

Farming will never be a success unless the farmer  
had more voice in the disposal of  
his produce—P. Morrel.

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## INTERNATIONAL AND IMPERIAL CO-OPERATION IN REGARD TO AGRICULTURAL STATISTICS AND THE COMPILATION AND DISSEMINATION OF SCIENTIFIC AND TECHNICAL INFORMATION\*

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It is at once a pleasure and a privilege to welcome you to the Agricultural Section at the 18th annual meeting of the Indian Science Congress. I propose to depart somewhat from precedent, for instead of choosing for my address a subject connected with some special branch of agricultural science, I have selected one of a somewhat more general nature which, however, is closely concerned with the successful application of science to the improvement of agricultural practice. Agricultural statistics form the basis of studies in the economics of agriculture, whilst the rapid dissemination of scientific, technical and statistical information is becoming more and more important in these days of specialization. The recent depression in agriculture due to the fall in prices of agricultural produce, clearly brings out two points which bear on the subject of my address. Never was there a greater need for improvement in the *efficiency* of agricultural production than at present since low prices can only be permanently combated by this means. In promoting such an increase in efficiency the rapid dissemination of scientific and technical information is an important factor. The present world crisis in agriculture has also brought out clearly the interdependence

\* Presidential address to the Agricultural section of the Indian Science Congress, Nagpur, January 1931.

of different countries on each other and the need for much more accurate statistics of the production and consumption of agricultural commodities than exist at present. The problem is largely an international one and I have recently had an opportunity of visiting the International Institute of Agriculture and of representing India at the biennial meeting of its General Assembly, where these problems were discussed from the international aspect.

As most of you are aware, the International Institute of Agriculture was founded 25 years ago largely through the energy and foresight of an American citizen David Lubin whose eloquence secured the assistance of His Majesty the King of Italy and the foundation of the Institute at Rome. The Institute is supported by subscriptions from most of the Governments of the World and India has been a contributing country since the inception of the Institute. From an early stage in its history, the Institute devoted special attention to international agricultural statistics and for many years published an invaluable international year-book of agricultural statistics and a monthly statistical bulletin. In these publications the Institute's statisticians summarize the world position in regard to the production and consumption of the more important agricultural commodities so far as such information can be obtained. There are many gaps in our knowledge of these matters; the extent to which different countries maintain statistics of agricultural production varies greatly and the systems on which they are maintained vary almost as much, so that the collating of international figures is a task of no small difficulty. The International Institute has recently succeeded in organizing a special census of agricultural production which has been carried out throughout the world, the results of which are now being compiled. The Institute will now work up the relative economic data which the survey has made available and see what general deductions are possible which will be a guide to agricultural problems in the future. The discussions at the recent meeting of the Assembly show that all countries attach great importance to more thorough studies of the production and consumption of agricultural commodities and the trend of future changes. Only as our knowledge of these matters increases, can we hope to so regulate policy that sudden changes as these which have lately disturbed the world, can be avoided.

At the recent General Assembly at Rome while universal appreciation was expressed of the valuable statistical work conducted by the Institute, in some important quarters doubts were thrown on the suitability of its machinery for dissemination and interchange of scientific information relating to the different branches of agriculture. There is no single science of agriculture, on the contrary, the application of scientific methods to the solution of agricultural problems makes demands practically on all branches of science. But if agriculture makes demands on all branches of science, it also has to be recognized that many of the problems involved, lie on the border line of those sciences and in these days of specialization in scientific research, it is becoming more and more difficult for the scientific investigator to keep in touch with progress even in his own and allied subjects. The investigator of agricultural problems feels difficulty the more acutely because the ground to be covered if he attempts to read all the available literature, is so wide both because of the number of sciences involved and because his problems are nearly always border line problems. New advances in pure science are constantly making possible new methods of approach and entirely new technique in applied science;

