

ISSN 0285-9637

# 農業計算学研究

第 18 号

1985年12月

(菊地泰次教授定年退官記念号)

京都大学農学部

農業簿記研究施設



菊地泰次教授

# 農業計算学研究

第 18 号

昭和 60 年 12 月

## 目 次

会計公準，会計原則と農業会計	阿 部 亮 耳	( 1 )
農業構造変動の評価論的分析	頼 平	( 13 )
農業長期低利金融の理論的基礎	亀 谷 晃	( 27 )
——農業制度金融とくに土地改良金融を中心として——		
青果物流通における情報処理技術の革新と課題	大 原 純 一	( 38 )
農家家計費の計量分析	今 村 幸 生	( 51 )
——ストーン・モデルの適用——		
牛肉の生産・消費の国際比較	吉 田 忠	( 62 )
——欧米とわが国との比較——		
農業会計理論の対象としての家族経営	稲 本 志 良	( 75 )
地域計画単位としての集落と旧市町村との有効性比較	熊 谷 宏	( 85 )
稲作農家の農業共済制度下での均衡行動理論と リスク・リスボンズ	辻 井 博	( 94 )
農業水利事業の変化と土地改良区会計のあり方	西 頭 徳 三	( 106 )
——勘定科目の改訂を中心として——		
大槻家族農業経営論の検討	武 部 隆	( 125 )
家庭会計から見た農家簿記の問題点	常 秋 美 作	( 136 )
簿記利用による農業経営分析指標の検討	桂 利 夫	( 146 )
作業受委託と農地賃貸借の展開方向	宮 崎 猛	( 159 )
肉用牛生産における共同利用施設の展開	新 山 陽 子	( 168 )
——肉用牛放牧経営に関する企業形態論的把握の一試論——		

## SUMMARIES OF ARTICLES

### Accounting Posturate, Accounting Principles and Farm Accounting

Ryoji ABE

Since the "Business Accounting Principles" in Japan was established in 1949, we can find its effects to farm accounting field in the various aspects. Though the object of farm accounting is only limited to family farm before, nowadays, however, farm cooperatives, minor farm enterprise and big business corporation in livestock raising were born since 1960. Then we need the rules of accounting for these new three types of farming. On this paper, I consider how and what range we can apply the "Business Accounting Principles" to these farm accounting entity in the agricultural fields.

First, how the accounting posturate, which is the assumptions, the "Business Accounting Principles" is based, fit the traditional theory or accounting conventions on the farm accounting field or not.

Second is how to apply the "Principles" itself to farm accounting principles. That is (1) general principles, (2) principles of income statement, and (3) balance sheet principles by each.

As a result of above consideration, I can state as follows:- On the one hand, "Business Accounting Principles" is based on the "dynamic balance sheet theory", mainly on the "periodic income accounting theory" and also on the historical cost, the objectivity is esteemed. On the other hand, economic approaches have been thought much of the farm accounting field in Japan. That is, market value esteemed, and static accounting method is equally esteemed to dynamic accounting method. This tendency is usually observed with "family farm economic survey" or "survey of cost of farm products" by the Ministry of Agriculture, Forestry and Fishery.

Then, if farm accounting posturate is different from business accounting fields, we can not apply the "Business Accounting Principles" to farm accounting field as it is. We can need the other principles, that is we call "Farm Accounting Principles", which is insisted with the special situation in the agricultural fields. On the contrary, if we consider we can apply the "Business Accounting Principles" to the farm accounting on the farm corporation, minor farm enterprises, farm cooperatives and also family farm as the

capitalistic utilization of farming, we can establish the "Farm Accounting Standards" which is included by the general "Business Accounting Principles" and in its case the special problems in agricultural field concentrated not with dead stock but with living assets.

## An Appraisal Analysis of the Change in Agricultural Structure

Taira YORI

Agricultural structure consists of four aspects, that is, the structure of farms by different types of business enterprise, the structure of farms by different farm size classes, the structure of farms by different business entities and the structure of farms by different combinations of types of agricultural production. These aspects are closely related with each other and change gradually in the long run.

The secular trend of agricultural structure was analyzed in Section 1.

