
PALAWIJA

NEWS



The CGPRT Centre Newsletter

Volume 7, Number 1

March 1990

Korea, Food Legumes and Coarse Grain in an Industrialized Economy

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Background

The Republic of Korea is located in the southern part of a peninsular, projecting off the East Asian mainland, and has a population of 42 million. Because of the mountainous terrain, only one quarter of the land is suitable for farming. About 70% of the total arable land can carry two crops per year. Rice and barley are the main crops and half of the arable land has long been converted to wet paddy field. The average size of each farm is very small at approximately 1 ha. In 1982 1.3 million ha of the total arable land of 2.2 million ha was planted to rice.

The first half of the twentieth century consisted mainly of years of uncertainty and war for Korea resulting in a divided country. Since the early 1960's, Koreans have pursued security and economic development. In 1961, the new government of the Republic of Korea instituted a policy of centralized economic planning which was embodied in a series of 5 year plans and has reshaped the Korean economy. This has resulted in Korea becoming an industrialized society and, as in many rapidly growing economies, its growth is led by manufacturing. The remarkable growth of the Korean economy since the beginning of the 1960's is the result of an effective strategy for industrialization centred around the promotion of exports. However, the Korean economy has in herent weaknesses in resources. It has no pe-

troleum and very little coal, both of which must be imported. In addition, Korea is increasingly dependent on imports of many agricultural products.

Since the early 1960's the Korean economy has grown rapidly. The gross national product (GNP) has grown at an average rate of more than 8% per year and per capita income has increased from US\$ 87 in 1962 to US\$ 2, 200 in 1986. Its economy has been referred to as one of the "Asian Tigers" indicating the unparalleled achievements of a number of Asian economies in the seventies and early eighties. The rapid growth of the national economy has transformed the structure of agriculture. The proportion of farmers to the total population has fallen from 55.1% in 1965 to 18.5% in 1987. The proportion of cultivated land has decreased in area from 22.9% to 21.6% during this period and the self sufficiency ratio in food grains - rice, barley, pulses and coarse grains had declined to 41.3% in 1989. The farm household debt has increased from 102.000 won in 1970 to 2.257.000 won in 1989 reflecting the increasing capital intensity of agriculture. As in the western experience, many farmers and farm labourers are leaving the land to seek higher paid employment in urban and industrialized areas. The Republic of Korea is facing a

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serious crisis in rural areas which must be overcome if prosperity is to be maintained.

Some facts on production and consumption

Figures 1 and 2 show the yield trend for soybean and maize. In the case of soybean, the area of cultivated land has decreased at an average rate of 7.3% in the last ten years, but total production was maintained up to 1984 because of significant yield increases. However in 1986 the area of land cultivated to soybean decreased by 14% and production also decreased 15.1% when compared with the previous year. Farm management and production techniques need improvement in order to continue the increase of soybean yields.

