FAO AND ATOMIC ENERGY

(This article has been contributed at our request by the Public Information Service of the Food and Agriculture Organization. A relationship agreement between FAO and IAEA came into effect in November 1958)

The Food and Agriculture Organization of the United Nations was specifically mentioned in a resolution adopted in 1954 by the United Nations General Assembly which stressed the "importance and urgency of international co-operation in developing and expanding the peaceful uses of atomic energy to assist in lifting the burdens of hunger, poverty and disease" throughout the world.

It was natural that FAO should be one of the specialised agencies to be so mentioned because of the immense benefits to be derived by agriculture from various uses of atomic energy, especially through the use of radiation and radioisotopes. Radiation, for example, promises new methods of processing and preserving food and other agricultural products. Equally important is its ability to induce mutations, a property which can be put to use in breeding improved varieties of plants.

Then there are the radioisotopes which are of unique value as a research tool, enabling an investigator to achieve results that are not obtainable in any other way, and to do so with greater precision and speed and at less cost than by other methods. Already they have been effectively used in studies of soil fertility, crop nutrition, physiology and protecion, pest control, livestock physiology and pathology, ocean and inland water productivity, and animal and human nutrition - to name a few of the fields of interest to FAO. Such studies are leading to improved methods of production and processing of food and other agricultural products.

During the past six years FAO has become more and more deeply engaged in work concerned with atomic energy, although it was not until 1957 that the Organization finally established an Atomic Energy Branch. And it was more than a year later, in November 1958, that the relationship agreement between FAO and the International Atomic Energy Agency became effective.

The new forces and new tools which have become available for use in the fight against poverty, disease and malnutrition can be of the greatest assistance in FAO's work in nearly all phases of the production, storage and distribution of food and other agricultural products. The Organization is therefore called upon to promote their use to improve the standards of feeding, clothing and housing throughout the world.

That is one side of FAO's work in relation to atomic energy. The other is concerned with combating contamination. Widespread use of atomic energy for the production of industrial power and other purposes opens up the possibility of radioactive contamination of the environment. This raises considerable problems for food and agriculture, so that FAO also has a responsibility for assisting Governments in safeguarding their food and food-producing resources from such contamination.

Spread of Knowledge

FAO is essentially concerned with fostering wider knowledge of the many contributions that atomic science can make to agriculture, forestry, fisheries and nutrition. It is also concerned in assisting governments to establish sound programmes for applying atomic science in food and agriculture.

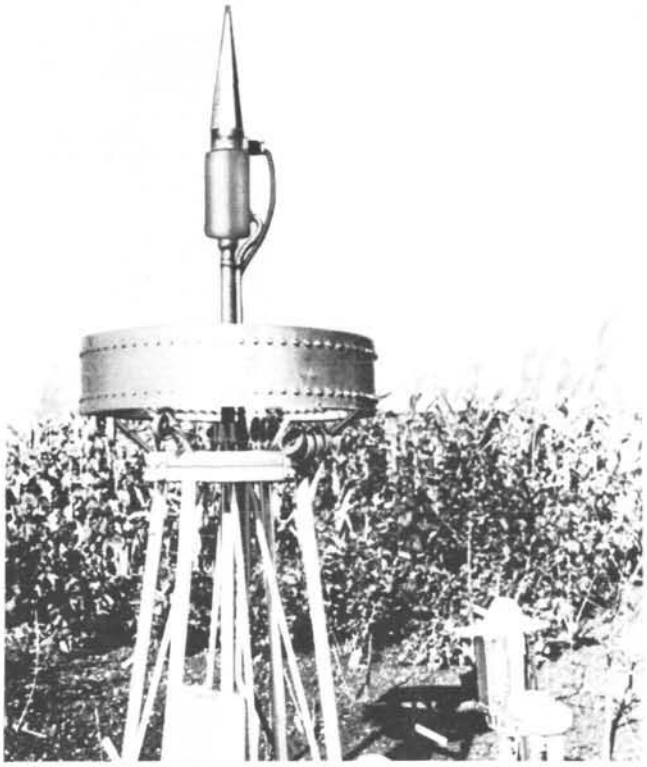
One way of spreading such knowledge is through the publication of documents and reports. For example, FAO presented a report on "The Uses of Atomic Energy in Food and Agriculture" at the International Conference on the Peaceful Uses of Atomic Energy held in Geneva in August 1955. This report surveyed in broad outline the applications of atomic energy in agriculture. Again, in 1958, FAO published a paper entitled "The Potential Contribution of Atomic Energy to Development in Agriculture and Related Industries". This provided a critical review of the significance of atomic energy for food and agriculture. It was intended to provide a basis for policy decisions to be taken by governments, especially in those countries which have only limited experience of atomic energy matters.

Meetings and Seminars

Another way in which FAO is able to spread knowledge of atomic energy is through intergovernmental and other technical meetings and training seminars.

