aid for development

Agriculture accounts for a quarter of the gross national income of Brazil, and for two-thirds of Brazilian exports.
Assurance of an efficient agricultural industry is thus of evident importance to the national economy. Work to this end is now to be carried out as a part of a major UNDP-assisted project.

Brazil is the world's largest exporter of cacao, and second largest exporter of coffee; other important crops include sugar, cotton, maize, beans, cassava, wheat, potatoes, citrus fruits, bananas and groundnuts. But the country is not entirely self-sufficient in foods: in 1967 food materials represented 18 per cent of total imports.

National authorities have prepared a 10-year plan which has the object of increasing the gross national product by 6 per cent a year, and the application of modern scientific methods in agricultural research and production is being strongly supported in agricultural research institutes throughout the country. The Government has given priority to several United Nations support programmes, including studies of the efficiency of fertilizer use, major land development projects, and special projects in support of pesticide research, fishery and forestry research and development, and food technology.

In particular, the Government (through the National Nuclear Energy Commission, CNEN) has demonstrated interest in the exploitation of nuclear techniques in agriculture, as a means of attacking problems which cannot be approached easily – if at all – by other methods. The CNEN has entrusted the fundamental mission of training in, and research into, the use of such techniques to the Escola Superior de Agricultura 'Luiz de Queiroz', the agricultural college of the University of São Paulo. This college, which is situated at Piracicaba, about 150 km from the capital city of São Paulo, offers undergraduate courses in the agricultural sciences and in home economics; graduate courses at the Masters and Ph.D. level are offered in nine agricultural science specialities. Within the school there is an active Centre for Nuclear Energy in Agriculture (CENA), maintained jointly by the Nuclear Energy Commission and the University of São Paulo. Teaching in the nuclear sciences is offered at both undergraduate and graduate levels, and research is conducted in radiogenetics, insect control, food preservation, soil/plant relationships, biochemistry and hydrology.

A new, five-year project for the development of agricultural production through the application of nuclear technology, supported by the United Nations Development Programme, has now been begun at Piracicaba, with the long-range objective of helping the Brazilian

The main building at the Centro de Energia Nuclear na Agricultura, Piracicaba. Photo: IAEA/Lamm

Government to strengthen existing facilities for the training of local personnel at the Luiz de Queiroz school in the use of nuclear techniques in agricultural research.

The IAEA has been named executing agency for the project in view of its special competence, within the UN family, for such work; headquarters advice and assistance will be given while the project is underway by officers of the Division of Technical Assistance and, especially, of the Joint FAO/IAEA Division of Atomic Energy in Food and Agriculture. In addition, help will be given by experts in the field. The first of these, Dr. Carl Lamm, took up his duties as manager for the first one-year phase of the project a couple of months ago, and is now working with local staff on the precise delineation of the help which is to be given.

During this first phase it is expected that a number of the members of the staff of CENA will be trained abroad in the applications of nuclear techniques to agricultural research and production; and the Director of CENA, Dr. A. Cervellini, has already visited several institutes and centres working in training and research on the applications of nuclear techniques to agricultural research and production. Some of the members of the technical staff of CENA are to be given one year's training in work on soil fertility, forestry and physics. And, also at CENA, planning and other work preparatory to the organization of training and research activities at the school will be carried out.

Phase II of the project is planned to last for four years. During this time assistance in the organization of training courses for undergraduate and graduate courses will be given, together with assistance designed to strengthen research programmes at the school. These programmes

The exterior of a new greenhouse to be used in work at CENA. Photo: IAEA/Lamm

will be directed toward the solution of specific agricultural problems, and any positive findings will be applied immediately.

Tentative conclusions from the early planning of the project as a whole were that CENA possessed adequate physical and organizational bases for significant development; the great need was for trained manpower and guidance from foreign scientists, and for specialized equipment. CENA has the potential to reach many state and federal agricultural research institutions in Brazil, thus enabling research workers to discover the value of nuclear techniques in conjunction with the use of 'conventional' methods to increase their research output. This should have a direct impact on the volume and quality of agricultural production.

Lamm, the project manager for the first phase, brings to his work good qualifications and broad experience. He holds a doctorate in agronomy and worked for a number of years at the State Laboratory for Soil and Plant Research at Lyngby, Copenhagen, in his home country, doing teaching and research; his special interests lie in soil science and in soil/plant relationships. He was for a time a staff member of the IAEA, and took part in a number of missions for the Agency during the establishment, particularly, of the Institute for Agricultural Research at Zemun, in Yugoslavia, and also during the early stages of work on the establishment of the Indian Agricultural Research Institute at Pusa, near New Delhi, which was inaugurated officially toward the end of 1971. In 1969 he worked as an IAEA expert in Uganda, where he helped to set up a radioisotope laboratory for the labelling of insecticides for use in attempts to control the tsetse fly.

His counterpart at CENA is Dr. Cervellini, who is project director. In preparation for this project Dr. Cervellini has visited, as mentioned earlier, the research institutes at Zemun and in India, and he has also seen the Joint Division's own agricultural research facilities at the IAEA laboratory at Seibersdorf, near Vienna.

In all, it is expected that the contribution of the UN Development Programme to this project, including the provision of equipment, will be of the order of $876 000. Inclusive of buildings and equipment it is expected that the contribution of the Brazilian authorities will total more than $2 million – an earnest of the importance which the national authorities attach to the project, and maybe in the end yet another illustration of the adage that "the best help is self-help."

An investigator operates equipment at CENA in the course of stable isotope studies. Photo: IAEA/Lamm