MALAYAN AGRICULTURE-

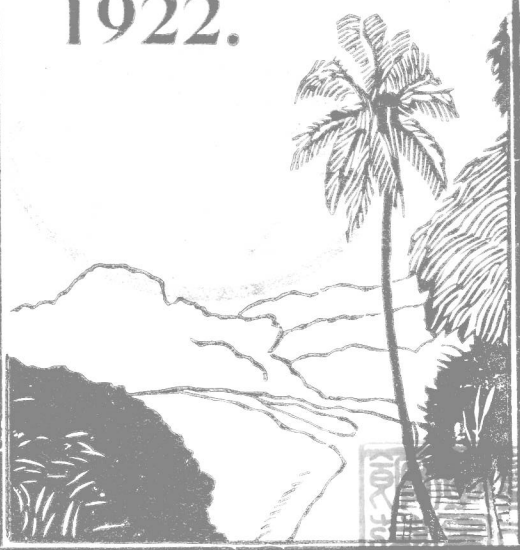
HANDBOOK

COMPILED BY
THE
DEPARTMENT OF AGRICULTURE
F.M.S. AND S.S.

MALAYA-BORNEO EXHIBITION 1922

Malayan Agriculture.

1922.



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(*Price $2.50.*)

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PREFACE.

The information contained in this Handbook has been compiled at the request of the Acting Director of Agriculture, Federated Malay States and Straits Settlements, in connection with the Agricultural Section of the Malaya-Borneo Exhibition on the occasion of the visit of His Royal Highness the Prince of Wales, K.G., to Malaya.

It is hoped that the information given will serve to stimulate active interest in many new agricultural industries which are suited to the conditions of the country The possibilities of various local manufacturing industries based on the raw products of agriculture should also be kept in view.

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Malaya-Borneo Exhibition, 1922.

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MALAYAN AGRICULTURE

INTRODUCTION.

THIS handbook of Malayan Agriculture, which has been compiled by members of the staff of the Department of Agriculture, F.M.S. & S.S. is intended both to draw attention to the various agricultural products of Malaya exhibited in the Agricultural Section of the Malaya-Borneo Exhibition, with special reference to those aspects of Malayan Agriculture represented by the exhibits prepared by the Department of Agriculture to illustrate the possibilities of new crops, and to describe as concisely as possible the methods of cultivation, harvesting and preparation of the various crops for the market, the market value of the products at the present time and the possibilities of the economic or commercial production of these crops. Chapters dealing with modern aspects of agricultural practices, which are now being applied to the cultivation of tropical products, are also included.

It is to be deplored that so little attention has been paid to the cultivation in Malaya during recent years of crops

other than rubber, coconuts and padi, and that little information is available at the present time in respect of yields, cost of planting, cultivation and preparation of various new crops.

It is not proposed however to discuss here the reasons avoidable and unavoidable for such a condition of affairs.

In the case of a large number of tropical agricultural crops however, information is available from which conclusions may be drawn as to their suitability for cultivation in Malaya, and the probable costs of production and yields estimated by a comparison of results obtained in other countries; such information has been supplied to numerous enquirers during the past year by the Department of Agriculture.

It is unfortunate also that the world-wide slump in trade and industries has, to a large extent, prevented the sinking of Capital in new agricultural enterprises. Had the present slump only or chiefly affected rubber cultivation, there is no doubt that companies and individuals would have obtained capital to embark on the cultivation of other crops.

At one time considerable interest was being taken towards reviving sugar-cane cultivation in Malaya. The large amount of capital required for the establishmen of a suitable factory and machinery, combined with general lack of capital and decrease in the market value of sugar have been no doubt largely responsible for the fact that such interest has not been sustained.

The comparative ease with which the rubber tree is cultivated in Malaya compared with the arduous nature of agricultural operations in connection with such crops as sugar or tobacco, combined with the phenomenally successful progress of the plantation rubber industry, have also a considerable influence on the problem of new crops.

It is anticipated that, as soon as world trade and industry revive, there will be ample demand for all the rubber which will be produced for many years, and most companies are banking on these anticipations. Further, many rubber companies have no additional land for the planting of other crops and, at the moment, no capital to invest in new land.

This combination of circumstances has led many individuals to think that the Department of Agriculture should

be in a position to recommend new crops which are likely to be equally successful and as easily cultivated and harvested as is rubber.

It is therefore advisable to remind those who are seeking such crops that, even as late as the year 1906, the subsequent phenomenal success of the plantation rubber industry had not been anticipated, and one has only to peruse many of the financial journals during that year to see the jibes published in connection with the floatation of many rubber companies which have since become so well-known as good dividend producers.

The success of the plantation rubber industry, unforeseen before that time, has been due largely to the remarkable increase in the use of motor transport of all kinds, due partly to the invention and improvement of the internal combustion engine, combined with the increased production of petrol fuel. In this industry, the rubber produced is consumed or destroyed fairly rapidly, and therefore further increases in motor transport appear to afford the most hopeful method for the consumption of our future supplies of rubber.

By analogy, although this is a dangerous argument beyond certain limits, the production of certain crops indicated in this handbook appears to hold out considerable prospects for the future, although at present one can only present the possibilities.

