case Study 1 - Kenyan French bean farmers: **"Keeping pests away"**

Farm Facts

- 2 acres of farmland divided into three segments
- Owned by Fredrick Ngige family members
- Harvests 200-300 kilos of French beans three times a week
- Produce sold to Kenya Horticultural Exporters (Ltd)
- Labour provided by the family and one permanent employee
- Also employs casuals when needed
- Member of group awaiting final audit for EurepGAP certification

Fredrick Ngige, farm owner, says:

"We are very keen to manage pests so that we do not go at a loss. It also helps us to get better quality and more produce. Overusing or incorrect use of chemicals will make us lose the market and affects the health of those who eat the beans.

We are frequently educated during our group meetings on how to use chemicals and other biological ways of preventing pests. The individual farmer has to be very careful because the extension officers are not always there to check on what the farmer is doing. So farmers have become very responsible.

But I would say that since the time we started farming as a group our livelihoods have improved. We get educated on modern farm management and farming methods, can access credit and we are able to encourage each other. The market for our beans is also assured.

Major pests that affect our crops include thrips, mites, aphids and white flies. We now know how to control each and every one of these. We mainly manage pest control by scouting and spraying. Our group has employed sprayers and a supervisor to ensure only the required chemicals are applied in their right quantity.

We are also taught how to do biological pest control because this helps conserve the biodiversity and reduce chemical contamination of the soil. The biological control methods we use include practising crop rotation with maize and tomatoes to disrupt the lifecycle of some pests. Mexican marigolds grow between the bean rows which helps to control nematodes.The maize also helps to prevent pests from escaping while being sprayed. Spraying usually happens early in the morning or late in the evening.

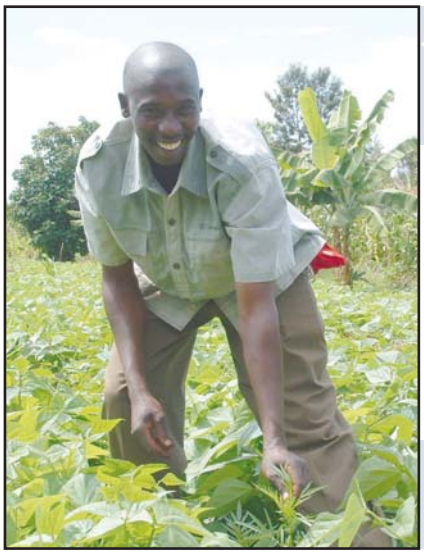
We use hybrid beans to help control the rust disease that is very devastating to the beans. The hybrid seeds are resistant to rust.

We always seek technical advice from the extension officers when a disease-related problem arises so that we do not make mistakes that can compromise quality or make us lose our produce. We take a lot of care after spraying by placing red flags so that the just-sprayed beans are not harvested."

Case Study 1 - Kenyan French bean farmers: **"Keeping pests away"**

1 Getting accurate advice from the extension officer

Group sprayers well dressed for the role get on the job 2



3 Growing beans with Mexican marigold helps control nematodes

Placing the 'Scouting Stick' to help scout for pests 4

5 The red flag guides pickers to avoid just sprayed beans and to obey the pre-harvest interval

Disposing of contaminated water into the specially designed pit to avoid contamination of the soil, people and animals 6

Discussion points
How can scouting reduce unnecessary spraying?
Which 'trap' plants attract pests away from crop?
Describe the procedures for safe use of chemicals.

Case study compiled by Steve Mbogo
January 2007
This case study is for discussion/training purposes.
It is not a guide to EurepGAP procedures.
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best practice examples — voices from the field

Case Study 2 - Kenyan French bean farmers: **"Focus on best hygiene standards"**

Farm Facts

- One acre of flat land divided into two plots for crop rotation
- Owned by Geoffrey Mwaniki's father
- Harvests over 150 kilos a week
- Member of a group waiting for final EurepGAP audit
- Labour is provided by family

Catherine Wanjiru, pickers' supervisor, says:

"One of the most important things to adhere to before the picking is the hygiene standards. Before picking, all pickers are required to cut their nails so that they do not spoil the beans. They also wear a headscarf to ensure no human hair mixes with the beans.

I ensure that all pickers know the procedures of picking so that afterwards the beans do not, for instance, become dehydrated or the flowers on the bean plants are not spoilt. From the farm, the beans are taken directly to the group's shed.

The extension officers employed by the exporter educate us on the best picking methods. This has helped to reduce wastage tremendously."

Farmer Geoffrey Mwaniki says:

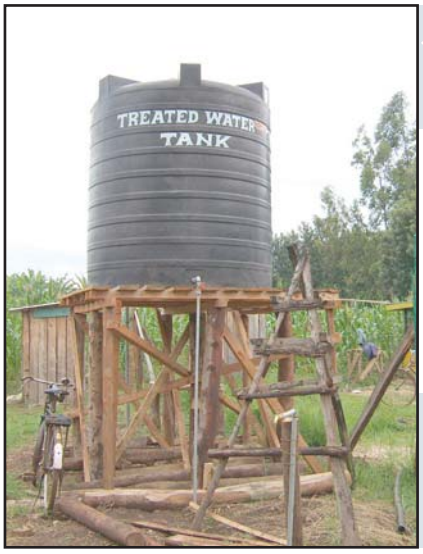
"Our group meets once per month to exchange ideas and review the progress we have made. We also meet with the extension officers who educate us on any new developments in farm management. By coming together as a group, we have been able to do lots of things like bringing piped water into our farms through a communal initiative. We contribute labour, and money to buy pipes and the generator for pumping the water. We use it to irrigate our farms, and also for domestic purposes.

I can now earn better money because my produce is of high quality and there is more to sell. Every month, I am able to make an average of US$180 from my half an acre plot. Each month, we save about six percent of every kilo's payment. This money is then banked and used to help farmers who may be in need and to cover other group expenses. Farmers can borrow the money for school fees. I would, however, want to see the price for beans increase because the money we get is not still enough."

Case Study 2 - Kenyan French bean farmers: **"Focus on best hygiene standards"**

1 Catherine Wanjiru demonstrates the block sign which gives name of owner, variety planted, planting date and expected date of harvesting for traceability.

Labelled picking container is plastic and easy to keep clean 2



3 Group has own supply of treated water for use on farm and at grading shed

Hygiene procedures have to be explained to staff and continually monitored 4

5 Record keeping ensures that any contamination of produce can be traced back to the grower

As well as facilites for hand washing, the group has a place to wash all picking containers and crates before re-use 6

Discussion points
How do you motivate casual staff to follow the necessary hygiene procedures?
Which are the most difficult procedures to adhere to - and why?

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Case Study 3 - Kenyan French bean farmers: **"Chemical control - the steps before use"**

Farm Facts

- Half an acre well drained land with ¼ of an acre under French beans
- Family land owned together with husband Paul Muchiri
- They are members of Kanguka Self Help Group, which has 36 active members.
- Labour provided by the family and some hired workers.
- The group is in the final stages of being EurepGAP certified.

Sarah Wakabari, farmer, says:

"We have learnt from experience that each step we take in caring for our crops counts. Before, we used to check our farms for diseases and pests and apply the chemicals of our choice to the plants. This was affecting the quality of products to the market as some farmers were getting it all wrong.

To ensure quality for the European market we realized we needed a set of checks. Our group has agreed on a system of managing the pests and disease problem collectively. Today the entire activity of spraying is carried out by a spray team employed by our group. This ensures that we have proper chemical application, as necessary. We have a central chemical storage and any spraying must be approved and authorized by the expert.

We are also trained in basic pest and disease diagnostic knowledge. We know when our crop needs attention.

Early on, the most destructive pest is the cutworm. The pest chews the tender plant cutting the stem. Seven days after germination I spot check for the pest. If I notice the plants are in danger I report to the field manager. He comes over to the farm and, after verifying the threat, he decides on the best intervention. The same system – of diagnosis, prescription and application – applies to other pests, such as thrips and aphids.

We find it fine to let the experts give a clear opinion. It also saves us so much money because it is expensive to buy and use chemicals you don't need. And we don't need to spend money on individual protective clothing or storage facilities as we only need one lot for the whole group. We buy the chemicals collectively so that helps reduce the cost.

As a group we have been motivated by the returns that we get from the sale of our products. We used to get far less money. We learn from each other. If my farm has a new pest, as well as alerting the field managers, I am able to share the news with fellow group members so that they take precaution."