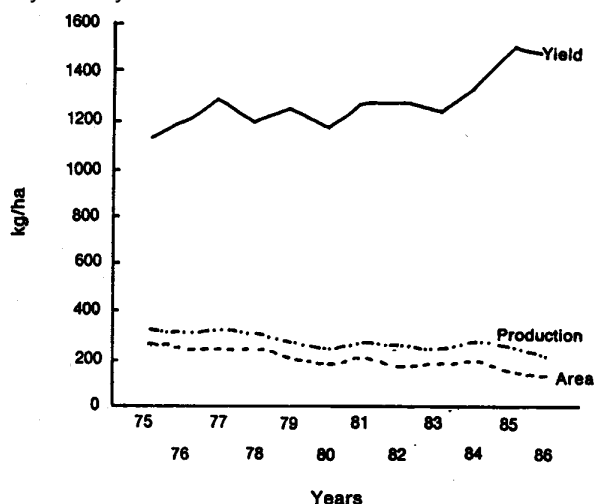


Figure 1. Yield trend of soybean

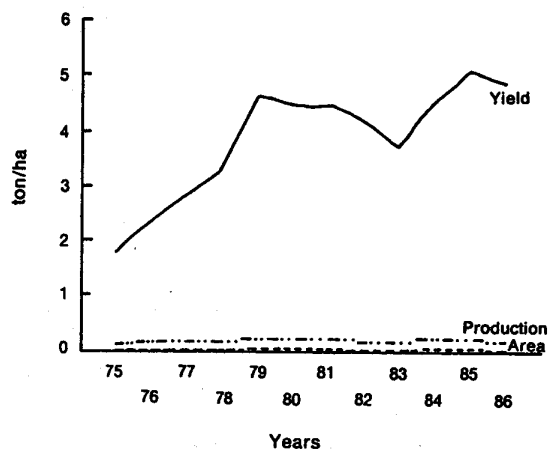


Figure 2. Yield trend of maize

The outlook for red and green bean, popular foods in Korea but nationally minor crops, is quite good because yields of both have steadily increased to 1.14 and 8.89 ton/ha respectively. Production is sufficient for the domestic market.

Corn is one of the most important crops. It is subject to vastly increased demand because of its use as animal feed. As a result imports of corn have increased tremendously. The national production has declined steadily due to a reduced harvesting area. The yield has developed quite satisfactorily however, to almost five tonnes per ha, but this has not resulted in sufficiently attractive returns, as can be judged from the small area planted. There has also been a downward trend in sorghum production, a minor crop in Korea.

The increased demand for corn and sorghum as feed grains is expected to continue in the future.

The food self sufficiency ratio of crops has declined rapidly, falling from 93.9% in 1965 to 41.3% in 1986. This is primarily due to the increase in demand for animal products. As the national income has improved, Koreans are now consuming more meat and milk products, thus there is a strongly developed derived demand for feed grain. The volume of feedgrain consumed during the last eleven years is shown in Figure 3. Since 1975, the consumption of animal products has increased as Koreans adopt a western style diet and consume larger quantities of beef, pork, chicken, and milk. Feedgrain consumption by livestock has increased from 442,000 metric tons in 1975 to 4,617,000 metric tons in 1986. Imports of grains from Thailand have increased particularly rapidly.

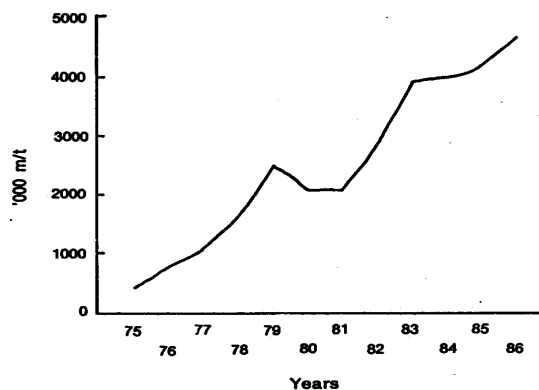


Figure 3. Feed grain consumption

Editorial

International Women's Day

by Seiji Shindo,
Director
CGPRT Centre

Every year on the 8th of March, the world observes International Women's Day, thus acknowledging the role of women in society, particularly their contribution to the development process.

Women account for 40% of the rural labour force in Asia, and are responsible for 50 to 60% of food production. Their role is extremely

important in CGPRT crops production, as a recent study undertaken by the Centre has demonstrated. Female labour makes up 17% of the total family labour spent in lowland rice production in Central Java, whilst it is as high as 40% in upland soybean production. Moreover in rural Indonesia, local marketing and processing activities are traditionally borne by women. For instance, soybean is almost exclusively marketed and processed locally by women for daily household food.

Some questions still remain concerning women and their position in society. Should their specific concerns be viewed in relation to their traditional family and individual roles, or should they be linked to overall family concerns? Should women be treated separately and independently in the development process? How are women involved in decision making processes on

production, household economy and nutrition?

The actual function women fulfill in both farming and family life needs to be identified - by country, ethnic groups and social status - in order to enhance women's roles in development and assure them their rightful place, with the benefits of a better life and welfare. Such studies at a grassroots level in parts of Asia, have as yet failed to provide any conclusive answers.

