FAO'S PROGRAMME ON PREVENTION OF FOOD LOSSES

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History of the PFL Programme

In order to assess the need for FAO technical assistance to activities aimed at reducing losses in stored agricultural produce, the Director-General in 1975 requested Senior Agricultural Advisers and FAO Representatives in member countries to provide an information report on the subject.

Responses were received from 51 countries. In the five groups comprising commodities of particular interest were:

Durables, including cereals (also referred to as small grains) and

1) coarse grains; pulses (also noted as dry legumes or grain legumes); oilseeds; and
2) fruit and vegetables, which include dried fruit and roots and tubers, where appropriate.

Most of the reports concerned losses of durables and the need to reduce them, but surprisingly enough, despite the high losses reported from many countries, there was no indication of steps being taken to bring about a reduction in losses.

Insects were clearly identified as the most important cause of loss in all types of storage, followed by fungi and rodents.

The report regarding the various countries reflected a general unawareness of the cause/relationship of losses, also the magnitude of such losses were generally not well known.

The beginning of a call for international action was in 1975 at the VIIth Special Session of the United Nations General Assembly, where a resolution was passed calling upon member states to reduce post-harvest food losses by 50 percent by 1985. It was clearly stated that countries should commit themselves fully to food loss reduction by establishing a national policy and implementing an effective plan of action.

FAO has been the leader within the UN system with an action programme for the prevention of food losses (PFL) since the nineteenth session of FAO Conference, held in November 1977, which approved the Director-General's proposal to establish the Action Programme.

The Conference approved the proposal and adopted a resolution creating a Special Account to be maintained by voluntary contribution. However governments have preferred to support the PFL Programme under Special Trust Fund arrangements.

Action Programme and Objectives

The Special Action Programme, as formulated in 1976, identified three major constraints on post-harvest loss prevention in the developing world.

1) lack of information concerning the magnitude of the losses, their nature, causes and the most effective techniques for reducing or preventing them;
2) lack of infrastructure for the implementation of loss prevention measures;
3) lack of investment in food loss prevention.

In formulating the FAO Action Programme for the prevention of food losses certain priorities have been set in order to achieve a significant impact within a relatively short time. Thus, in its initial phase, the programme has concentrated on reducing post-harvest losses in food grains, roots and tubers, since these foods constitute the staple foods of developing countries. Priority is given to the least developed countries (LDC), most seriously affected (MSA) and food priority countries (FPC) and to activities that will benefit the rural poor, small-scale farmers, villagers and small-scale processors in an effort to improve their nutrition and living standards.

The basic purpose of the programme is to assist the countries in planning and implementing national food loss reduction programmes. Direct action projects have been implemented to improve storage structures and design, construct and manage pilot warehouses, provide small-scale grain driers, improve processing facilities, organize activities on quality control and pest management, improve rodent control and carry out training at all levels and in all aspects of the post-production system.

Certain requirements have to be considered before a project qualifies for support under FAO's PFL programme. The following are some of the most important criteria:

1) high priority in a country's programme for food loss reduction;
2) proposed activities should have direct impact in reducing post-harvest losses of staple foods;
3) training programmes should be of short duration, conducted within the country and directed towards farmers, storekeepers and operating staff;
4) facilities to be provided should be simple to construct and operate and be of appropriate design and materials for the country concerned;
5) the country is to provide counterpart contributions of facilities and services necessary for successful execution of project;
6) projects in pilot areas should be capable of expansion to attract further investments;
7) all projects should include loss assessment in order to monitor progress of loss reduction.

A PFL project should be of a catalytic nature, that is, it serves as the initial step to stimulate further assistance and investment for larger programmes required to meet national needs.

Implementation of Activities

PFL direct action projects carry out activities in five main areas:

1) Food loss assessment surveys, which are considered as the basis for action programmes for food loss reduction. About 60 percent of the total of completed and/or on-going projects have a specific loss-evaluation component. Loss assessment, with a comparison between traditional and improved or alternative methods, is also the main subject of more than 20 percent of the approved PFL projects.