One of the earliest of FAO's actions in this respect was to establish in 1956 the European Contact Group on the Uses of Isotopes and Radiation in Agricultural Research. This body has pressed FAO to intensify action in such specific fields as the use of isotopes in soil fertility and livestock nutrition, a request which has been met by organizing technical meetings and seminars as well as by publishing technical information.

Another big step forward in Europe was the first intergovernmental Conference on the Use of Ionizing Radiations for Food Preservation. It was convened by FAO in November 1958 and held at Harwell, England. It was concerned with the fundamental principles governing the use of radiation in food processing and methods of testing the wholesomeness of irradiated foods so that a common basis could be



A gamma radiation field for plant mutation experiments at the Research Establishment of the Danish Atomic Energy Commission (Photo: Danish A.E.C.)

established for legislation on the production and sale of these foods. Another meeting, that of the Expert Committee on Radiochemical Methods of Analysis, was held in Geneva in September 1958. This was jointly organized with the World Health Organization.

Again, in 1959, there were several important meetings organized by FAO, in some cases jointly with other organizations. For example, FAO co-operated with IAEA in organizing an international training course on radioisotope techniques in agricultural research. This course was held at Cornell University, New York, and was specifically concerned with the needs of research workers in agriculture, forestry, fisheries and nutrition.

Another important meeting was the European Seminar on the Training of Agricultural Advisory Services on Agricultural Aspects of Environmental Contamination, held at Cambridge, England, in September 1959. It was organized in Europe because this is the region in which nuclear reactors are being most rapidly established and the purpose of the seminar was to direct the attention of agricultural authorities to the need for making adequate provisions to safeguard food and agriculture in the atomic age. The seminar informed those responsible for national agricultural and veterinary advisory services of the ways in which radioactive contamination could affect agriculture and the protective measures that could be taken.

Later in 1959 FAO convened a meeting of an Expert Committee on the Movement of Radioactive Materials in Food and Agriculture. This meeting was called because the United Nations Scientific Committee on the Effects of Atomic Radiation drew attention to the need for more scientific data on some of the problems of environmental contamination of food and agriculture. FAO's function in this respect is to bring together investigators in special committees or working parties to consider or make recommendations regarding the type of experiments that should be carried out, the way they should be conducted and the environmental conditions that should be sampled.

Co-operation with Other Agencies

All the technical divisions of FAO have an interest in the peaceful uses of atomic energy so that they work in close liaison with the Atomic Energy Branch. Further, FAO and many of the other specialised agencies are jointly concerned with atomic energy matters in certain fields. FAO, of course, works in close liaison with IAEA and, in addition to the co-operative action which has already been described, it has, for example, participated in the work of the IAEA Panel on Radioactive Waste Disposal into the Sea. Similarly, FAO participates in the work of the UN Scientific Committee on the Effects of Atomic Radiation and has supplied that committee with background information on such subjects as the world distribution of calcium deficiency in soils, the sources

A scientist at the Piracicaba School of Agriculture, Brazil, carrying out studies on soil dampness with the help of radioisotopes

of calcium in national diets, the dietary patterns of various peoples, and information concerned with marine and fresh water biology. This latter information is needed by governments in order to reach decisions on the disposal of radioactive wastes at sea. The report giving this information was prepared in co-operation with WHO and UNESCO.

Steps to Meet Increasing Demands

In view of the increasing demand for FAO's participation in meetings, discussions and other work concerned with the various aspects of the uses of atomic energy in agriculture, fisheries, forestry and nutrition, the Organization is strengthening the Atomic Energy Branch not only by employing additional tecnical officers, but also by calling in more frequently the assistance of specialists as consultants.

Some indication of the growing demand on FAO's services in this field is contained in the tentative programme for the coming 18 months, which includes the organizing and servicing of meetings on the use of isotopes in agricultural research in Asia, Latin America, the Near East, Africa and Europe. FAO will also help in organizing two further meetings on Food Irradiation and two international meetings on the Food and Agricultural Aspects of Environmental Radioactive Contamination. Another European Seminar on the Training of Agricultural Advisory Services on Environmental Radioactive Contamination is contemplated for 1961, and a further international training course on radioisotope techniques in research in agriculture, fisheries, forestry and nutrition.

FAO will continue to participate in the various joint activities of its sister agencies as well as in the work of the UN Scientific Committee on the Effects of Atomic Radiation. The Organization will also provide information, advice and assistance to governments, award fellowships for training and research in specific fields, and continue to assemble and review technical information for publication, including new volumes in the series on atomic energy in food and agriculture.

Radiation can be used to prevent sprouting in potatoes. Picture shows difference between treated and untreated tubers (Photo: U.K. Atomic Energy Authority)

Bags of irradiated and non-irradiated onions; the latter have sprouted (Photo: University of Michigan, USA)