The convention adopted by the UN General Assembly states that the equal participation of women in society is "the requirement for the full and complete development of a country, the welfare of the world and the cause of peace". These aspirations could be fully realized by fitting women's participation realistically into the existing conditions of each country, society and community.

With these changing patterns of consumption Korea will experience an ever increasing food trade deficit in the future.

Figure 4 shows the trends in imports of major feed grains, which taken together in 1986 reached over five million tonnes.

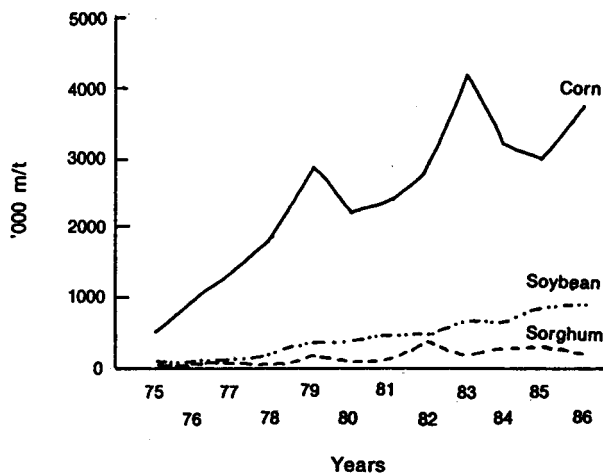


Figure 4. Import

Until 1978 soybean was largely consumed as a processed food in Korea. Koji or soy sauce is made from processed soybean and Kochujang is a staple food prepared by mixing *Koji* with rice, wheat

flour and chili. Tofu (soybean curd), is widely consumed in Korea.

After 1979, the utilization pattern of soybean changed rapidly and its use as a feedgrain for animal consumption is now very high because of the change in the consumption pattern of Koreans.

The consumption of corn as animal feed has increased substantially as has its use for human consumption. Processed corn is chiefly used for starch production as 90% of Korean starch production comes from corn. However corn is also consumed as 'sweet corn', 'corn on the cob' and corn chips.

Future Developments and Decisions

An analysis of the demand-supply relationship and trading conditions for pulses and coarse grains in the Republic of Korea has shown that the self sufficiency ratio of these crops has continuously decreased. The growth of demand for feedgrain has intensified the problem as higher quantities of soybean, corn and sorghum are fed to livestock.

The demand for livestock products will steadily increase with the change in Korean food habits and it is likely that the demand for greater quantities of animal feedgrains will further increase in the future.

The evidence is clear: in the Republic of Korea demand is strong and growing for food legumes and coarse grains and the agricultural sector is not capable of meeting this challenge. As already discussed, yield development of maize is quite good with an increase of almost three tonnes per hectare over the last ten years, while the yield of soybean can still be improved. However, improved production of land is not likely to be the key. It can be seen from figures 5 and 6 that imported soybean and corn are vastly cheaper than the domestic products. It may be pointed out here that this problem is by no means specific to Korea or newly industrialized countries. Similar price disparities can be observed in Indonesia and other countries in the region.

It is not at all sure that the production of coarse grains and food legumes in the Republic of Korea should be seen as inadequate. If we incorporate the small average farm size of one ha in our analysis, it can be appreciated that the situation in Korea is one of duality. While the national economy and especially the manufacturing sector has progressed rapidly, the essential agrarian structure of the agricultural sector still resembles the post-war structure. Foreign competition would win out clearly over the national production. Although productivity improvements of land and labour may alleviate marginally individual farm situations, it seems inevitable that market forces will cause further and essential transformation of Korean agriculture.

