

# Tripe-P in Egyptian Horticulture

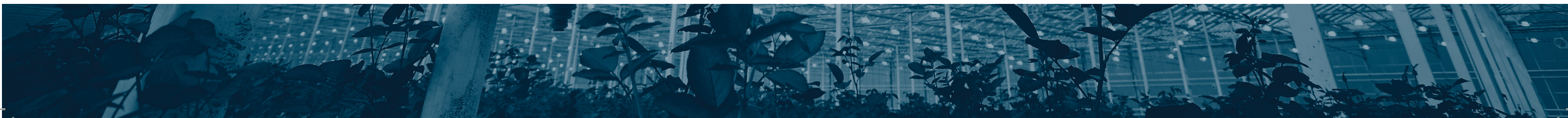
Trip report June 2010

Anne Elings, Bart Doornweert & Flip van Koesveld



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Picture front cover: intercropping, furrow irrigation, and crop protection in the Egyptian Fayoum region.

## **Wageningen UR Greenhouse Horticulture**

Adress : Bornsesteeg 65, 6708 PD Wageningen, The Netherlands  
: P.O. Box 16, 6700 AA Wageningen, The Netherlands  
Tel. : +31 - 317 - 47 70 01  
Fax : +31 - 317 - 41 80 94  
E-mail : [glastuinbouw@wur.nl](mailto:glastuinbouw@wur.nl)  
Internet : [www.glastuinbouw.wur.nl](http://www.glastuinbouw.wur.nl)

## **LEI**

Adress : P.O. Box 29703, 2502 LS The Hague, The Netherlands  
Tel. : +31 - 70 - 3358330  
Fax : +31 - 70 - 3615624  
E-mail : [informatie.lei@wur.nl](mailto:informatie.lei@wur.nl)  
Internet : [www.lei.wur.nl](http://www.lei.wur.nl)

## **PPO-AGV**

Adress : P.O. Box 430, 8200 AK Lelystad, The Netherlands  
Tel. : +31 - 320 - 291111  
Fax : +31 - 320 - 230479  
E-mail : [infoagv.ppo@wur.nl](mailto:infoagv.ppo@wur.nl)  
Internet : [www.ppo.wur.nl](http://www.ppo.wur.nl)

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## Summary

A delegation from Wageningen University and Research Centre visited Egypt in May 2010 in a first step to promote strategies that are able to increase the sustainability of the horticultural production chain in Egypt, with a focus on the improvement of the resource use efficiency.

In this strategic thinking, People, Planet and Profit are analyzed in terms of Production, Marketing and Knowledge. Most likely elements at the farm level are water, nutrients and crop protection. Incentive-based change of behaviour is key to the establishment of a more sustainable horticultural supply chain that functions well in the market. Knowledge is the foundation of any advancement.

It is planned to realize a **demonstration trial** in which various issues are addressed, and which can be scaled-up in later phases. A demonstration trial has to meet a number of **conditions**, which can be reached through **interventions** that should have certain **effects** that can be measured with **indicators**.

A wide range of representatives from the public and private sector were met with, both in a broad brainstorm meeting and in small focused visits (see 3.1 and Annex IV for a full list of persons met with). The promotion of sustainability in the horticultural production chain was widely welcomed, and various parties indicated their support.

It is planned to organize a follow-up meeting in November 2010 to work out the details of the demonstration trial.

Cairo, Wageningen, September 2010

Anne Elings (anne.elings@wur.nl)

Bart Doornweert (bart.doornweert@wur.nl)



# 1 Introduction

This report results from the project “Sustainable horticulture in Egypt: implementation of triple-P approach”, funded by The Netherlands Ministry of Agriculture, Nature and Food Quality with project number BO-10-010-120.

The project knows the following long-term timeframe:

2010: Analysis

2011: Organization and establishment of an on-farm demonstration trial, in which the proof of principle is shown

2012: Demonstration trial in full implementation, first up-scaling

The June 2010 mission by WUR was the first step in this process (see Terms of Reference for specifics).

## 1.1 Problem statement

Egypt produces large amounts of fruits and vegetables, with a wide range of products. It is estimated that the production value for vegetables and fruits each amounts to 2 billion euro, and of flowers, plants and herbs to 60 million euro. Besides for the large domestic market, the export is significant with the EU as most important trade partner. Largest export crops are orange (850,000 ton), potato (455,000 ton) and onion (244,000 ton). Grapes and strawberries are among the upcoming exporting commodities. Production areas can be broadly distinguished in two areas, viz. the Nile Delta and Basin with small-scale traditional farming systems, and the desert with more modern, large-scale farming systems. Despite some good exceptions in the desert areas, neither system is generally spoken sustainable in terms of use of chemicals, water and nutrients. Rotation schemes are inadequate. This has adverse consequences for the amount and quality of production, the environment, labour conditions, availability and quality of water, and for consumers' diet and marketing opportunities. In addition, post-harvest losses can exceed 30%, affecting the profitability of the production system.

There is great need for innovative steps in farming systems that reduce the use of chemicals and improve the efficiency of water and nutrient use, both in open and protected cultivation systems. While resulting in a more sustainably produced and certified product, this reduces the environmental impact, addresses the water problem that Egypt is confronted with, improves working conditions and the diet of Egyptian consumer, and creates export opportunities for Egyptian producers.

Under the umbrella of sustainability / Triple-P (people, planet, profit), a variety of partnerships are developed and activities are employed. Various initiatives exist, such as GlobalGap, BSCI, and ISO, and an EgyptGap system is being discussed. A producer organization like HEIA has a code of conduct but no implementation to its members. Integrated Pest Management is an alternative for heavy reliance of chemicals, however, must be enabled by the Egyptian government through appropriate legislation for the import of beneficials in the absence of domestic production (although recent initiatives for local production exist). So far, this has been problematic, but in principle the Ministry of Agriculture is in favour of this approach.

In most cases, water and nutrient use can be reduced. Knowledge and various technologies are available to achieve this. They include, amongst others, recirculation systems for protected cultivation and sensor-supported precision systems. Dutch supply industry has available appropriate technologies.

Training efforts must be undertaken to equip managers, farmers and laborers with the right knowledge.

**The purpose of the project is to promote strategies that are able to increase the sustainability of the horticultural production chain in Egypt, with a focus on the improvement of the resource use efficiency.**



## **1.2 Terms of Reference Mission**

The Terms of Reference of the March mission follow directly from the planned activities:

1. Develop contacts with stakeholders, and discuss project goals and activities to the end of arranging a MoU with a lead producers association in Egypt, which will warrant ownership and continuity.
2. Build commitment by stakeholders.
3. Select case study, which holds potential for reaching cost reductions and possibly increase of margins, through improved management practices regarding sustainability in production.
4. Identify Triple-P bottlenecks in the fields of water, nutrients, integrated pest management and social aspects in value chain organization.
5. Organize qualitative or quantitative description of Triple-P bottlenecks by Egyptian students.
6. Prepare for end-of-year planning workshop.

## **1.3 Acknowledgements**

We thank all representatives of the public and private sector for their stimulating input and support, the time they made available, and prospects they offered us for further developments.

We acknowledge the guidance and facilitatory role by Mr. Hans van de Beek, the Agricultural Councillor at Embassy of the Kingdom of the Netherlands in Kairo. He introduced us to many high-ranking officials and organized the stakeholder workshop at the Embassy.

We also thank Mr. Diek van Groen of Synergie consultancy for his inspiration and establishing contacts with a wide range of stakeholders.

## 2 Triple-P

It is useful to combine People, Planet and Profit with three distinct components of the value chain in horticulture (Fig. 1):

1. Production of fruits and vegetables by large, exporting farms and small farms
2. Marketing (wholesale marketing and retail)
3. Knowledge dissemination (both in local and export chains)

People is most directly associated with organizing cooperation to improve value chain performance as a whole, and in creating and sharing visions on more sustainable production. This needs to be supported by a conducive learning environment, where information flows effectively between stakeholders. Planet is clearly associated with production: production of food and vegetables takes place in the soil, and makes direct use of other resources that the planet offers. Planet impact is also supported through marketing aspects for example market incentives for lower MLR's on produce. Profit is associated with efficiency in organization of production and the value chain, which both are the result of overall profitability of operations conducted by the chain actors (including the grower).

	People	Planet	Profit
Production			
Marketing			
Knowledge			

Figure 1. The themes People, Planet and Profit can be combined with the perspectives of Production, Value chain and Knowledge. Grey shading indicates the major linkages between the two perspectives

### 2.1 Brainstorm Meeting

Monday June 7<sup>th</sup>.

