

# FAMILY FARMING POSSIBILITIES

FINNISH - BALTIC COMMON SEMINAR  
HELSINKI FINLAND 1990



IMBIA

MAATALOUDEN TALOUDELLISEN TUTKIMUSLAITOKSEN JULKAISUJA  
N:o 61

PUBLICATIONS OF THE AGRICULTURAL ECONOMICS RESEARCH  
INSTITUTE, FINLAND, No. 61

## **FAMILY FARMING POSSIBILITIES**

Finnish - Baltic Common Seminar  
Helsinki Finland 1990

Helsinki 1990

ISBN 951-9202-90-0  
ISSN 0438-9808

*Cover: Anna-Maija Heikkilä*

Helsinki 1990. The Finnish Government Printing Centre

## FAMILY FARMING POSSIBILITIES

Agricultural Economics Research Institute  
Lutnantintie 13  
SF-00410 Helsinki  
Finland

**Abstract.** The agricultural economists from Finland and the Baltic countries held their first joint seminar in Helsinki 28.-31.5.1990. The theme of the seminar was: Family farming in Finland and in the Baltic countries. The agricultural economists from the host country presented the structure and particular features of agriculture in Finland, especially concerning milk and grain production. The livelihood of farmers as well as price determination and the Farm Income Act were also presented. The subjects discussed included agricultural advisory services, financing of agriculture, the producer organizations, rural development and environmental management. The Estonian, Latvian and Lithuanian parties gave reviews of the present structure of agriculture as well as of current developments in respective countries. In addition to general economic development, the participants from the neighbouring countries presented economic social and psychological conditions for farming. It became obvious from the discussions that an interest for and some experiences of family farming exists in all the Baltic countries mentioned. However, the extent of family farming will be relatively limited in the near future. The Finnish experience of family farming was found interesting and could be of use by modifying it to the circumstances concerned.

---

Index words: Family farms, Finland, Estonia, Latvia, Lithuania.

---

## Contents

|   |    |
|---|----|
| Family farming in Finnish agriculture<br><i>Matias Torvela</i> .....  | 7  |
| Family farms specializing in milk production in Finland<br><i>Anna-Maija Heikkilä</i> .....   | 17 |
| Family farms specializing in grain-growing in Finland<br><i>Ossi Ala-Mantila</i> .....  | 25 |
| Social and psychological preconditions for family farming in Lithuania<br><i>Saulius Budvytis</i> .....                               | 33 |
| About the possibilities for the development of family farms in the Estonian SSR<br><i>Jaan Kivistik and Viktor Jullinen</i> .....     | 39 |
| Economic and organizational problems in the formation of farmers' household in the Latvian Republic<br><i>Dmitrijs Romanovs</i> ..... | 45 |
| Protecting the income level of Finnish farmers<br><i>Lauri Kettunen and Marja Hokkanen</i> .....                                      | 51 |
| The structure of Finnish agriculture and rural development<br><i>Seppo Aaltonen</i> .....   | 61 |
| Possibilities of reforming the agrarian structure of Estonia<br><i>Johannes Kaubi</i> .....   | 71 |
| Prospects for mechanization and maintenance on a family farm<br><i>Jonas Vegys</i> .....  | 77 |
| Current situation and perspectives of agriculture and organizational goals of farming in Lithuania<br><i>Antanas Poviliunas</i> ..... | 81 |
| General goals for the Agricultural Advisory Services in Finland<br><i>Mikko Siitonen</i> .....  | 85 |
| Environmental management in Finnish agriculture<br><i>John Sumelius</i> .....   | 91 |

|  |     |
|--|-----|
| The activity of the Finnish Farmers' Union MTK<br><i>Esa Härmälä</i> .....   | 99  |
| Cooperation relations in agriculture in conditions of diversity of<br>organizational forms of production<br><i>Jaan Timmermann</i> ..... | 101 |
| The modelling of the activities on a family farm under market conditions<br><i>Natalija Kazlauskiene</i> .....                           | 105 |
| Family farming in Lithuania from the historical and economical point of<br>view<br><i>Pranas Pabreza</i> .....                           | 109 |
| Memorandum .....   | 115 |
| Appendices.....  | 117 |

# FAMILY FARMING IN FINNISH AGRICULTURE

MATIAS TORVELA

*Agricultural Economics Research Institute  
Helsinki, Finland*

## 1. Agriculture as an element in the national economy

Finland's economy has developed favourably in the 1980s, and a similar trend has prevailed in many other industrialized countries. During this time, the proportion of the gross national product accounted for by agriculture has gone down to 3%. The number of people working in agriculture decreased by one fifth in the 1980s. Today, some 190 000 people are employed in agriculture, or 8% of the employed work force.

An average of 30% of the gross return from agriculture is net farm income, i.e. compensation for the work input of the farming family and the capital invested in agriculture by the family. In 1988, net farm income totalled FIM 6.9 billion, accounting for some 2% of the gross national product. The proportion of the gross national income accounted for by agriculture is lower than the proportion of Finland's employed work force accounted for by the farming population. On the other hand, farming families engage in other work alongside agriculture. The income of an average farming family consists of 60% net farm income, 25% wages, 10% forestry and the rest of pensions, etc.

There are 175 000 farms with more than 2 hectares of arable land in Finland. An average farm has 14 to 15 hectares of arable land and close on 40 hectares of forestry land. Farm size has increased, although slowly. Farms in some areas of southern Finland have more than 20 hectares of arable land on average, while the farms in the some northernmost parts of Finland have an average of even 6 to 7 hectares. On the other hand, the forest areas owned by farmers are bigger in the north (Figure 1). Renting arable land has increased somewhat. Farmers rent a total of 260 000 hectares of arable land, a good 10% of Finland's total arable area.

Private owners hold 99% of all farms. The State, the municipalities and other corporate bodies own a mere 1%. Independent farmers own 80% of all privately-owned farms and the rest are in the hands of heirs and family groups.

Livestock is the dominant sector in agricultural production. In northern Finland in particular, farms engage primarily in cattle farming. 65% of the total return from agriculture is accounted for by livestock and 23% by crop farming. The rest consists of rental income, agricultural subsidies and various compensations paid out to balance production.

Finland's arable area totals 2.2 million hectares. The bulk of all crop farming

serves livestock, viz. hay, silage and pasture grassland account for one third of the arable area, and fodder grain accounts for 50%. A mere 15% of the arable area turns out products used directly for human consumption.

The basic aim in agricultural production is to safeguard the nation's self-sufficiency in the most important foodstuffs. This aim has been reached, although at times certain products have been imported to even out unfavourable seasonal fluctuation or the effects of exceptionally low crops. The biggest problem in agriculture is overproduction from livestock farming. Reducing this excess is problematic, since domestic consumption of foodstuffs has been going down nearly as fast as production has been cut.

## **2. Agricultural structures**

### **2.1. Farm size and production lines**

The following review looks at the structures of agriculture and farming as a livelihood. All working farms with more than two hectares of arable land are included. A small number of farms owned by heirs and family groups are excluded. The number of farms is going down by a few per cent each year. The number of small farms has decreased the most, while the number of large farms has increased through purchases of land and renting (Figure 2).

In Finland farmers usually own most of their farm but may have rented additional land. There is more arable land in the southern and western parts of the country and more forestry land in the east and north. There are very few farms without any forestry land, and these are located primarily in the south and west of the country. The small holding is the dominant farm type in Finnish agriculture. In the 1980s the number of small holdings has, however, decreased radically and the number of large farms increased somewhat. In the early 80s, slightly less than 20% of all farms either discontinued production or were merged with larger farms. Most farms, or some 40%, are located in southern Finland, one fourth are in central Finland, some 20% in southern Ostrobothnia in the west, and less than 15% in northern Finland.

Finnish agriculture is traditionally livestock-oriented. Today, a considerable proportion of Finnish farms are livestock farms or mixed livestock and plant cultivation farms (Figure 3). Recent cutbacks have focused largely on milk production. Cattle farms account for some 45% of all farms today: two thirds of them are dairy farms and the rest beef and mixed farms. 6% are pig farms, 3% poultry farms and 12% grain-growing farms, and 5% grow potato, sugarbeet and other special crops. One third of all farms continue to turn out multiple products. The productivity of small diversified farms is usually lower than average, either because of the farmer's advanced age or other reasons. Bigger farms with diversified production specialize in a number of products and may be extremely efficient.

Cattle farms are distributed fairly evenly between the various parts of the country. Pig farms are mainly located in southern and western Finland, and grain and other plant cultivation farms in the best crop farming areas in southern Finland. Geographical situation affects production. Growing conditions allow bread grain to be grown mainly below the Vaasa-Tampere-Jyväskylä-Joensuu line. The fodder grain zone goes as far



*Ossi Ala-Mantila*

*A group of dignitaries participated in the seminar. Prof. Matias Torvela from Finland (left), Prof. Antanas Poviliunas from Lithuania, Dr. Johannes Kaubi from Estonia and Director Inesis Feiferis from Latvia .*



*Juhani Ikonen*

*In his opening speech Prof. Matias Torvela noted that this seminar is likely to have been the first occasion in which the agricultural economists from Finland and the Baltic countries meet for common negotiations .*

up north as Oulu in the coastal areas but ends with the northern borders of Kuopio province further inland (Figure 4). In normal years, grass and fodder grain in some places can be grown as far up as the Pello-Rovaniemi-Kuhmo line. Further north, production conditions begin to grow poorer, including those for grass, and crops are smaller. The terrain in the east and north is rolling, and there are more stones in the soil cultivated than in the actual grain-growing areas.

## **2.2. Farming as a livelihood**

Farm sizes are so small that they often do not provide livelihood for a whole family. Therefore most farms under 10 hectares, and nearly 50% of all farms over 10 but under 20 hectares, can be considered part-time farms or sources of subsidiary income. In this context, farms earning less than 50% of the total income of the farming couple from agriculture and forestry are classified as part-time farms. The corresponding proportion for subsidiary farms is 50 to 75%. The review is based on tax data on the farming couple. An average farm is inhabited by 1.8 farmer and spouse, for some 20% of all farmers are single. Ten years ago more than 50% of all farms were full-time farms, with the farming couple making more than 75% of their total income from agriculture. Today full-time farms represent no more than something over one third of all farms (Figure 5).

'Spare time farms' have increased most in proportion to the others: the farming couple earn their livelihood in other occupations, with agriculture accounting for a minor proportion of their income. Part-time farms usually concentrate on plant cultivation or diversified production, while full-time farms focus on livestock. Part-time, subsidiary and full-time farms are distributed fairly evenly around the country.

It can be shown that a family of 2.5 people can manage a 30- hectare farm with approximately 20 cows with an average level of available technology. This requires, however, overtime work or hired help during plant cultivation seasons. With more advanced technology, a family can manage 40 dairy cows and 45 hectares of cultivated land. If other products, such as beef and bread grain, are turned out apart from milk the manageable farm size is roughly the same as that for a farm specializing in milk production. A family specializing in grain growing can handle some 75 to 100 hectares, depending on the level of mechanization. Farm size is limited primarily by the work seasons in spring, early summer and at harvest time.

## **3. Farm families' livelihood**

The above already shows that an average Finnish farm obtains its income from a number of sources: in 1986 income from agriculture accounted for a good 50% of the total income of the farming family (Figure 6). Computed income from forestry accounted for less than 10%. The computed income from forestry based on tax data and under review here illustrates the average long-term potential income.

Wage income from outside the farm accounts for more than one fifth of the income of an average farm. Naturally, the proportion is higher for the smallest farms. The

proportion accounted for by property income, such as rent, interest on deposits, share dividend and such, is small. Most farmers are middle-aged or older (over 50), and pension income accounts for 10%. The farmers in the smallest farm category are elderly, and pension income accounts for a larger proportion in their case.

In 1986 total income for an average farm was some FIM 56 600 per person, i.e. total farm income divided between farmer and spouse. Taxes took up 25%, or FIM 14 000, which left some FIM 42 600 per person for the family's private consumption, living expenses, etc. The corresponding sum for farmers with less than 10 hectares of arable land was FIM 35 000. For farms of above-average size (20-30 ha) the figure was well over FIM 50 000 and for farms over 50 ha slightly under FIM 80 000 (Figure 7).

One of the goals at agricultural policy is to safeguard equal income trends for all farmers in the various parts of the country. We can say that we have been successful in this policy of supporting farmers, for income differences are fairly small between farms of equal size with the same production line in various parts of the country. For example, the financial result of the small cattle farms in northern Finland may exceed that of their southern equivalents. Larger farms, too, may achieve the same results in the north as they do elsewhere in the country.

Farm-specific surveys show that the net farm income from livestock farming is higher than that from plant cultivation (Figure 8). We must keep in mind, however, that on livestock farms both farmer and spouse work full-time throughout the year. On plant cultivation farms one or both earn elsewhere for most of the year, thus increasing the family income.

A look at the achievements of farms of equal size reveals that some part-time farms have reached even a slightly higher income level than full-time farms. Since most part-time farms are smaller than full-time farms, however, their incomes average slightly below those of full-time farms (Figure 9). Comparable part-time farm earnings are proof of the fact that income formation in other fields is relatively good compared with agriculture. On the other hand, part-time farmers often have to do agricultural overtime work alongside their main profession.

#### **4. Income levels of farmers and other population groups**

Since the 1950s, agricultural price laws have been aimed at safeguarding equal income trends for farmers and other wage-earners. In farm categories providing full employment for the farm family, the net farm income per capita comes to some 65% of the average wage income of industrial workers. Farms with more than 30 hectares of arable land reach the income level of industrial workers.