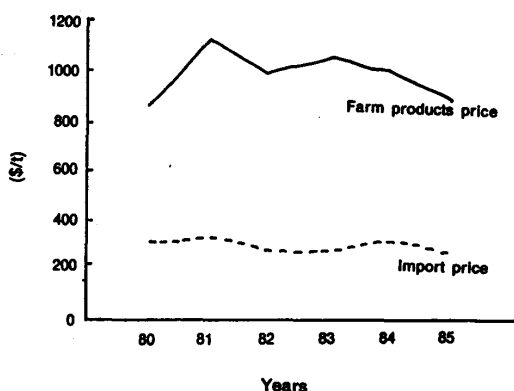


Figure 5. Import and domestic prices of soybean



Figure 6. Import and domestic prices of maize

Evaluation of the Agricultural and Rural Economy of Chiang Mai Valley

Manu Seetisarn and Phrek Gympantasiri.

Introduction

This paper reviews the conditions that contributed to the present development of the agricultural and rural economy in Chiang Mai Valley and its peripheral upland and highland areas. This valley is one of the largest in the region and is one of the most populated and intensively diversified cropped areas in Thailand. Due to limited land in the flood plain, mounting population pressures and increasing service industries, considerable expansion has occurred in the surrounding upland and highland areas. The effects of these changes and the relevant issues involved in their future development are examined.

General characteristics of the Chiang Mai Valley and its periphery

The Chiang Mai Valley, also known as the Chiang Mai-Lampoon basin, is situated along the Ping River between 18°20' and 19°10' north latitude and 98°50' and 99°10' east longitude. The average altitude is about 300 metres above sea level. Between the 330 and 400 metre levels is an upland area beyond the 400 metre levels are the highland areas.

The Valley covers an area of about 150,000 hectares in the cultivated fertile flood plain.

Riceland occupies about 75 percent of the area, the rest consists of diversified crops and fruit trees. In the upland and highland areas, scattered areas of riceland can be found, but it is of very limited importance. Most of these peripheral areas are used for upland crops, fruit and other perennial trees and vegetables.

Even though the valley and its periphery are in the tropics, there are three distinct seasons within a year, the rainy season (July to October), the cool dry season (November to February), and the hot dry season (March to June). Seasonal as well as topographical differences make these areas complementary and suited to the growing of both tropical and temperate crops.

Almost all the riceland in the valley is irrigated. Historically, the valley has been known for its traditional irrigation systems. At present, there are five major government irrigation projects and some 2,000 traditional irrigation systems scattered throughout the entire valley. The major purpose of these irrigation systems has been to provide dependable water during the rainy season because of the unpredictability of rain in the area. For the upland and highland areas, with a few exceptions, crop production depends entirely on the rainfall.

In the irrigated areas, rice is the main crop in the rainy season. Most of the rice grown in this season is glutinous. When water is available in the dry seasons, most farmers use at least part of their riceland for dry-season cropping. Thus in the irrigated areas, the cropping systems are built around rice. The most common cropping pattern in the valley is two crops per year: rice followed by an upland crop or rice. But in some areas, farmers grow three crops per year: rice followed by two upland crops or an upland crop and rice. A few specialized vegetable farms grow four to five crops per year (Figure 1)

Examples of the observed changes in the valley subsystems

In the 1980 analysis (MCP, 1980), there were at least 14 distinctive subsystems in the valley that had been defined according to the availability and reliability of water supply, with factors such as access to markets and processors, opportunities for off-farm employment and distance from Chiang Mai City. The following points briefly outline certain features reflecting changes occurring in these subsystems, which are brought about partly by external interventions and partly through adoption of new ideas and technology by farmers.

The change in the lowland rice system

The lowland valley is dominated by the rice-based systems where rice is cultivated in the rainy season. As the farm size is much smaller than that of the central plain rice farmers, rice is commonly transplanted throughout the valley. Facilitated by the traditional as well as the government irrigation schemes, rice yield is the highest in the country, with an average of 4 ton/ha, compared to 2.5 ton/ha on a country average.