Case Study 3 - Kenyan French bean farmers: **"Chemical control - the steps before use"**

1 John Gatimu, the field manager, helps with techniques in scouting for pests

Sarah Wakabari with her daughter, Kellen Njoki, scouting for pests 2

3 Storing the chemicals -John Gachoki the storekeeper

Spray team 4

Sarah stands at the plot edge checking on spraying progress 5

Discussion points
How important is it to teach the next generation about good agricultural practice?
What are the benefits to a farmer of using the spray team system?

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Case Study 4 - Kenyan French bean farmers: **"Safe spraying with pesticides"**

Farm Facts

- 3½ acres of well drained land with ¼ of an acre under French beans while the rest is under other food crops.
- Family land.
- Member of Karikoini Farmers Self Help Group, which has 33 members.
- Labour provided by the family and some hired workers.
- The group is in the final stages of being EurepGAP certified.

Magu Murage, farmer, says:

"We could see that so many people giving different opinions regarding a certain problem will only work to mislead us. The market in which we sell our products is sensitive so we acquired the services of a spray team. This team eliminated the need for each farmer to do his own spraying and pest management. So for a farmer to be in our group we have to ensure that he agrees to our set regulations like the procedure for integrated pest management.

When a farmer alerts the field manager on the possible problem, the field manager consults with other experts like the store keeper. Here the decision of whether to spray chemicals or to use another intervention is made. Sometimes they only recommend the farmer applies fertilizer because the problem might be a nutrition deficiency.

At the group's store, the field manager chooses the chemical to be used, arranges for it to be given out and assigns the spray team. The team has to record which farm they are visiting and the activity to be done. This also helps us know whose farm is not taken care of. The prescription of the chemical avoids the use of unapproved pesticides.

In this area there are another eight farmers' group like ours. Each group has sent two members to the spray team. This helps us learn as well. Any treatment to a crop is recorded.

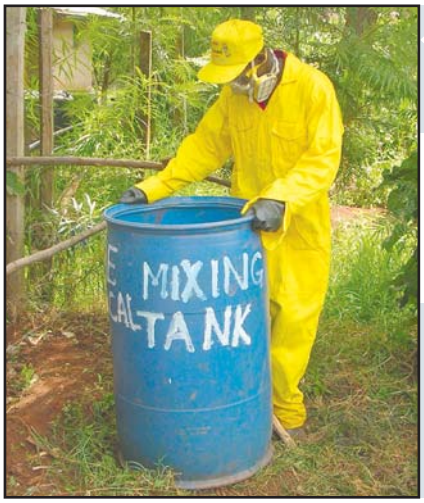
The field manager observes how the spraying is done. He plants a red flag in the sprayed block indicating that nobody should go into that area. After he verifies that enough time since spraying has passed he replaces the red flag with a green flag. We have become used to this process and nobody flouts the rules.

After the spraying, the equipment is washed by the spray team at each farm. There must be a soak pit where the waste water is poured away."

Case Study 4 - Kenyan French bean farmers: **"Safe spraying with pesticides"**

1 When farmer Magu Murage observes signes of a problem, he alerts the field manager

2



3 At each farm the spray team has all the equipment to prepare for the task

Precise mixing is done with the prescribed chemical, on farm and under supervision 4

5 Team work helps

For this farmer group the spray team are the specialists 6

Discussion points
If spraying is left to the spray team, what is the farmer's role in safe application of pesticides? What are the ways to help farmers understand the pesticide application procedures and the reasons behind them?

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Case Study 5 - Kenyan French bean farmers: **"Procedures after spraying"**

Farm Facts

- 2 acres of farmland divided into three segments
- Owned by Fredrick Ngige family members
- Harvests 200-300 kilos of French beans three times a week
- Produce sold to Kenya Horticultural Exporters (Ltd)
- Labour provided by the family and one permanent employee
- Also employs casuals when needed
- Member of group awaiting final audit for EurepGAP certification

Fredrick Ngige, farmer, says:

"We always follow the procedures after spraying. When the spray team is through with their work out there in the field, they must observe certain rules which must be adhered to, to the letter.

Before leaving the crop they must hoist a red flag to warn everyone spraying has been done. This flag means no one can pass through the field or harvest the crop. Everyone in our community is aware of this. After hoisting the red flag, the spray team – there can be five of them – brings the pumps (knapsack sprayers) to the soak pit ready for washing. Or if there is more spraying to do for a neighbour with the same chemical then they move on to the next farm. Whichever farm they visit the same rules apply.

Now back to the soak pit area. The soak pit is specially designed. We dig a pit about four feet deep and four feet wide. After this we go to the river or a waste quarry to collect pebbles or small stones to put at the base of the pit. The purpose of the stones is to assist in the drainage of water. As such, you will never find water flooding the soak pit.

Care must be taken here. You do not remove the protective clothes or gloves until you are through with the washing of the pumps. Gloves prevent chemical residue getting into your body as sometimes you may be having a cut or wound which may assist the hazardous substance to find a way into your system. If, by accident, the chemicals come into contact with skin, you must wash it with water.

Since every farmer has access to a soak pit - their own or shared with a neighbour - we have no worry at all. We use the same pumps to spray crops like French beans, coffee, potatoes and so on. Different crops need different pesticides and any pesticide residue could do serious damage to the next crop. That is why it is always advisable to clean the pump thoroughly after each use. For this to be achieved we use soap or other detergents. If some water has remained in the mixing tank, we pour it into the soak pit as well.

After cleaning, the pumps are kept safely in the group store. Then it is the turn of the spray team to take a shower. After showering they keep the gumboots and the gloves, coats, hats, glasses and masks in the store for later use. This practice has to be followed time and time again to ensure our safety and, of course, high yield - which is our goal!"

Case Study 5 - Kenyan French bean farmers: **"Procedures after spraying"**

1 Marking sprayed block with red flag

After use, the spray equipment is brought to the washing place 2

3 Soak pit - shared by neighbouring farmers

The rinse water is tipped into soak pit 4

5 The mixing water also put into soak pit

Spray equipment is stored safely in the group store 6

Discussion points
Describe how to build a soak pit
What are the advantages of sharing a soak pit?
What else can be shared? What should not be shared?

Case study compiled by Weldon Kirui
January 2007

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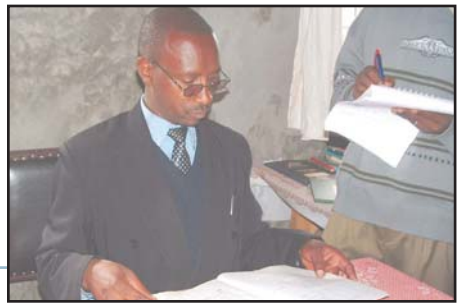
best practice examples — voices from the field

Case Study 6 - Kenyan pea farmers: **"Managing soil fertility"**

Farm Facts

- 200 members cultivating up to seventy acres in peak season
- Growing snow peas or mange touts, sugar snaps and garden peas
- Exported to the EU by VegPro
- EurepGAP certified in February 2006



Farmer Russell Ng'ang'a, chairman of the producer group, says:

"Generally, soils in Nyandarua District are naturally fertile with little need for fertilizers which we use sparingly, at least for now. We know that healthy crops begin with healthy soils therefore we take good care of them using both the traditional and modern ways as taught by our trainers and the field manager from our buyer.

We use big quantities of composted manure, which we collect from the animal sheds. Given that we grow lots of crops like cabbages, maize and also the peas, we have a lot of plant waste as well which, after harvesting, is collected and composted. But we are very careful with composting waste from pea plants because they are susceptible to many diseases. We therefore meticulously check the stalks before composting them so that those which are contaminated with infection are burned to avoid re-introducing diseases to the soils.

The chemical fertilizers we use are stored in the group's central store along with other farm inputs such as pesticides, seeds and spray equipment. They are kept in seperate store rooms for safety and monitoring and record-keeping as per EurepGAP requirements, which stipulate that farm chemicals are stored safely, separately and at a distance from human and animal quarters.