In a comparison of primary income (income from agriculture, forestry, other entrepreneurial income, and wage income), in recent years farmers have reached an average of 70 to 75% of the income of industrial workers, computed per economically active person. Available income illustrates the consumption possibilities of the families. In addition to the actual income, the computation method for disposable income takes into account taxfree allowances, pensions and other income transfers as well as taxation, social security payments and other income transfers paid. Since the households of

farm families are usually bigger, their disposable income per family is higher than that for industrial workers. Per capita income for farm families averages 95% of the available income of industrial workers. Income differences caused by farm size have decreased, so that even the smallest farms reach 80 to 85% of the available income level of industrial workers.

In the case of per capita available income, farmer households reach 90% of the available income of all wage-earners and 65 to 90% of that of salaried employees, exceed the level of agricultural and forest workers by 10% and reach 95 to 100% of the level in the industrial, construction and service sectors.

A farm is an enterprise, so it is natural to compare farmers' income with the incomes of other entrepreneurs. Our comparison group is private small entrepreneurs. Farmers' primary income per economically active person averages some 70% of the primary income of small entrepreneur households. Available income is roughly the same for both. If looked at by sector, the available income of farmer households is roughly the same as that of small entrepreneurs in trade and the accommodation business and slightly higher than that of small entrepreneurs in industry and construction. Farmers do not quite achieve the income levels of transport businesses and other service industry entrepreneurs.

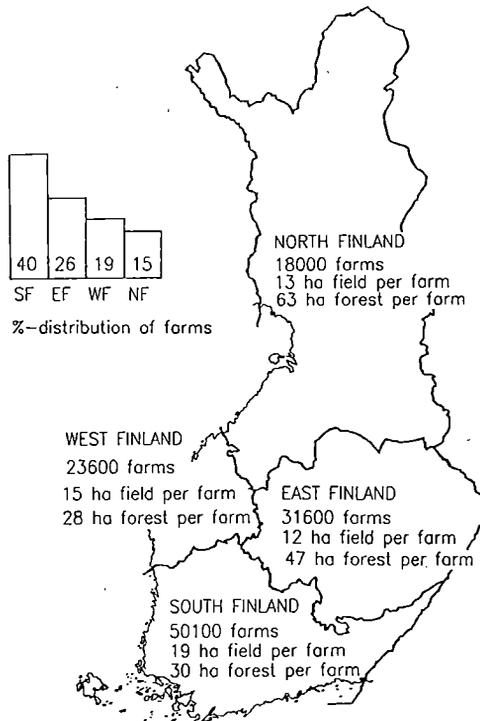


Figure 1. Farm distribution by area 1986.

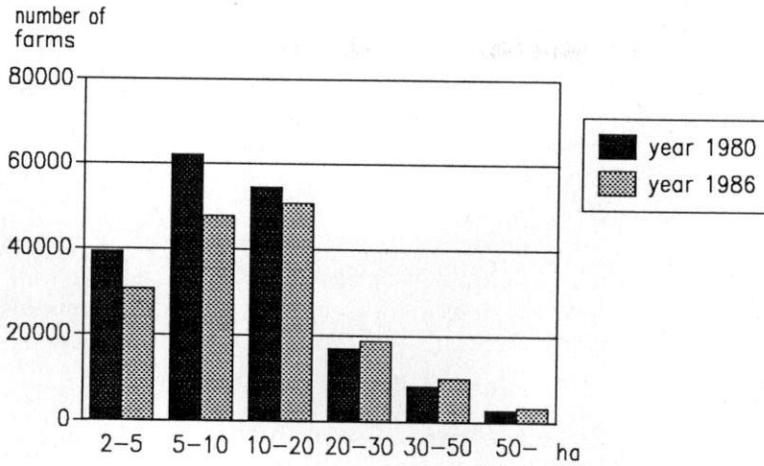


Figure 2. Trend in number of farms by farm size in Finland 1980-1986.

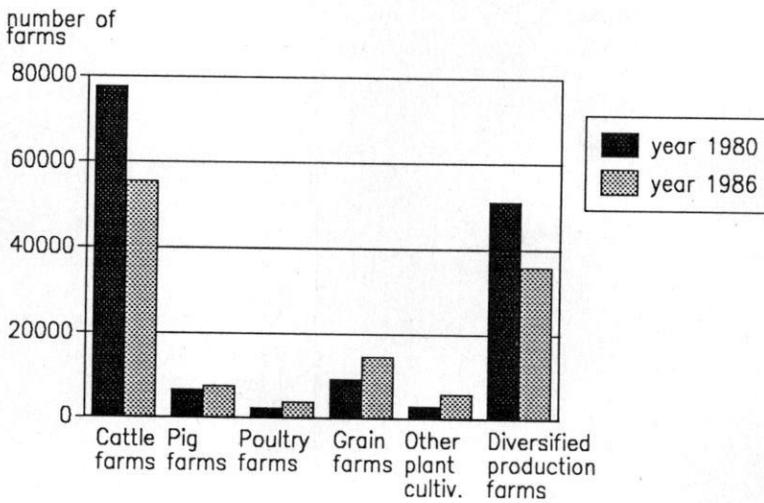


Figure 3. Number of farms owned by private persons, by production orientation, 1980-1986.

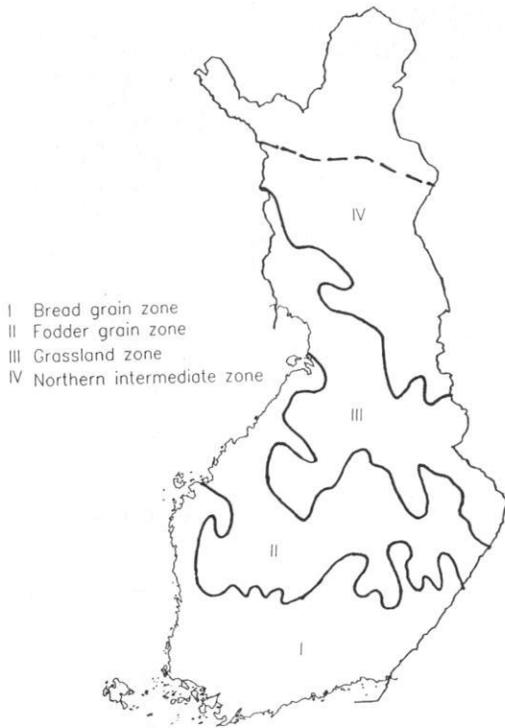


Figure 4. Zones and areas of cultivation.

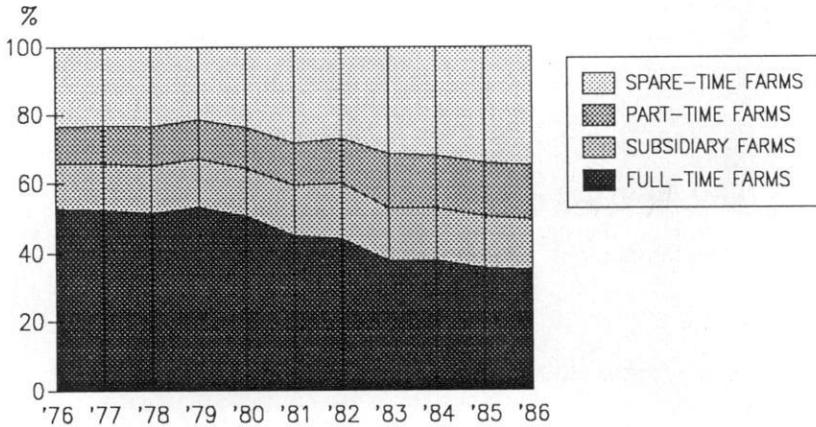


Figure 5. Distribution of farms (%) on a part-time/full-time basis, 1976-1986.

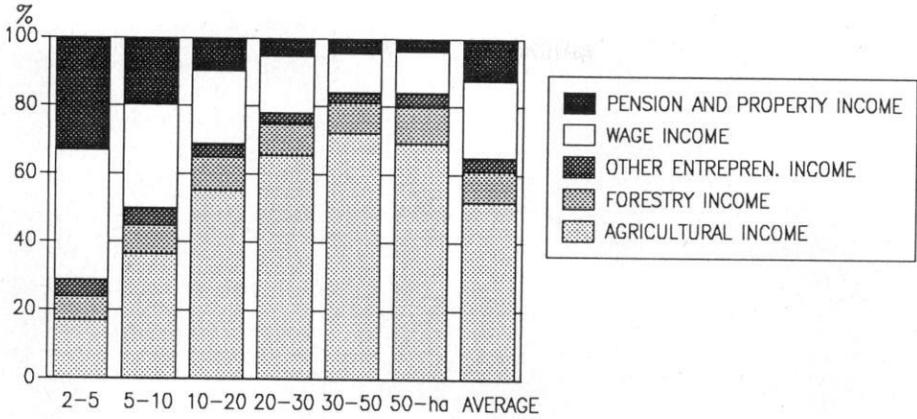


Figure 6. Distribution of farmers' income formation (%), total income =100.

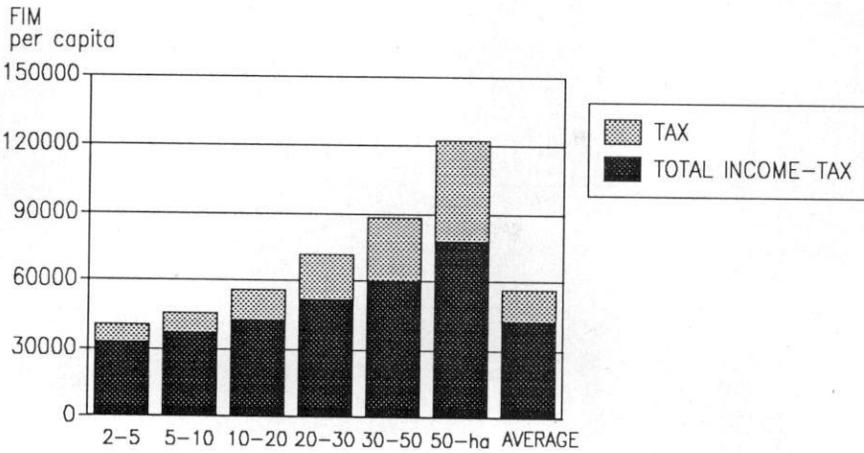


Figure 7. Total net income of farming couples (FIM per capita) by farm category, 1986.

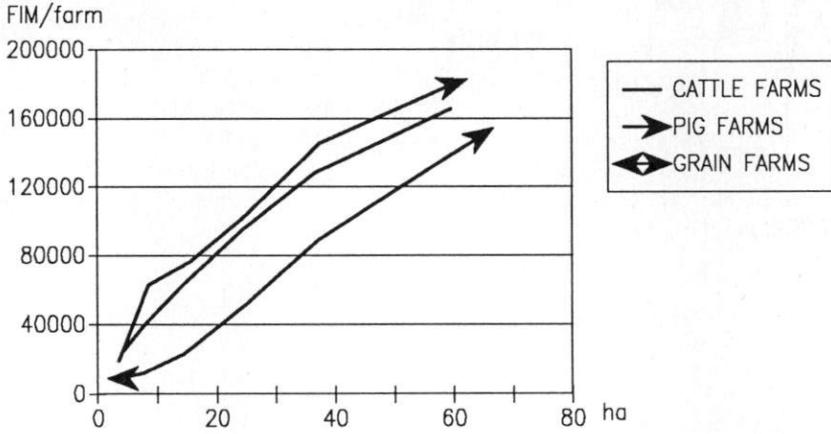


Figure 8. Net farm income (FIM/farm) by farm size and production line, 1986.

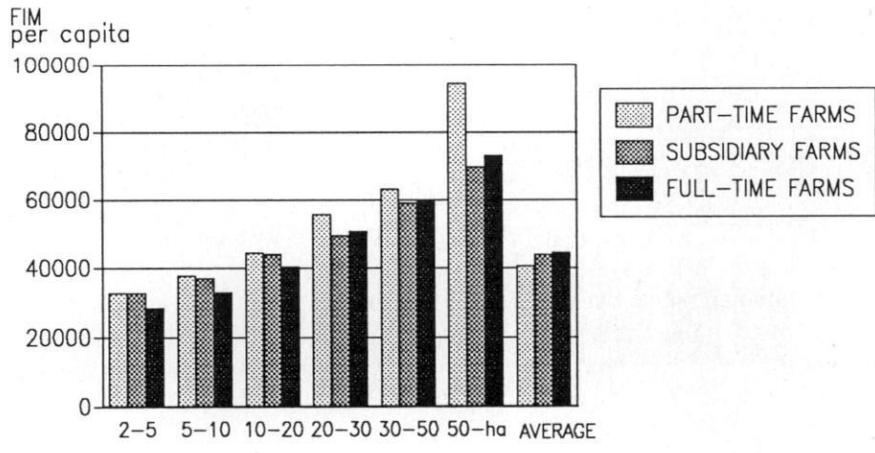


Figure 9. Total net income of farming couples (FIM per capita) by farm size for part-time, subsidiary and full-time farms, 1986.

# FAMILY FARMS SPECIALIZING IN MILK PRODUCTION IN FINLAND

ANNA-MAIJA HEIKKILÄ

*Agricultural Economics Research Institute  
Helsinki, Finland*

## 1. Introduction

The concept of a family farm cannot be defined unambiguously, but certain key criteria in the definition are private ownership, work carried out primarily by the owner family and the aim of guaranteeing the family's livelihood through farming. Sometimes, the definition includes the fact that the entrepreneur operates at his own risk and under his own authority. Another typical feature is that family farms are passed on from generation to generation.