According to the rapid economic development for the last two decades since 1955, the farm household economy has transferred its major income source from farm production to off-farm employment in order to keep disguised equilibrium situation with industrial worker's income level.

The living condition of average farm household has already exceeded the one of average industrial worker household by 15%, and the per head farm household income reached at the 81% level of the one of the average industrial worker household in 1983. But the percentage of family farms with at least one full-time male worker of 16-59 years old decreased to only 13.8% in 1985.

In Section 2, the reasons why the farm land has been tenanted only by small acreage from part-time farmers to full-time farmers were analysed. Part-time farmers tend to estimate highly the net return to land per hectare by underestimating the cost of family labor and depreciation and interest of fixed farm assets. On the other hand, the full-time farmers should estimate their net return to land per hectare equally with or lower than that of the part-time farmers because of their higher estimation of the cost of the family labor, depreciation and interest. Because they need to employ additional family labor and fixed assets irrespective of applying the high-level, modern

farm technology.

Finally, the level of maximum payable land rent by the full-time farmer is equal to or a little bit higher than the level of minimum land rent required by part-time farmers.

The transfer of farm land ownership appears to be furthermore difficult because of the psychological reasons essentially created by the land reform implemented after World War II, in spite of the revision made for the farm land legislation recently, i. e., the conversion from an owner-farmer discipline to a large-scale tenant farmer discipline.

We expect that the percentage of rented land will constantly increase by the better understanding of the farm land utilization law, by the increase in scale economies by farm mechanization, and especially by the switch of the farming generation which is expected to take place in the 1990's.

Whether the size of farm business increases by land lease or by the extension of the regional cooperative organization would depend on the intention of the government's agricultural policy and increase of stable employment opportunities in rural areas as well as the development of land improvement which basically constrains an increase in agricultural productivity.

## The Theoretical Foundation for Long-term and Low Interest Rate of Agricultural Credit

Kiyoshi KAMEGAI

The objective of this paper is to present the theoretical foundation for long term and low interest rate of agricultural credit. The problems related to this long term and low interest rate agricultural credit have important implications in Japan's governmental agricultural credit system at present and in the future.

The contents of this paper are as follows:

- (1) To clarify economic characteristics and fiscal meanings of the governmental agricultural credit.
- (2) To investigate relationships between efficiency and loan interest rate in both public and private investment projects.
- (3) Theoretical considerations relating to an appropriate level of the interest rate and scope of objectives of the governmental agricultural credits,

and their influence on backspread of the government agricultural credit institutions.

- (4) To investigate the relationships between the externality and the contributions to public welfare of agricultural investment, and the interest rate of the governmental agricultural credit.

## Innovation and Problems of Information Processing Technology in Marketing for Fruits and Vegetables.

Jun-ichi OOHARA

Today, we have entered upon post-industrial informative (information oriented) society. Value of information is increasing in agricultural sector. This study concerns about "DRESS SYSTEM" (Denden-kosha Real Time Sales Management System) applied to marketing farm products. A summary of the results is shown.

[ I ] DRESS SYSTEM compared with other old informative medium has strong points as follow.

- ① Sharp reduction of the charge for telephone and mail.
- ② Expanding value of data processing and speeding up the progress of business.
- ③ Rationalization of business and labor management.
- ④ Unification of informative medium.

[ II ] Problems of DRESS SYSTEM

- ① Input error of sale slip.
- ② What communication between wholesale companies and agricultural cooperative association should be when contacts by telephone are abolished or reduced? But, these problems were solved or will in time work out.
- ③ Under this system, wholesale companies can send market information to agricultural cooperatives but cannot receive any from them, in other words, DRESS SYSTEM lacks of intercommunication.

[ III ] Conclusion

In the near future, as long as unexpected innovation of new medium will not come in, I think DRESS SYSTEM will spread over our country rapidly. Various original forms of using DRESS SYSTEM may well be exist according to transport conditions. Every prefecture differs market situation or expectation for the function of this system (whether it wants market price or exact calculation information or both).

# Econometric Analysis of Farm Household Expenditure Using the Stone Model

Yukio IMAMURA

In this paper an econometric analysis of household expenditure of farm households with an emphasis on the consistency between expenditure categories is done. Expenditure function or demand function to be used for the household expenditure analysis must satisfy the following four conditions: (1) additivity, (2) homogeneity, (3) symmetry, (4) all the income elasticities do not take the value of one at the same time. R. Stone presented a linear expenditure system which meets all of these four conditions.