A diverse, high-level group of stakeholders met at the Netherlands Embassy to discuss a shared vision with regards to Triple-P and sustainability in Egyptian Horticulture, and to establish a network of stakeholders. The following persons were present:

Dr. Omar Abdin	Ministrial Group of Agricultural Policies, Ministry of Finance
Mr. Abdel Hamid Demerdash	Chairmain, Horticultural Export Improvement Association
Mr. Tarek Gamgoum	Executive Director, Horticultural Export Improvement Association
Mr. Ahmed El Ariny	Agro-Business Sector Manager, Industrial Modernisation Centre
Dr. Amr Farouk Abdelkhalik	Member of Strategic Planning and Technical Support Centre, Ministry of Higher Education and State Ministry for Scientific Research, The Minister's Office
Dr. Nader El Bana	Professor and Deputy Director, Horticultural Research Institute
Dr. Hesham Allam	Assistant Professor, Horticultural Research Institute
Prof. Dr. Farouk El Aidy	University of Kafr El Sheikh, Professor of Horticulture
Prof. Dr. Mohamed Samir M. Abo Soliman	Chairman of the Executive Authority for Land Improvements Projects, Ministry of Agriculture and Land Reclamation
Dr. Hans van der Beek	Counsellor for Agriculture, Nature and Food Quality, Embassy of the Kingdom of the Netherlands
Mrs Gielan El Messiri	Gender and Environment Senior Programme Officer, Embassy of the Kingdom of the Netherlands
Dr. Anne Elings	Crop Modeller / Physiologist, Plant Sciences Group, Wageningen UR (Triple-P Projectleader)
Mr. Bart Doorneweert	Economics Researcher Sustainable Agri-Development, Wageningen UR (Triple-P project member)
Mr. Diederik van Groen	Synergie Consultant (Triple-P project member)

Some of the major outcomes of the meeting were:

- **Project objectives should be clear and measurable.** Decide who will implement, and who will evaluate.
- Distinguish **old and new lands**, and **small and large farms**.
- Extension is crucial. Consider the involvement of some marketing body, association, team (the term 'cooperative' has a certain negative connotation from the past) of for example 100 growers, or all growers at the village level, as a means to reach small growers. **Growers must be consolidated in larger groups** to achieve scale advantages. This reduces transaction costs in distribution of products from the supply side to the demand side of the value chain. and in arranging prices transparently and making timely payments. In this consolidation activity, the groups' farmers leaders and professional management, must be held accountable to the members (owners) of the producer groups.
- **Establish a link from the export chain to the local chain, and have the supply chain customer-driven.** Therefore, start with the big food chains, and develop some sort of Egypt-GAP. The Egyptian government could support this through promotion of food safety. This should be achieved through certain incentives and types of awareness building, rather than through development of new rules.
- **Work on the quality of supplies.** Regretably, the quality of chemicals and fertilizers which are available to small farmers are unreliable. Here lie roles for the government and the supply industry. It requires leadership, also from local actors.
- **Consumers in Egypt do care about the quality of horticultural products, but currently have no alternatives.**
- **Make use of the local wholesale market** with facilities for packing, grading and cooling. It is currently an important distribution mechanism between rural production and urban consumption.
- **Reduce post-harvest losses**, e.g. through cooling, better packaging, etc.
- **Behavioural change of small farmers must be reached through an incentive-based programme.** The mind set has to be changed. Market signals are not conveyed to farmers.
- **Water** is a very important, if not the most important issue. Water knows many aspects, such as the technicalities of the actual irrigation system, the collaboration of the farmers in water distribution, the at places very shallow water table, salinity, drainage. Improvements should come through an incentive-based programme, and should know a diverse, integrated approach.
- **Land fragmentation** in the old land is the second most important problem. It hampers effective farming and the improvement of sustainability. Fragmented lands should be grouped, and linked to initiatives where producer groups are consolidated.
- **Nutrients** are a financial problem for the government if prices should rise again and subsidies should be given.
- **Involve the private sector**, not only from Egypt, but also from the Netherlands.
- **Involve the public sector**, with representatives from the various ministries.

These outcomes can be summarized in a number of assumptions to focus the project:

1. There is still a lot to be gained by working on the implementation of GAP at the farm level, especially smaller farms.
2. GAP can only be introduced in combination with a market incentive, and therefore, it is highly needed that the domestic market starts providing this incentive.
3. Product marketing should be built on a system of collective production planning and collective marketing by producers.
4. Innovation in the system of knowledge transfer is needed to facilitate the transition towards farm management up to GAP standards.
5. Most important Triple-P elements are: water, nutrients, pest and disease management.
6. In a new approach, public and private initiatives must be combined.



These assumptions were investigated during a number of visits to farms and other stakeholders. Ultimately, they will lead to the formulation of a concrete project proposal, which will address the mentioned issues.

In all, two types of farms were visited during the mission, large exporting farms, located in the New Lands, and small scale farms producing for the domestic market, located in the Old lands. Also visits were made to downstream actors in the value chain, like wholesalers and retailers. Chapter 3.2 below summarizes the observations from the field visits, regarding production, marketing and knowledge.

## 2.2 Production

### 2.2.1 Farm structure and market arrangements of exporting farms

#### Cases are Pico and Dina farms

In order for a farm to be able to export outside of the Egyptian market, investments need to be made in production. These export markets are generally located in Western European countries. The required investments usually consist of building greenhouses, apply irrigation facilities, and making changes in the management system, like pest-control systems. These interventions generally increase levels of production costs, relative to conventional farming in the old lands. But the additional costs are easily redeemed through higher prices for exportable produce. Therefore it is a common phenomenon that exporting farms are almost fully serving their output to the export market. Some produce is sold on the domestic market. But these products are sold because their quality is not up to exporting standards. For the exporting companies, the local market is basically a dump market for their off-grade products.

Most production from the exporting farm is coordinated for harvesting in the winter season of the EU. The summer season is rarely used for production. So far large farms have been able to make reasonable profits, despite lying fallow for a good deal of the year. However, due to increasing competitive pressure between producers on the export market, the stable uptake of produce with exporters is decreasing. Exporters currently make coordination arrangements for the timing of delivery of volumes of product, but they don't do it for pricing. Price agreements are made on sale. This contracting system thus leaves a negotiation gap. With the competitive pressure on the exporting market, producers are increasingly having trouble in selling their produce at good prices, because the open ended price negotiations enable exporters to disperse producers' individual market power. The increasing competition between exporting producers and signals of saturation in the export market are thus a factor to be reckoned with, relating to creating scenarios for the Egyptian domestic market.

An alternative market for the exporting firms would naturally be stable trading relations on the domestic market. Competing on the domestic market under current undifferentiated market channel is likely to be troublesome for exporting farms, though. There are some positive reputation effects to the products from exporters which give them an advantage. Their products are recognized for their quality. The fetching price on the market, however, is generally the same as for all other local, lower quality produce. Combined with a low competitive position in terms of cost structure<sup>1</sup>, exporting farms could well be too weak to compete with the other produce from small farmers with a more efficient costs structure (year round production, cheap labour, more intensive land utilization, cheap inputs, low investments, no administrative requirements). Therefore large growers will need to find a way of receiving a better margin on their products on the local market, by getting a return for using less strong chemicals and delivery better quality.

1 One must note that large farms are run on a very extensive basis, as compared with the smaller farms; also large farms are mostly over planted with crops, relative to the available water resources – this issue pertains to irrigation with ground water in the desert. Overplanting results in water shortages and in degradation of perennial production stock like mangoes bananas, and grapes.

Interesting to mention in this context is that Dina farms is currently setting up its own network of retail outlets in Egypt. An important share of the products on offer in these outlets will be their own fresh produce for vegetable and milk. One of the enabling factors behind this vertical integration into retail could be that the competition on the retail market is low, and that therefore the margins are high. This would be an ideal setting for selling export-grade produce on the domestic market. Whether this position can be upheld in the long run is yet to be seen, as competition for the growing middle classes demand is bound to decrease margins on the retail market.

#### **Main points of interest**

- The revenue model, focusing on export to the EU market is waning. There is more competition between exporting farms, and margins are declining. Large farms are increasingly interested in servicing the domestic market on a structural basis.
- Small farmers are often more efficient in their production methods (from a technical production perspective), than large farmers.
- The development of the retail market is still in its infancy in Egypt.

## 2.2.2 Farm structure and market arrangements of small farms

In the Fayoum several fields were visited, which were cultivated by small farmers. The choice for fields were between those growing crops, which were destined for (western) export countries, and those for the domestic market. Distinct cropping patterns could be observed between the two systems. Export crops were mostly cultivated in monoculture. Weeding was done concisely and pressure from pests on crops was low (spinach and peppermint). The fields which produced for domestic markets showed decidedly different cropping patterns. First of all, these fields were used for intercropping of many different varieties of crops (red pepper, cucumber, tomato), often not suitable even for intercropping. The crop was not maintained well and cropping periods were extended for as long as possible, even though plants weren't producing optimally. The driver for the choice of this intercropping system is probably the dispersion of risk to the producer. The producers basically has no market information available to make a projection for the sales of his coming harvest. By betting on various crops in one season, the likelihood of making a suitable level of revenue from a field is thus higher, than in the case that the odds are set on a single crop. Exporting farmers will have binding arrangements for selling their produce to traders/exporters. These buyers will have strong demands regarding the consistency of the quality of the produce and the dependability in supply. This perspective on a market, which mitigates some of the risk relating to needing to find a market after harvesting, induces more intensive crop management behavior. In the case there is little or no market perspective, the tables are turned. One can thus conjecture that farmers' choices for cropping patterns depends strongly on the type of marketing arrangements they make for their crops. Uncertainties relating to finding adequate markets for the harvest lie entirely with the farmer, and the risk mitigation activities can predominantly be found in cropping patterns and in intensity of crop management.

As said in relation to the marketing of produce, farmers in Egypt have little perspective on stable market arrangements. One of the typical phenomena in marketing is the so-called Khalala system. With Khalala traders make arrangements with farmers under a lump sum payment, to pillage a farmer's plot at an agreed price. Traders then bring the unsorted produce to the wholesale market in the more urban areas, where it is sold regardless of any quality requirements. Even though it may seem inefficient from the perspective of value maximization at the value chain level, the khalala system is a market force to be reckoned with. It is a rudimentary market system, which currently distributes the bulk of horticultural produce throughout Egypt.

The great inefficiencies in the conventional distribution system are reflected in the huge price differentials between what the farmer receives at the farm-gate (if lucky not khalala), the wholesale market price (around 300% above farm-gate price) and the end-user market (usually 100% over the wholesale price). One of the drivers of the price difference is due to losses in handling of the product and due to under/overripe picking of fruits. For every suitable fruit on the shelf in the supermarket or local grocery, about 2 fruits have perished underway to that same shelf.