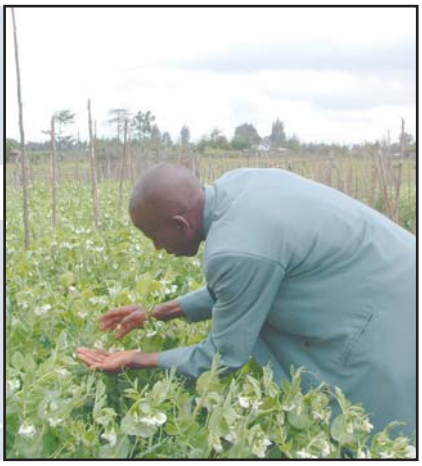
When we started growing the export crops and using chemical fertilizers, we were warned that our soils could become acidic and a few farmers were worried when they were told to expect changes in the soil pH. But we were assured that acidity in the soil can be corrected by applying lime. So now soil samples are taken for analysis every year to detect any changes in pH and also to check for soil-borne diseases. But so far, no acidity incidents have been reported.

Considering that we plant a new crop every three months, it is good agricultural practice that farmers practise crop rotation, an activity that helps break the disease cycle. Given that peas belong to the bean family, which naturally contains properties for fixing nitrogen in soils, we find that there is a lot of available fertility for the crops after peas. This has reduced use of nitrogen fertilizer.

Although growing for export is hard work because of the stringent quality requirements, we are happy that at the end of the day we will earn from our sweat. Growing for export has transformed our lifestyles from poor to able farmers."

Case Study 6 - Kenyan pea farmers: **"Managing soil fertility"**

1 Spraying crops ensures that the plants are clear of pests and diseases which makes them safe for composting



Scouting for pests and diseases ensures that chemicals are used only when it's necessary, giving guarantee of safety to both farmers and consumers 2

3 Satisfied that the plants are healthy and disease-free, a sign of fertile soils

A full pod depicting a good harvest which starts from soils which have been taken care of 4

5 Fertility after peas boosts yields of following crop

Careful crop management is essential to avoid soil-borne pests and diseases spreading 6

Discussion points
What signs can be seen in a crop that suggest the plant is short of key nutrients?
Can organic (composted) manure provide all a crop needs in the way of fertility?
How does crop rotation help?

Case study compiled by Catherine Riungu
January 2007

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Case Study 7 - Kenyan pea farmers: **"Proper records – a farmer's story"**

Farm Facts

- Owned by Russell Ng'ang'a family
- 17 acres of flat and gentle sloping land.
- Harvests 2.6 tonnes of peas every week for export to UK
- EurepGAP certified group of 200 members
- Labour is provided by family and 22 hired labourers.

Russell Ng'ang'a, the farmer, says:

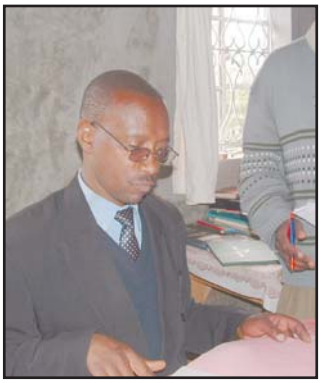
"Without proper record keeping you cannot rate your farming activity in regards to profit making and dealing with buyers and others.

I started keeping proper farming records three years ago. Since then a lot has changed in terms of resource allocation as well as strategizing on how to improve the farming activity.

Without maintaining proper records, a lot of resources can be wasted and that can lead to snail's pace performance of your farming businesses.

My farm is divided into various blocks and in the office there are records indicating the variety of crops planted in every season and their productivity in those specified areas. In my farm office I have records detailing how labour is sourced, what I spend on it, and the quantity of seeds planted in every season and their cost. Other occasions are when the season is booming, and I need to find more labour and I create a new file for these casual labourers.

Apart from the EurepGAP certified crop (peas) I grow, I have other crops and I now keep other records for them and my dairy farming. As well recording all the labour used on a crop I also record the chemicals applied and I have a farming equipment sheet detailing what types of equipment have been acquired and when they were obtained.

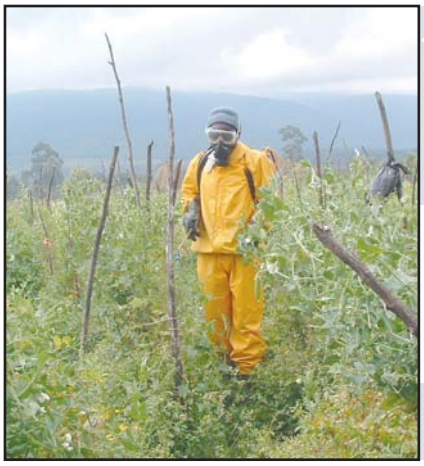


In reality, it is the system of record-keeping that has contributed to proper monitoring of the business performance whereby areas that need urgent attention are addressed as well as helping me to explore new avenues. Partly down to EurepGAP requirements for sound record keeping, my farming activity has adopted a new management style whereby the activities done in the farm have to be documented. This a move that has culminated in a sharp focus for the entire business. For instance, record keeping on the farm is given the first priority to prevent a haphazard way of doing things. This makes for prudent management and free flow of information from one section of the farm to the other.

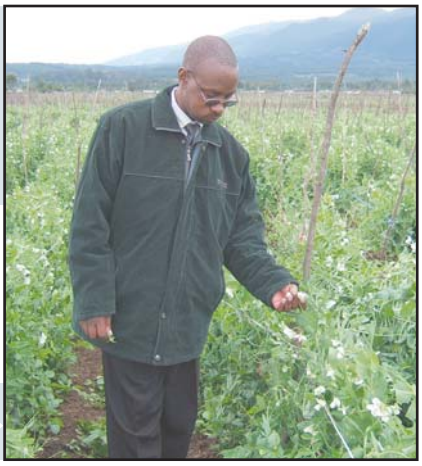
As the owner and overall boss of the entire enterprise I am able to monitor all my decisions and how I use what resources I have available. I can also plan well how to use workers and get their commitment to carry out tasks properly.

I see that EurepGAP has enabled many farmers to adopt a new system of farm record-keeping thus creating a sense of being responsible, in addition to being able to put scarce available resources to best use."

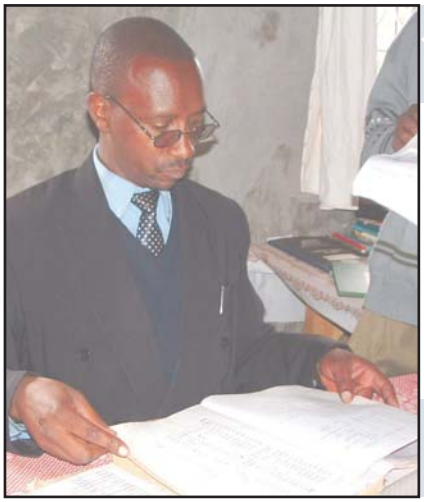
Case Study 7 - Kenyan pea farmers: **"Proper records – a farmer's story"**



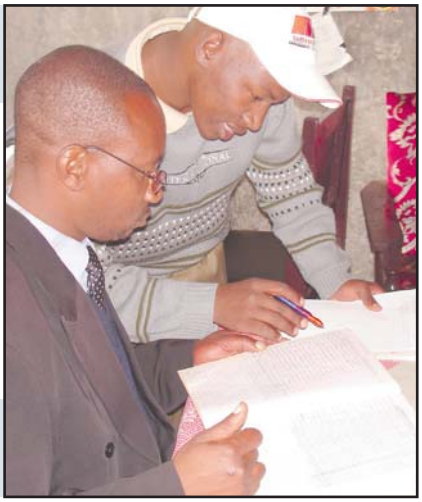
1 Records must be kept each time crop is sprayed to calculate and monitor the cost of production



Crop observations are recorded 2

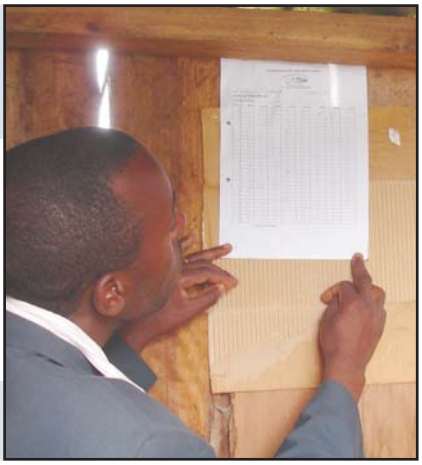


3 Russell showing his records in the farm office



Records for farm workers are kept on farm 4

5 Records are kept to show farm labourers trained in procedures



Checking the latrine records 6

Discussion points

How does record-keeping help a farming business be more productive?
How does record-keeping help a farming business be more profitable?
Record keeping is compulsory for EurepGAP but what benefits has it brought you and your other farming activities?