The Stone model is applied to the household expenditure data, which is divided into five categories, of farm households and of non-farm households for the period of 1965-1979, and the major results are as follows:

- 1) The Stone model fits very well to the data.
- 2) The predicted per capita consumption quantity at average income level of the farm households surpasses it of non-farm households by 10.7%. This tendency is greatest in the case of the miscellaneous expenditure category.
- 3) The basic consumption of farm households is only 63.6% of it of non-farm households, and this share is also smallest in the case of the miscellaneous expenditure category.
- 4) The basic consumption is 94.6% of the predicted consumption for non-farm households, but this share is only 55.3% for farm households and is 29.9% in the case of the farm households' miscellaneous expenditure category.
- 5) The shares of 71.1% and 10.6% of the supernumerary income of farm households are spent for the miscellaneous and the food expenditure categories respectively. These shares for non-farm households are 60.4% and 14.6% respectively.
- 6) Income elasticity of food expenditure category is 0.3858 for farm and 0.4422 for non-farm households, and that category has the property of necessary goods. These elasticities for miscellaneous expenditure category are 1.5298 and 1.4227 respectively, and this category has the characteristic of luxurious goods.
- 7) All the own price elasticities are less than one, and the elasticity for



the miscellaneous expenditure category has the largest value between categories. Farm households' own price elasticities are higher than those for non-farm households.

8) Farm households' elasticities of substitution between expenditure categories are greater than those of non-farm households' elasticities. These elasticities for farm households are greater between miscellaneous and the other expenditure categories than between other expenditure categories.

## International Comparison of Production Systems and Consumption Types of Beef

—especially among Japan, the U. S., France and West Germany—

Tadashi YOSHIDA

Production systems as well as consumption types of beef seem to have a wide variation among the developed countries. In France and West Germany, beef comes from dairy cows and young dairy bulls which are fattened with whole-corn-silage for short term, therefore it is very lean. In the U.S., crossbred steers and heifers of beef breed are fed with corn for short term, but in Japan, heifers and steers of beef breed and steers of dairy breed are fed with concentrate feed for long term to obtain marbled beef.

This wide variation of beef production systems have a close relationship with beef consumption types in each country. In West Germany and France, traditional cooking method of beef has been boiling, shimmering or stewing, and with this method lean meat tastes very well. In the United States, people enjoy beef mostly as beef steak. And grain-fed beef with rich flavor, juiciness and tenderness is good for beef steak. Traditionally, Japanese people have taken beef as Sukiyaki, in which beef is cooked with wet heat, i. e. vegetables and high quality beef are boiled for short time with soysauce. In this case beef is necessary to be marbled in order to reserve flavor and juice in beef during it is cooked.

After the World War II, beef consumption types have changed significantly in most countries. In France, people began taking beef as beef steak and now most of young bull beef are exported. In the U.S. and West Germany, lean beef began to be preferred, because of people's increasing interest in health problems. In Japan, beef cooking method began showing a wide

diversification, including the methods with dry heat. In most countries, beef production systems are changing to adjust themselves with the changing consumption types, except in Japan. This is a fundamental problem of Japan's beef production system.

## Characteristics of Family Farm Related to the Farm Accounting Theory

Shiro INAMOTO

The objective of this paper is to investigate the characteristics of family farm as an accounting entity and to clarify the scope and method of accounting for the family farm, i. e. the theoretical problems of accounting in order to illuminate the scope and method of farm accounting theory for the family farm. In the background of this objective, there exists an academic interest of identifying the effectiveness, implications and limits in the application of the general accounting theory, which has recently been developing remarkably, to the family farm.

From these view points, the conditions related to accounting inside and outside of family farm are analyzed, and the following points are especially emphasized.

- (1) As the family farms have changed in various ways in recent years, some large scale and highly profitable farms have appeared.
- (2) These large scale and highly profitable farms have greatly widened the role of accounting from production management to marketing and financial management, so on.
- (3) The widening in the role of accounting for these family farms is increasing its relationship with the life cycle of these farms.
- (4) There is an increasing need to revise the recognition of the decision making process in family farms from the single member type to the multiple members type. At the same time, motivation of family farms in their decision making process has increased its importance.

