



Integrated Pest Management Group for sustainable production and marketing in Iran

Introduction

Iran's total land area is 162.85 million ha of which 11.93 percent is covered by arable and permanent crops. The main commodities produced in the country are tomatoes, meat, chicken, milk, wheat, pistachios and grapes. When the first impacts of the green revolution were felt on human health and the environment, the Iranian scientific community and agencies responsible for the agriculture sector



Figure 1. Apple FFS where women study insect life cycles, Kerend, Kermanshah, 2010

began to investigate ways to reduce the negative effects associated with applied intensive agriculture technologies. Addressing the issue of the excessive use of chemical pesticides, they appealed to the concept of Integrated Pest Management (IPM).

Unfortunately, these attempts did not lead to the introduction of sustainable and practical techniques to be used at farm level. Various research studies, pilot cases and even large-scale activities such as an ambitious national programme for the reduction of pesticide use failed to have a sustainable impact on Iranian agriculture.

The national programme benefited from strong political

support and sizeable funding for several years; a flagship activity under the programme was the production and distribution of biological agents. The programme released these agents on farmers' fields free of charge in the first few years, assuming that farmers would start paying part of the costs in later years. This assumption, however, did not come true, because the biophysical and socio-economic aspects of IPM were not approached in an integrated manner. The programme was started without any training of trainers, and farmers were not familiar with the new approach and technologies.

A group of researchers from the Ministry of Agriculture and Non-governmental Organizations (NGOs), who were familiar with the IPM Farmer Field School (FFS) approach from FAO's earlier programmes in East Asia, promoted this innovative approach as the solution to the socio-technical and institutional shortcomings of conventional approaches in Iran.

Description of the Agroecology system

IPM was first proposed in 1957, as a concept that promoted biological control, good agronomic practices and the use of other means to control pests besides chemical pesticides. IPM is location specific, based on local field ecology and socio-economic conditions. IPM in the Iranian programme meant more than just "pest control", since it was extended to the larger scope of sustainable farm management. IPM is based on four practical principles: (i) grow a healthy crop; (ii) conserve natural enemies; (iii) observe fields regularly; and (iv) farmers become experts.



A FFS is a season-long training programme conducted in the field. Activities follow the different developmental stages of the crop and its related management practices. FFS are learner centred, participatory and rely on an experiential learning approach. Training of trainers (TOT) are developed to improve the skills and practical experience of field facilitators. In the TOT programme, they become proficient in the principles of growing a healthy crop, applying suitable IPM techniques and learning how to assess and follow up IPM through the FFS model. TOT builds up a team of trainers and facilitators, who are crucial to the success of any IPM programme.

In most FFS in Iran, weekly meetings are held to select seeds and varieties to control soil-borne diseases, thereby increasing yields, ensuring a healthy crop, resistance to stress and better genetic resources. Farmers also discuss pest control at these meetings, since they cannot afford to let insects increase their population.



Figure 2. Facilitators carry out practical farm training, Varamin, Tehran

Farmers only use chemicals when needed, in some cases as hotspot applications. Many farmers now use alternatives to conventional chemical pesticides such as those based on plant extracts, mechanical control, habitat management, pheromones, banker plants, cow milk, mulching, more efficient irrigation systems and fertilization programmes based on soil analysis.

Farmers and facilitators visit other FFS so they can exchange experiences. Valuable techniques and information come to the fore, such as using cow milk against powdery mildew on cucumber; marketing certain products among farmers; learning to produce compost; networking and sharing issues; and learning different/new irrigation methods. Farmers gradually became aware of the advantages of IPM for their products and made efforts to find suitable markets for them. The IPM projects support farmers' decisions and defined their activities by giving them educational, technical and logistical support. At the beginning, some people who were aware of safe food travelled to the IPM farms for agro-ecotourism and purchased the produces directly from the farms. These farms were located 50 km away from the city. Therefore, it was difficult for the customers to travel to the IPM farms weekly, so the solution was to set up a weekly Farmer's market in the city. Customers prepared a place where farmers could present their produces. This niche market was the first step to organize the IPM group.

Creation of the IPM Group

The IPM Group was organized in 2009 as an informal group with the initial aim of supplying IPM products directly to clients. The IPM group, about 500 people, comprised of IPM/FFS veteran farmers and facilitators, consumers and NGO activists, promote food safety and sustainable agriculture while improving market access for their differentiated products. Since its establishment, this group effectively planned and implemented innovative, practical and economically viable approaches to marketing IPM products.

A common complaint of the farmers was that existing marketing channels did not recognize the value added of IPM products, so that they often were bulked with conventionally produced items for marketing. The activities of the IPM group in creating marketing opportunities has provided and sustained tangible incentives for the farmers in various parts of the country to adopt sustainable agricultural practices.