Case study compiled by Nicholas Waitathu
January 2007

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best practice examples — voices from the field

Case Study 8 - Kenyan pea farmers: **"Hygiene on the farm"**

Farm Facts

- A group of 200 farmers
- Group is EurepGAP certified
- Members grow garden peas and snow peas on about 70 acres
- They cultivate these on individual farms under one umbrella name – Nandarasi Gate Self Help group
- They export their produce through one company called VegPro

Russell Ng'ang'a, chairman of the group, says:

"As a EurepGAP certified group, issues of hygiene are of paramount importance. Hygiene here covers a number of areas I think right from when we start picking the crop.

The ladies who do the picking for us have to cover their heads with headscarves. Actually we have one of them in charge of checking on whether that is done. Their nails have to be kept clean and short, and again this is a requirement because they have to be checked every time they do the picking. Eating and drinking are prohibited on the farm. Now from there, they have to use buckets that have to be clean and labelled. The buckets that we use for sugar snaps are labelled snaps, the buckets for Oregon are labelled 'Oregon' and so on. When harvesting, these are the buckets into which we put the produce, which in turn have to be emptied into the crates which are also kept very clean although we don't do the washing – they are normally washed at a central place by the exporter because of fear of contamination.

It's also a hygiene requirement that should any of the people here who are handling produce visit the latrines, they have to wash their hands immediately. That's why you find outside every latrine some container and soap for washing their hands. We have assigned somebody to check and clean the latrine every morning and there is a record sheet where she ticks that it has been done. We also have to have somebody supervising that or rather kind of checking on whether it's done.

In the grading shed the workers have to follow all the procedures listed and pinned up on the board. They must be clean and wear the right clothing – covering their hair. The place must be kept clean too and not used for any other purpose.

We now see following rules on hygiene as part of our own life because apart from selling this crop we also eat farm produce. We have cabbages from the farm that we also eat and carrots and so on, and so when you try to think of hygiene standards, like keeping dogs away from the farm, its not only beneficial to those who are going to eat the produce when it's exported. It's also useful to us."

Case Study 8 - Kenyan pea farmers: "Hygiene on the farm"

1 The toilet (pit latrine) is washed every morning and records of hygiene are kept

The pit is covered to control flies 2

3 Hand washing facilities near the chemical store - also useful in case of accidents.

A first aid kit is available. Group members' ideas are invited and acted upon 4

5 In the collection room, clothing must be appropriate and the sorting area kept clean.

6

Discussion points
How do you ensure that everyone who picks, delivers or handles produce is hygienically dressed?
What other checks are needed to ensure good hygiene?

Case Study 9 - Kenyan pea farmers: "Using chemicals carefully"

Farm Facts

- 1.5 acres of land
- Owned by Peter Mukuria Njuguna
- Member of Nandarasi group
- Group is EurepGAP certified
- Labour is provided by the family
- Harvest 150kgs of peas a week for export to UK

Farmer Peter Mukuria says:

"Farming has been my major activity in life but let me admit that before I joined the Nandarasi Gate Self Help group, there were many things I did not know. I was farming using methods passed on to us by the older generation. A lot of things were taken for granted. We just planted because others were planting and we did not have anything to do so we planted too.

But since I joined this group, I have learnt so many things now we handle our farming as a business. Therefore, for a business to thrive, there are many elements to take care of since some of the inputs are very costly. At Nandarasi, we mainly specialize on pea production for export to the UK market. To sustain this market I have to observe the recommended standards, especially on the use of chemicals.

Chemical use is one of the key elements in agricultural practice that has to be carefully handled. This is because the wrong use is not only detrimental to the plants but also harmful to human and animal life. When we started pea farming we had to be trained thoroughly on chemical handling and application. Our pea crop is sprayed if and when needed. The technical advisor prescribes the chemical to be used, and because the crop activities are handled centrally at the group office, the technical officer mixes for me the required concentration but even so it is still chemical and I have to take care of myself. I make sure that I use the recommended protective clothing and the right kit. The different chemicals we use at different stages in our farms have a different pre-harvest interval (PHI) or time until they can be harvested.

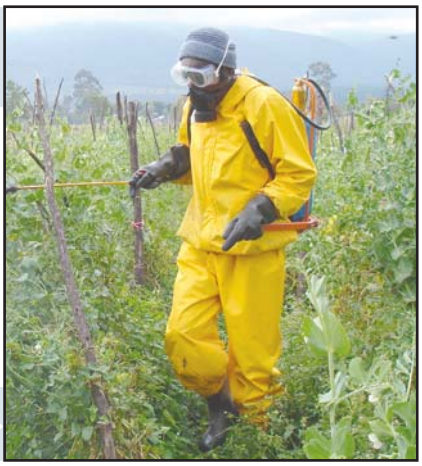
After spraying, I put a red flag on that particular farm as a constant reminder that the crop is not yet safe for use. After the PHI has elapsed, I remove the red mark.

The knapsack is cleaned thoroughly after use in a secluded place to avoid contamination with other crops or animals. The cleaning is done when still dressed up in the protective clothing. I take a bath then I am ready to take up other assignments.

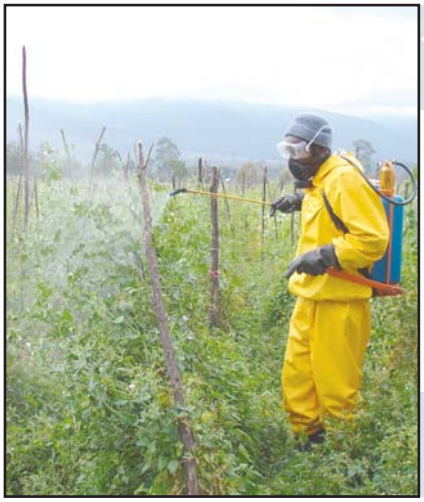
This knowledge and skill has helped me critically programme my life in other areas. I will not move to point C unless I have accomplished work at points A and B."

Case Study 9 - Kenyan pea farmers: **"Using chemicals carefully"**

1 Use properly mixed and measured chemicals



Wear the right clothing 2



3 Spray as recommended, and at the right height

Put red mark to indicate the crop is not ready for use 4

5 Wash knapsack in secluded area to avoid contamination

Good practices ensure quality produce for the markets 6

Discussion points
How is safe use of pesticides carried out?
Where and why is a red flag used?
Describe the ways workers' health and safety are protected when using chemicals.

Case study compiled by Josephine Wareta
January 2007

Bridging the GAP

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Case Study 10 - Kenyan pea farmers: **"Proper records – for farmers' group"**

Group Farm Facts

- 70 acres of flat and gently sloping land.
- Owned by farmers who belong to a group of 200 members
- Harvest 6 tonnes of peas very week for export to the UK
- EurepGAP-certified group
- Labour is provided by family members and hired labourers.

Farmer Russell Ng'ang'a, chairman of the producer group, says:

"Our key focus is to ensure that we keep proper records. To work out our profit, we must have records clearly indicating all the details. Since we are a large group we have employed several officers including; an accountant, a weighing clerk, field officers, a technical officer and sorting officers.

Our system of record-keeping is centralized and most farmers' records are kept in the group offices. The farmers keep only the *pay slips* detailing how much they have earned from each crop and *labour records* detailing how many labourers were hired and how much they have been paid.

Some of our group records include the *weekly production record*, *receipt books*, *farm input issue form, field report file, hygiene file, invoices, reject delivery notes* from the exporter, farmers *pay slip* and the *chemical order form*.

The *farm input issue form* details the type of input given to the farmer; the quantity, the cost and the initials of the issuing officer. We send our field officers to the farms to gather information on how the farmers are progressing. After every field visit the supervisors compile a report which is kept in the *field report files*. The information is used to make sure that every farmer is performing well.

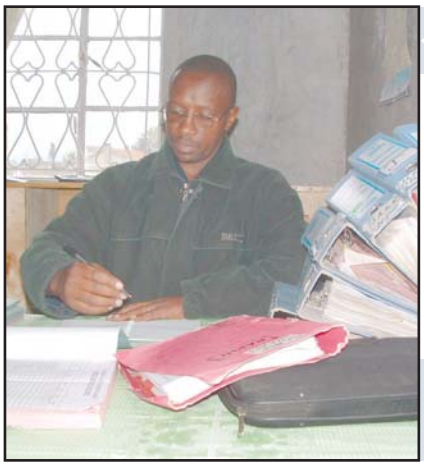
Immediately a farmer delivers the produce at our collection shed, details of the farmer's name and the weight of produce are recorded. The farmer is issued with a receipt showing weight and variety. The same details are later transferred to *production delivery sheet*.