In this paper, it is pointed out that family farms have matured recently as accounting entities as described above, and the approach by the general accounting theory to them are effective and having many implications.

## Comparative Analysis on the Effectiveness of Rural Community and Original Village as Rural Planning Area Unit

Hiroshi KUMAGAI

Recently, it is often that rural community is in general considered as the area unit for the rural planning. But, it is observed, original village can be considered as the area unit, too. In this research, comparative analysis on the effectiveness of rural community and original village as rural planning area unit is made.

Considering the definition of rural community, this word was first used in Agriculture Census, in 1955. In this paper, first, the outline of rural community is analyzed according to Census materials. Second, the effectiveness of rural community considered as the rural planning area unit is analyzed with regard to the following points: 1) Process of planning, 2) Contents of plans made, 3) Realisation of plans made. Third, the problem of using rural community as the area unit is made clear. Fourth, the effectiveness of original village considered as the rural planning area unit is made clear in the above mentioned method. Fifth, the effectiveness of rural community and original village is analysed comparatively.

## A Theory of Equilibrium Behavior of Rice Farmers under Japanese Crop Insurance Institution and Their Risk Response

Hiroshi TSUJII

The rice insurance institution has had a long history in Japan since it was established in 1938. It has been a heavily subsidized multiple-risk crop insurance scheme, and the extent of subsidization has been increasing to an extreme level until recently. But, to the author's knowledge, comprehensive economic analysis of this institution has never been done, except one by the present author which is published as a chapter in a monograph on crop insurance by IFPRI and Johns Hopkins University Press in 1985. In that

paper, the microeconomic framework for the analysis is not clarified. The first objective of the present paper is thus to describe algebraically and graphically the equilibrating behavior of rice farmers under the compulsory rice insurance institution applying the economic theory of uncertainty, in order to provide the author's previous paper with a theoretical foundation for the econometric analysis conducted there.

In the previous paper, the basic approach was the positive risk response analysis of the rice farms. There have been only a few positive risk response studies in the world, and there, farmers' response to changes in risk has been sought, but the part of the total response caused by the changes in farmers' risk averseness has not been identified. Since the risk and the risk averseness are affected by different variables, and these variables are affected by different policy instrument variables, it is, in the authors judgement, important from the point of view of policy analysis to estimate separately the responses caused by changes in risk and by changes in risk averseness. In the previous paper, this separate estimation of risk response was tried using the part of insurance premium paid by farmers as a proxy variable for their risk averseness. The second objective of the present paper is to support this approximation theoretically based on the microeconomic framework for the behavior of rice farms under the crop insurance institution mentioned above.

## On Item Classification of Land Improvement District Accounting under the Economic Development

Tokusou SAITOU

The structure of irrigation projects has changed very much in the period of high economic growth since the early 1960's in Japan. Particularly, the operation and maintenance costs of irrigation facilities have been pushed upward. The main reasons are the following four: (1) the extremely large and highly efficient facilities; (2) the increasing part-time farming and rough management of paddy field irrigation; (3) the urbanization of benefited area; and (4) the irrigation water pollution and obstacles. In spite of those changes, larger number of land improvement districts use still the single entry book-keeping, but this is not useful to record and count increases-decreases in amount of

the multifarious economic activities under the rapid structural changes.

The purpose of this paper are to clarify the functional nature of irrigation and drainage works in the urbanized area at present and to classify the items of irrigation association accounting. The analysis is based on the case of Meiji-Yosui Land Improvement District in Aichi Prefecture.

Some of the important points of this paper are as follows.

(i) Activities of land improvement district for irrigation are divided into two important portions, fundamental function and water-use function. The former defines activities to operate the water control organization such as general meeting, committees, general affairs and financial, the latter means functions concerning supply of irrigation water and water quality protection by operation of facilities such as a large dam, branch canals, ditches and pumps.

(ii) Account system of land improvement district also consists of two parts, fundamental items and water-use items. In short, the former is to record and count in amount of fundamental economic activities and so the latter for water-use functions.