The glutinous rice dominated systems produce mainly for home consumption. The main improved cultivars are Niew San Pa Tong RD6, RD8 and which give an average yield of 2.8 ton/ha. They can be harvested in three months, thus the farmer can grow early cool season crops such as garlic, tobacco, chilli or vegetables. This rice is also in timely supply for diminished stocks and the straw is in high demand as a mulch for vegetable crops, as mushroom culture and for animal feed

| Wet | Warm | |
|----------------------|---------------|----------------|
| | Cool | Hot |
| Rice | | Rice |
| Rice | Tobacco | |
| Rice | Garlic | |
| Rice | Vegetables | |
| Rice | Chilli pepper | |
| Rice | | Soybean |
| Rice | | Peanut |
| Rice | Soybean | RD Rice |
| Early glutinous Rice | Garlic | RD Rice |
| Early glutinous Rice | Garlic | Mungbean |
| Early glutinous Rice | Garlic | Glutinous corn |

Figure 1. Cosmos crappie poems in the Chiang Mai valley.

¹ Improved rice cultivars.

Commercial rice farmers grow non-glutinous cultivars such as Kao Pawk Mali or RDA, which are high yielding. Private exporters have recently introduced basmati-type cultivars which are prized for their aromatic and long grain characteristics. Their yields are lower than the other varieties (2.2 ton/ha) and production costs higher, but the world market price is much higher than for Thai rice and they can be grown in the dry season under irrigation.

Demand being high, there is good potential for Basmati rice cultivation in Thailand, and the Chiang Mai and Chiang Rai Valleys are best suited for Basmati rice. The Chiang Mai Chaiwiwat Rice Mill Company, for instance, has set a target production area of 100,000 rai (16,000 ha). At present, there are more than 20,000 rai of Basmati rice being planted. The Chiang Mai Provincial Agricultural Office has also identified target areas in 9 districts for accelerated production of Basmati rice, seven of these are located within the valley.

The dominance of the rice-soybean system

Soybean now dominates the dry season cropping in the irrigated area. For instance, in the Mae Taeng Irrigated system, soybeans are grown on 50,000 rai, about 80 percent of the irrigated area in the dry season. Soybean began to replace the dry season rice crop roughly at the same rate as the decrease in rice area and reached the plateau in 1981. Water availability in the system, relatively low inputs and labour requirement of soybean which compliment the off-farm and nonfarm opportunity of the farmers, partly explain this change. Triple cropping has been practised in a few spots where traditional irrigation systems overlap with the Mae Taeng Project and water is available during April and June.

The rate of soybean expansion has also accelerated through the collaboration between public and private sector in a soybean seed production programme. Many pilot projects have been developed in the potential target areas and soybeans subsequently expanded to replace other crops with less market potential. The most striking example is the almost total disappearance of tobacco in the Mae Taeng Irrigation system in the 1989 season.

The increase in onion production

Due to post-harvest and storage losses, Thailand generally imported, 3,500 to 4,000 ton annually. As from 1983, imports of onion have been reduced to 984 ton and are decreasing.

Onion production in Chiang Mai is concentrated on the most fertile land with year-round irrigation water. One zone, is at Ban Kat in the San Pa Tong district and the other at Fang, north of the Chiang Mai Valley. In 1984 the Onion Grower's Co-operative was formed to organize better production and marketing, and to provide credits and control imported seeds, consequently the area of cultivation is increasing. At San Pa Tong, the numbers of registered growers increased from 1,660 in 1985 to 2,060 in 1988. In the 1988/1989 season, onion completely replaced tobacco at Ban Kat. It is expected that the total production for the 1988/1989 season in San Pa Tong will reach 15,900 to 20,000 tons, of which about 3,000 tons are to be marketed through the co-operative. A few commercial onion dealers have for the first time, set up sheds to classify the produce before shipment.

The San Sai agro-industrial area

The San Sai district is irrigated by the Mae Fack Project and the traditional double cropping patterns are rice-soybean, rice-potato and rice-tobacco. With the completion of the Mae Ngat Dam which provides additional water to the Mae Fack system, San Sai could become a more productive and intensive cropping area. New cropping patterns are being introduced and adopted by the farmers, such as the introduction and processing of potato and tomato into the traditional tobacco growing area. The setting up of a private research and development station for vegetable seed production, and the building of a food processing plant for tomato and other vegetables indicates that horticultural crops are becoming more important in the area.