Sometimes a percentage of the produce is rejected due to disease, mishandling of the crop or infection by pests such as thrips and aphids. The exporter sends us a *reject delivery note* detailing the reasons for rejection and the quantity. We trace the rejects to the farm.

All the records are kept in a systematic order to enable whoever might be looking for any information e.g. our buyer, our field officer, to find it.

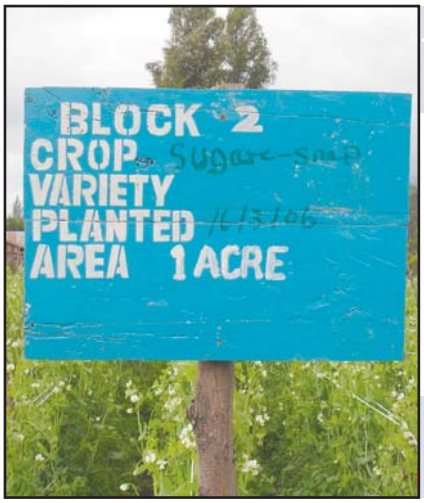
We feel comfortable about keeping records because they help us monitor the performance of the group and whether our business is making progress."

Case Study 10 - Kenyan pea farmers: **"Proper records – for farmers' group"**



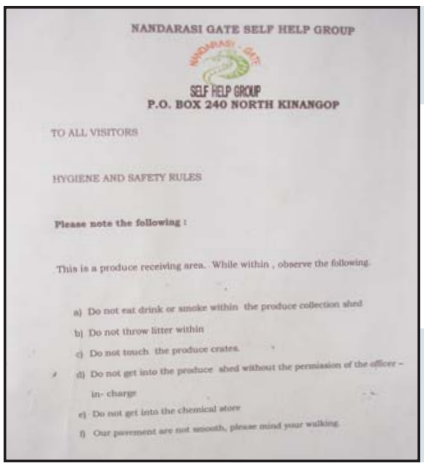
1 Russell with records in group office

Peas on sale in UK are traceable back to farm 2



3 All records of each plot are kept by the group

No produce leaves until the paperwork is completed 4


NANDARASI GATE SELF HELP GROUP

SELF HELP GROUP
P.O. BOX 240 NORTH KINANGOP

TO ALL VISITORS

HYGIENE AND SAFETY RULES

Please note the following :

This is a produce receiving area. While within , observe the following.

a) Do not eat drink or smoke within the produce collection shed
b) Do not throw litter within
c) Do not touch the produce crates.
d) Do not get into the produce shed without the permission of the officer - in- charge
e) Do not get into the chemical store
f) Our pavement are not smooth, please mind your walking

5 Hygiene and safety rules should be clearly displayed

Good record keeping is essential to get and keep certification 6

Discussion points
What are the ways to ensure good records are kept?
How can farmers who have not kept records before be helped to do so?
What are the advantages of good records?

Case Study 11 - Kenyan French bean farmers: **"Using inputs wisely"**

Group Facts

- Market produce as Kitharene Small-scale Farmers Self Help Group
- Group formed in 2004
- Currently 200 members with about one acre plots
- In process of EurepGAP certification, 30 members waiting to be audited
- Grow fine beans which are sold by Meru Greens to Frigoken for canning

Joseph Ntiritu, group Chairman says:

"We used to produce individually in the past and this really exposed us to middle-men/brokers who badly exploited us. But since we formed a group, we share experiences, advise each other and we now get better markets for our French beans and other crops.

The technical assistants have been very helpful. They have taught us on pesticide and fertilizer use which has ensured that we no longer apply some pesticides used on coffee plants in our horticultural fields as we did before. Now we read the instruction labels on pesticides bottles and adhere to the prescriptions on how they should be used. We are also more aware of pesticides' residual action. We put a red flag on the farms after spraying for the recommended period.

We have seen a major reduction in expenses on fertilizer and pesticides. In the past, when we detected rust on a leaf of just one of the crops, we would apply as much chemical as possible, but we have since learnt that high volumes do not necessarily guarantee good produce. With the intention to maximize on profits we would suffocate the plants with fertilizer which only resulted in losses.

Our record keeping has also greatly improved. Now we have a shed where we get receipts for every supply which indicates how many kilos and at what price. We can now compute our earnings from a particular crop season and this helps us to make improvements.

We have gained a lot through group work. Being in a group has helped us to acquire permits and in getting certificates as well as in developing our own constitution and consolidating our accounts to attract financial and material credits.

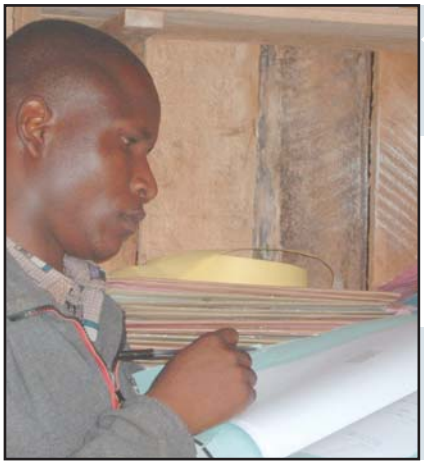
We now sell our beans to Meru Greens who help us by providing all our inputs, and these costs are then deducted from our proceeds. They have also helped us to build our grading sheds so that we can edge closer to EurepGAP certification. The technical assistants employed by Meru Greens help us a lot. They encourage us to work as a team. They also advise us on what pesticides we are supposed to use which are EurepGAP approved, such as *cuprocaffaro 50 WP*, *Decis 250 EC* and *Ortiva 50 SC*.

It does take a lot of our time to go for meetings and trainings and not every member is ready for certification. But they still learn much and know how to protect both themselves and the environment."

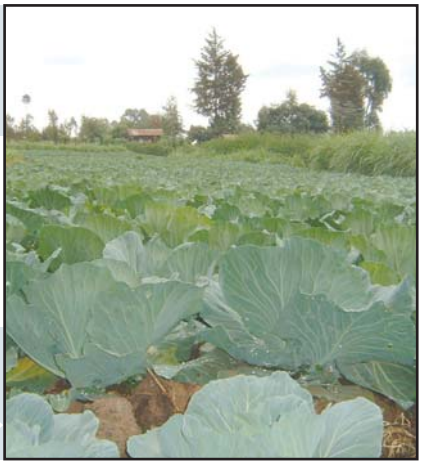
Case Study 11 - Kenyan French bean farmers: **"Using inputs wisely"**

1 Inputs are provided in small packages by Meru Greens

Group meetings help to advise on the use of inputs 2



3 Records help farmers see whether use of inputs is going up or down



Knowledge of good input use on beans can be used on other crops 4

5 Clear signs on the chemical store tell everyone of the dangers

Wearing the right protective clothing when handling chemicals 6

Discussion points
Give examples of poor use of inputs.
How does record-keeping help with good use of inputs?
How can knowledge of good input use be applied to other crops?

Bridging the GAP
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best practice examples — voices from the field

Case Study 12 - Kenyan fine bean and baby corn farmers: **"Group gains marketing muscle"**

Group Facts

- Name: Nyakima Self help group
- Location: Mwea-Kirinyaga district
- Farm size: 31.50 acres
- Crops: Fine and extra fine beans, baby corn (EurepGAP certified), maize, banana, cassava and sweet potato.
- Group Members: 17 farm families who also provide labour.

Peter Mutiso, chairman of the group, says:

"Our group was formed for marketing purposes only. We had been exploited by middlemen for a very long time and we had to toil hard only for them to reap the benefits. In 2004 we approached Woni Veg-Fru and we came together as a group of seventeen and started working informally to market our produce together. Rather than a threat to our livelihoods, the new EurepGAP standards are actually enabling us to produce more efficiently and hence to increase our incomes.

Woni supplies us with certified hybrid seeds on credit, offers technical assistance (seed selection, planting program, harvest and post harvest handling), provides produce transportation from farm and provides the packaging materials. This support has improved the farmer production from less than a tonne in early 2005 to the current level of 9000 kilos of fine beans per week throughout the year.