Using the criterion of private ownership, 99% of all farms in Finland can be classified as family farms. The working hours put in by the farming families accounted for 94% of the work carried out in agriculture, which proves that families themselves take care of most farms. The relatively small average farm size would also indicate that farms seldom require hired help.

The proportion of farms providing a primary livelihood for the farming family has decreased substantially in the past few years. This trend has brought a change in attitudes towards part time and subsidiary farms. The long-range agricultural policy programme says the following on the goals of structural policy: "Finland's agriculture is based on family farms operated with family manpower. Family farms may, however, vary in size and the proportion accounted for by arable and forest land and the number of head of livestock. This distribution is influenced by the farm's line of production and the labour available."

The programme points out that most agricultural products still come from farms providing their farming families with a primary livelihood. It underlines, however, that other farms are important, too, in view of regional and rural policy in particular. This is why structural policy must treat these farms as equal to those providing a primary livelihood when farmed by the owning family.

In practice, the above-mentioned principles mean that part-time farming is not necessarily an impediment to receiving State investment subsidy (low-interest loans, financial aid). Off-farm incomes are, however, important in deciding whether the applicant is to be considered a spare-time farmer not entitled to this support.

In conclusion, family farms are operated primarily by the farming family with the exception of 'hobby' farms. The concept of the family farm does not include farms

that do not play a significant role in safeguarding the employment and livelihood of the farming family, and farms requiring a work input exceeding the available resources of the farming family.

The following survey will look at farms specializing in milk production. First, some figures are given on the structure of milk production and trends in the past few years. In connection with the definition of a family farm, the work input required for milk production is examined by farm size. The returns and expenses and the cost structures of milk farms are described in brief. The figures for work input and financial result are based on the results of the agricultural profitability bookkeeping project.

## 2. Production structure and trends in it

The production structure of agriculture shows the distribution of the total volume of production between the various products. It also shows what kind of units this production takes place in and what proportion of production is accounted for by enterprises of various sizes. Further, it shows the regional distribution of production.

By 1989, milk production volume had fallen from the 3,384 million litres of 1960 to 2,668 million litres (Figure 1), i.e. 21%. In terms of structural development it is essential to point out that the number of head of livestock decreased by 56% over the same period (Figure 1). This means that average output has increased by 75% over 30 years, from 2,995 litres in 1960 to 5,246 litres in 1989.

We get a picture of the central standing of milk production in Finnish agriculture by looking at the proportion of all farms accounted for by dairy farms. In 1959, dairy farms accounted for nearly 80% of all farms, and in 1969 the proportion was still over 70%. In the next decade the proportion accounted for by dairy farms decreased radically. In 1980, dairy farms accounted for no more than a good third of all farms, and by the end of the decade a scant third.

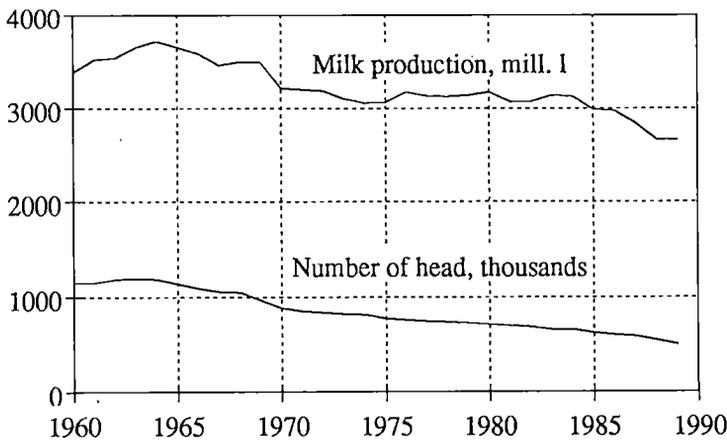


Figure 1. Milk production and number of head in 1960-1989.

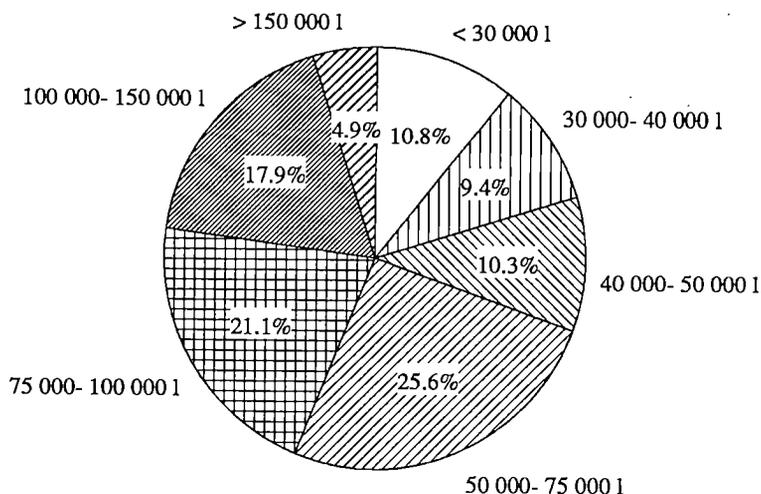


Figure 2. Milk production by quota category in 1989.

According to total agricultural calculations, milk accounted for 50-60% of total agricultural production in the 1960s, 40% in the 1970s and approximately one third at the end of the 1980s.

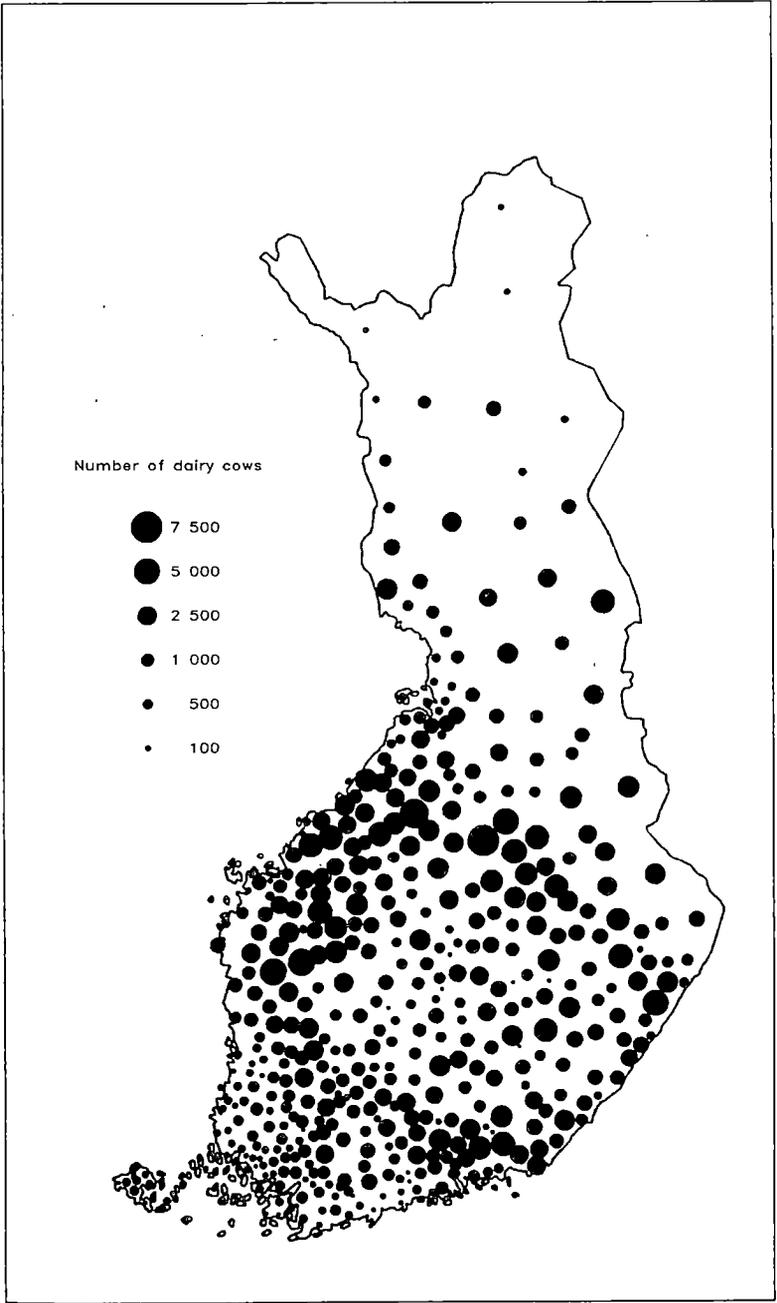
In 1960, some 247,000 farms supplied milk to dairies. Over the thirty decades that have passed since, the reduction has been some 200,000, for at the end of 1989 the number was less than 47,000. The average number of head on these farms was 10.6.

Dairy farms are divided by number of head, with most farms being in the 10 to 14 head category. Farms with 10 to 14 head, producing 50,000-70,000 litres per year, also make the biggest contribution to milk production (Figure 2). Thirty years before, approximately 50% of all milk was produced by farms with 1 to 4 cows.

The regional distribution of milk production is illustrated by the number of dairy cows in various parts of the country (Map 1). If the country is divided into three zones - southern, central and northern Finland - central Finland is distinctly the most important milk production zone. The proportions of production were the following in 1989: southern Finland 30%, central Finland 55% and northern Finland 15%. The regional imbalance is emphasized by the fact that the population, and thus also the consumption of milk, is concentrated in southern Finland. The trend, however, is that production will continue to decrease most in the northernmost and southernmost parts of the country.

### 3. Results from bookkeeping farms specializing in milk production

The following survey of the work input required by milk-producing farms and their financial result is based on the 1988 profitability bookkeeping on milk-producing farms in central Finland (inland and southern Ostrobothnia on the west coast). A



Source: *The National Board of Agriculture*

Map 1. Dairy cattle by municipality in 1986.

minimum of 60% of the total production of these farms was accounted for by milk.

A total of 149 farms were studied. The average farm size was 24 hectares of arable land and 15 cows. The average output of these cows was 6,219 kg of 4% milk.

### 3.1. Manpower required for milk production

The work input required for milk production includes plant cultivation, livestock care, other day-to-day agricultural work and management. The average total for this work was 4,690 hours per year. The proportion accounted for by the farming family was 4,411 hours.

The number of working hours increased non-linearly as farm size increased. The larger the enterprise the lower the work input per unit. Figure 3 shows the total work input required as a function of the average number of head:

$$\ln Y = a + b \ln X,$$

with Y representing the number of working hours per year and X the average number of cows ( $R^2 = 0.439$ ).

On the smallest farms, the work input was a good 2,000 hours per year. The main category with 10 to 15 head required some 3,800 to 4,600 hours, and the category with 25 head some 6,000 hours. The farms had an average of 1.5 hectares of arable land per cow; i.e. a farm with 10 to 15 head had 15 to 22 hectares of arable land. The arable area for farms with 25 cows was some 37 hectares.

The annual work input of wage-earners is some 1,860 hours. Using this figure, a

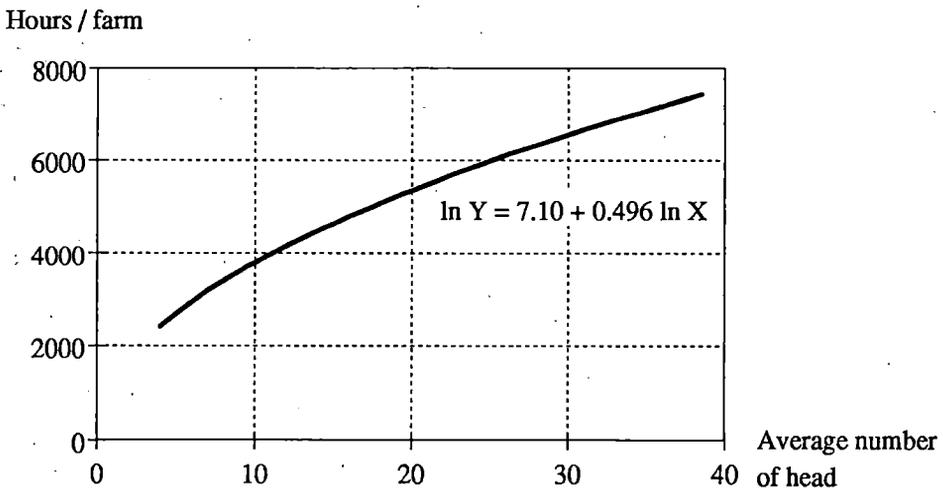


Figure 3. Work input by average number of head in 1988.

farm with 10 to 15 cows and 15 to 22 hectares of arable land requires the work input of 2 to 2.5 people. The maximum size of a family farm may be larger, however, if production is organized efficiently and the work input required is thus smaller. The maximum size may also be bigger if the work input of the farming family is calculated on the basis of a 7-day week instead of a 5-day week, since this is the prevailing practice on livestock farms in any case.

### 3.2. Returns and expenses on dairy farms

Slightly over 70% of the total agricultural production of milk-producing farms was derived from milk. A major proportion of other returns was accounted for by beef. Beef production is not solely accounted for by dairy cows slaughtered but also by the beef cows bred on many farms alongside with dairy cows. In the past few years there has been a tendency to specialize, however, and dairy farms concentrate on milk production, breeding heifers only to renew their dairy cattle, while beef production is concentrated on farms specializing in beef production.

Apart from income from agriculture, milk-producing farms earned income from forestry, subsidiary sources and private economy. Subsidiary income is, however, less important to milk-producing farmers than to other farmers. Since milk production is a binding and labour-oriented line of production, opportunities to work outside the farm are fewer than on grain-growing farms, for example.