#### **Main points of interest**

- Market perspective for products is instantly reflected in cropping patterns and in intensity of crop management.
- Gross inefficiencies exist in the current marketing system, and the margins between the various levels in the value chains are huge.
- There is little to no coordination in the marketing of crops produced by small farmers for the local market.

## 2.2.3 Triple-P elements

### **2.2.3.1 Water**

Water availability is a crucial aspect to sustainability. The availability is determined by the amount of water available for a certain region, mostly determined by the reach of a particular irrigation channel, but also by the organization of water distribution: do all farmers get their share, is the water applied in small amounts over time, etcetera.

From a very technical perspective, implementing drip irrigation could be helpful. However, implementing technology alone is not sufficient. It will also need to be accompanied by a knowledge transfer and after sales maintenance system.

Composting and mulching is also a good practice. It prevents the heat from penetrating too far into the soil, and on the other way around it prevents moisture from escaping. Using mulch together with compost is very cost effective way of saving on nutrients and water inputs.

### **2.2.3.2 Nutrients**

Nutrient management is closely associated with crop requirements and water management. Nutrients are expensive (if not for the farmer, then for the government that subsidizes). Good nutrient management optimizes towards relatively low input, high crop performance, and low leaching to the environment.

### **2.2.3.3 Crop protection**

Chemical spraying, on a calendar basis is wide-spread in Egypt. This has very negative consequences for labourers, the environment, the profitability of the farm (chemicals are expensive), and limits the possibilities for certification and marketing quality products.

Spraying on the basis of information on pest presence is the first step forward, but much better is the implementation of Integrated Pest Management (IPM). IPM integrates various pest and disease management techniques, and makes minimum use of chemicals. The importation or local production of biological control agents (bca's) is required. Importation requires specific rules and legislation, the local production requires a fair amount of technological knowledge.



## 2.3 Marketing

### 2.3.1 The wholesale market as a potential outlet (Soukh Al-Uboor)

Most produce that comes to the Al-Uboor market is bought khalala (estimates lie at 40-50%). This means that buyers make a fixed arrangement with the farmer for pillaging his whole field at a fixed price, regardless of the quality that comes from it. Usually the buyers are people who have made pre-financing agreements with the farmers and know which farmers are under financial pressure to sell. This causes adverse effects to prices at the farm-gate. If farmers would be enabled to grade their harvest, and sell at more spread intervals, their total revenues from the same crop would probably be higher.

The Al Uboor market holds different halls for products, which are basically divided in the off-grade, second grade and highest (hotel) grade products. The layout for the market was provided through a government initiative, which aimed to provide a fully-fledged, top-end market with all the required facilities. The market however has overruled the government's intentions and basically operates unregulated and entirely for selling mostly off-grade bulk quality.

Most products come in mixed batches. There are some sellers/farmers who do perform grading *ex-ante*, but there is a risk of rejection, because there are no objective quality standards. Once market traders receive the produce, they do sort for their clients, but this comes at a substantial increase in costs (about 20-30% over the cost of ungraded produce). Usually the upmarket buyers are from hotels and supermarkets.

Because the market is unregulated, price formation on the market is intransparent. There is no centralized market system for disclosing daily price changes. Prices are published on the radio and in newspaper, but updates only appear every other day at best. The phenomenon you see on the market is that traders start using secondary indicators to establish prices, the most important of which is the weather. Once the temperature rises, the perspiration of the crop will increase. Due to absence of cooling facilities during transport and storage, the crop will perish within a limited time (especially considering most crops are harvested late, on riping). Prices for produce drop within considerable time, due to the urgency for selling. The intransparency in price formation is also caused by a lack of overview of the volume and quality of product coming in. The prices for products can vary highly from one day to the next.. Despite these information inefficiencies, the resulting prices are probably a fair outcome of the market system as it functions under the logistics and product quality limitations. However, one does need to take into consideration that there are big traders operating on the market, who stand to gain from collusion in price setting for their supplies and sales. The existence of these oligopolistic arrangements will be need to be investigated further.

For retailers, who would prefer a stable supply of consistent quality produce, the wholesale system is an impossible situation. It is not surprising that a novel upmarket chain like MAKRO is searching for other possibilities to assure their demand in supply and quantity.

As mentioned before, government has no control over what goes on in the market. They only levy the incoming carriers, mostly per truck. There are inspectors on the market floor, but they are not able to build on dependable bookkeeping of traders, nor of dependable market price information to levy sales taxes. Due to lack of practices of enforcement of the market, there is a lot of cheating in transactions. For instance, closed crates are filled on top with high quality produce and with lower quality below. Also, bags might be filled with high price crops on top, and for the bulk below, filled with lower quality or even other crops with lower value. The other way around, seller can't ask for arbitrage regarding a quality sorting. They are at the buyers' mercy to recognize the quality grading of their produce (that's why most of the produce is sold in bulk sorting). Also the buyers' scales are most probably not calibrated or ensured by any government standard, which makes receiving a fair price problematic.

Since inception of the market, government has attempted to influence the market pricing system, by setting up their own trading hall on the market. However, this has been to no effect as it has recently closed down. This is one of the last remainders of the period of full government control over market prices, which ended somewhere mid 1990's. Over the period, since inception of the market, revenue for the unit stalls has risen from just a couple of thousand pounds per year to revenues of over a million

#### **Main points of interest**

- Most products are sorted and graded on the market.
- Price formation on the market is not transparent. This relates to lack of a reporting system, but more so due to lack of insights into projections for the supply of new produce. The pricing system is also potentially under influence from oligopolistic practices between the larger traders.
- There is no government enforcement on the market, regarding grading and arbitrage on transactions (like in calibrating the weighing scales for instance).
- Quality control is lacking.

### **2.3.2 The retail market (perspective from the new MAKRO cash and carry outlets)**

MAKRO will start this year with setting up a network of retail outlets. The targeted costumers will be horeca and more local up-end vegetable sellers. Also end market consumers are targeted, but the scope is limited to small business owners.

MAKRO wants to offer a unique quality standard for the fresh produce in its shelves. It wants to engage directly into trade relations with farmers, and is looking for a singular, but trustworthy source of supply. By cutting out the middle men, MAKRO hopes to offer the consumer extra quality guarantees and to cut distribution costs.

MAKRO intends to work in 4 different regions in Egypt. The chosen locations are set according to harvest season, to allow a year round supply of fresh produce to the store, at consistent quality level. MAKRO hopes to interest farmers in those regions, because of their current lack of market perspective, although they will not be purchasing all the volume that their related producers will provide. Also MAKRO can offer a 10-15% price surplus above the current market levels. MAKRO does not intend to use traders, nor does it intend to spread out onto the wholesale market. Grading of products will be done based on general size characteristics of the various products. Rejects will be sent back to the farmers, at their own expense. MAKRO has logistics hubs located in strategic locations in remote areas. Cold chain and grading starts from the moment of picking, and farmers will be provided with plastic crates for transporting the produce. Prices of products are set through negotiations with farmergroup leaders. They are set before they are loaded to the platform. Generally, orders will come to farmers, one day before picking.

MAKRO has hired Etrace to train 800 farmers in 4 different regions for meeting Global GAP standards in production (IMC will provide the funding for the technical assistance). Eventually only lead farmers from the 800 trained farmers will be chosen to supply the MAKRO. The projection is that from the 800 farmers, a group of 250 farmers will be chosen to buy from. There is no further mutual commitment in terms of marketing arrangements, between farmers and MAKRO. Etrace is starting in one region along the Cairo-Alexandria desert road, where an institutional infrastructure is in place. In the future, the remaining three regions will be addressed.

### **Main points of interest**

- There is a consumer market segment, which is interested in purchasing quality produce. And it is technically feasible to deliver those consumers directly, rather than going through existing market channels. In line with this point, it is quite common for Egyptians to state that consumers are generally not willing to pay for quality. These statements, however, overlook the fact that consumers do demand certain quality level, but perhaps don't have the purchasing power to pay extra for quality. This oversight generally leads to the misconception that there is no market for quality produce in Egypt. The observations during the mission indicated otherwise though. Egyptian consumer will generally choose for higher quality over low quality if the prices are equal. When projecting this on the MAKRO case, it can be expected that if MAKRO will be successful in supplying their shelves more efficiently, they could provide a very compelling price/quality proposition to their markets.
- Farmers hold a pragmatic approach to engaging directly with retailers. They are willing to try out new marketing arrangements, even though the expected benefits from MAKRO as a buyer for the farmers' total income is low (MAKRO only intends to buy about 15-20% of the total output).

## **2.4 Knowledge**

### **2.4.1 Knowledge dissemination both on and between farms**

The general observation is that basic technological knowledge relating to agricultural production is available. There is no need for more fundamental research. On-farm research in which farmers and researchers participate alike, however, to fine-tune a newly implemented system, may still be required. One of the main constraints, however, is the transfer of knowledge. Many of the going extension practices apply static training models, with class room lecturing and field visits to obtain practical examples. But this static model will not suffice for raising production standards. The effects of this static model were reflected in the observations in the organization of crop management. Currently people working in agriculture (particularly employees on large farms) tend to stick to working with schedules (checklists) too much, and don't use their own observations and adaptive learning to anticipate on the requirements of the crop. What's more is that the schedule management approach they apply at the current time is always perceived to be good enough by the workers, although this isn't necessarily true.

In this knowledge context, a model farm to disseminate knowledge would be therefore be a valuable idea. It will provide the example of good practices, within the context of a running farm. However, the main thing this farm would need to provide is a continuous flow of information from the farm to the farmers. Only under the possibility of iterative field exposure will the logic of new technology and crop management be transferred.

A knowledge dissemination model, which would support the requirement mentioned in the previous paragraph, could be the farmer field school (FFS) in the Fayoum, which was visited during the mission. FFS has trained around 47.000 farmers so far. About 860 farmers' field schools are operational at the current time. FFS is currently a gender oriented program, 25-30% women participation. The FFS is very well received in Egypt. It is highly regarded by the Ministry of Agriculture. The Ministry wants to upscale the method for its own extension services for the whole of Egypt.