Since the market is assured we are able to plan a calendared production for all crops including local market vegetables which enables us to have continuous income throughout the year. Our contract assures us of the price, technical advice on production and post harvest handling. All farmers must keep records for all farm operations. We have a technical committee that checks that we are all complying with the set rules. If a member does not comply we discipline him/her, for example if the farmer does not follow the planting schedules or breaches a hygiene rule."

Mrs Wanyiri, Group treasurer, says:

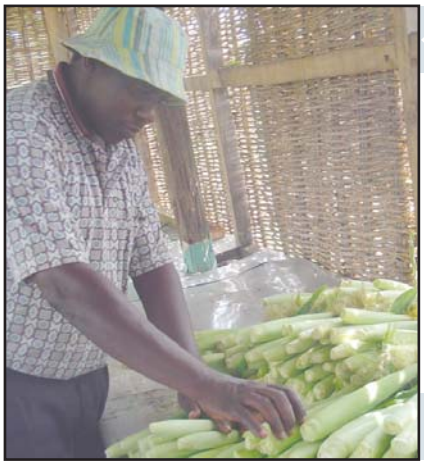
"Quality produce and reliable quantities are the things that make Woni continue purchasing produce from us as the group remains cohesive. To maintain quality we start from the farm planning, land preparation through to post-harvest grading. Scouting for pests ensures that control of diseases and insect pests is timely. Pest damage has been the main source of produce rejection and over 70 percent of our expenses in terms of chemicals. We appreciate the technical support that we receive from the Kenya Horticultural Development Programme (KHDP) and Woni. However, although this support has meant the use and cost of pesticides has gone down, the costs for all other farm inputs has gone up including labour, fuel for irrigation and fertilizers. Despite all this we have not seen a significant rise in French beans prices."

Production Facts

Average production: 9000 kilo fine beans per week

Gross income Year 2005	KSh 3,600,000	($48,000)
Estimated gross income year 2006	KSh 11,520,000	($153,600)
Net earnings (2006) (production cost accounts for 60%)	KSh 4,608,000	($61,440)
Improved earning from certified crop	KSh 3,168,000	($42,240)

Case Study 12 - Kenyan fine bean and baby corn farmers: **"Group gains marketing muscle"**



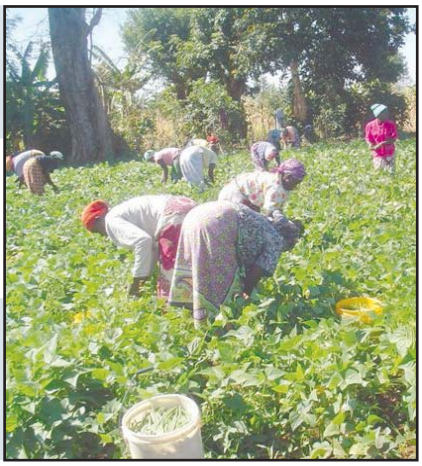
1 Mr. Mutiso grading baby corn at farm

Fine beans sorting at farm 2

3 Each farmer has a small agro forestry nursery

Soil testing reveals precise fertilizer needs 4

5 The farmers keep the pesticides safe in their own small chemical store



Maximising quality and minimising costs of production ensures higher profits 6

Discussion points
What are the advantages of complying with EurepGAP standards?
How can costs of production be kept down?
What can a group do to ensure all members keep to the same high standards?

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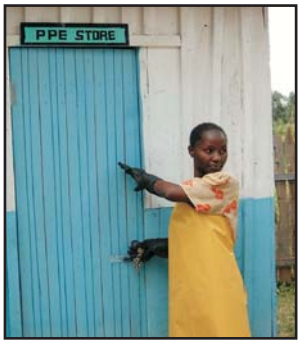
Case Study 13 - Kenyan French bean farmers: **"Using inputs safely"**

Group Facts

- Group is named Kathita
- Group started in 2003
- 300 members with centralized system for organization
- A sub-group committee looks after the individual farmer
- Members have to buy their own protective equipment

Harriet Makembo, an agronomist who runs the central store at Kathita centre, says:



"We cannot store the pesticides with fertilizers in the same room. I am the only key holder for the store rooms and only I can enter. I have to put on protective clothing. The chemicals room has to be cemented and the floor raised at edges to avoid spillage leaking out which may affect the soils. There is also an eyebath hanging next to the chemical store to clear any chemical splash on the face or into the eyes.

The technical assistants scout for pests and diseases and fill a scouting record which the farmer presents at the centre to request the pesticide. They have also to report to us leaking knapsack sprayers, if new operators contracted to weed or spray the crops, and dates of spraying, amongst other vital data."

Jane Kanyua Mwiti, a farmer who has built chemical and fertilizer stores and a bathroom at her farm, says:

"I have this bucket which stays permanently in the chemicals room to collect empty containers which we pass on to Meru Greens for disposal. We no longer throw them away as we used to so there is no danger to our children or animals.

I have been provided with measurements for chemicals to ensure I put the right mixtures. I also puncture empty chemical bottles to discourage re-use for domestic use. In the event of spillage, I use sand which I keep in the chemical store to absorb the chemical before sweeping the sand back into the bucket which must not leave the room. Now I know what to spray with the help of the technical assistant who identifies the pests and diseases. Before the local traders did advise how to use the chemicals or when, so it was common for us to use the wrong one as we didn't know any better.

The file I keep on my farm has all the details of what I do and this conforms to my other file at Meru Greens. The record-keeping experience now ensures that I keep the records for even other crops like potatoes, snow peas and cabbages.

This is a job like any other. We have to take care. Now our farms are much cleaner and we teach our children how to be safe by using the red flag when we spray but it has cost much to build our chemical stores and buy our own spray equipment."

Case Study 13 - Kenyan French bean farmers: **"Using inputs safely"**

1 Wearing the right clothing in the centralized chemical store

Each Kathita Group farmer has a separate chemical and fertilizer store 2

3 Eye wash next to chemical store to clear any chemical splashes

Charcoal seepage pit used to dispose of left over chemicals used for spraying 4

5 Wearing the right clothing and equipment

The red flag warns everyone to keep clear of the field 6

Discussion points
What are the advantages of having a centralized rather than individual store rooms for inputs?
What can a group do to ensure that each farmer follows the agreed system?

Bridging the GAP
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best practice examples — voices from the field

Case study 14 - Caribbean banana farmers: **"Quality needs attention to detail"**

Farm facts

- 5 acres of steeply sloping land
- Owned by the Joachim family who belong to a farmer group of 30 members
- Harvest 1000 kilos of bananas every week for export to UK
- EurepGAP certified group
- Labour is provided by Bella and Jose Joachim with their son Jothem and 2 hired labourers.

Farmer Bella Joachim, chairman of the producer group, says:

"Quality is the key. We take on a lot of responsibility ourselves for the quality of the bananas. The advantage is that you ensure quality so you have good reputation and you don't rely on somebody else to do it. But it is time-consuming and we don't get paid any more for the extra work.

Quality is down to us and we have so many checks along the way. That's the best way to ensure we have the quality that the buyers in Europe need. Before, we used to send all our fruit to the company who do the selection. Now the farmer has the responsibility to send the required quality. We have to do this if we want to sell our product.

I'm really involved with our members and meeting other farmers around the island. To make sure that all of us are coming up to the same standard I go on to other farms to see the quality of their fruit and to check that we are all using the same system. Nothing less will do. If we do not get it right, the fruit is rejected and the reputation of all of us in the group suffers.

Listening to problems and helping each other has really changed me. In a way I've got a different sense of direction in what I do. We have workshops and meetings and share ideas of how to solve problems. We read different things about banana growing and learn how people are growing crops to high standards in different parts of the world. It gives us a sense of being a professional farmer and standing up for yourself."

Case study 14 - Caribbean banana farmers: **"Quality needs attention to detail"**

1 Bella shows her record keeping system

Selecting the best at harvest 2

3 Checking again before washing

Checking again before packing in labeled bags and boxes 4

5 Final quality check at port

The label at UK point of sale means the bananas can be traced back to the inspector and the farm 6

Discussion points
What are the ways to ensure good records are kept?
How can farmers who have not kept records before be helped to do so?
What are the advantages of good records?

Case Study 15 - Coldham Estate, UK: **"Attention to detail at every stage"**

Farm Facts

- 1480 hectares - 3660 acres
- 6 staff and 6 extra at harvest time
- Crops grown are wheat, oilseed, beans, potatoes, onions and sugar beet

Farm manager Mike Shapland says:

"It's been a passion for me – and a real challenge – to grow something different. More than two thirds of this farm is taken up by wheat and oilseed rape. Onions were new to me and now I enjoy trying to grow 45 hectares of the perfect crop buyers want.