(iii) Classifying items and recording individually amount of the multifarious economic activities, it become clear that we can calculate exactly the water charges for farmers, the utility charges in the public activities and water pollution cost.

## On the Family Farm Concept of Professor Otsuki's Farm Business Theory

Takashi TAKEBE

The main purpose of this paper is to examine the late Professor Otsuki's view on the issues of family farm. His theory of family farm is constructed based upon the essential features of agricultural production, and hence his attitude toward the issues of family farm was also grounded on the essences of agricultural production.

It is well-known that Professor Otsuki was in favor of small-sized farm business, but it does not seem to be clearly known why that is so. Allowing for this in mind, the present paper examines his way of thinking about the issues of family farm, taking examples of his policy proposals in favor of small-sized farm business.

Examined first is his defining of agricultural production, and then explained is his thesis on why such an agricultural production was necessarily carried out by family farms. Also examined is Professor Otsuki's analysis of the characteristics of farm family labor, which had led him to make various pre-war as well as post-war policy proposals emphasizing the importance of family farms in the Japanese agriculture. With all these examinations, this paper finally makes it clear that Professor Otsuki had judged how the share of "amusing" portion in the total family labor was significantly large.

## What Are Problems in Family Farm Bookkeeping in View of Home Accounting ?

Misaku TSUNEAKI

In recently the family farmer has faced enormous changes in living as a consumer, and it becomes very important and necessary to get accounting information in order to surely manage his household as well as farm business. Therefore the purpose of this paper is to examine what are problems in Self-accounting bookkeeping system for family farm in view of "Home accounting". This results are as follows;

First, to manage sufficiently the property of household, the building, land, credit assets and liabilities for living should be separated from the whole property of family farm, and durable consumer goods is treated as such to be dissipated immediately when they are purchased, but one making fit some conditions of them should be listed in property book.

Second, the income of family farm economy contains some kinds of evaluation income of which it is difficult to dispose at household. Because of this, an income should be listed in accounting statement with distinguishing them in view of management household.

## An Investigation of the Analytical Criteria for Farm Management Using Farm Accounting Data

Toshio KATSURA

There exist wide variations in the analytical criteria for farm management discussed in relevant books and papers.

The reasons for this variation are as follows:

- (1) Differences in the management characteristics between business firms and farm firms.
- (2) Differences in the definition of farm management entity.
- (3) Differences in the objective or viewpoint of analysis.
- (4) Differences in the availability of data for the management analysis.
- (5) Differences in the ability or objective of management analysis of farmers.

The objective of this paper is to classify and integrate these widely variant farm management analytical criteria, and contributes to a synthesis of the methods for farm management analysis. In order to achieve this major objective, firstly, the differences in the management characteristics between business firms and farm firms are identified. Secondly, how these differences influence the utilization of the analytical criteria for the management analysis of business firms and farm firms is investigated. Thirdly, comparison of the analytical criteria presented in six major monographs dealing with farm management analysis is conducted. Finally, the importance of farm management analysis for control and administration of farm firm is emphasized, and the need for establishment of the general method of farm management analysis is suggested.

## Directions of Contract Farming and Land Lease

Takeshi MIYAZAKI

Mainly, land lease markets in Japan are classified into oligopoly, oligopsony and bilateral oligopoly. In oligopsony and bilateral oligopoly, farm land lease and contract farming for part working process have strong competitive relation and farmers' groups encourage the development of contract farming for part working process.

Regarding economic conditions of contract farming, on the one hand, profitable condition of contract farming for part working process in rice production comparing with buying the machine is extended. But on the other hand, profitable condition of farm land lease comparing with contract farming for full working process in rice production is extended. Therefore, nowadays when it can be expected that the rent and the charge of contract farming for full working process are increased, economic conditions for developing the

farm land lease are extended.

Finally two plans for developing the farm land lease are suggested.

## Agricultural Community and Public Institution in Beef Production

—A Study on the Pasture by Its Type of Enterprise—

Yoko NIYAMA

In beef production, the pasture is managed by the farmers groups or the agricultural cooperatives, i. e. the local government in Japan. The type of enterprise of the pasture is farmers organization, and cooperative association, public enterprise. Those are that the customary use of range and woodland pasture by the village community changed over. This change arose while Wagyu feeding specialized in beef production in about 1960-1970. Especially, in the case of grassland establishment in range and woodland pasture, new grassland is managed by the agricultural cooperatives or the local government. This study is to explain those processes and make an analysis of management structure and problem on each type of enterprise.