and the agricultural investigator needs to be kept in touch with such developments. At the Imperial Agricultural Conference of 1927, the need of agricultural investigators throughout the Empire for the systematic supply of scientific information bearing on the work was strongly emphasized. As a result, a scheme of Imperial Agricultural Bureaux was drawn up and arrangements made for it to be financed partly by the British Government and partly by each of the countries of the Empire. Eight Bureaux are now in working order and are controlled by an executive committee on which each country is represented. In order that research workers abroad might obtain the utmost possible assistance and that research institutions in England might be brought into touch with the needs of other portions of the Empire, each Bureau was located at a centre of research in the special subject dealt with. Thus the Imperial Bureau of Soil Science has been placed at the famous Rothamsted experiment station. The Imperial Bureau of Plant Genetics (for crops other than herbage) has been placed at Cambridge and associated with the School of Agriculture, whilst the Imperial Bureau of Plant Genetics for herbage plants has been placed at Aberystwyth where so much valuable work on fodder crops and grasses has already been conducted. The Imperial Bureau of Fruit Production is situated at the East Malling Fruit Research Institute in Kent. The Imperial Bureau of Animal Nutrition is located at the well-known Rowett Institute at Aberdeen, that of Animal Health at the Veterinary Laboratory, Weybridge, that of Animal Genetics in the University of Edinburgh, whilst the Imperial Bureau of Agricultural Parasitology has found a home at St. Albans. It will be observed that these bureaux together with the older institutions—the Imperial Bureau of Mycology at Kew and the Imperial Bureau of Entomology, now the Imperial Institute of Entomology, cover most branches of agricultural science. Their functions are to collect, collate, abstract and distribute to all research workers desiring such assistance, the results of recent research in the subject with which the Bureau deals; already several valuable bibliographies and summaries of current research in several subjects have recently been issued. The work is essentially co-operative. Only in so far as other countries in the Empire provide the Bureaux with copies of published papers and other information can the Bureaux maintain the supply of information to workers in other parts of the Empire. In each country there is an official correspondent for each Bureau. For India the official correspondents are the two Expert Advisers to the Imperial Council of Agricultural Research. I would take this opportunity of asking all research workers in agriculture and the allied sciences to assist the Research Council in supplying the Bureaux with complete sets of Indian publications. The Bureaux have a still more important, if less definite, function than the publication of bibliographies and abstracts, *viz.*, to assist individual research workers to obtain information as to how matters stand in any particular branch of investigation and to put them in touch with specialists in other countries. The Bureaux have skilled translators and are thus able to make available papers which are not easily accessible. One Bureau—the Imperial Bureau of Plant Genetics, Herbage Plants, in particular has established a small loan library of translated papers which can be lent to other research workers in need of such assistance. Though official correspondents have been appointed, it is the essence of the scheme that individual research workers should correspond freely with the Bureaux on matters of scientific interests. I have recently had the privilege of visiting all these Bureaux except that at Aberystwyth and am fully satisfied both that India can make and is making a substantial contribution to the advancement of agricultural science and



that all parts of the Empire stand to gain by the pooling of knowledge now rendered possible. The funds for the maintenance of these Bureaux are supplied mainly by the British Government, the contributions from the Dominions including India being small in proportion, while on the Executive Council, which is the governing body of the Bureaux, the Dominions have an equal voice with Great Britain. Coming nearer home, the Imperial Council of Agricultural Research has recently decided to establish a Bureau of Agricultural Information for India. Not only will this provide a liaison with the Imperial Bureaux already mentioned but it is hoped that it will also assist research workers in India in the various branches of agriculture to keep in touch with each other and with work in progress in other parts of the country. The Imperial Council of Agricultural Research is charged both with promotion of research and the dissemination of information; it is hoped that its latest venture will be successful in the latter direction.

## NOTE ON PINE-APPLE CULTIVATION ON THE SLOPES OF THE SIMHACHALAM HILL

By N. RAMADAS, L. Ag.

*Agricultural Demonstrator*

Pine-apples are cultivated on the slopes of the hill at Simhachalam, which is nearly 1,000 feet above the sea level. The place belongs to the Simhachalam Devasthanam under the management of the Vizianagaram Estate. The Estate gives the hill slopes for the cultivation of the pine-apples on lease generally for a term of ten years at a rental of Rs. 10 per acre per annum with a stipulation that the lessee should plant and grow at least 10 trees per acre of jack, mango, and cashewnut during that period. Generally the land is to be surrendered at the expiry of the ten years' period, as by that time, the soil would have been depleted and the trees would have grown up and shaded the land too much to allow of further successful cultivation of pine-apples. In rare cases the term of lease is extended for a further period of ten years, when fresh planting is made.

*Soil.*—The soil is a good loam, well mixed with organic matter and very rich.

*Preparation of the land.*—The jungle is cleared from land freshly taken for the planting of pine-apples, the brushwood burnt *in situ*, and the ashes spread on the land. Land is dug up to a depth of 1 to 2 feet and all stones are removed, and terraces formed. The stones removed are piled up to form a wall at the lower edge of each terrace which is generally 1 to 1½ yards wide. The soil dug up immediately near the wall, is thrown over it and the suckers planted in the depression thus formed. The entire process is done by manual labour with crowbars and *mammoties* and the cost of preparing the land and forming terraces ranges from Rs. 250 to Rs. 400 per acre according to the quantity of stones found. The stone walls with a covering of earth at the bottom on the inner side of the terrace, act as barriers, and prevent the rain water from running down too fast and eroding the surface. On the other hand they make it stand for some time, deposit the earth it carries, and slowly pass down through the crevices between the