The expenses involved in achieving the gross return comprise the production cost. On milk-producing farms, production cost was divided into three sections as follows:

|                                |        |
|--------------------------------|--------|
| imputed wage of farming family | 31.1%  |
| interest on capital            | 8.7%   |
| other expenses                 | 60.2%  |
| total                          | 100.0% |

The wage of the farming family was calculated according to the average earnings of agricultural workers, and the interest on capital at 5% of the value of the agricultural property.

In the category 'other expenses', the major items were feed stuffs purchased and the cost of machinery and equipment. This proportion of production costs is on the increase, reflecting an increase in the production inputs acquired from outside the farm. The proportion accounted for by the wage of the farming family has decreased accordingly, as a result of greater farm size and technological advances, and the consequent reduction in the amount of manpower required.

The ratio between production costs and gross return - the production cost percentage - averaged 118% on milk-producing farms. This ratio means that expenses exceeded returns: in other words, the farming family did not achieve the required wage or the expected interest on their capital. The production cost percentage per farm varied, the best being 80% and the worst 197%. As a rule, the ratio improved as farm size increased. The production cost percentage was 100% with a herd of 30 to 33 head.

In view of financial performance in milk production, it would appear to be a good idea to increase the size of the enterprise. However, the greater work input required, the need for investment, the growing risk and production restrictions are examples of factors that will slow down this structural shift.

#### **4. Future of family farms specializing in milk production**

Finnish family farms face great pressures for change at the beginning of the 1990s. Negotiations on removing trade barriers are creating uncertainty among farmers. Does Finnish agriculture have a future, if foodstuffs produced at lower production costs are allowed freely onto the Finnish market? The answer is fairly clear: the survival of Finnish farming will call for special treatment for agriculture.

Family farms specializing in milk production are in a special position in that market milk is a highly perishable product and must be produced in the home country. Output must be cut, however, for at the moment the self-sufficiency is 124% for liquid milk and 131% for fat. The need for cuts is intensified by the downward trend in total milk consumption.

The age structure of farmers specializing in milk production would indeed indicate that a large number of farms will stop producing in the next few years. Every third milk producer is entitled to a change-of-generation pension. Nowhere near all of these farms have someone to continue, however, since low-income, labour-intensive small farms do not attract young farmers. This means that the number of milk-producing farms will shrink further and that the average size of farming enterprises will grow to some extent.

# **FAMILY FARMS SPECIALIZING IN GRAIN-GROWING IN FINLAND**

OSSI ALA-MANTILA

*Agricultural Economics Research Institute  
Helsinki, Finland*

## **1. Introduction**

Agriculture in Finland is dominated by animal husbandry because of the country's natural conditions. About 55% of all farms with more than two hectares of arable land make over 60% of their gross agricultural income from some livestock product, while less than 12% of all farms get over 60% of their gross income from grain growing. Grain-growing farms are often part-time or subsidiary farms and are concentrated in southern Finland.

This survey will look at the production arrangements on farms specializing in grain growing and at their demand for manpower. We will also look at the income formation of farming families and the profitability of agriculture proper on the basis of the findings for bookkeeping farms included in the official agricultural profitability study.

The profitability study classifies as grain growing farms all farms with a grain output accounting for a minimum of 50% of the farm's total agricultural output. Grain output includes both bread and fodder grain. On the basis of this definition of line of production, these farms may to some extent engage in other kinds of plant cultivation and/or animal husbandry, too. The farms included in the bookkeeping system represent mainly farms which make their primary income from agriculture using efficient and rational production methods.

With the exception of the profitability analysis, the results of the grain-growing bookkeeping farms in southern Finland are looked at on the basis of averages computed by farm size for the years 1986-88. In 1986 crops were normal, i.e. in accordance with long-term trends, but in 1987 in particular and also in 1988 crops were considerably below the general level. In the farm size category of 10 to 20 hectares, the average arable area was some 15 hectares, and in the category of 20 to 30 hectares slightly over 25 hectares per farm. The arable area for 30 to 50 hectare farms was some 40 hectares, and in the category of farms over 50 hectares it was slightly under 80 hectares per farm.

## **2. Cultivation of arable land and crops on grain-growing farms**

The area in southern Finland studied is part of the cultivation zone with an average

growing season of 170-180 days. The sum of effective temperature is some 1200-1300 degrees centigrade, and there is a low frost risk.

The annual rainfall is some 600-700 mm in southern Finland, half of this coming during the growing season. The problem is, however, the uneven distribution of the rain. The beginning of the growing season is usually dry, particularly in the southwest, while the autumn gets an excess of rain just at the time of harvesting and other work carried out in the autumn; the average monthly rainfall may be as high as 60-80 or even 100-200 mm.

## 2.1. Cultivation of arable land

Bookkeeping farms specializing in grain growing grew bread grain on approximately 20-30% of their arable area in 1986-88. Fodder grain accounted for the biggest relative proportion of the total area, however. In the 10-20 hectare farm size category, oats and barley accounted for an average of over 60% of the farm's total arable area, while the equivalent figure for farms of 20-30 hectares was approximately 55 % and for farms of 30-50 and for farms over 50 hectares approximately 45-50%.

All farm size categories used some 10-14% of their arable area for growing oil plants, primarily turnip rape. The rest of the arable area grew other plants, was fallowed or used for other purposes (Figure 1).

## 2.2. Crops

The yield per hectare for most of our cultivated plants has increased radically in the past few decades. For example, the long-term trend for the yield expressed in food units per hectare shows an annual increase of a good 3%. The higher crop level is due

*Table 1. Average yield per hectare for certain plants cultivated by the grain-growing farms (bookkeeping farms) of southern Finland and on all farms, 1986-1988.*

| kg/ha        | Grain-growing farms by size |       |       |        | Average,<br>southern Finland |
|--------------|-----------------------------|-------|-------|--------|------------------------------|
|              | 10-20                       | 20-30 | 30-50 | 50- ha |                              |
| Rye          | 1710                        | 2250  | 2650  | 2720   | 2350                         |
| Winter wheat | 3170                        | 2960  | 3640  | 3390   | 3020                         |
| Spring wheat | 3030                        | 2850  | 3150  | 3070   | 2620                         |
| Barley       | 2690                        | 2890  | 3190  | 2990   | 2590                         |
| Oats         | 2740                        | 2870  | 2720  | 3000   | 2430                         |
| Oil plants   | 1410                        | 1450  | 1530  | 1540   | 1380                         |

to greater use of fertilizers and plant protectants, advances in cultivation technology, plant improvement, etc.

The yields per hectare for the most important cultivation plants on the grain-growing farms of southern Finland are shown in Table 1. Compared with the average

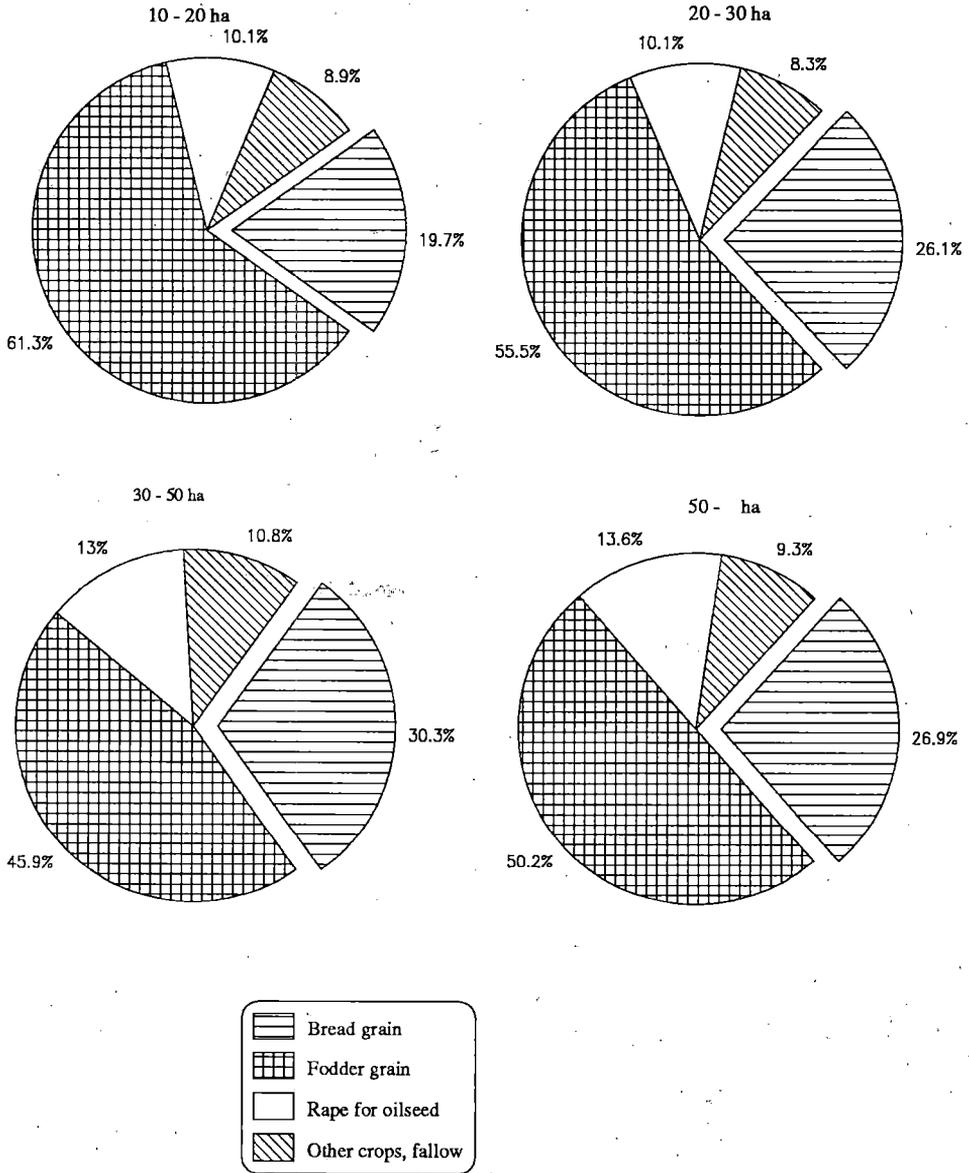


Figure 1. Use of arable land on grain-growing farms (bookkeeping farms) in southern Finland. Average 1986-88.

crop level in southern Finland, the crops of grain-growing farms are usually higher.

### 3. Labor input on grain-growing farms

One criterion in definition of a family farm is the family's own work input on the farm. On grain farms, the need for manpower is limited largely by the growing season. According to surveys, 70% of the demand for manpower is timed between May and October, and the entire work input is lower on grain farms than on farms of an equivalent size specializing in livestock.

On the grain-growing bookkeeping farms of southern Finland the average labor input required for agricultural work in 1986-88 was well over 900 manhours per farm in the 10-20 hectare category, 1,500 manhours in the 20-30 ha category, 1,800 manhours in the 30-50 ha category and approximately 2,600 manhours in the over 50 ha category (Figure 2). Regardless of farm size, some 56-67% of these manhours was required for plant cultivation work, 3-7% for animal husbandry and 7-10% for farm management. The rest of the agricultural work input was accounted for by other day-to-day agricultural work. On farms of 10-50 hectares the farming family carried out nearly all of the agricultural work, while on farms with over 50 hectares hired help accounted for 29% of the work input.

Apart from the agricultural work proper mentioned above, the total work required on farms includes investment work, forestry and subsidiary work and work carried out in the private economy of the farming family. Figure 3 shows the average total work requirement per farm in the various farm categories in 1986-88. Investment work - including that on farm dwellings - accounts for some 2-4% of the total requirement

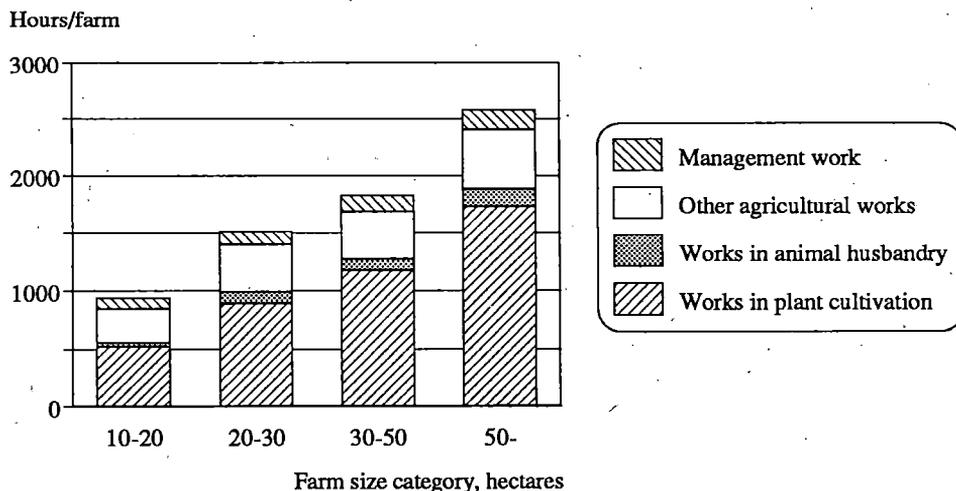


Figure 2. Agricultural work on grain-growing farms (bookkeeping farms) in southern Finland. Average 1986-88.