   The loss assessment component has proved to be the most complex part of the PFL programme, perhaps because we realize that the results of surveys and evaluation are only valid for the prevailing environmental conditions existing when the survey or evaluation was carried out. Experiments have shown that there may be large differences in the extent of losses taking place in consecutive years.

2) Provision of practical assistance to governments to combat losses at various stages in the post harvest food system.

   The loss assessment surveys that have been conducted have identified areas where the major losses occur in the post-harvest system of each of the major crops studied. Practical assistance, both technical and economic upon request by the governments, has been provided to improve harvesting, drying, winnowing/threshing, storage at farm, village or community level, primary and secondary processing, quality control and pest management, product handling, transportation and marketing.

   Drying, dehulling, milling, storage and pest management of cereal grains have been found to be important areas in which equipment is required. Low cost technologies that are pertinent to the local rural sector must be considered when meeting the needs for equipment.

3) Training and building-up national capabilities. It has been recognized that there is a lack of adequately trained manpower at all levels in the developing countries, from the skilled workers to the middle and higher level technologists, managers and research and development workers. Assistance has been provided to the governments in the preparation of appropriate manpower development plans, organizing in-country technical and professional training courses, and arranging for the specialized training of key technicians, trainers and research workers.

Experience in several PFL projects has clearly shown that a carefully structured approach is essential when planning training programmes, in order to carry the proposed technology across barriers imposed by culture and tradition so that it can effectively reach the target population, both men and women. We have concluded that separate training schemes should be formulated for the officers who direct the extension programme, for the workers, and for the men and women in farming families who are the recipients of the new technology.

4) National focal point for food loss reduction programmes. In order to implement the above mentioned projects many governments have established a central technical support/coordination unit, or similar focal point. Governments therefore have requested assistance from the Action Programme in establishing or strengthening such focal points.

To have significant impact on a country's food supply, post-harvest loss reduction activities should have the full support of the government through an established national policy. This requires first, national commitment to improve the post production system; second, priority in allocating resources in the national plans; and third, organization of activities with relevant government departments working in the post-production sector.

5) Strengthening research development and information programmes. While the bulk of the resources of the Action Programme will be devoted to direct impact projects, research, development and information programmes are also important elements of a national food loss reduction programme.

Results

At the end of December 1982, the number of projects had reached 108, with a total allocation of US$ 30.2 million. Eighty-eight projects were either completed or had reached the state of generating some outputs. The following profile of the PFL programme is based on these 88 projects.

The regional distribution of PFL activities shows 30 percent in Africa, 29 percent in Asia and the Pacific, 19 percent in Latin America and the Caribbean, and 14 percent in the Near East and North Africa.

Commodity Coverage

PFL activities are restricted to staple foods: cereals (rice, maize, wheat, sorghum and millet), pulses and roots and tubers.

Sixty-five percent of the 88 projects dealt with one commodity, 27 percent with two commodities and 8 percent with three commodities. Table 1 shows the commodity coverage of the projects by region.

Table 1. Commodity Coverage of 88 PFL Projects - by Region

	Africa	Asia and the Pacific	Latin America and the Caribbean	Near East	All Regions
No. of projects	33	24	19	12	88
Percent[1] of project covering					
Rice	24	92	21	25	42
Maize	22	4	53	20	35
Wheat	-	13	11	33	10
Sroghum and millet	36	-	-	50	20
Pulses	21	-	42	25	20
Roots and tubers	15	-	21	-	10

It can be seen that in Asia and the Pacific the overwhelming emphasis was on rice, in Latin America and the Caribbean the focus was on maize and pulses and in Africa and the Near East major attention was given to maize, sorghum and millet.

Activity Coverage

The field projects covered several of the eight main activities listed in Table 2.

In general, the PFL programme has been assisting in catalytic and preparatory activities, that have resulted in the strengthening of national institutions, has helped in the establishment of regional, sub-regional or zonal institutes to undertake research in post-harvest technology, has facilitated the exchange of research and development findings; and has assisted in the coordination of research, development and information programmes.