These industries are—(a) the production of alcohol for fuel purposes from various raw agricultural products containing sugars, starch or cellulose. (b) The increased cultivation of coconuts and the cultivation of new oil-yielding crops such as the African Oil Palm for the production of oils and fats for edible purposes, in view of the increasing use of vegetable fats in the preparation of margarine as a substitute for butter. (c) The cultivation of fibre plants of various kinds for cordage purposes and for supplying twine in connection with the increasing use of machinery in the harvesting of cereal crops.

In addition, there is a number of minor agricultural crops e. g. limes for the production of concentrated lime juice, citrate of lime or citric acid which are used for industrial processes in addition to their use in beverages; kapok from the silk cotton tree (*Eriodendron anfractuosum*) the commercial uses for which have increased considerably dur-

ing recent years ; tuba root (*Derris elliptica*) which is finding extended uses as an insecticide and in cattle dips etc.; various medicinal plants, including in particular cinchona ; and the castor oil plant for the production of the oil which is used as a lubricant as well as for medicinal purposes.

The cultivation of gutta-percha, for the purpose of extracting gutta from the leaves, to which reference is made in this handbook, becomes an agricultural problem as soon as this crop is cultivated on plantation lines.

It must be remembered however that most of the minor crops can be grown only on a small scale, if cultivated on many estates, since their extended cultivation on a larger scale would probably soon swamp the market. It is therefore preferable for any individual estate with large areas to cultivate more than one crop.

In connection with one of the crops mentioned above viz. Kapok, recent enquiries have shown that Australia imported during the year 1919/20 a total of 5,828,760 lbs. of a value of £319,542 and that of this total 5,703,601 lbs. valued at £312,777 were obtained from Java. This product is also imported into Malaya from Java and sold on the local market.

Enquiries have also shown that a considerable quantity of groundnuts is imported into Malaya and the oil expressed locally. The question naturally arises as to why these crops cannot be cultivated successfully on the spot, both for local use and for export to other parts of the Empire. There would appear to be two possible explanations controlling the cultivation of these crops in Java ; one being the dense population of Java, which necessitates the cultivation of every possible crop as a source of revenue by the Javanese, and which necessitates also a plentiful supply of indigenous labour ; and the other being the fact that many Dutchmen in Java settle in the country and practise agriculture as they would on a farm in Europe.

Whatever be the reason, a perusal of one of the excellent yearbooks of the Netherlands East Indies will indicate the variety of crops grown in Java compared with Malaya, some of which (apart from rubber) viz. tea, cinchona, tobacco, rice, sugar and coffee are grown on a large scale.

In spite of this however, there appears to be no valid reason why, for example, a plant like the kapok tree should not be grown very extensively on small holdings all over this

country. Similar remarks apply to the cultivation of groundnuts, tuba root and a number of other crops.

It is hoped that the various chapters of this handbook, which contains concise information in respect of many crops which can be grown in Malaya, will encourage their cultivation.

It is not the object of a handbook of this character to give full details of the various cultures, but further information is being published in the bulletin issued by the Department of Agriculture, and information can always be obtained on application to the Department.

Attention is also directed to those sections in which the application of scientific principles to modern agricultural practice are discussed. The application of these principles, especially those of scientific breeding by vegetative propagation or seed selection, has already made progress and produced excellent results in Europe and America in connection with various crops e.g. wheat and other cereals, fruit culture, sugar beet cultivation, and potato cultivation. In connection with tropical agricultural products, sugar cane and cinchona especially may be mentioned as two important crops to which such methods have already been applied with success.

As is well known, similar principles are now being applied to the production of better and improved yielding strains of Hevea, chiefly by vegetative propagation, although it is yet too early to forecast the probable results, on account of our lack of knowledge of the function of latex and the influence of the application of such methods to increased latex production.

It is however imperative to test thoroughly such methods, and this can be done only by field experimentation.

The principles of seed selection have been and are being applied by the Department of Agriculture, to padi (rice) and coconut cultivation in Malaya.

The mixed character of castor seeds produced on one or two estates in the country indicates also the necessity for applying similar principles to this crop, and there is little doubt that good results will be obtained by the application of similar methods to a large number of other crops.

Recent work on the vegetative propagation of lemons in California, in respect of both yields and character of fruit,

has had marked results and investigations of this character will have to be applied in this country. Further, the introduction and cultivation of new crops will necessitate increased investigations in connection with the important problems of pests and diseases, and there is already ample indication of the activities of various pests and diseases on a few crops which have been tried during the last year or two. In this connection, there is need for a broader outlook on this important problem. Recent investigations in India have indicated the close connection between the question of pests and diseases of plants and problems of plant physiology, and the effect of soil and soil water problems on the incidence and spread of pests and diseases.

Finally, in the cultivation of many crops, especially annual crops and other crops in which a large amount of plant food is removed from the soil, problems of soil fertility and the application of manures, conservation of soil moisture, drainage, soil conservation on hilly or undulating land, the use of leguminous and other cover crops and the use of machinery for cultivation, require far more consideration than in the case of the cultivation of the rubber tree.

In addition to the probable and possible new agricultural industries briefly discussed in this handbook, there are sections dealing with one or two industries, which although outside the range of agriculture, are of importance and are being investigated by the staff of the Department.

The two most important are the possible production of paper pulp from various indigenous raw materials and the utilization of peat.