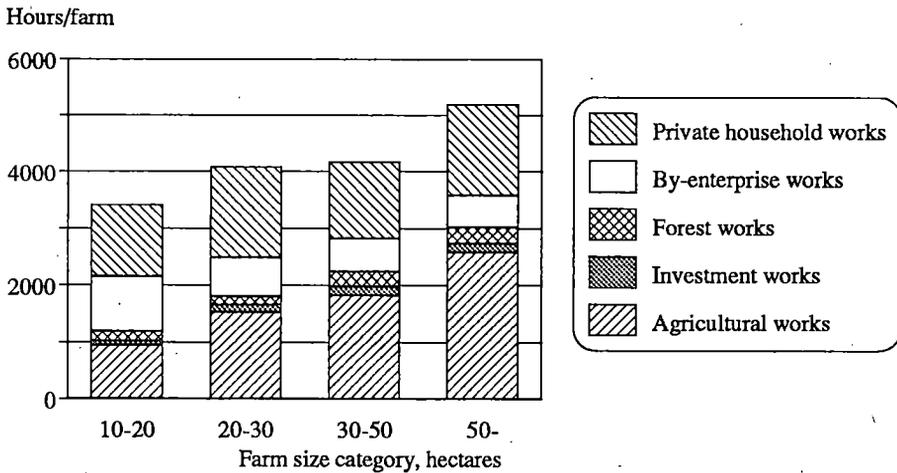


Figure 3. Total work input on grain-growing farms (bookkeeping farms) in southern Finland. Average 1986-88.

and forestry for 3-6%. On grain farms in the smallest size category, subsidiary work accounts for the largest relative proportion of the work, viz. 28%. On farms of over 50 ha the equivalent proportion is slightly over 10%.

Private economy work, mainly food management and housekeeping, accounts for an average of 1,300-1,600 manhours per grain farm. This means some 31-39% of the total work input.

#### 4. Income on grain-growing farms

Besides work input another criterion in definition of a family farm is the importance of the farm as a source of family's livelihood. Nearly all farms in Finland make usually more or less of their income from forestry, off-farm subsidiary work and, in addition, often from work that comes under private economy. With the exception of private economy, the following income survey is presented as the difference between annual monetary income and expenses. In computing net income from agriculture and forestry, investment expenses are not included, nor is income from sale of property. In the case of subsidiary enterprises these long-term incomes and expenses are included, but they are of minor importance in view of the overall situation.

According to the average 1986-88 figures, grain farms of 10-20 ha made an average of FIM 151,800 per farm in net monetary income and private economy income, farms of 20-30 ha FIM 206,800 and farms of 30-50 ha FIM 416,300 and farms over 50 ha a good FIM 434,100 (Figure 4). The figures are given according to the 1988 price level.

The proportion of the sum total of monetary income computed in the above manner accounted for by agriculture and forestry was no more than some 32% on average

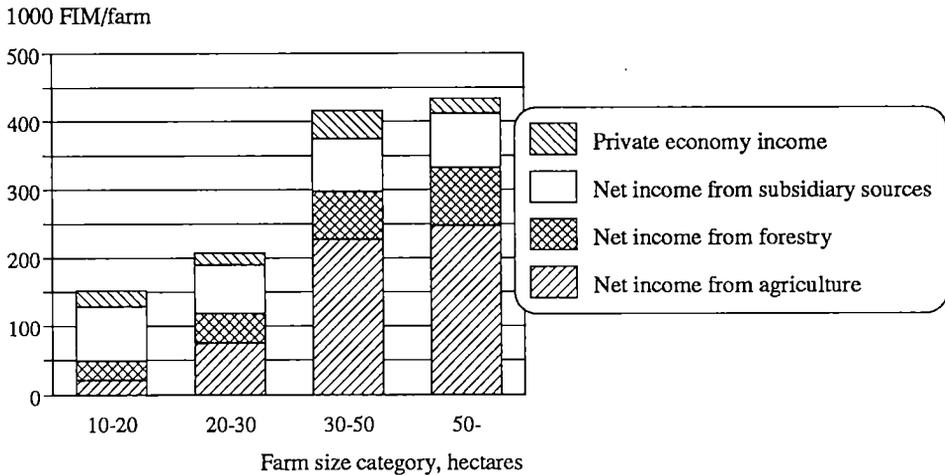


Figure 4. Net money income and private economy income on grain-growing farms (bookkeeping farms) in southern Finland. Average 1986-88 (1988 prices).

in the 10-20 ha category, while subsidiary income accounted for a good 50%. On farms with 20-30 ha, net monetary income from agriculture and forestry accounted for a good 50%, on 30-50 ha farms approximately 70%, and farms of over 50 ha slightly less than 80% of the total for all net monetary income and private economy income in 1986-88. The relative proportion accounted for by subsidiary net monetary income in the 20-30 ha category was some 35 %. In the two biggest farm size categories the equivalent share was only 18 %.

## 5. Financial result of agriculture on grain farms

Financial result of agriculture will be examined using a profitability coefficient measuring the relative profitability of agriculture. It is derived by calculating the relation between net return and the sum total of the interest on capital and the imputed wage of the farming family. Net return is derived by deducting from the farm's total agricultural return all expenses other than interest on capital and the norm-based imputed wage of the farming family. If the net return from agriculture is as high as the goal set for the result, the coefficient is 1.00.

In profitability accounting, the target result is for the farming family to get the same wages for their work as agricultural workers earn on average, plus a 5% interest on the capital invested in agriculture. Thus the profitability coefficient can be applied to a number of situations and to a comparison of farms of different size. Not even inflation affects its applicability in comparisons between years.

The following table shows the profitability coefficients for grain-growing farms in southern Finland and, for the sake of comparison, for farms specializing in milk production and pig farming from 1986 to 1988.

*Table 2. Profitability coefficients for grain, milk and pig farms in southern Finland. 1986-1988.*

| Line of production       | 1986   | 1987   | 1988   |
|--------------------------|--------|--------|--------|
| 10-20 ha farms:          |        |        |        |
| grain farms              | 0.46   | 0.20   | 0.19   |
| milk farms               | 0.57   | 0.56   | 0.47   |
| pig farms                | 0.96   | 0.97   | 1.37   |
| 20-30 ha farms:          |        |        |        |
| grain farms              | 0.81   | 0.39   | 0.54   |
| milk farms               | 0.68   | 0.65   | 0.63   |
| pig farms                | 1.21   | 0.91   | 1.19   |
| 30-50 ha farms:          |        |        |        |
| grain farms              | 1.16   | 0.71   | 0.66   |
| milk farms               | 0.85   | 0.79   | 0.68   |
| pig farms                | 1.21   | 0.87   | 1.04   |
| Over 50 ha farms:        |        |        |        |
| grain farms              | 1.39   | 0.74   | 0.92   |
| milk farms <sup>1)</sup> | (0.87) | (0.82) | (0.74) |
| pig farms                | 1.60   | 0.97   | 1.34   |

<sup>1)</sup> Number of farms under 10

In 1986-88, the profitability coefficient was below one for both grain-growing - except two biggest size categories in 1986 - and milk-producing farms, which means that the target result was not achieved. Pig farms, however, achieved their goals in most cases. The coefficient was considerably lower for 10-20 hectare grain-growing farms than for milk farms of equivalent size. In other size categories the differences between grain-growing and milk-producing farms are not as big. The three years surveyed here, and longer-range surveys in particular, show, however, that the annual fluctuation is much greater for grain-growing farms than for milk or pig farms. This proves that the economy of farms specializing in grain growing is much more risk-prone than that of livestock farms even in the favourable conditions of southern Finland.

## 6. Summary

The above survey attempts to provide a picture of Finnish family farms that have chosen grain growing as their main line of production. In the definition of a family farm, the key criteria are the family's own work input on the farm and the importance of the farm as a source of livelihood.

It is characteristic of grain-growing farms that the agricultural work is concentrated in the growing season, particularly the first and last two months of the season. The

amount of agricultural work depends on the arable land cultivated. In the case of the smallest farms, a relatively large proportion of the total work input is left over for earning subsidiary income. The proportion of work done by hired help is not significant, except in the over 50 ha size category.

The income of the farming family was examined on the basis of the net monetary income from agriculture, forestry and subsidiary work and from private economy. Only farms exceeding 30 ha made an average of over 50% of the farming family's income from agriculture. In all size categories, about one fifth of net income came from forestry. On farms of 10 to 20 hectares, subsidiary work was the most important source of income.

Small grain cultivation farms are less profitable than milk and pig farms of equivalent size. In the larger size categories, the differences in profitability figures are smaller, in particular between grain farms and milk farms. Long-range survey show, however, that the annual fluctuation is much greater for grain-growing farms than for milk or pig farms. This proves that the economy of farms specializing in grain growing is much more risk-prone than that of livestock farms, even in the favourable conditions of southern Finland.

# SOCIAL AND PSYCHOLOGICAL PRECONDITIONS FOR FAMILY FARMING IN LITHUANIA

SAULIUS BUDVYTIS

*Lithuanian Research Institute for Agricultural Economics  
Vilnius, Lithuania*

Two groups of the factors influencing the extension of family farming in Lithuania can be singled out. The first group concerns economic relations. Current economic relations in the national economy of the Republic as a whole prevent not only a free extension of family farming but also the development of collective and state farms. We can not expect good results merely by changing the forms of farming and retaining the old economic content.

Environmental peculiarities are characteristic of the second group of factors. These are climatic conditions, the demographic situation in the Lithuanian countryside, the development of social sphere, and psychological factors. In the developed countries these factors are sure to be of little importance. In our towns, villages and farmsteads peoples' social needs are not satisfied uniformly. The bigger a town, the better the supply of goods and social services. It is not money that guarantees all this. Therefore people try to settle in as big a town or settlement as possible. The extension of family farming in Lithuania is also hampered by a low level of agroservice: with us the number of service personnel is 1.3 people per tiller, whereas in the developed countries it amounts to 3-4 people. In comparison with the farmers in Western countries, those in Lithuania have to bear a harder work load.

I will try to characterize the social and psychological preconditions that can influence the extension of family farming in Lithuania. Very important factors are as follows: housing systems, demographic structures, motivation. To describe each of them, 3 questions should be asked:

1. What factors could provide the most optimal conditions for the spread of family farming?
2. What is the current situation in the Republic?
3. What are the future trends and consequences of the development?

The housing system is the first precondition. It is very important for the Lithuanian farmer to have a house in the right place. Two cases are possible: first, a farmer lives in a settlement and his land is at some kilometres distance from it; second, a farmer's dwelling is in the vicinity of his plot. In the first case, appropriate means of transportation to connect his dwelling and working places are necessary. In the second case,

good social service to meet the farmer's everyday needs should be created. Transportation to reach the nearest settlement where one can find stores, schools, social life and health services as well as good communications, are indispensable.

With collectivization farmstead residents were moving to settlements. With several collective farms united into a large-scale one, former small rural settlements were neglected, giving the greatest attention to a new central settlement. Having built a farmstead, a farmer was forcibly removed to a village, and with farms being united, he had to set up anew in a central settlement. Some rural people had to build dwelling-houses three times in the course of their lives. Today in small settlements and farmsteads living conditions are poor, since there is no social service there. Young people, both locals and those arriving on farms, wish to build their houses in the central settlement. According to the 1989 data, 50% of rural population live in central settlements, 30% - in small subsidiary settlements and less than 20% - in farmsteads.

Roads as a means of transportation and communication are a very urgent problem for the extension of family farming. In Lithuania road length amounts to 650 metres per 1 square kilometre. It is necessary to have 1.2 kilometres per 1 sq km to provide adequately for normal economic activities. Besides that only half of the roads have hard road surfacing. After heavy rain or snowfall it is impossible to use intrafarm roads.

There is a shortage of motor transport in the countryside. Its maintenance is very expensive, and service is poor. Telephone communication is even worse. Only one in thirteen rural families have it and there are almost no telephones installed in farmsteads and small rural settlements.

In the central settlements of collective and state farms' people live very compactly, often having only 0.15 ha of land near their homes. To begin farming, they would have to take up land far from their homes. Due to the reasons mentioned above, a farmer is rarely obliged to take up land far from his home and commence independent farming. In cases where a farmer moves to the farm to live he will encounter other problems, such as difficulties in taking children to school and calling the doctor and poor access to other social services. These as well as construction problems have restricted the interest of farmers in independent farming in remote places so far and it is hard to believe it will increase in the immediate future. True, there are old, deserted farmsteads in Lithuania, but they are in such a poor state that it is often easier to build a new house.

The rural families living at present in farmsteads or small settlements will for the most part probably commence individual farming in the immediate future. Unfavourable demographic characteristics of the rural population, however i.e. their age, family structure, educational level, will seriously hinder their becoming independent farmers. Thus altering the demographic structure is the second precondition for the family farming extension.

A occasional elderly or single rural resident will make up his mind to undertake individual farming. In my opinion however only the families that have no less than two able-bodied persons in the age group 25 to 50 years will be able to take up land in the near future.

According to the research data, about 80% of rural population are married. The average family size in the countryside is 3.5 people. On the average every second



*Juhani Ikonen*

*The Hotel Hospiz of YMCA offered pleasant facilities for the seminar.*



*Juhani Ikonen*

*Estonia participated in this family farming seminar with four agricultural economists.*

resident in the Lithuanian countryside is able-bodied, and there are no more than 2 able-bodied persons in the family.

The age structure of the rural population is also unfavourable for individual farming. The average age of the population in Lithuania as a whole is 35 and in the countryside 39 years. Able-bodied rural people make up 49% and in the Republic in general 57% of the total number of population. Of every 1000 able-bodied rural population 552 are already pensioners, while in the Republic as a whole the figure is 332 in 1000. This indicates that the age structure of rural population is hardly likely to improve with time. However, not all able-bodied people are going to commence individual farming. People in the age group 16 to 25 years are still studying and choosing their careers. After graduation much time is consumed by daily problems such as child care. They do not have the initial capital necessary for independent business as yet and are thus not ready to become independent farmers. Neither is it hardly likely that the rural population of 50 and over (in case their grown-up children do not live together) will change their mode of life. Since the age groups 16-25 and 50-60 years make up 40% of all able-bodied rural population, one rural resident in four remains to become a farmer. Neither it is desirable that teachers, cultural and other such workers become farmers due to their scarcity in the countryside.