### 本号執筆者

阿部亮耳	京都大学農学部教授
頼平	京都大学農学部教授
亀谷晃	京都大学農学部教授
大原純一	愛媛大学法文学部教授
今村幸生	奈良女子大学家政学部教授
吉田忠良	京都大学農学部助教授
稲本志良	京都大学農学部助教授
熊谷宏博	京都大学農学部助教授
辻井徳三	京都大学農学部助教授
西頭隆	山口大学農学部助教授
武部美作	京都府立大学農学部助教授
常秋利夫	山梨大学教育学部助教授
桂崎猛	京都大学農学部助手
宮山陽子	京都大学農学部助手

---

昭和61年3月5日 印刷

昭和61年3月10日 発行

発行 京都大学農学部農業簿記研究施設

京都市左京区北白川追分町

印刷 明文舎印刷株式会社

京都市南区吉祥院池ノ内町10

---

昭和 年 月 日

殿

京都大学農学部農業簿記研究施設

刊行物資料の送付について

このたび下記の資料を刊行いたしましたので、御高覧いただきたく御送付申し上げます。

お手数ながら受領書を御返送下さるようお願いいたします。

なお、今後とも資料御刊行の節は御惠贈賜りたくお願いいたします。

記

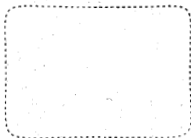
農業計算学研究 第18号

1部

□  
□  
-  
□6  
□0  
□6

京都市左京区北白川追分町

京都大学農学部  
農業簿記研究施設 御中



受 領 書

農業計算研究 第18号 1部

上記刊行物受領いたしました。

昭和 年 月 日

住 所

氏 名



# THE FARM ACCOUNTING STUDIES

No. 18      December 1985

---

## CONTENTS

- Accounting Postulate, Accounting Principles  
and Farm Accounting..... Ryoji ABE...( 1 )
- An Appraisal Analysis of the Change in  
Agricultural Structure ..... Taira YORI...( 13 )
- The Theoretical Foundation for Long-term and  
Low Interest Rate of Agricultural Credit ..... Kiyoshi KAMEGAI...( 27 )
- Innovation and Problems of Information Processing  
Technology in Marketing for Fruits and Vegetables ..... Jun-ichi OOHARA...( 38 )
- Econometric Analysis of Farm Household Expenditure  
Using the Stone Model ..... Yukio IMAMURA...( 51 )
- International Comparison of Production Systems and  
Consumption Types of Beef  
—Especially among Japan the U.S., France  
and West Germany— ..... Tadashi YOSHIDA...( 62 )
- Characteristics of Family Farm Related to the Farm  
Accounting Theory ..... Shiro INAMOTO...( 75 )
- Comparative Analysis on the Effectiveness of Rural Community  
and Original Village as Rural Planning Area Unit..... Hiroshi KUMAGAI...( 85 )
- A Theory of Equilibrium Behavior of Rice Farmers under Japanese  
Crop Insurance Institution and Their Risk Response ..... Hiroshi TSUJII...( 94 )
- On Item Classification of Land Improvement District Accounting  
under the Economic Development ..... Tokusou SAITOU...(106)
- On the Family Farm Concept of Professor Otsuki's  
Farm Business Theory ..... Takashi TAKEBE...(125)
- What Are Problems in Family Farm Bookkeeping in  
View of Home Accounting? ..... Misaku TSUNEAKI...(136)
- An Investigation of the Analytical Criteria for Farm  
Management Using Farm Accounting Data..... Toshio KATSURA...(146)
- Directions of Contract Farming and Land Lease ..... Takeshi MIYAZAKI...(159)
- Agricultural Community and Public Institution in Beef Production  
—A Study on the Pasture by Its Type of Enterprise—  
..... Yoko NIYAMA...(168)
- 

FARM ACCOUNTING INSTITUTE  
FACULTY OF AGRICULTURE  
KYOTO UNIVERSITY  
KYOTO, JAPAN