The added value of the FFS system above the conventional practices in extension is that the agenda for providing the services is not created top-down. This is usually the case in the extension services which are provided in Egypt, both by public and private parties. The down-top approach of the FFS sets the most pressing topics on the agenda for farmers at the current time. Based on these topics, outside expertise can be included if necessary. Another aspect of added value lies in the fact that farmer-to-farmer interaction is also integrated into the FFS. This allows for the possibility of farmers to ask their neighbours for help or to provide help to others themselves. Also, this keeps the discussion at a very effective practical level. Lastly, the added value of the FFS is that it can flexibly incorporate multiple subjects on the agenda, not necessarily restricted to agriculture, but also health and education.

There is currently a discussion going on, on the system of financing the FFS system. One of the options is to pursue a hybrid funding model, which incorporates contributions from government, private parties, like retailers and input suppliers, and farmers. The discussion in Egypt regarding farmer contributions, is whether farmers are willing to pay a participation fee in the first place or not. There is a likelihood that farmers are spoiled through all the free extension services they have been offered in the past, often even providing participation stipends to farmers attending.

Regarding knowledge dissemination, it was interesting to note that the IMC proposed to think about the possibility of starting activities for raising awareness on responsibly produced products with consumers. Currently, consumers are not well aware of the effects of pesticide residues on products. Stimulating this awareness could help raise demand for quality produce.

**Main points of interest:**

- There is awareness within the public sector in the need for more participatory and demand driven extension. The FFS is considered as a leading model to achieve this. Within this context, there is also consideration for the fact that hybrid funding models are needed to strengthen the sustainability of extension services, mostly through making farmers contribute for the service.
- The public sector willing to support awareness building with consumers on food safety. This could result in positive market incentives to farmers for more sustainable produce.



### 3 Analysis

#### 3.1 Institutional analysis

Institution	Short term role	Long term role
Small farms, new land	Target group? Knowledge source	
Small farms, old land	Target group? Knowledge source	
Large export farms, new land	Knowledge source Link with export chain	
Medium-sized farms, new land	Knowledge source	Knowledge source
Ministry of Finance, Ministerial Group for Agricultural Policies & Projects	Strategic Planning, Technical Support	
Ministry of Agriculture and Land Reclamation	Strategic Planning, Technical Support	
Ministry of Higher Education & State Ministry for Scientific Research	Strategic Planning, Technical Support	
Ministry of Trade and Industry - Etrace	Training, market assessment	
Industrial Modernisation Centre	Strategic Planning, Technical Support	
Horticultural Export Improvement Association	Link with export chain	
Horticulture Research Institute	Research Contact for ARC	
Kafr El-Sheikh University	Research, student involvement	
Farmer Field School Project	(Model for) Knowledge transfer	
European Union		Follow-up project
Desert Development Centre	Base-line study Project monitoring	Sustainability of knowledge flow?

## 3.2 Priorities

Priority	Current situation	Desired situation	Approach
Water	Poor distribution	Fair distribution	Involvement of Ministry of Irrigation Better water distribution at society level, providing public incentives for better water management
	Insufficient amount Inefficient applications techniques	Sufficient amount Better irrigation technology	Better distribution Assessment and introduction of appropriate technology.
Crop protection	High infestation	Low infestation, below damage threshold	IPM <sup>1</sup> Availability of predators Availability of other measures Understanding of biology and biodiversity
Nutrients	Inefficient application techniques	Lower application rates	
Farm Management	Fragmented	Integrated	Training, Knowledge Demonstration
Integrated approach	At large farms, modular approach seems to dominate	Deeper understanding of interrelations, and actions based upon this.	Increased knowledge
Marketing	Fragmented, small farmers not connected with up-market	Coordinated marketing within groups	Strengthen the basis for farmer cooperation, through introducing private accountability mechanisms in FO's.
	High post-harvest losses		Grading, Cooling, fast transport
	Pricing	(Small) growers are exposed to price incentives for quality and stacking facilities, like crates that protect produce in transport	Coordinating supply through multiple market channels, which recognize quality food products
Certification	Absent at national level	Some sort of Egypt GAP	Link introduction with financial incentives
	Sustainable farming is mostly considered a luxury	Market demands safe food	Reward safely produced food
Knowledge	inadequate	Sufficient for on-farm application	Society-level / on-farm training Knowledge circulation
Training	Growers are not used to pay for knowledge. Instead, they expect to be paid for attending training.	Growers are aware of the value of knowledge.	Organize funding from e.g., the marketing; but remain transparent.
	New developments meet sceptism.	Follow a low-risk implementation strategy.	Demonstrate value of new developments: an on-farm trial.

## 3.3 Demonstration trial

### 3.3.1 Shaping the demonstration trial

#### Conditions:

- It is of utmost importance that the demonstration trials is relatively simple, high chance of success. This will greatly contribute to the future success of the long-term project.
- This implies that farmers have to be convinced from the onset that the proposed system is profitable and in other ways viable. Therefore, the organizational / institutional structure should be clear and trustworthy, and the financial system should be transparent, demonstrating the financial gain for the farmers.
- The contribution to environmental sustainability should be clear just as well. The major issues are: water, nutrients and crop protection chemicals. Some form of data gathering should be implemented, enabling independent evaluation of the demonstration trial.
- The demonstration trial should serve the general interest. Local specifics must be translated or up-scaled to other situations.
- (Representatives of) all stakeholders must be involved.
- Small farmers should be the focus of the project. This most likely implies activities in Upper Egypt, and not for example in the desert regions, where 'small' is still relatively large.
- The stakeholders in Upper Egypt are, amongst others: USAID, UNDP, WFP, Makro, IMC.
- Training is best organized on-farm, on-hand by experienced trainers that are capable of effective communication. Elements of the Farmer Field School concept can enable farmer-to-farmer learning. Farmers should be aware that knowledge is not for free, and that a certain effort in return is required.
- Possible cost structure:
  - i. Farmers: in kind contribution for running demo's; (partly) payment for knowledge, through fees levied in the supply chain
  - ii. Ministry of Agriculture: coverage of MoA involvement, particularly relating to knowledge systems
  - iii. IMC: supporting activities relating to marketing and distribution of GAP produce and raising awareness on food safety with consumers; background studies, e.g. on sustainability and externalities
  - iv. Netherlands Government: salary costs WURThe precise cost structure will depend upon the activities.
- Take into consideration that a link will be need to be made with a farmers'group or farmers'organization in the project. There have been many projects in Egypt involving the setting up of farmers' associations, but they haven't been very successful. The sustainability of those associations is very low, because they basically aren't economically run organizations. Mostly organization with farmers is induced and run by government or NGO's. The options for improving organizational sustainability is by making professional management accountable to farmers as well as building more functions into associations, which could include business services and technical training. Interesting to note in this context is that Etrace has a quick scan system for assessing the strength of FO's. Also interesting to note is that USAID has set up various systems of pack houses and cold storages (under Pro-poor development programs). It would be good to follow up with them on the possibilities of working within their program context.
- the commitment by growers and other chains players to make innovative steps.



**Options for the demonstration project:**

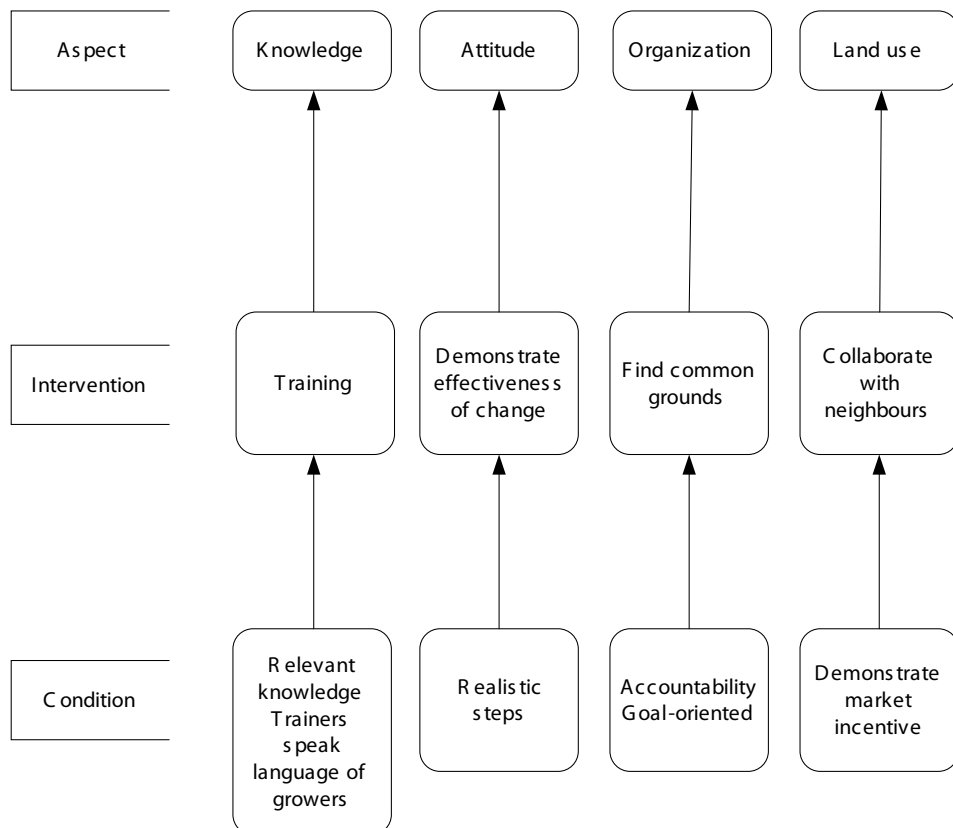
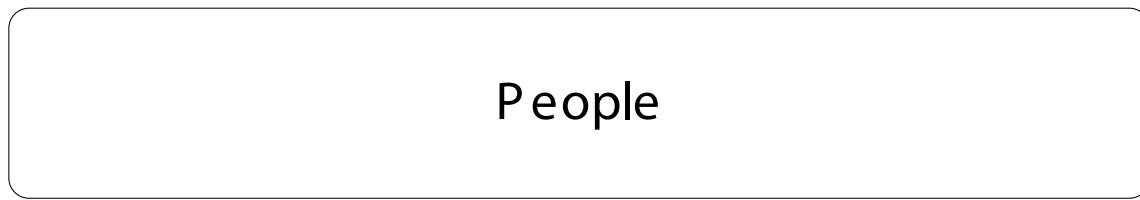
- An extended project to the MAKRO project which is currently starting up. Propose to add modules to that project, relating to introduce a new and promising technology in that system, with a wholesale marketing arrangement as a supplemental market channel for their farmers, and an intensive and frequent format for knowledge exchange, by coupling the program with the FFS. Makro might benefit from these new modules in their relations with the farmers.
- Link up with activities of USDA and other large donors. For example, the EU is likely to tender a project that links with the Triple-P activities.
- A theoretical, and not-preferred option is to develop a demonstration trial completely independent from other activities.