In farmsteads and small settlements the demographic structure of the population is even worse. Our last investigations of the demographic structure of the population living on farmsteads were carried out in 1979.

Ten years ago the average age of the farmstead population was 47.1 years, and the average family size 2.6 people. Almost 60% of families comprised family members over 50, and single pensioners lived in 20% of farmsteads. As early as 1979 most able-bodied people were about to move to another place because of poor living conditions. Those intending to leave farmsteads were on the average 3 years younger than the average resident of a farmstead. The average family size of those moving to settlements was 3.4 persons. In other words the demographic indices of farmstead population have not improved during the last decade. Now that it is possible to take to private farming, the demographic structure of farmsteads and small settlements is not likely to take a turn for the worse, but because of poor social service it is hardly to improve. The current rural demographic structure, makes it possible to forecast the prospective number of farmers in perspective. It is necessary to remember that the number of specialists engaged in social sphere should increase at the same time. Besides that in the immediate future the number of enterprises processing farm products as well as agricultural service enterprises mostly employing local people will increase.

Finally motivation is an important factor.

What motives might induce a person to undertake individual farming? First and foremost, material incentive. A second motive can be summarized by the following comment of one of our farmers: "free work of a free man." A person might also become a farmer just because he likes farming, animals, and wishes to live closer to nature.

We have investigated the values that motivate an agricultural specialist. Family, health, and work one likes are the most important values for him. Among 18 values surveyed material circumstances took the seventh position only. This indicates that material incentive is not a dominating motive. This is only natural due to the fact that

demand is also dependent on supply which is very poor in Lithuania today. People are earning and have accumulated comparatively much money. In 1988 a collective farmer's remuneration for work in a public farm was on average 224 roubles per month, i.e. 2 roubles higher than that of an industrial worker. In addition to remuneration, the rural population gets much income from their subsidiary personal plots. In 1988 the average deposit of a town-dweller in the Social bank was 2292 roubles and that of a villager 2630 roubles. Due to the shortage of various commodities however, people are not able to spend their money. Rural shops have a poor selection of goods. Consequently, there is no sense in becoming a farmer except extra earnings. This conclusion has been also confirmed by the first Lithuanian farmers' poll. Most farmers have indicated by independence as the main motive prompting them to take up private farming.

The value study results have shown that the motive "free work of a free man" is important for a very small number of agricultural specialists. The specialists fall into 5 types according to the structure of their values.

Hedonistic consumers are the most abundant type, i.e. 26% of the tested specialists. For them work is just a means to pursue the main objectives of life. For most representatives of this type the real life begins after their working hours, on their spare time. Private farming would only burden the realization of their main orientation towards a pleasurable mode of life. Specialists of the second type make up 22%. These are so-called exemplary fulfillers. Even if they appreciate work, they don't want to be self-supporting. Therefore, representatives of this type are hardly likely to become independent farmers, either. The third type, comprising 25% of the specialists, has been called "the exemplary citizen" since, he tries in his activities to correspond with the stereotype of a exemplary rank and file citizen. It is hardly possible that representatives of this type will set to individual farming because they consider freedom of activity, self-reliance and initiative to be of little importance. Specialists of the fourth type amount to 15%. These are rational consumers. Personal well-being and public acknowledgement are the goals of their life. Most of their leisure they spend with their families, and are disposed to farm work. People of this type would take up farming for material interest. To the last type, comprising 12% of the specialists only, belong independent, business-like people. First of all they are disposed to free creative work and initiative in solving their problems themselves. There can be no doubt that representatives of this type would manage a farm successfully. They make the majority of the present farmers in Lithuania. However, it is necessary to make some conjectures about most representatives of this type will becoming farmers. There are 7-8% of people in society (even in the developed countries) who are capable of running a successful business. Our present-day farmer cannot be compared with the Western one who is merely a link in the food production chain. A Lithuanian farmer is an economist, agronomist, zoo-technician, mechanic, builder, trader, supplier, etc. all at the same time. Beside all that he must take initiatives, be self-reliant and never be at a loss. Therefore, only educated representatives of the aforementioned fifth type can become good farmers. However it is questionable whether it is useful for society that such people, who at most make up only one tenth of it, should start farming on their 10-50 ha plots. What is to be done with the rest of the farming areas? Perhaps it would be better that these independent, creative and innovative people be leaders of teams and organize large-scale production. So far, according to some investigations, there

are few independent types among the managers of collective farms.

*Conclusion.* The current conditions in Lithuania in the system of settlement, social infrastructure, demographic structure and peculiarities of the people's needs are not favourable for the extension of individual farming. It is hardly worth orienting ourselves towards family farming as the dominant form of organization. It would demand great material investment which would fundamentally change the system of settlement and social infrastructure. New forms of farming should be based on the current conditions. This does not mean that there are absolutely no pre-conditions for independent farming in Lithuania. There are diverse natural as well as social conditions in different regions of Lithuania, permitting many forms of farming. They should not only compete with but supplement each other by creating various means of cooperation.

## ABOUT THE POSSIBILITIES FOR THE DEVELOPMENT OF FAMILY FARMS IN THE ESTONIAN SSR

JAAN KIVISTIK AND VIKTOR JULLINEN

*Estonian Agricultural Academy  
Tartu, Estonia*

An establishment of family farms is of the utmost importance to the development of agriculture in the Estonian SSR at present. To be more exact it is the reestablishment of family farms and in consequence of it a short survey of history must be given.

*Four stages* can be differentiated in the establishment of family farms in the Estonian territory. At that the establishment and development of farms has depended and still depends on the characteristics of the Estonians as a nation, on the political system in force and legislation and cultivable land. In the Estonian territory farms came into being already in ancient times of independence. This can be considered *the first stage*, which lasted for hundreds or thousands of years. The farms were as a rule small ones. Villages were formed of farms situated next to each other. In the first half of the 13th century the Estonians lost their independence due to the conquest of German crusaders (knights of the cross). The land of farmers was given to German landlords. Peasants lost their freedom, farms and people were the properties of landlords. Thus, the first stage in the establishment of farms was over and free peasants had been enslaved. Serfdom was abolished in Estonia in 1816 and in the Livonian territory in 1819. The free peasantry came into being, but they economically depended on their landlords.

*The second stage* of the establishment of farms was based on the Act of Law adopted in 1849 and in 1856. According to these laws farms could be bought in perpetuity. Thus, the second stage in the establishment of farms began in the mid-19th century and the developmental rate of it was high (Table 1.).

According to the data shown in Table 1 more than 10,000 farms with the total area of 400,000 hectares were established by less than half of a century. An average size of a farm formed 38.0 ha. The establishment of farms was continued at the beginning of the 20th century, at which the estates had been maintained. Before 1919 in Estonia there were 1,149 estates with an average size of 2,113 ha, but that of a farm - 34.1 ha. Thus, both large- and small-scale production had been established in agriculture.

*The third stage* in the establishment of farms was due to the Act of Land adopted in October in 1919. An agrarian reform was put into effect, in the course of which estates were parcellled out into farms. Since 1921 the land was given to warriors of the Independence War. During the following ten years the total number of farms was increased up to 133,387 and during the next 10-year period up to 139,984. By 1939 an

*Table 1. Obtaining and selling of farms in Estonia in 1854...1899 (5, p. 76)*

| Years        | o b t a i n e d |                |                                |
|--------------|-----------------|----------------|--------------------------------|
|              | farms           | land (ha)      | an average size of a farm (ha) |
| 1854 - 1860  | 2               | 63             | 31.5                           |
| 1861 - 1870  | 333             | 13,725         | 41.2                           |
| 1871 - 1880  | 1,914           | 70,759         | 37.0                           |
| 1881 - 1890  | 3,712           | 143,620        | 38.7                           |
| 1891 - 1899  | 4,417           | 165,945        | 37.6                           |
| <b>Total</b> | <b>10,378</b>   | <b>394,112</b> | <b>38.0</b>                    |

average total area of a farm was 22.7 ha, of what agricultural land formed 19.6 ha or 86.3 %.

The third stage in the development of farms was over in 1949 due to the mass compulsory collectivization. Large-scale farms - collective and state ones - were brought into being. The land was taken away from its owners. Small-scale farming continued only on small home-plots with an average size of 0.5 ha remained at farmsteads. New workers on large-scale farms were also given small plots of land. On the other hand in 1988 an average area of cultivable land formed 4,347 ha on state farms and 4,270 ha on collective ones. An average number of labourers per a farm was 442 and 351, respectively (6, s. 13,4).

In the course of the establishment of large-scale farms and even later on an emphasis was put on the advantages of large-scale production. The average records of agriculture of the Estonian SSR are really high ones comparing with these of the Soviet Union. For example, in 1987 in the Soviet Union an average annual milk production per a cow was 2,682 kg, but in the Estonian SSR - 4,103 kg (8 pp. 314,317). In the same year in the Soviet Union an average yield of grain crops was 1,830 kg/ha, but in the Estonian SSR - 3,230 kg/ha (8, pp. 133,136). In 1987 in the Estonian SSR the total value of agricultural production in the comparable prices of 1983 per 100 ha of agricultural land was 129.8 thousand roubles, but an average of the Soviet Union - 39.1 thousand roubles (8, p. 45).

But in the development of large-scale production all sorts of negative phenomena cropped up. The following shortcomings can be mentioned (4, pp. 30, 31):

1. A loss of some agricultural land from the exploitation, especially in case of natural grasslands and pastures.
2. Outlying districts on a large-scale farm both in the social and economic sense came into being. The objects of social sphere were built in centres of collective and state farms and due to that a concentration of population to settlements took place. Far-away villages died out. Fields located far away

from animal farms were deprived of farmyard manure and for that reason these areas had not been utilized any more.

3. A lengthening in distances of transport on a farm caused a considerable increase in expenditures on transport. The problem of transport will be of the utmost importance in case of deficiency in fuel.
4. An excessive trampling of the soil caused by very heavy tractors. The yielding of crops has become highly unstable and depends more and more on the weather conditions.
5. Conducing to a spread of plant diseases, pests and weeds. An increase in rates of herbicides and insecticides applied to fields is responsible for harmful chemical substances found in human food.
6. A pollution of surface and ground water due to an excessive concentration of animal husbandry, and system of liquid manure.
7. Revealing of stress symptoms on animals due to their excessive concentration on large-scale farms.
8. Conducing to a spread of epidemics resulting from an excessive concentration of animal husbandry. Prophylaxis and struggle against diseases cause additional expenditures.
9. A decrease in a feeling as an owner or even complete loss of it on a large-scale farm. If all people are owners or masters of a large-scale farm who is the real master then?
10. Complexity in managing a large-scale farm. Due to long distances difficulties may be of technical character connected with passing the information on to the other people and with examining the work done. There may also be conflicts between people on the psychological base because of too large administrative apparatus. Therefore orders and commands given may be of contradictory character.

The negative phenomena listed above and also some other ones due to a concentration of agricultural production do not crop up with the same intensity on all large-scale farms. There are also a lot of opinions that a transition to large-scale farming has secured a certain development in the Estonian agriculture. But the general attitude towards large-scale farms is negative one. It became evident from a questionnaire which also included the following question:

“What is your attitude towards the establishment of collective and state farms in Estonia?” 72% of the Estonians were of the opinion that “...collective and state farms are not a suitable form for the development of agriculture, the establishment of them caused a decline in the Estonian agriculture.” (3. p. 6).

At the same time one cannot agree with a opinion, that all shortcomings would disappear by the liquidation of collective and state farms and by their replacement with family farms. A new shattering experience analogous with the collectivization forced the pace will arise. Thus, the reestablishment of farms must be a long-time, well-considered process. The number of family farms and their size must be clarified before their establishment. A legal ground for the reestablishment of family farms has already been made by passing the law on farms on the 6th of December in 1989. According to this law the prerogative of the reestablishment of farms has been given

to the former owners (considering a state of affairs on the 23rd of July in 1940) or to their legal heirs or heiresses. According to the law on maximum size of a farm will be 50 ha of cultivable land. By way of exception an area of a farm may also be larger than that mentioned above.

The law also sets requirements for a head or the family farm. An owner of a farm can be every at least 21 years old efficient citizen of the Estonian SSR. He must have a vocational training and experience of working in agriculture, at which he must have no contraindications for fieldwork.

Thus, *the fourth stage* in the establishment or to be more exact in the reestablishment of family farms has begun. It started in 1988 when the first family farms were reestablished. This process was intensified in 1989. By the 1st of January in 1990 26,635.90 ha of land, of which 9,659.90 ha of cultivable land and 7,105.30 ha of woodland, were given to family farms. By that time 1,053 family farms, of which 171 in the Voru Region, 149 in the Rapla Region and 131 in the Tartu Region, were established. An average size of a farm is 25.3 ha, of which 9.3 ha of cultivable land and 0.1 ha under several plantations. Improved grasslands formed on average 1.5 ha, natural grasslands - 4.1 ha, woodland - 6.7 ha. On average 3.6 ha, were under some other lands. Thus, an arable land per a family farm formed on average 10.9 ha. An average size of a farm formed by now is obviously too small one. For comparison, at present in Finland a farm has on average 12.6 ha of cultivable land and 37.2 ha of forests (2, p. 7). One can mention, that more than 120 years ago in Estonia an average size of a farm established was 41.2 ha and in 1939 - 19.6 ha of agricultural land.

What factors must be taken into consideration at the determination of the size of a family farm? What are the factors which affect the size of a family farm?