[1]Percentages are not additive as 31 out of 88 projects covered more than one commodity

Table 2. Activity Coverage of 88 PFL Projects - by Region

	Africa	Asia and the Pacific	Latin America and the Caribbean	Near East	All Regions
No. of projects	33	24	19	12	88
Percent of projects covering:					
Loss Assessment	72	33	47	67	56
Storage	100	79	95	100	99
Drying and processing	39	66	42	42	48
Testing	64	58	16	50	50
Training	90	96	95	92	93
Extension	64	33	68	58	56
Marketing	9	33	26	8	19
Pest Control	73	17	52	67	52

Progress Achieved

The following briefly reflect the progress achieved following implementation of the PFL programmes.

1) Creation of awareness at the policy making and technical levels of the importance of preventing post-harvest losses. Cooperation has been established among the government agencies directly concerned with food prevention through institutional arrangements.

   This particular achievement has been provided by projects in Bolivia, Burma, Guatemala, Nepal and Honduras.

2) Follow-up action. So far the results have been encouraging, despite the short period of the existence of the programme. In Honduras, Egypt, Cameroon, Zambia and other countries, the follow-up activities have been financed by other agencies, such as United Nations Development Programme, the Arab Gulf Programme, USAID, European Economic Community, etc.

3) Loss assessment. In about 40 percent of the cases, pilot and general surveys were carried out involving random and stratified sampling methods. Pilot surveys of losses in storage in Bangladesh, Bolivia, Cameroon, Cyprus and Nepal have been concluded with varying degrees of success. In a limited number of cases, the

loss assessment survey was done nationwide, e.g. in Swaziland, where results showed losses of 23 percent in drying and storage.

4) Storage. Nearly all of the 88 projects included some form of storage activities (47 percent at the farm level, 39 percent in cooperatives and 14 percent at the level of government agencies). This emphasis on storage has been the direct consequence of the assumption that the main area of post-harvest food losses in storage especially at the small farm level. However, experience has shown that losses are equally-serious in harvesting, threshing and processing. Some examples of successful improvement on farm and in cooperative storage have been in Nepal, Zambia and Guatemala.

5) Drying and processing. These two activities have been dealt with, 42 projects, most of them at village level. On the whole, activities at both the farm and cooperative level have produced favourable results. The design and local manufacture of a simple wood fired drier for groundnuts in Guyana proved to be very useful. Improved parboiling methods for rice in Liberia, Mali and the Philippines have been valuable for the small-scale farmer.

6) Training and extension. Training has been covered by 82 and extension by 49 of the 88 projects. Some projects (in Costa Rica, Sudan and Uruguay) were mainly concerned with training of trainers and extension workers. In the Yemen Arab Republic, the PFL programme conducted training courses for extension workers and women workers in home economics on a pilot scale. Because of the success of this exercise the government wishes to extend it to the entire country.

7) Testing of equipment. The testing of methods and equipment was carried out by 50 percent of the 88 projects--in some cases to reduce paddy losses at late harvesting in Burma and Thailand, in others to reduce labour inputs as well as post-harvest losses.

In general, several types of equipment have been tested and recommended to the governments and, in most cases they have propagated them on a large scale.

8) Pest control. This activity was carried out by 46 out of the 88 projects. In most of them, pest control activities have proved to be acceptable, but it has been concluded that a review/evaluation of this particular component is needed. A review of the pest management practices and an evaluation of their adequacy, an assessment of the validity of experimental trials and interpretation of resulting data are now being carried out. The aim is to obtain guidelines on more effective preventive sanitation practices, more economical and safer pest management action and more efficient training instruction, which will be used by the PFL projects.

Conclusions

We feel that the implementation of the PFL programme has provided us with a body of valuable technical and socio-economic information on the post-harvest system of developing countries.

We have learned from failures and successes of the first generation of projects that often the time allocated, the implementation of too many objectives, and budgetary and technical problems have been among the many constraints that usually exist during the initial efforts of any large programme.

In the light of the experience gained, many remedial measures have already been incorporated in subsequent projects. For example, more attention has been devoted to the socio-economic analysis of post-harvest practices, pest management and quality control, the right approach to technology transfer, as well as the economic viability and social acceptance of the proposed new technology.

Experience to date indicates the need to broaden the scope of overall activities, to include expertise on farm management and economics, food quality, home economics, training and extension. Also, beginning with the 1984-85 biennium, fruits and vegetables will be added to the list of commodities covered.