In the paragraphs below, which are organized on People-Planet-Profit basis, more **conditions** are specified, and **interventions** are given. When setting up the final demonstration trial, the interventions must be translated in actions. Subsequently, expected **effects** and **indicators** must be defined.

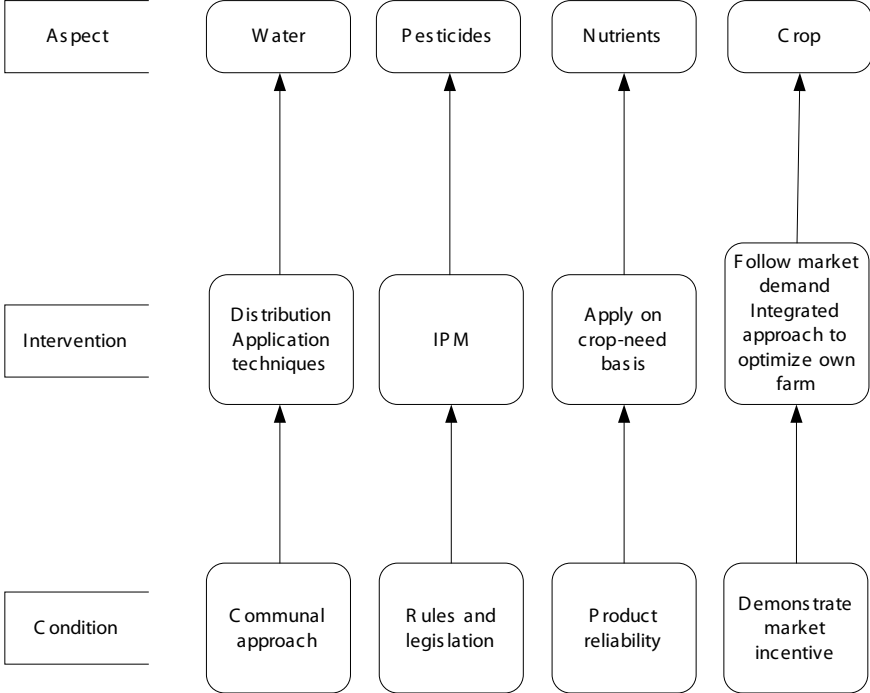
In the preliminary table below, some possible indicators are given.

	Farm level	Value chain level
General	Yield m <sup>2</sup> Product quality (e.g., amounts per grade)	Sale value per kg (of GAP standard produce)
Water	Amount of water applied. Generated value at farm gate per kg water applied.	
Nutrients	Amount of nutrients applied. Amount of nutrients leached to the environment (estimated). Generated value at farm gate per kg nutrient applied.	
Crop protection	Amount of active ingredients applied. Amounts of biological control agents applied. Active ingredients in the environment. Generated value at farm gate per g active ingredient applied.	

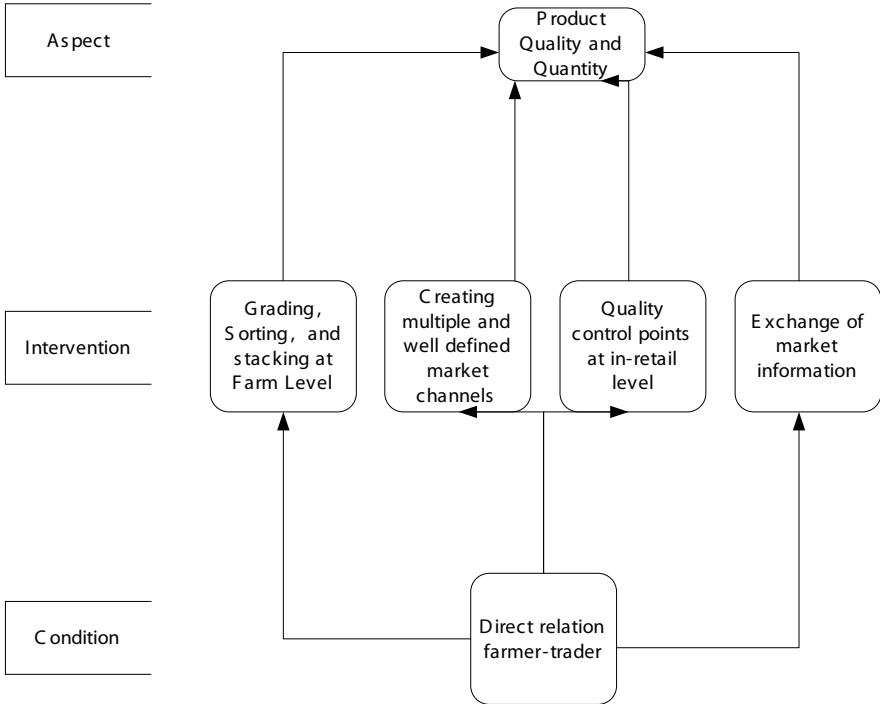
### 3.3.2 Intervention options – people



### 3.3.3 Intervention options – planet



### 3.3.4 Intervention options – profit







# Annex I Meetings with producers

## 1.1 Farmer Field School, Fayoum region

**Sathurday June 5<sup>th</sup>.**

Mr. Wafik Zaki, FAD undersecretary, and FFS Egypt Team Leader

Mr. Sayed Badawi, Mr. Kordi, Mr. Hatem

Ms. Maaike van Hoeflaken, FFS Dutch Team Leader

### **People: Knowledge**

The Farmer Field School (FFS) in the Fayoum region started in 1998 and has trained a total of more than 47,000 farmers through 2060 schools. The project is envisaged to run up to March 2011. The FFS project started during the first 7 years with IPM, but has since then adopted a wide variety of other subjects. The concept is well-known: a group of about 25 farmers from for example a village, are trained as a group under the guidance of a mediator. Both male and female, and mixed sex FFS exist in the Fayoum. Farmer-to-farmer discussions are a major source of learning, and the mediator channels external information. A group is functional for a year. The project now knows 160 facilitators and 404 groups of farmers.

Because of its success, it is considered to be an effective channel to reach out to farmers, also for non-agricultural subjects such as literacy, health and child care, avian flu, and environmental protection (a multidisciplinary approach may strengthen the respective developments). Serious plans exist to up-scale the FFS model to a number of other governorates in Egypt.

The FFS has always been for free for the growers, Hence, it is doubtful whether the growers will be willing to pay for information, even if the information is considered useful and only a nominal fee is requested (the transportation costs of the facilitator are the largest cost item). The solution might be found in a smart public-private partnership that raises funds from the public sector.

### **Planet: Production**

Important crops are tomatoes, grapes, beans, cabbage, pepper, aromatics. Rice is not grown currently (by governmental order), as it uses too much water.

Along with health, water has top priority. Water distribution and availability (especially downstream), which should be addressed through the Water User Organization (consisting of the growers). Water distribution is not an issue to be addressed at the level of an individual farmer; more optimal application of available water may be.



Figure 1. Farmer's meeting with facilitator in the Fayoum

### **Profit: Marketing**

Farms in the Fayoum are very small, with 80% of the farmers possessing 103 feddan. This is not enough to support an entire family. Grouping of farmers strengthens them in purchasing supplies and in marketing the produce. Contract farming usually results in a better price (e.g., double in the case of aromatics, 25% in the case of vegetables). Production of organic products for the export market and the relatively small, rich domestic market is also financially attractive.

Fayoum products are produced for both the local and the export market. Products produced for the local market meet local standards, but are produced in low-risk production systems (e.g., intercropping), whereas products meant for the export market meet high-quality standards and are produced according to GAP-standards (although exceptions exist, e.g., for the Chinese market).

## **1.2 Pico Farm, Mansourea**

### **Monday June 7<sup>th</sup>.**

Met with Mr. Mahmoud Riad, Operation Manager.

### **People: Knowledge**

### **Planet: Production**

The farm measures 150 feddan open fields, 2.5 ha plastic greenhouses, and 6.5 ha nethouses. An overview of crops, acreage, planting and harvest dates, and production is given in the table below.