- The size of a family farm primarily depends on the number of family members capable of working. The Finnish economists M. Torvela, S. Mäki and A.-M. Heikkilä et al (7, pp. 80;1, pp. 95) have carried out researches into this field. Their conclusions are also suitable for the Estonian conditions. Thus, a farm with three farm-hands during the whole year could have 60 ha of arable land and 43 milking cows.
- The size of a farm depends on machinery and a level of mechanization. Tractors with a specific power and farm machinery with a certain productivity can efficiently be exploited in case of a certain size of a sown area. It has also some influence on the size of a farm. At that it is of expediency to exploit some large farm machinery, e.g. combine harvesters, on several farms.
- The size of a farm depends on the specialization of production. It is obvious that a farm giving particular attention to the growing of vegetables or fruits must be smaller of that specializing in the cultivation of grain crops. At present in animal husbandry it is reasonable to specialize in one or a maximum of two animal classes. Before the War on an Estonian farm there were as a rule cattle, pigs, sheep and also poultry.
- The size of a farm also depends on natural and economic conditions. For example, pastures for grazing of sheep can be established on thin soils on our islands. In the vicinity of towns it is of expediency to specialize in

vegetable growing, etc. Due to these circumstances the size of a farm will also be determined.

- The size of a farm also depends on the incomes desired and on the fact whether all income will be from a farm or some of them will be on an account of supplementary earnings.
- The size of a farm may also depend on the conditions of realization of farm products, a distance from a town, railway, etc. The qualification of a head of the farm may also be of some influence.

As it is known an efficiency of farm management depends on the size of a farm. The recommendations worked out scientifically are of great necessity, since the experiences of the other countries may not be suitable for the present day Estonian conditions.

Thus, at the establishment of family farms the first essential prerequisite is the obtaining of a plot land with an optimum size. Thereupon there are a lot of restricting factors, which have an obstructing effect on the establishment of farms. Some of these can be mentioned:

- shortage or lack of material resources: deficiency in building materials, difficulties in asking for a loan, etc.
- there is no variety of farm machinery and implements suitable for small-scale production, but the powerful or the most powerful tractors used at present are not fitted for family farms or their exploitation is of little efficiency;
- insufficient supply with electric energy;
- there is no expedient solution to the obtaining of purchasing materials and realization of farm products, therefore the solving of these problems takes the farmers a lot of time;
- the size of a woodland area given to farmers does not satisfy their needs;
- they have no certainty of the future;
- a negative attitude of some of chairmen of collective farms or directors of state ones and local organs of power towards the establishment of farms, etc.

A wish of a man to own a farm is the most important factor for the establishment of a farm. A questionnaire must be carried out in the whole of our republic to clarify the number of potential future farmers. Some brief questionnaires have been carried out, but on the strength of these firm prognoses cannot be made. It has been prognosticated that the number of farms will be from 20 thousand to 77 thousand.

Proceeding from the number of rural population an approximate prognosis for the number of future farms can be made. In 1989 on the basis of census of the population in Estonia there were 446,833 rural inhabitants, of them 231,994 capable of working. The number of men capable of working at an age of 20...59 was 113,336. Because of an age and poor health some of them cannot be farmers. We suppose that there will be 100,000 potential male-labourers. If we do not take into account the men who are not working in agriculture or have indirect connections with it there will remain about

60,000 men suitable for being farm masters. Only half the men would like to own a farm. Thus instead of 140...142 thousand farms in Estonia before the War one can realistically expect the establishment of up to 30 thousand farms in the near future. The farms will be established if the state eliminates a majority of the restricted factors mentioned above. The prognosis made includes neither potential farm masters from among townspeople nor female ones from the countryside.

## References

- <sup>1)</sup>HEIKKILÄ, A-M. Perheviljelmän koko ja viljelijäperheen toimeentulon lähteet. Maatalouden taloudellisen tutkimuslaitoksen julkaisuja. Helsinki, 1984. No 48. s. 95, 9 liitettä.
- <sup>2)</sup>KETTUNEN, L. Finnish Agriculture in 1989. Publications of the Agricultural Economics Research Institute, Finland. Helsinki, 1990. No. 60a. 52 p.
- <sup>3)</sup>KIVIRÄHN, J. Avalik arvamus maaelu arengu kohta. Maaleht. 1990. Nr. 4. Lk. 6.
- <sup>4)</sup>KIVISTIK, J., ARINGO, A. Isemajandamine ja talude suurus. Koo peratsiooni areng ja isemajandamine Eesti NSV agrotööstuskompleksis: Eesti Põllumajanduse Akadeemia teaduslike tööde kogumik. Tartu, 1989. 79 lk.
- <sup>5)</sup>KONKS, J. Maavaldustest Eestimaal aastail 1990-1917. Sotsiaal-majandusliku arengu probleeme XVII-XIX sajandil. Tartu, 1979. 119 lk.
- <sup>6)</sup>Tiedot Eestin maataloudesta v. 1970-1988. Tallinn: Eestin Valtioollisen Agroteolisuuskomitean Tiedotuskeskus, 1989. 16 s.
- <sup>7)</sup>TORVELA, M., MÄKI, S. Perheviljelmän koko rationaalisessa maataloustuotannossa. Maatalouden taloudellisen tutkimuslaitoksen julkaisuja Helsinki, 1974. No 30. 80 s.
- <sup>8)</sup>Сельское хозяйство СССР: Статистический сборник. -Москва: Финансы и статистика, 1988. -535 с.

# ECONOMIC AND ORGANIZATIONAL PROBLEMS IN THE FORMATION OF FARMERS' HOUSEHOLD IN THE LATVIAN REPUBLIC

DMITRIJS ROMANOV

*Scientific Research Institute of Economics  
Agroindustrial Complex of the Latvian Republic  
Riga, Latvia*

A year and a half has passed since the Council of Ministers of the Latvian republic adopted a resolution "On Farmers' Households" (October 1988). In May last year the Supreme Soviet of Latvia issued "Law on Farmers' Households in the Latvian Republic".

Essential changes are taking place in the system of agricultural farming forms in the republic. Today the revival of the countryside is going alongside with the revival of all Latvia. More than 7 thousand farmers' households (private farmers) have already been registered. About 4% of the arable land has already been cultivated by these farms.

What will this process be like in the conditions of deficit of different machines and commodities? Will there appear more enthusiasts of individual farming when they see the difficulties of the initial process? I believe this process will not stop as it encourages striving for independence and ownership, an aspiration to be the master of your own product and be able to use your own profits. A real farmer is not scared by additional difficulties in the sphere of material and technical supplies. Great assistance is rendered by Latvia's government, the Agroindustrial Committee, collective and state farms. I think this process shouldn't intentionally be hampered as the growing demands serve as a kind of stimulus in the salvation of different problems, material and technical supplies inclusive.

During the first stage many farms were formed on the basis of former single farmsteads, using the buildings which had survived. They had certain privileges when obtaining second hand agricultural machinery from the collective and state farms. In future the number of such possibilities is going to diminish. That will require increasing capital investments, mainly additional material resources.

Farmers' households have been established in all regions of the republic. For the time being they are fewer in number in the eastern regions of the republic.

The farmers' households should be established where there are enthusiasts of independent farming. It does not mean that this process lacks planning and control. The collective farms have to carry out land-organization work, planning in the near future and borders of the perspective farmers' households. That will make it easy for a

farmer to choose adequate farm and will not cause any blocking in the land organization work.

The formation process of the farmers' households ought to be planned and controlled. It should be foreseen what is going to happen with the collective and state farms and with the development of rent and lease relations. In other words, a realization program of the agrarian reform is necessary. In fact, the agrarian reform is already operating in our countryside, though officially it is not yet announced.

October 8, 1988, the day when the resolution of the Council of Ministers of our republic "On Farmers' Households" was adopted, can be considered as the birthday of the agrarian reform.

The methodical and organizational questions of the agrarian reform (the work has already been started) ought to be worked out now.

In addition to the land reform we also need the reform of household management forms. These both problems must be included into the agrarian reform program.

Wherever it is possible we have to give up those household management forms which have proved this inefficiency during 40 years, when the farmer was transformed into a hireling, when he was deprived of the land, of his own property, of the rights to act freely with his own products.

The government commission and three groups of specialists have been set up in order to work out the draft law on agrarian reform. Research officers of our institute also are taking an active part in this work.

The agrarian reform is to be carried out without haste, dynamically in two stages. It may take 10-15 years. After World War I it took almost 17 years to introduce the agrarian reform (years 1920-1937).

During the first stage collective farms will be the chief producers of goods. The formation of the farmers' households ought to be stimulated in all possible ways in accordance with the adopted Law on Farmers' Households, a.e., that is passing the land to the farmers for use in perpetuity. During this stage many economically weak and medium collective farms' lands can be distributed among farmers households. Alongside with farmers' households rent farms can also be formed with an aim to be turned into independent farmers' households.

In prewar Latvia 20% of land was cultivated by rent farms.

The first stage of the reform might be 8-10 years long. During the second stage, when Law on Property, Law on Land and some other republican laws will be operating, we can accomplish the private ownership on land on the basis of purchase - sales rights. It must be noted that part of the land will be the property of the state. A certain part of efficiently operating collective farms will remain situated on these lands.

To accomplish the agrarian reform in an organized way Law on Agrarian Reform, adopted by the Supreme Soviet of Latvia, is necessary. We must know the perspective and how to achieve it. At present we reconsider the suitability of building large production units in the collective and state farms.

A problem has arisen - what to do with the basic production funds accumulated by the collective farms, if 70-80% of the whole territory is distributed among the private farmers householders.

We may have several solutions. There exist basic differences between the collective and state farms. When the collective farms started their production activities, their



*Juhani Ikonen*  
*The Lithuanian delegation outlined the situation of family farming in their own country.*



*Juhani Ikonen*  
*The participants from Latvia found it interesting to hear the experiences of Finnish farmers.*

basic funds were formed on the basis of pooling together the shares of collective farmers. The funds of state enterprises are accumulated from budget assignments. By distributing a collective farm among private farmers's households the accumulated basic funds and circulation means have to be divided among share holders or land heirs at law or among other persons who have once worked or at present work at the collective farm and who have increased with their work the amount of indivisible funds and circulation means of the collective farm.

One can divide the basic funds and circulation means in the form of money, a.e., after they have been realized. Of course, it is impossible to realize and to divide all the accumulated property. It must be carried out partially. One must take into consideration that part of this property belongs to the state as the collective farms received their budget finances from the state. This part has to be estimated and paid proportionately into the republican budget and part of it has to be paid into the local budget.

During the early stages of the formation of farmers' household the collective farmers who had been working for a long time in the collective farms didn't get anything from the joint estate. That was wrong, because this joint estate was created by collective farms from the surplus products.

Now this problem has been solved by organizing the share holder societies. Such Societies have already been organized in several state farms with their own statutes.

In the future this process will be regulated by the "Law of Share Holder Societies". The draft law has already been worked out and soon will be discussed at the Supreme Soviet of Latvia.

Calculating and dividing the shares, we must not to decrease the production of agricultural products.

In order to employ successfully such objects of large scale farming as big farms, grain processing enterprises and repair workshops, share holder societies will be organized.

Flats in the collective houses and one-flat apartment houses belonging to the collective or state farms could be sold on credit to the farmers, agricultural specialists, teachers, doctors and the people employed in the cultural work and social service establishments in the countryside. The part of the flat funds that cannot be sold goes under the supervision of the local government.

Analysing the formation process of the farmers' households we have observed several negative tendencies. Particularly that relates to the size of the farms. If in 1988 when there were about 200 private farms in Latvia and the average land area for one farm was about 30 hectares, by the middle of 1989 it came down to 25 hectares, but now the total average area is 21 hectare. So we can see a tendency of decreasing of the farming area. Of all established farms about 17% have the total area up to 10 hectares.

I want to point out that in prewar Latvia due to the agrarian reform the average land area of new farms, which were established on the state land funds, were about 17 hectares, the size of rent farms being 32 hectares. Farms, having up to 5 hectares, were only 2.5% of the total area.

Of course, there could be a small number of farms with narrow specialization. In prewar Latvia farms specializing in gardening (with the average land of 6 hectares) used only 0.6% of the total land area of the country.

To my mind, wrong seems idea that small-size farms should be established at the

beginning and areas be reserved around them so that with time they may be expanded.

It may complicate and make the land organization work more expensive, the latter not being able to catch up with the speed of farmers' household formation.

One should choose at once optimum farm size according to the potency of each individual family. We can help to reach the intended level for material and technical means and capital investments that may change when the capacities will be accumulate.

Small farmers' households will not be able to stand competition with collective farms and in reality will only be an appendix to them. There are other possibilities of obtaining land for cultivation, one can increase the area of personal plots up to 2-3 hectares, one can rent land from the collective farm or cultivate it on the lease basis.

While working out different household modes for private farmers we have come to a conclusion that at present the optimum farming area for a family with two people having a capacity to work is 25 to 30 hectares. In a farm of this type the income per one person with working capacity may come to 9-13 thousand roubles a year, that is enough money to manage an ordinary farm.

Further, when forming the farmers' households one must take into account that there might appear a small number of farms with narrow specialization, the so-called craftsmen farms (for teachers, doctors and other specialists) with a considerably small area. That ought to be considered in the regulations process of land allotment and the agrarian reform program. In prewar Latvia the farmers' households were not allowed to divide the used land in the less than 10 hectares. It was a rule and, evidently, it was a well-grounded one.

In order to prove that the farmers' households are having a more efficient farming form than collective and state farms they have to have equal preconditions with collective farms.