In addition to changes in land ownership, the pattern of vegetable cultivation has shifted from a diversified home garden type to a more commercial and less diversified type with only a few species being grown, such as cabbages, chilli pepper and egg-plants. A number of vegetable growers are turning to cut-flower production.

The high demand for land within the city limit leads to a subsequent loss of valuable agricultural land, as exemplified by the San Pee Sua incidence. This area is located along the west bank of the Ping River with rich, recently deposited alluvial soils. It is the main supplier of vegetable crops to the city. The recent high demand for land near the river bank and the high land price offered by the real estate agents (500,000 Baht/rai in 1987-, 1988) have led farmers to sell the land. However the absentee landowners still allow the farmers to grow vegetables for an insignificant rent.

Conditions which contributed to present developments

Government policies and programmes have contributed to the present development. The development of a physical infrastructure, particularly road and transportation facilities, irrigation networks, and airport, have been crucial and conducive to the increase of agricultural production and rural and home industries. The establishment of an industrial service centre and agricultural research centres are also important. The promotion of tourism helps to increase the demand for agricultural produce as well as rural and home industrial products. As a consequence the area is interwoven into the national and international economies.

Due to favourable environmental conditions, farmers in the valley have always intensified and diversified their crops production. They have also engaged in many rural and home industries, e.g., brick and pottery making, bamboo handicraft, cloth weaving and wood carving etc. These farmers and rural people are continually learning about new crops and new activities and are willing to experiment and take risks when a new opportunity opens to them. In the last twenty years, many new crops have been introduced in the areas. Some of them, particularly, potato, onion, and strawberries, have met with considerable success.

Possible effects of urbanization and expansion of Industries

With the few exceptions of the tourist resort facilities that were developed in the upland and highland areas, housing estates and industrial developments occurred in the lowlands, thus the agricultural land areas are decreasing. The average size of farm holdings in the Chiang Mai - Lamphoon

provinces have decreased from 9.1 rai in Chiang Mai and 8.7 rai in Lamphoon in 1981, to 8.8 rai and 8.3 rai respectively, in 1986. Of course, population growth also contributed to the decreasing size of farm holdings, but it is certain that the major factor was the expansion of housing estates and industries.

A further consequence of the loss of agricultural land is the increase in the number of landless agricultural labourers. Some of these people were formerly tenant farmers, but some also were actually owner-operators. Unless they can find non-farm employment, their income will be greatly affected.

The expansion of housing estates and industries has also generated land speculation. Much of the increase in land prices in recent years is a direct consequence of this land speculation. The increase in land price will certainly have an adverse effect on other economic development in general and on agricultural and rural development in particular. The increase in land price also induces the farmers to sell their land just for money, which is then used for consumption purposes. Although they put aside some money for saving, they are now without steady income and will be bound to use their savings before long.

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- MCP 1980. An Interdisciplinary Perspective of Cropping Systems in the Chiang Mai Valley: Key Questions for Research.
- Woodtikarn, P., et al. 1984. Production and Economic of Potatoes in Chiang Mai Province. Kasetsart Extension Journal. 29 (1) 1984: 1536 (In Thai).

CGPRT Centre News and Activities

Introduction to the CGPRT Centre Library

The CGPRT Centre library, established in 1985, is a specialized library which collects and processes information on socio-economic aspects of coarse grain, pulse, root and tuber (CGPRT) crops in Asia. The collection currently consists of over 3000 books and papers, 300 journals and

newsletters plus a comprehensive collection of statistics, report and conference proceedings. The library supports the research of economists and agricultural scientists at the CGPRT Centre providing information on new advances in their special fields of interest.