Crop	Production system	Acreage	Planting date	Harvest date	Fresh production (ton feddan-1 y-1)
Lettuce	Open field	100 feddan	Early October	Early December – Early March	11 – 12
Chinese cabbage	Open field	20 feddan	Early October	Mid December – Early March	14
Raddish	Open field	20 feddan	Early November	Early March – Early May	9
Herbs	Open field	10 feddan	Mid August	Early November – Early April	5 – 7
ruccola	Open field	20 feddan	Mid October	Mid November – mid March	5 – 7
capsicum	Net house	5 ha	Mid July		6 kg m <sup>2</sup>
capsicum	Plastic house	1.5 ha	Mid August		
Hot chillies	Net house	1.3 ha			3 kg m <sup>2</sup>
Hot chillies	Plastic house	1.2 ha			

IPM: Contacts with Koppert exist. A spidex trial on strawberries was successful. Therefore, 60% of the strawberry production is IPM-managed. There is the desire to start with own predator mass production.

Irrigation: water is obtained from irrigation canals and a 130 m deep well. However, the water level is decreasing. The plan is to obtain all water from a larger canal.

The farm is established on virgin soils, which initially had a high EC. Therefore, the soil was flushed before farming commenced. At the moment, there is no salinity (yet).

Plastic greenhouses are fairly simple, with ventilation from the sides and some ventilation at the roof. Temperatures can be very high inside. Metal ropes from the top to a concrete block at the ground level prevent upward movement of the plastic in between the metal support pillars.

Desired improvements:

- addition of a summer crop in the production plan
- plant protection (caterpillar, mites, nematodes, thrips, aphids, white fly, soil-borne diseases, powdery mildew, blight, leaf spot)
- spraying techniques

### **Profit: Marketing**

The farm is HEIA member.

The local market knows three levels:

- Supermarket: close to export quality, well-packed
- Store: smaller fruits, lower grading quality (e.g., mis-shaped)
- Wholesale: rest, packed in boxes

The client set the standards, for which only external criteria matter, but do not assist in farm management. Information is obtained from HRI, through own record tracking, or through knowledge sharing with other Pico farms.

In case of a marketing agreement with a client, the volume is agreed upon before planting, while the price follows around harvesting. The advance marketing agreements lead to a production plan. The farm is not involved in outsourcing of production.



Figure 2. Road sign of Pico Farm (left) and interior of greenhouses under construction (right)

### 1.3 Dina Farms, Alexandria Desert Road

**Monday June 7<sup>th</sup>.**

Met with Mr. Tamar Mohamed Hassan, Agro Operations Manager and Mr. Ferdis Maritz, Farm Manager.

#### **People: Knowledge**

The most critical issues are farm management, knowledge, and water management.

The major challenge in the field of crop protection is proper management (e.g., proper timing and proper application), and less the availability and effectiveness of chemicals. A sort of train-the-trainers model is applied, in which staff that has been on a training course is obliged to pass on its new knowledge to others within the company.

There appears to be insufficient feed-back learning from the effects of certain crop management actions, and the effects on the crop. Changing old habits is difficult, and continuous experimentation appears to be lacking.

#### **Planet: Production**

Dina Farms is located along the Cairo Alexandria Desert Highway, and caters for both the export market and domestic market, depending on the quality of the produce. The farm measures 10,000 acres (1 acre = 0.96 feddans; 1 feddan = 4201 m<sup>2</sup>), to which a variety of crops is planted, and on which cows for dairy production are held. The most important crops are: potatoes, onions, peanuts, silage maize, strawberries, bananas, apples, citrus fruits, mangos, and grapes. The cultivation of grapes and citrus will be expanded.

Water is obtained from wells of 120-200 m depth. Due to water limitation, the orchard is no longer expanding; actually, water shortage forces the farm manager not to re-plant areas from which old crops have been cleared. The water situation will change in 3-5 years time when the West Delta Nile project will provide water through an new irrigation canal to the region.

Future developments in greenhouse crops is considered. Considerations are the long pay-back time (7 years) of high-tech greenhouses, the large initial capital and high running costs.

The farm appears to exist of a number of large and small modules that do not operate in a consistent manner. For example, the amount of land, the amount of available water, and the crop selection are not balanced. This is worsened by the inadequate water application methods. An integrated approach that has been well-thought through in advance, should be of benefit to the farm. We have the strong impression that the potential of the farm is much larger, provided a balanced farming system is designed and applied.

### **Profit: Marketing**

The farm is HEIA member.

In the opinion of Mr. Hassan, small farmers are more efficient than large farmers. However, both systems are difficult to truly combine due to the very different economics of scale and the quality control that is possible at a large farm.

Still, through an outgrowers scheme in which the produce is purchased, but in which no farm management support is provided, additional products are brought to the market. There is no formal knowledge exchange, and small farmers have supposedly no desire to visit the large farm. There is successful knowledge exchange, however, through middlemen.

The farm is developing its own outlets in which its own Dina Farm products are sold, along with 'Dina approved' products from other producers. One of the main products will be fresh pasteurized milk, which is new to the Egyptian market. This own outlet may be successful, but then only because competition is lacking. Under normal conditions, a specialized (super) market should be more efficient.

European customers are very critical. Britain demands highest quality, followed by continental Western Europe, Eastern Europe, Russia, the Arab region, and Egypt.



*Figure 3. Strawberry plants and road shop of Dina Farms*





## **Annex II Meetings with Ministries and Organizations**

### **1.1 Netherlands Embassy**

**Sunday June 7<sup>th</sup>.**

Preparation of brainstorm meeting.

**Thursday June 10<sup>th</sup>.**

Debriefing.

### **1.2 Desert Development Center, the American University in Cairo**

**Tuesday June 8<sup>th</sup>.**

Dr. Richard Tutwiler, Research Professor and Director

Dr. Tina Jaskolski, Research Coordinator

Mr. Mohsen Nawara, Operation Manager at South Tahir

Dr. Tutwiler and Dr. Jaskolski were met in the Hilton Hotel, Cairo; and Mr. Nawara was met at the DDC centre in South Tahir.

#### **People: Knowledge**

The Desert Development Center focuses on the new agricultural areas in the deserts of Egypt. Its main activity are training, research, and services (e.g., grafted trees and laboratory services). Five feddans are available for vegetable research, and the production facilities can also be used for simple research on new technologies.

It runs a full-fledged training centre at South Tahir in the new desert area between Cairo and Alexandria (east of the Cairo – Alexandria desert highway), where a significant number of trainings for ‘new settlers’ have been given. Currently, 5 trainings are supplied (greenhouse horticulture, IPM, post-harvest, dairy farming). Trainings upon request are also provided. Most trainings are classroom-type trainings with a number of field practicals and group activities.

Trainers have a university degree, and spread their time over training and production activities.

A cooperation with PTC+ in The Netherlands exists. Trainers have received training in The Netherlands, and PTC+ trainers come to Egypt to assist in trainings at DDC. This is a type of train-the-trainers training.

Growers acquire knowledge through neighbouring farmers, and through various individuals (suppliers, consultants, etc). There is, however, no organized scheme. The question is how to plug into this system, if desired. The best option might be to go through HEIA and a suitable NGO; farmers have trust in these organizations. Also, some genuine farmer associations exist, that could be involved. DDC could offer human-intensive support.

## Planet: Production

With regards to IPM: usage of safe pesticides, and natural predators. This should be available from suppliers such as Syngenta.

## Profit: Marketing

The following types of farmers can be identified:

- Export oriented growers, often HEIA members, serving the high-end markets of Europe and the Gulf region. Smaller growers (see below) in outgrower schemes are also placed in this group. The desert farms are relatively modern and open to incentives. They use a variety of irrigation methods, and may bring in others for management tasks (is this positive or negative?).
- Small and medium-scale farmers that possess 30-100 acres of land, but who have often assigned farm management to somebody else (e.g., family). They do, on the whole, not very well. One of the reason might be found in the motivation to be farmer, which is sometimes simply to possess land.
- Small holder farmers in the new desert lands. These farmers obtained land during the '70-ies, '80-ies and '90-ies (which has now ended), and know loose forms of 'cooperatives' or associations. These farmers are outgrowers of export-oriented large farms. The export also provides financial incentives to small farmers (in the new lands) though the outgrowers schemes.
- Small holder farmers in the old delta land, who are part of the local chain, and not in the export chain. Geography is the cause of an absence of a link between export growers in the new desert lands, and small farmers in the old delta land. The local chain is a buyer-up system, in which a middlemen passes by growers and purchases the produce. This, and other middlemen, form an extensive chain of transport and sales. Quality is low, and grading does not take place.

Carrefour and Makro have, or are developing, their own chains.

The following project approach is suggested:

- Use an integrated approach
- Involve DDC
- Apply monitoring and evaluation research
- Conduct a base line study
- Evaluate what did not work
- Ensure that real contact with the farmers is established

Dr. Tina Jaskolsi pointed out that DDC welcomes MSc trainees from Wageningen UR. DDC offers the possibilities to conduct research within the mission of DDC. Acquired knowledge can be added to the training activities.

Own observations:

- DDC is strong in classroom training, combined a number of field practicals and group activities.
- DDC does have knowledgeable trainers.
- DDC can strengthen training with some form of simple research. This can be useful, as the on-farm demonstration trials need some base-line study and need monitoring. This can be shaped in the form of some simple research.
- It will be difficult to link DDC trainers with continuous on-farm training. Would some form of train-the-trainers model be useful?
- What are the costs of DDC involvement?
- Have the DDC trainers sufficient understanding of integrated approaches?
- Does DDC have an understanding of community processes, and work at the society level?
- Can DDC and EIR be combined? A double system of private and public institutions can be established; what are the short- and long-term importances of all institutions?



Figure 4. Facilities of the Desert Development Centre

## 1.3 Makro

**Wednesday June 9<sup>th</sup>.**

Mr. Adel Afifi, Category Manager Fruits and Vegetables

### **People: Knowledge**

Makro has outsourced most activities:

- To guarantee good quality, a one-week training in GlobalGap to 800 farmers will be given by Etrace in the 4 regions. Of these, 250 growers will be selected to receive further training. And only 10-20% of the production of these 250 growers will be purchased. Training starts with the growers in the Desert Road region, where an organizational infrastructure (farm grouping) already exists.
- After the training, continuous technical assistance will be supplied by IMC.