Outcomes of the practices

IPM is nowadays an integral part of research and extension programme in Iran. About 7 000 farmers have been trained under IPM projects, on 200 000 ha and with 14 different crops. About 20 farmers with 30 crops are working more or less with the IPM Group. However, there are other crops that are not grown under the IPM project, so the group is collaborating with communities in the mountain region where small farmers are living and producing natural crops such as beans, dried fruit, vinegar, medicinal plants, honey and eggs. The group set up funds in these communities, as in Kurdistan for women. They trained farmers particularly on the biological and physical aspects of safe food because no pesticides or fertilizers are used in these regions. Beyond the target crops under the aegis of the IPM projects, young women also collect other produces, such as medicine plants, herbs, juices and dried fruits, from the farmers, package them and send them to the IPM weekly market.

The IPM Group is working for consumers in Tehran province, but some farmers from other provinces have joined the group because of their interest. Most members are consumers who are concerned about the safety of the food reaching their plates. At present, the IPM Group has about 600 members, of whom 75 percent are women, and comprises individuals, groups and companies. The organizational value of the IPM group is that market development in the context is based on health consciousness and not on profit making.

The group follows a participatory approach, starting with local farmer-managed quality assurance systems, reinforced by participatory guarantee systems (PGS) and an internal control system (ICS), to be later accredited by third-party certification. All members are kept informed about the whole system via workshops. Standards and good agricultural practices (GAPs) come from PGS. The group aims to be based on awareness, mutual trust, transparency and direct producer-consumer relations.

Pricing should always be based on cost accounting, not on trade margins, commission- based systems or financial manipulations. In Iran, fruit and vegetable prices are controlled at municipal level by government and fixed daily, but not for retailers. The IPM Group's price indicators are that:

- cost of crops must be paid within a maximum of one week to the farmers or community;
- depending on crops, prices are usually higher than market prices (5–100 percent) so farmers may benefit and are encouraged to produce safe crops;
- the community chooses/suggests the price of products, *not* the IPM Group –for IPM farmers, daily prices at large markets are pricing indicators;
- consumers pay market prices for IPM and natural food.

Since there is no system in the country to monitor pesticides residues based on the maximum residue levels (MRL) standard, consumers in the IPM group set up an internal inspection system to ensure clean produce.

Direct marketing

The first marketing attempt of the IPM Group was direct selling to members through occasional farmers' markets and "farm tours". Members were notified by SMS of the date and location of the market and IPM (member) producers sent their products to be sold on the designated day. Many issues about pricing, safety and quality assurance, product handling, accounting and overall management of marketing and sales operations needed to be addressed before the group could adopt direct marketing schemes. For example, potato yields are reduced by half without chemical fertilizers. Consumers need to be aware about cases such as this, otherwise they may complain about the price and refuse to buy the crop, losing money for the farmer. The IPM Group was able to sell to specific consumer groups that ordered a few days in advance because of the precise level of demand. Small



but continuous niche market opportunities were created. The IPM Group labelled products with the IPM logo after packaging, which is used only for members and increases public awareness about IPM.

One of the important marketing efforts of the IPM Group is participation in the organic and safe food exhibition under the aegis of Tehran's Fruit and Vegetable Markets Organization (FVMO). Following up, as a result of joint meetings with FVMO officials, a small (10-m²) outlet was rented to the group at subsidized rates in Emamzadeh Gasseem Market (EGM), which is one of the smallest and most remote markets in Tehran. Based on the EGM experience, the group started to set up an outlet of its own. The first distribution centre was established by the IPM Group in the summer of 2013. The centre was rented by the group to continue its marketing activities. The premises are a 110-m² building, which includes a packaging hall, meeting room, two offices and a kitchen. It is equipped with facilities to organize training courses and marketing campaigns.

After a decade of IPM implementation in Iran, IPM has been successful in providing a model of crop production and protection management in accordance with local socio-economic structures for smallholder crop



Figure 3. Friday IPM market organized by farmers

production systems. From the social perspective, especially for small-scale farmers, IPM has improved living conditions by reducing production costs, reducing investment risks and increasing farmers' income by establishing niche markets for IPM products as safe food. The IPM project's support in conducting market research and participation in creating a market based on consumer awareness of healthy agricultural products has led to the formation of a new market model for certain products. The IPM Group could be a model for similar initiatives in other regions of Iran and elsewhere.

Message from farmer to farmers

"Our village is located in a remote area with about 80km distance to the nearest town. Because of road conditions, it is difficult to communicate between our village and the town. Therefore, we do not have many visitors. Like many other girls at our village, I did not have much access to training and education, so I could not be as useful to our people as I wished. We grow apples, grape and field crops in our village. Most of the orchid work is done by the women. But even there we are often ignored. I remember that some experts came from the city to train the farmers. But, we women were not invited to the sessions. When the FFS was introduced into our village, they invited the women to take part in the classes. As a habit, we were first dubious to show up. But after two sessions we realized that FFS created an atmosphere for women to work with other farmers.

This week we held the 15th session of the FFS at our small site. We have realized that with cooperation and consultation we can reduce the costs and increase production and make it safe. This social activity in our small village is helping us to make the orchids and our environment safer."

— Message from a female participant of IPM/FFS activity in Kermanshah