I do all my own agronomy. But because we were going into a new crop we paid for excellent advice on how to grow good onions for the first 3-5 years to ensure that I get things right. Advice is only part of it. Having a good advisor doesn't mean that you are guaranteed grade one, high quality vegetables. It is your own attention to detail that matters.

Every day I am out here looking at the onions, anticipating problems. I am checking for pests and signs of disease. I am thinking through my options and deciding what to do and when. The rules on what chemicals I can use are getting tighter and tighter.

We test the soil for free-living nematodes. One of the most effective products to kill nematodes is now banned in Europe so if our tests show the soil has them we have to decide whether we will grow in the field at all or if we will try to solve the nematode problem another way.

Our big weed problem is the thistle. For those weeds we have to walk through and spot spray. Another weed – fat hen – becomes a real problem at harvesting time. Instead of spraying, I pay people to hand weed. It takes a team of four workers five days to remove them all.

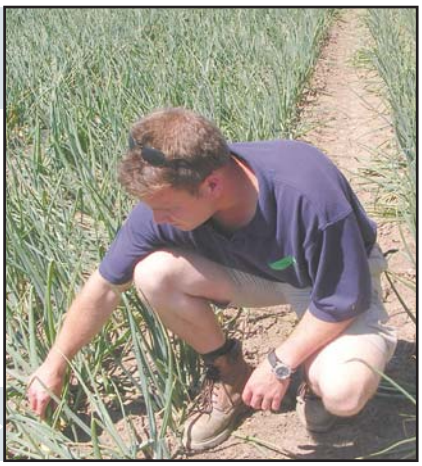
We encourage natural predators of pest insects. It amazes me how many naturally-occurring beneficial insects will live in or near my crops if I create or do not disturb their habitat. On the farm we are very aware of the environment and do lots of things to make sure that we do not cause any problems to wildlife, the soil or to water. There are lots of ditches and streams running between the fields. We do not farm right up to them. We have what we call a buffer zone (five metres wide – one metre empty and four metres of a mix of grasses) alongside each drain and no fertilizer or spray is used there.

Correct spacing - the distance between plants and between rows – will help the onions to develop uniform bulb size. But we also have to irrigate once every seven days with water that comes from our own reservoir 2 kilometres away. We use a boom irrigator which is gentler than a rain gun.

When the onion crop leaves here it has paperwork with it to say on which farm and from which field it comes from giving the date harvested and a full list of all the treatments it was given. When it is packed and labelled it is fully traceable to me and to this field."

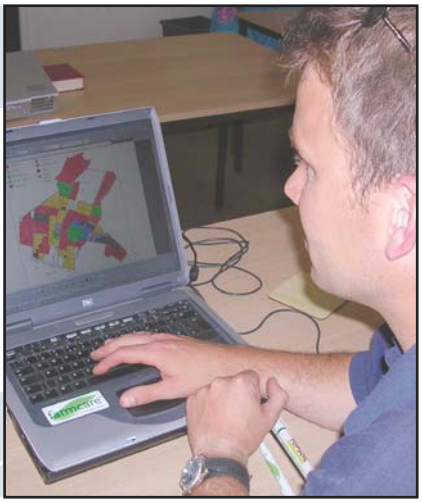
Case Study 15 - Coldham Estate, UK: **"Attention to detail at every stage"**

1 It's constant attention to detail that brings results



Daily scouting for pests 2

3 Chemical control of problems is only used when necessary



Rotating crops helps avoid build-up of pests and diseases 4

5 Spot spray of weeds is effective

Buffer zones - field edges planted with grass mix - encourage beneficial insects and protect streams from sprays and fertilizers 6

Discussion points
What agricultural practices does a UK farmer and a Kenya farmer have in common?
What are the benefits to customers of having all farmers reaching the same high standards?

Case Study 16 - Kenyan bean and pea farmers: **"Group management and training"**

Farm Facts

- 5 acres of land owned by 25 members of Muringa Horticulture Group
- Each member individually owns specific segment(s)
- Grow French beans, sugar snaps, snow peas, garden peas and baby corn
- Farmers in the process of EurepGAP certification
- The group harvests about 600kg of produce every week

Daniel Kaarie, the group chairman, says:

"Our group meets every three weeks at the office that also houses our sorting shed, chemical and fertilizer storage facilities. The meeting usually starts with a talk from the chairman, and then the secretary briefs the members on any new happenings. The treasurer also lets the farmers know the amount of produce that we have delivered over the past three weeks, payment dates and what each and every farmer can expect to get.

If a member has an issue to raise, he/she first raises it with the chairman who then gives permission for it to be considered by the group at the meeting. The problem is discussed and resolved collectively. In case of a technical problem, we invite the technical assistants from the exporter to guide us.

The group has opened a joint bank account under the group name. The chairman, treasurer and the secretary are the signatories. The cheque from the exporter comes in the group's name. When it is deposited, the exporter comes with a guide sheet that shows the name of each member, the volume of produce accepted over the specified period and the amount due. This list is given to the treasurer who then withdraws the money and makes the payment in cash and the farmer signs for it.

We are trained in managing the money so we can avoid disputes or disappointment.

Training is important to keep the group working together and producing to the highest standards. Every month, we meet with other groups in the area to just talk or be trained or updated on a topic decided by technical supervisors and assistants. e.g. how to use pesticides safely, crop husbandry or, and how we should manage our groups even better.

One of the most important things training has taught us is how to regulate crop moisture by choosing what kind of irrigation to use at a specific time.

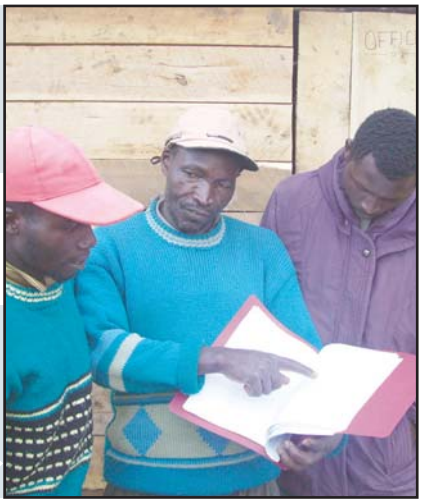
For instance, when we are top dressing the crops with the CAN (calcium ammonium nitrate) fertilizer, we use overhead irrigation sprinklers to dissolve the fertilizer and spread it through the soil. Then we switch to drip irrigation so that every plant gets all the moisture - with fertilizer - it requires from the soil around it."

Case Study 16 - Kenyan bean and pea farmers: **"Group management and training"**

1 Group members are trained to use irrigation effectively

Signboard tells all members important plot details 2

3 Technical assistant provides advice on growing the crops and solving group problems



The group's finances, delivery sheets and payment details can be inspected by the members 4

5 Training to provide the right facilities for EurepGAP certification is essential

Under the management of the group, trees are being raised for use as wind breaks 6

Discussion points
What issues are most likely to cause difficulties or disputes within the group?
How can they be avoided?
Describe the management systems that keep groups working together.

Bridging the GAP

supporting smallholders in Kenyan export horticulture

best practice examples — voices from the field

Case Study 17 - Kenyan pea farmers: **"Effective scouting for control of pests and disease"**

Farm Facts

- 2½ acres of land owned by Virginia Wanjiru Njuguna
- Harvests over 300kgs of snow peas every week for UK market
- Member of EurepGAP certified group
- Labour is provided by family members

Virginia Wanjiru Njuguna, member of the producer group, says:

"Horticultural farming is a very sensitive activity because we deal with fresh crops with very short lifespan. And, since we also produce for the UK export market, high standards and high quality are key factors that we observe right from the farm level.

Apart from ensuring that the farm is clean and free of rubbish, I also strive to ensure that my farm is pest- and disease-free. This is because the peas are not very resistant to problems, so are very vulnerable. When attacked by pest and diseases one can lose the whole crop and even the few stems that mature will be such poor quality that even the local market will not accept them. So everything will go to waste and down the drain, plus all that has been spent on inputs like seeds, fertilizers, chemicals and labour.