### **Planet: Production**

### **Profit: Marketing**

Makro is active in 31 countries, and is also active in Egypt. The customer market for quality products is growing: hotels, few traders for small supermarkets, own Makro shops, colleges and schools. Makro's motivation for working directly with small farmers is to reduce costs, by removing all intermediate links. Makro's customers are 'professional' customers, meaning that a certain quality is expected, for which the customers are willing to pay an extra price. Part of the extra price is shared with the producers.

Horticultural products: tomato, cucumber, potato, onion, aubergine, long egg plant (white and black), grapes, citrus, plums, and others.

First grading is done by the growers: removal of damaged and unripe products. Graded products are transported to local hubs of collection in special plastic crates, which are cleaned after each usage. From this local hub, the combined produce of a group of farmers is transported to Makro. This implies that the tracing is possible down to the farmer group level. Second grading on the basis of e.g., size, is done by Makro, and the products are packed in carton boxes. If the product does not meet the standards, it is returned to the farmers group. Products will be obtained from 4 regions, in order to guarantee a continuous supply (the harvesting time varies per region). Additional plans include: cooled transport and tracing to the individual farm level through labeling.

Orders are sent to the growers one day before harvest. Prices offered by Makro for graded products are 10-15% higher than the market price. After first grading, about 60% of the production remains, and the remaining 40% is sold on the local market. Even though extra efforts are made for the remaining 85-90%, also for this part of the production, the local market does not know a differentiation. Still, it is expected that a little extra will be paid by producers that are looking for extra quality.

Pricing is through the group leader, and is based upon the market price.

## 1.4 Etrace

**Wednesday June 9<sup>th</sup>.**

**Thursday June 10<sup>th</sup>.**

Alaa Fahmy, Director

Waleed Ramadan, Quality & Food Safety Consultant

Bahaa Ismail Hussien, Technical Manager (Wednesday trip to Nubaria)

### **People: Knowledge**

Etrace, the Egyptian Traceability Center for Agro-Industrial Exports, or the Agriculture and Agro-industries Technology Center, is part of the Ministry of Trade and Industry. It is hired by Makro to conduct 1-week GlobalGap trainings for selected farmers.

### **Planet: Production**

Cost structure of a typical Egyptian farm:

- infrastructure (e.g., irrigation channels, pumps)
- labour – shortage exists
- fertilizers
- chemicals

### **Profit: Marketing**

In the delta downstream of Cairo are problems with heavy metals and chemical residuals, which originate from the polluted irrigation water, and which can easily lead to product rejection for the export market or certified local market, and which will reach the uncertified local market. Therefore, it is safer to obtain certified products from Upper Egypt, the Desert Area, or the Fayoum.

Farmers should be part of an association, and should not be approached individually. The latter is too cumbersome from a chain management viewpoint. Preferably, the association is already active as this saves an enormous investment. However, the association should be active as service provider, with an active leadership. An inactive association (of which examples do exist in Egypt, for example the old cooperatives) should not be used in a certification scheme. An association is a service provider, as in the case of the Makro initiative. The types of services are open for discussion: purchase of supplies, collection of produce, storage of produce – for which a cold storage – requiring investments - may be required, etc.

## 1.5 Industrial Modernisation Centre

Thursday June 10<sup>th</sup>.

Ahmed El Ariny, Agro Business Sector Manager, Technical Assistance Component

### People: Knowledge

Awareness raising, both of farmers and customers, is an important project element. Customers believe for example that large products are healthier because this suggests the absence of chemicals. What is good for the crop, and what is good for humans, is mixed up in this case. Kiosks approved by the Ministry of Health may be an option.

### Planet: Production

Sustainability is an increasingly important issue. The challenges are to raise awareness with both consumers and farmers, and to educate farmers. The major sustainability problems are in the old lands:

- irrigation
- pesticides
- fertilizers
- crop type
- integrated approach
- land fragmentation and ownership.

### Profit: Marketing

A collection point or trader at the level of farmers group is required to manage the pricing. As many growers are still used to the fixed price mechanism of the past, they are not used to negotiate prices.

An interaction between the export and the local market exists only for the top end of the local market, and is not very systematic. Exporters have introduced superior quality to the supermarket, from where it may spread further.

### Demonstration trial

IMC is happy to cooperate with the initiative on Triple-P in Egyptian Horticulture. It can contribute to:

- a study on the sustainability of current practices, for example
  - i. for example, regular versus organic
  - ii. business driven combination of pieces of land (without changing ownership)
- a study on the externalities

A demonstration trial is do-able, and can be arranged in association with IMC and Etrace.

If a proposal is made, IMC will evaluate in what manner it can contribute.

However, do not duplicate the Makro-initiative.

Stakeholders are:

- Ministry of Agriculture – interest: sustainability
- Ministry of Trade & Industry
- Grower, Collector, Trader, Exporter, Wholesaler

A demonstration trial should be of interest to the majority of growers, for example, demonstrate the absence of pesticides.



## 1.6 European Union Delegation

Thursday June 10<sup>th</sup>.

Alberto Cortezon, Programme Manager Social, Rural and Regional Development

Similar projects:

- organic farming promotion in Fayoum through NGO's – small scale, farmer association

There is no lack of information regarding quality standards. However, there is no incentive from the local market towards growers to produce better quality products. This may change in the years to come, also for the local market, as a Ministry of Food Standards is being considered. How long this will take, is unknown.

A new EU programme for 2011-2013 will be administered by the Ministry of Agriculture, which is the formal beneficiary. The Ministry of Finance is involved as it coordinates the donor activities. IMC is not (yet) involved. The EU itself provides backstopping. Key elements are 1) best practices 2) reward of farmers through incentives. The EU-budget is 10 million Euro, and the Egyptian contribution is 21 million Egyptian Pounds, which can be provided in kind. The project intends to trigger behavioural change, and to expand existing systems in the local market. Private sector involvement is needed for financial sustainability. The programme will focus on three Governates (Minya, Menoufiya, en Fayoum). In the long run, the market must be the incentive. The call for proposals has unfortunately been postponed; the call will be relatively broad; a phase of pre-proposals may be included; most logically, a local entity submits the proposal. Envisaged projects are 0.5 – 1.5 million Euro: large, complex, but easy to monitor.

## 1.7 Agricultural Research Centre

Thursday June 10<sup>th</sup>.

Prof. Dr. Ayman F. Abou Hadid, President

Prof. Dr. Hadid mentioned that work on Triple-P sustainability in horticulture is much needed, and that he was glad that a start was made. ARC can cooperate in any step, given its wide range of activities.

In the short term, the project can receive public support, but in the long term it must be self-sustainable.

Consider for example introducing a low-cost telephone support from ARC.

Prof. Dr. Hesham Allam of HRI will be contact person for ARC.

Some views:

- important stakeholders are large farmers in new lands, who have to develop further
- further increase of the export should be realized through the integration of small farms with large farms
- the old lands are under-utilized
  - i. new varieties
  - ii. modern techniques, such as irrigation
  - iii. separate management concept from land ownership; aggregate lands on commodity basis and apply the proper rotation
  - iv. modify cooperation and water use association models
  - v. introduce GAP

- a successful pilot can stimulate grower to move in up-market
- Local market:
  - i. improve the quality of the products towards export quality
  - ii. develop wholesale market
  - iii. gradually increase consumer buying power
  - iv. improve extension and cooperative system at the local level
- Support export chain
- Link the marketing systems, and the export quantity will increase
- realize traceability
- there is a Food Safety Authority in the making
- knowledge sources: producer organizations, marketing organizations, academic world, governmental statistics, international world

Other relevant projects:

- Etrace: consider the shortcomings of this project
- EU-UPEC project
- FAO considers small GAP projects for small farmers
- IFAD has a project on a ferry between Alexandria and Italy
- UNDP
- The FFS project is in principle a good project, however, it should be made sure that the right knowledge is spread

## Annex III Itinerary

Timing	Organization	Person
Friday June 4	Travel	
Morning		
Afternoon	Travel Amsterdam – Cairo Check-in Hilton hotel	Anne & Bart
Evening		
Saturday 5	Fayoum region - Fayoum Farmer Field School Project	
8:30	Departure from Hilton Hotel	
10:00 – 10:30	Meeting with FAD undersecretary, and FFS Egypt Team Leader	Mr. Wafik Zaki
11:00 – 12:00	Visit mixed FFS in Hamd hamlet – El Asheri village in Fayoum district.	Mr. Sayed Badawi, Mr. Kordi, Mr. Hatem
12:30 – 13:00	Visiting various fields in Fayoum	
	Meeting FFS Dutch Team Leader	Ms. Maaike van Hoeflaken
Evening		
Sunday 6	Netherlands Embassy & Egyptian Ministries	
9:00-10:00	Briefing at Netherlands Embassy	Mr. Hans van Beek
10.00-12.00	Dr. Omar Abdin	Ministrial Group of Agricultural Policies, Ministry of Finance
	Mr. Abdel Hamid Demerdash	Chairmain, Horticultural Export Improvement Association
	Mr. Tarek Gamgoum	Executive Director, Horticultural Export Improvement Association
	Mr. Ahmed El Ariny	Agro-Business Sector Manager, Industrial Modernisation Centre
	Dr. Amr Farouk Abdelkhalik	Member of Strategic Planning and Technical Support Centre, Ministry of Higher Education and State Ministry for Scientific Research, The Minister's Office
	Dr. Nader El Bana	Professor and Deputy Director, Horticultural Research Institute
	Dr. Hesham Allam	Assistant Professor, Horticultural Research Institute
	Prof. Dr. Farouk El Aidy	University of Kafr El Sheikh, Professor of Horticulture
	Prof. Dr. Mohamed Samir M. Abo Soliman	Chairman of the Executive Authority for Land Improvements Projects, Ministry of Agriculture and Land Reclamation
	Dr. Hans van der Beek	Counsellor for Agriculture, Nature and Food Quality, Embassy of the Kingdom of the Netherlands
	Mrs Gielan El Messiri	Gender and Environment Senior Programme Officer, Embassy of the Kingdom of the Netherlands
	Dr. Anne Elings	Crop Modeller / Physiologist, Plant Sciences Group, Wageningen UR (Triple-P Projectleader)
	Dr. Bart Doorneweert	Economics Researcher Sustainable Agri-Development, Wageningen UR (Triple-P project member)
Mr. Diederik van Groen	Synergie Consultant (Triple-P project member)	
13:00-15:00	Lunch at Marriott Hotel	With the above mentioned persons
Evening		