The collection covers economics, agriculture in general, and the specific CGPRT crops. Most of the items on economics deal with policy, especially the areas of food policy, trade policy and price

policy and the library has a large collection of statistical publications. The subject area on specific crops is divided between cereals, legumes and root crops reflecting the interests of the centre. The crops most extensively covered in the collection are soybean, followed by potato and sweet potato. In the general agriculture section, the primary focus is on tropical farming systems. The geographical areas of the collection are those within the ESCAP mandate. The library has a comprehensive collection of material on palawija or secondary crops in Southeast Asia.

In 1988 the CDS ISIS system was installed in the library which now has computerized storage and retrieval of catalogue records. Information can be accessed via: subject, author, title, classification number, series etc. Users can also browse for the information on the screen and obtain printouts of specified information. The library documents are being processed into an analytical catalogue file so articles in books and journals held in the CGPRT Library can be searched on the database.

The CGPRT Library maintains close working relationships with Indonesian and overseas libraries. Many publications are acquired through gifts and exchanges with other related information centres, documentation centres and libraries. The CGPRT Centre has a vigorous publication programme and many publications are available for exchange.

The Library lends material to CGPRT staff. An inter-library loan service operates within the Bogor area. Research staff from other institutes are welcome to use the reading room and may borrow books via the inter-library loan service through their libraries.

Accession lists of additions to the library are issued bimonthly and distributed to CGPRT staff and to specialised libraries in Indonesia and overseas.

The Library provides photocopies of original documents at a cost per page plus service charge and provides photocopy request forms. Computer searches on CGPRT subjects can be conducted on the library database using the AGROVOC subject headings. The information retrieved can be browsed on the computer screen or made available as a printout at a pre-arranged cost.

The Library has assisted in the compilation of the following CGPRT bibliographies based on the holding of the library and that of other libraries in related fields:

Bibliography on Soybean Research in Indonesia 1978-1988, 1989.

Bibliography in Agricultural Economics: Food Crops and Related Subjects. 1990. (to be published)

Source book of Economics of Secondary Crops. 1990. (to be published).

New Publications

CGPRT Publications are available from the Publication Section, CGPRT Centre, Jal an Merdeka 145, Bogor 16111, Indonesia or from selected distributors

Production and Marketing of Mungbean In Thailand: The Role of Private Sector.

by Boonjit Titapiwatanakun

Working Paper Series

The author has successfully compiled recent information on production, use, marketing and trade of mungbean and black matpe in Thailand. The role of the private sector is detailed, especially in regard to rural and terminal marketing and trade. A competitive market situation exists in Thailand in conjunction with refined grading standards, and the free enterprise policy of the Government has facilitated the involvement of the private sector. This has resulted in an efficient market structure which provides inputs, credit, and trade. It is indicated that for continued progress of mungbean and black matpe, more diversification and utilization of exports and imports is necessary as a strategic precondition.

CGPRT Crops In Indonesia: 1960-1990 A Statistical Profile

Working Paper Series

The report contains a wealth of statistical data on maize, soybean, groundnut, mungbean, cassava, sweet potato and rice. It is the first of a series of country specific reports, outlining development of CGPRT crops. Drawing upon a newly established statistical database, the report provides unique data sets such as district level development in production over 20 years in selected provinces of Indonesia. It also presents wholesale and farmgate price movements based on monthly averages of major crops. Only a fraction of the data available from the database of the centre is presented, but supplementary data is available on request.

Potato and Sweet Potato In Bangladesh

by Md. Ayubur Rahman.

Working Paper Series.

This study was carried out by the author under the auspices of the ESCAP CGPRT Centre, and Dr Rahman analyzes the nutritional value of potato and sweet potato in Bangladesh as well as their roles in food consumption.

Due to the unpredictable climate with floods, droughts and cyclones being common, rice production is uncertain and the author suggests that food diversification is necessary to avoid reliance on rice alone. He proposes that sweet potato and especially potato production, should be exploited fully, as both are more flood resistant and have the potential to become staple crops.

Newly Available Publications from AVRDC and IRR

The following AVRDC and IRR publications are available for purchase in Indonesia from the Publications Section of the Centre and its Indonesian's distribution network as well.