To make sure that we maintain quality and keep our UK market we have been trained to scout for pests and diseases on a daily basis. The major threats to our crops are aphids, thrips and caterpillars. And because of the climatic conditions of this area, we are just below the Aberdares Range, we occasionally experience frost, hailstones, and excessive rainfall. Sometimes elephants from Aberdare Forest also visit our farms.

But I can say that my constant scouting for pests and diseases have paid back. Once I discover the pests or disease in my farm, because now I have learnt how to look for them myself, I quickly inform our technical advisor who then prescribes which chemical to use. This has helped me maintain high quality produce because I am able to make sure that no diseases or pests thrive in my farm. And because of this I receive very small volume of rejects from my crop. I am able to produce more kilogrammes and sustain my production to the export market.

The skills I gained when I was trained to scout for pests and diseases in my peas has helped me greatly. Scouting is not something you do once in a while it is something you have to be doing every day, sometimes several times a day. With experience you get better and quicker at spotting signs of trouble. I now use the same knowledge and skills in my other farms where I do my subsistence farming for my family. I also learnt that crops that are affected by the same pests and diseases can be planted in adjacent farms because they use the same chemicals. But crops susceptible to different pests and diseases are planted some distance away as drift (fine mist blowing from treatment) during spraying can affect the other crop. This is something I never knew. And now I not only maintain quality and standards on my agricultural activities for export, but in all areas of my life."

Case Study 17 - Kenyan pea farmers: **"Effective scouting for control of pests and disease"**

1 Small black spots indicate fungal disease

White marks can indicate insect or frost damage 2

3 The technical assistant demonstrates how to scout for pests

The pea plant is lightly tapped to knock off any insects onto the hand 4

5 The number of insect pests collected indicates whether chemical control is required

Virginia Njuguna explains to a journalist and her TA how she scouts for pests and disease 6

Discussion points
What time of day is best for scouting?
Discuss what is the best method to scout a plot for pests.
What techniques have you discovered to make identification of problems easier?

Case Study 18 - Kenyan pea farmers: **"Appropriate use of fertilizers"**

Farm Facts

- 20 acres farm divided into several segments to facilitate crop rotation
- Owned by Maina Kanene and family
- Grows snow peas, sugar snap, baby corn and cabbages.
- Also grows maize for domestic consumption
- Kanene is EurepGAP compliant
- Labour is provided by three permanent employees, and additional casual labours hired when needed

Perris Wangui, farm supervisor and Kanene's wife, says:

"The first thing we do when we buy new inorganic fertilizers is to store them in a special built storage room. Our store is divided into two; a segment for inorganic fertilizers, and the other segment for the chemicals. They remain inside until use.

We make organic fertilizer or compost. Every so often we gather manure and waste feed or fodder and compost it in a heap with other waste foliage, fire ash and so on until it has broken down. We apply it as per the technical assistant's advice. For instance, we may use this compost during land preparation. Used this early it has plenty of time for any disease-causing matter it may contain to break down fully. This reduces the contamination risk to the the crops. The technical assistants make a risk assessment on manure or compost and advise us whether to use it or not.

Generally we use manure only on rotation crops like maize. It is safe for maize as this crop takes longer to mature, and the part you eat is not near the soil where compost may lay. In any case, it needs to be cooked before being eaten, which again reduces the risk of contamination."

Maina Kanene, owner of the farm says:

"It's very important to use the appropriate fertilizer and know when to use it so that one gets the best produce and a return on investment.

Agriculture extension officers from the government and also technical assistants from our exporter tell us that we cannot use organic fertilizers on crops like snow peas and sugar snaps because the crops may not get the right nutrient balance.

Following guidelines for best use of fertilizers has enabled me to grow quality crops. I am now being used as a best case example by our exporting firm. Sometimes, I assist neighbours to get into horticulture growing by showing them how to prepare their land and link them to exporters. My wife, Perris Wangui, and I act as supervisors when the labourers are applying fertilizers.

Acquiring EurepGAP certification has meant that my harvest gets a ready market. I am now able to educate my children who are both in primary school. We have also used the money to buy new land, build this house and put electricity. We are now developing our plot in town. Horticulture farming has really made a big change for us."

Case Study 18 - Kenyan pea farmers: **"Appropriate use of fertilizers"**

1 Maina Kanene stands by his separate store rooms for inorganic fertilizers and pesticides

Kanene with his chart showing what kind of diseases may affect his crop during specific periods, which helps with planning 2

3 Inside the store for inorganic fertilizers

Wearing gloves to apply fertilizers along the crop lines 4

5 Washing hands after application of fertilizer

Organic manure is cleared from the shed and stored in an open space to ensure that it decomposes fully 6

Discussion points
How can you tell if a crop is hungry for fertilizer?
Different crops, different soils need different fertilizers – how can a farmer know which is right for him or her?

Case Study 19 - Kenyan pea farmers: **"Appropriate handling - from harvest to grading"**

Farm Facts

- 30 acres, 25 acres of which are rented, in Kagio area, Kerugoya District
- Grows French beans (Teresa, Amy and Samantha varieties)
- Uses family members for labour as well as 25 hired workers
- Certified for EurepGAP and Tesco Natures Choice (TNC)

Farmer Gerald Wanjohi Kibichu, who grows 30 acres of French beans, says:

"Water is a very important element of hygiene so all the water I use in the farm and in the grading shed is treated with *WaterGuard*. In this farm, I maintain four water cans. HW1 is set at the grading shed, HW2 at the toilets, HW3 at the chemical store and the HW4 is the portable one which I carry to the farm during picking. For instance, somebody can sneeze necessitating the need to wash hands.

The pickers are the same people who weed, spray and grade the beans. They are accustomed to the farm activities following trainings by myself and technical assistants from East Africa Growers Association (EAGA).

vehicles which are covered with tarpaulin canvas to ferry the beans to the grading shed as a way of maintaining high hygiene standards for food safety After harvesting, workers have to take a bath and change of clothes before they go into the grading shed.

My grading shed tables are covered with washable PVC to avoid bacterial infection from wood surfaces. Once we finish grading, we arrange the French beans in the crates and attach labels with details of crop specifications including; farmers name, block number, date, product and variety. Even if a piece of hair is found in a crate it can be traced to a particular plot and the people who handled it.

Beth Muthoni, the farm clerk for farmer Rose Mumbi, says:

Before going out in the field to harvest, we go through the worker's hygiene checklist. For example, the picker's nails have to be short, clean and with no paintings/varnish on their nails. They have to cover their hair, tie laces and wear rubber shoes. The pickers are also not allowed to wear any perfume. Workers who fail the hygiene checklist are released to go back to their homes. The remaining ones then wash their hands thoroughly and proceed to the farm to harvest.

While harvesting the farmers are trained not to cut the calyx to reduce chances of rotting. After harvest the beans are kept in the mini shades to protect them from the scorching sun. During transport to grading shed, in pick-up or cart depending on the distance, the beans are covered to avoid any form of contamination.

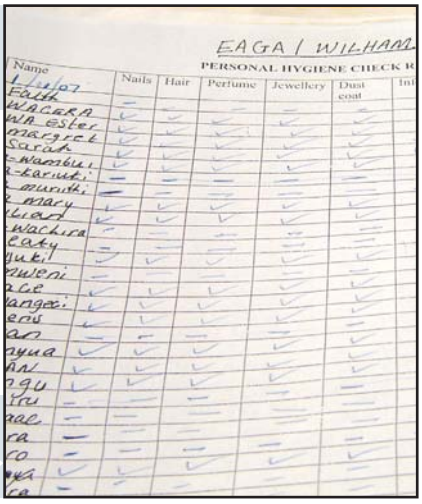
The graders wash up and change into white overalls and head covers before starting the work. It is important to note here that for harvesting and grading, we only employ women because the work requires tender handling.

Case Study 19 - Kenyan pea farmers: **"Appropriate handling - from harvest to grading"**

1 Fingernails must be short and clean to pick or grade beans

Hair must be covered and appropriate clothing worn in grading shed 2

3 Hands must be washed before picking and grading



Hygiene tick list shows all workers have been checked 4

5 Rules and regulations are clearly displayed

Beans need careful handling at all stages to stay in perfect condition 6

Discussion points
Describe each procedure in good handling and why they are necessary?
How, and how often, can procedure checks be made? By who?
What handling problems occur? Why?

Case study compiled by Zablon Odhiambo and Josephine Wareta
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This case study is for discussion/training purposes.
It is not a guide to EurepGAP procedures.
www.wrenmedia.co.uk