Timing	Organization	Person
Monday 7	Cairo - Alexandria Desert Road	
Morning	Mansourea; field visit PICO farm	Mahmoud Riad, Operation Manager
Afternoon	Dina Farms (large-scale)	Mr Tarek Hassan
Evening		
Tuesday 8	Cairo - Alexandria Desert Road	
Morning	Desert Development Centre	Dr. Rick Tutweiler, Research Professor and Director
Afternoon		Dr. Tina Jaskolski, Researcher Mr. Mohsen Nawara, Operation Manager at South Tahir
Evening		
Wednesday 9	Agri-chains	
	MAKRO	Mr. Adel Afifi – Category Mngr. Fruits and Vegetables Mr. Waleed Ramadan
Morning	ETRACE	
Afternoon	Nubaria; field visit medium scale growers Soukh Al-Uboor wholesale market	
Evening		
Thursday 10		
9:30		
12:00	Industrial Modernization Centre	Ahmed El Ariny
14:00	EU mission	Alberto Cortezón
16:00	ARC	Prof. Dr. Ayman Abou Hadid
19:00	Dinner and debriefing	residence Hans van der Beek
night	Departure Bart	Bart
Friday 11		
Morning	Leisure time	Anne
Afternoon	Report writing	Anne
Evening		
Saturday 12		
Morning	Departure Anne	Anne
Afternoon	Travel Cairo - Amsterdam	Anne
Evening		

## Annex IV Persons met with

Name	Organization	Position	Address
Dr. Hans van der Beek	Embassy of the Kingdom of the Netherlands	Agricultural Counsellor	18, Hassan Sabri Street, Zamalek, Cairo, Egypt
Mr. Diek van Groen	Synergie consultancy in international cooperation		P.O. Box 3056, 1801 GB Alkmaar, The Netherlands
Eng. Wafik Zaki	Fayoum Farmer Field School Project	Egyptian Team Leader	General Department for Agricultural Cooperative Affairs, 1st Floor-Fayoum-Egypt
Ms. Maaïke van Hoeflaken		Dutch Team Leader	
Eng. Hatem Megahed			
Abdel Hamid Demerdash	Mafa Magrabi Agriculture	Managing Director	13 Abdel Khaled Tharwat St., Cairo 11599
Tarek H. Gamgoum	Horticultural Export Improvement Association	Chairman	El Mehwar El Markazi, El Saraya Compound, Bldgn no. 4, Block 1/11, 6th of October City
		Executive Director	
Prof. Dr. Ayman F. Abou Hadid	Ministry of Agriculture and Land Reclamation; Agricultural Research Centre	President	9 Gammaa St., Giza PO Box 12619
Dr. Omar Abdin	Ministerial Group for Agricultural Policies & Projects	Executive Director	Ministry of Finance Towers, Minister's Building, Extension of Ramsis Street, Cairo
Dr. Amr Farouk Abdelkhalik	Ministry of Higher Education & State Ministry for Scientific Research; The Ministry Office	Member of Strategic Planning and Technical Support Centre	
Prof. Dr. Mohamed Samir M. Abo Soliman	Ministry of Agriculture and Land Reclamation; Executive Authority for Land Improvement Projects (EALIP)	Chairman	
Prof. Dr. Hesham Allam	Horticulture Research Institute	Post Harvest Physiologist	9 Cairo University Street, Giza
Prof. Dr. Farouk El-Aidy	Faculty of Agriculture, Faqr El-Shiekh University	Prof. of Vegetables	33516 Kafr El-Shiekh
Mr. Mahmoud Riad	Pico Farm		
Mr. Tamar Mohamed Hassan	Dina Farms	Agro Operations Director	Km 80 Cairo Alexandria Desert Road
Ferdis Maritz	Dina Farms	Farm Manager	
Adel Afifi	Makro Egypt	Category Manager Fruits and Vegetables	Macro Egypt, 306 Corniche El Nil Street, 3rd Floor, HSBC Office Bldg., Maadi, Cairo
Alaa Fahmy	Etrace	Director	106 Gamet El Dewal El Arabia St., 5th Floor, Mohandessin, Giza Postal Code: 12311 Egypt
Waleed Ramadan		Quality & Food Safety Consultant	
Bahaa Ismail Hussien		Technical Manager	
Ahmed El Ariny	Industrial Modernisation Centre	Agro Business Sector Manager; Technical Assistance Component	1195 Cornish El-Nil, Building of the Federation of Egyptian Industries, Cairo
Dr. Richard Tutwiler	Desert Development Center; The American University in Cairo	Research Professor and Director	AUC Avenue, PO Box 74, New Cairo 11835, Egypt
Dr. Tina Jaskolski		Research Coordinator	AUC Avenue, PO Box 74, New Cairo 11835, Egypt
Alberto Cortezon	European Union; Delegation to the Arab Republic of Egypt	Programme Manager, Social, Rural and Regional Development	37, Gameat El Dowal El Arabeya Street, El Fouad Office Bldg, 11th Floor, Mohandessin, Giza

Name	Email / web	Telephone
Dr. Hans van der Beek	Kai.lnv@minbuza.nl www.mfa.nl/cai	+20-2-27363863 +20-16-8826162
Mr. Diek van Groen	diek@synergie-coop.nl www.synergie-coop.nl	+20-1-82150330 +31-6-16292027 (NL)
Eng. Wafik Zaki	Wafik_zaki@hotmail.com	+20-2-84-6355877 (?) +20-10-1901050
Ms. Maaïke van Hoeflaken	fayoumffs@gmail.com	+20-2-84-6368555 (dir.) (?) +20-2-84-6355877 (?) +20-16-8452500
Eng. Hatem Megahed	fargalihatem@yahoo.com	+20-2-84-6355877 (?) +20-2-84-6340391 (?) +20-12-3147843
Abdel Hamid Demerdash	demerdash@magrabi-agriculture.com www.magrabi-agriculture.com	+20-2-5781151/3 +20-1-01851854
	sherifa@magrabi-agriculture.com www.heia.org.eg	+20-2-38371122
Tarek H. Gamgoun	tgamgoun@heia.org.eg www.heia.org.eg	+20-2-38371122 (ext. 223)
Prof. Dr. Ayman F. Abou Hadid	ruafah@rusys.eg.net www.arc.sci.eg	+20-2-35720944 +20-2-35722069
Dr. Omar Abdin	oabdin@mof.gov.eg	+20-2-3421283/4 (ext. 1236)
Dr. Amr Farouk Abdelkhalik	aabdelkhalik@gmail.com	+20-2-27921282 +20-16-6187220
Prof. Dr. Mohamed Samir M. Abo Soliman	M_abosoliman@yahoo.com	+20-37-613993/4 +20-10-1228124
Prof. Dr. Hesham Allam	Hallam <sup>o</sup> @yahoo.com www.hortinst.com	+2-20-35720617 +20-10-5286597
Prof. Dr. Farouk El-Aidy	felaidy@gmail.com	+20-47-3224439 +20-10-6508305
Mr. Mahmoud Riad	m.riad@picoagriculture.com www.picoagriculture.com	
Mr. Tamar Mohamed Hassan	Tamer.hassan@dinafarms.com www.dinafarms.com	+48-260099 1/2/3 +20-1-98884836
Ferdis Maritz		
Adel Afifi	Adel.affi@makro.com.eg	+20-2-27688245 +20-11-7770619
Alaa Fahmy	afahmy@etrace-eg.org www.etrace-eg.org	+20-2-37484142 +20-10-0397575
Waleed Ramadan	wramadan@etrace-eg.org waleed.ramadan@bluetie.com www.etrace-eg.org	+20-2-37484142 +20-11-3683441
Bahaa Ismail Hussien	bismail@etrace-eg.org www.etrace-eg.org	+20-2-37484142 +20-12-7420839
Ahmed El Ariny	aariny@imc-egypt.org www.imc-egypt.org	+20-2-25770090 +20-10-1777411
Dr. Richard Tuttwiler	ddcdir@aucegypt.edu www.aucegypt.edu/academic/ddc	+20-2-26188035
Dr. Tina Jaskolski	tinajas@aucegypt.edu www.aucegypt.edu/academic/ddc	+20-2-26154435
Alberto Cortezon	Alberto.cortezon@ec.europa.eu www.delegy.ec.europa.eu	+20-2-37494680



## Annex V (Footnotes)

1 The introduction of IPM is a complex process. It is recommended to introduce proven technology at farms, and to focus on fine-tuning under local circumstances. Importation is most efficient to make available biological control agents, however, may require specific rules and legislation. Local production (a joint-venture with an experienced company?) might be an option. IPM also involved the use of safe chemicals, which therefore should be available (is currently not always the case). In any case IPM will contribute much to the branding and certification options.  
Import of predators is expensive (kan niet kloppen, want import is niet toegestaan)