Tomato and Pepper Production In the Tropics

AVRDC 1989. 619 p. Rp 38,250.

Progress in Irrigated Rice Research

IRRI 1989. 390 p. ISBN 971-104-187-7. Rp 11.500.

Research Highlights for 1988

IRRI 1989. 76 p. ISSN 0115-1142. Rp 9.500.

Simulation of Ecophysiological Processes of Growth In Several Annual Crops

F.W.T. Penning de Vries, D.M. Jansen, H.F.M. ten Berge and A. Bakema. IRR 1989. 271 p. ISBN 971-104-215-0. Rp 16.500.

Gene Banks and the World's Foods

IRRI 1989. 248 p. ISBN 971-104-207-X. Rp 13.000.

Bacterial Blight of Rice

IRRI 1989. 235 p. ISBN 971-104-188-X. Rp 11.000.

1987 International Deepwater Rice Workshop

IRRI 1989. 633 p. ISBN 971-104-187-1. Rp 20.500.

Completing the Food Chain

IRRI 1989. 193 p. ISBN 971-104-209-6. Rp 16.500.

ICRA

International Course for Development Oriented Research in Agriculture

ICRA is a foundation organizing post-academic courses for young agricultural scientists working in developing countries. Its aim is to prepare them for applying their specialized training to research designed to produce results which are appropriate to the circumstances of farmers and which are compatible with the broader aims of governments.

The ICRA training will provide participants with the necessary background knowledge and awareness of opportunities for and constraints to agricultural development and enable them to use this knowledge in their own research programmes.

ICRA yearly conducts two identical courses, one Anglophone in Wageningen, one Francophone in Montpellier.

Courses combine theoretical training in Wageningen or Montpellier with a three month field study in a developing county. This provides participants with the opportunity to make an interdisciplinary study of farmers' production systems with a view to identifying priorities for agricultural research and development.

Foundation scholarships are available covering all travel costs, tuition, board and lodging in Wageningen or Montpellier, and in the field, health insurance, and modest allowances for incidental expenses. Funding through external sponsoring is possible.

Courses for 1991 will run from January 14 - August 3 in Wageningen and from April 15 - October 26 in Montpellier.

Closing date for application for both courses is September 1, 1990.

Minimum requirements are:

An MSc or equivalent degree (BAC + 4) from a recognized university or educational institution
Good knowledge of the English or French language
Age under 40

For further information and application form with an indication of course preference write to:

ICRA

Central registration office
P.O. Box 88
6700 AB WAGENINGEN
The Netherlands

CGPRT Centre

The Regional Co-ordination Centre for Research and Development of Coarse Grains, Pulses, Roots and Tuber Crops in the Humid Tropics of Asia and the Pacific (CGPRT Centre) was established in 1981 as a subsidiary body of UN/ESCAP.

Objectives

In co-operation with ESCAP member countries, the Centre will initiate and promote research, training and dissemination of information on socio-economic and related aspects of CGPRT crops in Asia and the Pacific. In its activities, the Centre aims to serve the needs of institutions concerned with planning, research, extension and development in relation to CGPRT crop production, marketing and use.

Programmes

In pursuit of its objectives, the Centre has three programmes which are mutually supportive:

1. Research, which entails the preparation and implementation of studies covering production, utilization and trade of CGPRT crops in the countries of Asia and the South Pacific;
2. Training of national research and extension workers;
3. Information and documentation which encompasses the collection, processing and dissemination of relevant information for use by researchers, policy makers, and extension workers.

Palawija News

Contributors are invited to submit concise summaries of significant social research related to CGPRT crops for publication. Submissions should be limited to two to four double-spaced typewritten text. Two figures (graphs or tables) may accompany the article. Include only references cited. All articles are subject to editing to meet space limitations.

Please send all queries relating to articles in *Palawija News* to Head Publications Section, CGPRT Centre, Jalan Merdeka 145, Bogor 16111, Indonesia.

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Volume 7, Number 1