The Government of our republic has done much to make the terms of material and technical supply for private farmers and collective farms equal (the agriculture machinery purchase price coefficient was abolished, money was given to compensate the difference of obtaining machinery within the system of consumer's cooperative society, etc.).

Equal conditions for the realization of agricultural produce have to be created. At the moment they are unprofitable for the farmers' households. The farmers sell their produce at state purchase basic prices (price zone No. 3) with a 15% additional payment for some specific types of products. For some collective farms subsidies are 5-6 times higher than those additional payments meant for private farmers.

The state purchase prices for the production have to be equal for all farm categories, as well as for the products purchased from people's supplementary farms.

Self-government system of farmers' household functions in Latvia. Farmers' Associations have been organized in many regions. Recently was established Latvian Farmers' Federation which protects farmers' interests. The Latvian Farmers' Fund will provide a technical service and economical assistance to farmers also in the form of foreign specialists and both long and short term training programmes.

When the farmers' interests will be combined, than cooperatives might appear in technical service, civil engineering, food processing and realization. Based on cooperation principles comparatively small milk, meat and vegetable processing units might

be created which would be able to produce goods even for export. In this respect we must consider foreign company offers to supply the above mentioned small farm units with necessary equipments.

Cooperatives engaging free labour force, retired persons, students might appear, giving farmers a chance to enjoy their vacations. Organizations of similar kind are operating in Finland, Holland and some other countries.

During the process of farmers' household formation we still hear objections on the part of collective farm leaders and specialists.

The results of the first private farmers' work-year have not yet been summed up. Notwithstanding the difficulties many farms have achieved good results. For instance, Valdis Zarinsh from Valmieras region, Vaidava pagasts (civil parish) in his farm "Elzas" has harvested 47 quintals of rye per hectare (6 hectares of area), 40 quintals of barley per hectare (2.5 hectares of area), 250 quintals of potatoes and 600 quintals of beet. Cultivating 25 hectares of arable land he sold to the state 17 tons of milk and 7 tons of meat.

Juris Kuks from Limbazhi region Unuvega pagasts (civil parish) farms "Strelnieki" harvested 53 quintals of corn, 250 quintals of potatoes and 700 quintals of vegetable roots per hectare. The milk produce per cow was about 5,000 kilos.

Farmers' households are established by comparatively young families, many of them are qualified agriculture specialists. Of all the private farmers' families 20% of them have higher education. Qualification courses are being organized in the republic. Many farmers have visited the USA, Poland and other countries to exchange the experience. This process is going and developing.

We are firmly convinced that by developing different forms of farming the food problem in Latvia will be solved in the next few years.

# PROTECTING THE INCOME LEVEL OF FINNISH FARMERS

LAURI KETTUNEN AND MARJA HOKKANEN

*Agricultural Economics Research Institute  
Helsinki, Finland*

## 1. Introduction

Producer prices of agricultural products would be very low in a free market situation and thus farmers' income would also lag behind that in other occupations. Therefore most countries have practised an agricultural policy which prevents competition from foreign countries. This has made it possible to have an independent agricultural policy and to regulate and increase farmers' incomes. Economists have, however, criticized this policy for not realizing the target of income equality. Instead, it has led to high prices for agricultural products at both producer and consumer levels.

Finland has also practised a very regulated policy, which has aimed to increase farm incomes. For this purpose, a Farm Income Act has been in force since 1956, which has enabled the regulation of producer prices. The latest Act is for the crop years of 1990/91-1994/95. It was applied for the first time this spring.

Since 1978 the Act has secured farmers the right to negotiate with the State on farm gate prices. This has given the farmers a good chance to influence the direction of producer prices as well as other important factors for farmers, like on social security benefits.

In the following, the use of the Farm Income Act is briefly reviewed. In the latter part of the paper, the evolution of farm incomes is examined.

## 2. Farm Income Act

The Farm Income Act is a means of running an income and price policy. According to this Act, the producers negotiate twice a year with the State about prices. So far, producers have got full compensation for the rise in costs due to the rise in the prices of production inputs and, in addition, the increase in farm incomes has been agreed on separately.

An essential part of income policy is support policy, which aims at equalizing the income disparities between different parts of the country and between farms of different sizes. Additional price and income support are graded regionally in order to maintain agricultural production in the northernmost parts of the country as well.

## 2.1. Farm income settlements

Producer prices for agricultural products are decided twice a year in the farm income negotiations. The negotiations are based on the Farm Income Act, which defines general directions for the setting of prices. According to the Act, the negotiations are held between the state and the producer organizations (KETTUNEN 1990).

There are two phases in the negotiations. In the first phase, the agricultural price council prepares a total calculation of the returns and expenditure of agriculture, based on the average amounts of the last three calendar years. The prices used here are the current prices, as well as those of the most recent settlement. According to the Act, farmers receive full compensation for the rise in costs through a rise in the target prices and in the price policy support to the extent that the increase in the total return corresponds to the rise in costs.

The total calculation of the price council includes the main products and production inputs of agriculture. The quantities used are the average quantities of the last three calendar years, and the prices are those of January and July (with some exceptions). Consequently, the return and cost figures of the calculation do not represent the real figures of any year.

Target prices are set for milk, pork, beef, mutton, eggs, rye, wheat, feed barley and feed oats. Producer prices of other products may fluctuate freely, but changes in prices are taken into account in the total calculation. The prices of, for example, sugar beet, potatoes and oil plants are also agreed on in the income negotiations.

The target prices should be realized completely. In the spring settlement a calculation is made showing deviations from the target prices. Shortfalls are credited and excesses are subtracted in the settlement. The following year this correction is returned to the prices. Consequently, in the long run, farmers receive exactly the prices that were agreed on. Retroactive payments are also included in the price settlement, so that it is not possible for farmers to receive additional income in that way. According to the new Act, the deviations are taken into account only if they exceed more than one per cent.

In the second phase the rise in farm income is negotiated. Farm income is a compensation for the farmers' labour input and own capital investment (interest on loans is taken into account in the cost calculation). In the earlier Acts the rise in agricultural income was bound to the development of the general income level or to the income development of rural wage-earners. This is no longer the case, but the negotiators can freely decide upon the rise in farm income. In practice, the general labour market settlements are still followed, agriculture being considered a low wage sector, and the rise in income is determined in the same way as for other sectors of the national economy. An attempt has been made to raise income on the basis of a calculated hourly wage. The overall increase in farm income would then be determined for the whole agricultural sector, based on the total labour input in agriculture. Since the settlement is always an outcome of negotiations, it cannot be described by any particular formula.

### 3. Price settlement in spring 1990

To illustrate the price system, the price settlement in spring 1990 is described briefly in the following.

In the spring price settlement the rise in costs since the autumn price settlement (i.e. the level of costs in July) is calculated. However, this time the costs were calculated from January 1989 till January 1990, because in the autumn of 1989 the change in costs was less than one per cent, and no corrections were made in the target prices.

Table 1 presents the main points of the spring price settlement. In the first place, it shows the increase in the return of the non-target price products (potatoes, sugar beet, oil seed, poultry meat and malting barley). In addition, the calculation includes some minor items.

The most important part of the calculations is the changes in costs as a result of changes in the prices of production inputs. The calculation indicated that the costs had increased by 5.2%. This was mainly caused by an increase in the costs of machinery and implements by 6.5%, in building costs by 8.4%, and in interest costs by 15.6%.

The cost calculation includes the excess over target prices twice. According to the earlier Farm Income Act, the target prices must be realized completely. If this is not the case, the deviation is taken into account as a correction in the price settlement the following year. Thus, for example, according to the calculation the target prices were

*Table 1. Income and cost calculation of the price settlement for spring 1990.*

|                                   | Price level in<br>spring 1989<br>FIM mill. | Price level in<br>spring 1990<br>FIM mill. | Change<br>% |
|-----------------------------------|--|--|-------------|
| <i>Gross return</i>               |  |  |             |
| Target price products             | 16 906.1                                   | 16 906.1                                   |             |
| Other                             | 6 147.3                                    | 6 272.2                                    | 2.0         |
| Total return                      | 23 053.4                                   | 23 178.3                                   | 0.5         |
| Excess over target prices in 1988 | 132.8                                      |  |             |
| <i>Costs</i>                      |  |  |             |
|                                   | 16 937.0                                   | 17 813.8                                   | 5.2         |
| <i>Farm income</i>                | 6 249.3                                    | 5 364.5                                    | -8.6        |
| Change in farm income             |  | 884.8                                      |             |
| Excess over target prices in 1989 |  | 5.1  |             |
| Change from the basic level       |  | 879.7                                      |             |

exceeded by FIM 132.8 mill. in 1988, and the target price level of 1989 was lowered by the same amount. In the spring price settlement of 1990 this amount was returned to the target price level. In 1989 the target prices had been exceeded by FIM 5.1 mill., which was subtracted from the target prices for 1990. This amount will be returned to agriculture in 1991.

The total of the return and cost calculation indicated that the target price level had to be raised by FIM 879.7 mill.

In spring 1990 an overall agreement on a general stabilization of the whole economy was reached by the main labour market organization to curb inflation. This general agreement included a very small increase in wages and salaries in 1990 supplemented by a tax reform both of which should yield an increase in real wages and salaries of 4% in 1990-91.

Against this background the State and the farmers' organizations agreed to increase farm income by FIM 401.7 mill., which also included compensation for the excess inflation in 1989. Thus, the total increase in target prices and price support was FIM 1,261.7 mill. or 5.4% of the gross return.

The increase was divided so that FIM 457.6 mill. was directed to target prices, FIM 566.1 mill. to price policy support, FIM 150.0 to special purposes and FIM 88.0 mill. to social security. The last-mentioned ensures, for example, that farmers' annual leave can be extended by an extra day; thus, from the beginning of the vacation year of 1990/91, farmers are entitled to 21 days of annual leave altogether.

The special feature of the price settlement was direct income support for the first time. Price support, which increases production, should no longer be used owing to the over-supply. Instead, direct income support not tied to production ought to be applied. FIM 510 mill. was reserved for this purpose and it will be paid according the acreage of the farm. The payment will be FIM 300 per hectare. Neither farms under 3 ha nor pensioners will receive this support.

The rise in target prices is the final task of the price negotiation process. The market situation and the increase in costs of various products is taken into account

*Table 2. Target prices 1987-90.*

|             |       | 1.3.87 | 1.4.88 | 1.3.89 | 1.3.90 |
|-------------|-------|--------|--------|--------|--------|
| Rye         | mk/kg | 2.70   | 3.00   | 3.10   | 3.10   |
| Wheat       | “     | 2.33   | 2.43   | 2.51   | 2.55   |
| Feed barley | “     | 1.70   | 1.75   | 1.78   | 1.78   |
| Feed oats   | “     | 1.58   | 1.66   | 1.76   | 1.75   |
| Milk        | p/l   | 2.345  | 2.445  | 2.69   | 2.77   |
| Beef        | mk/kg | 25.10  | 26.10  | 27.80  | 28.22  |
| Pork        | “     | 16.30  | 17.00  | 17.95  | 18.06  |
| Eggs        | “     | 8.80   | 9.10   | 9.20   | 9.20   |
| Mutton      | “     | 24.65  | 25.90  | 27.45  | 27.88  |

before the decision is made. This time the target prices of grains were hardly raised at all, and the bulk of the increase went to milk.

#### **4. Realization of target prices**

As mentioned earlier, target prices are supposed to be achieved exactly. Any deviation is taken into account in the next price period. Following methods are applied to realize the target prices:

- (a) Regulating the supply of agricultural products
- (b) Export subsidies
- (c) Import control

Agricultural markets are basically closed to foreign markets, which makes it possible to regulate prices by domestic means. Duties and import levies are applied to raise the prices of imported products to that of domestic products. Imports are mostly prevented by import licences. Export subsidies guarantee that world market prices do not affect domestic prices.

##### **4.1. Prices of milk and meat products**

The retail prices of milk and meat products are no longer regulated in Finland. Cooperative dairies and slaughterhouses usually set wholesale prices so that they are able to pay the target price to the producer. Almost all dairies are co-operative dairies, i.e., non-profit organisations. Their ability to pay farmers for milk varies considerably. On the average, the target price has been achieved quite well.

Companies buying grain usually pay the target price, or close to it. The share of the producer price in the consumer price of grain products is small, so that the target price of rye or wheat or any increase in it can easily be paid to farmers.

Producer and retail prices of meat and eggs may vary according to the supply and demand situation. The government will and must step in if producer prices deviate too much from the target price. The deviation should not be larger than  $\pm 5$  per cent. If the producer price is above the required level, the government gives permission to co-operative meat companies and slaughterhouses to import meat, in order to increase supply and to lower the producer price. Similarly, if the producer price is below the target, exports are allowed.

Production of eggs has been much above domestic consumption for a long time. But since there have been no problems in exporting eggs and since export subsidies have been sufficient to cover the difference between the world market price and the target price, the actual producer price has been quite close to the target.

##### **4.2. Other products**

The producer price of potatoes has proved to be difficult to stabilize even though it

would be in the interest of producers and consumers. The price depends mainly on the yield, which varies greatly from year to year.

The retail price of first-class quality potatoes was previously fixed by the government. It proved difficult to realize and was abandoned. Nowadays, a producer price recommended by the State and farmers' organisations is applied in accordance with the agreement reached during the price negotiation between the State and farmers.

A deficiency payment system is applied to sugar-beet, which is not among the target price products. The Special Sugar Act provides for producers to be compensated by the State for the difference between the guaranteed producer price, which is agreed upon during the general price negotiations, and the actual price.

A system similar to that for sugar-beet is applied to oil seeds and to wool.

## **5. Income development in the 1980s**

The Farm Income Act has led to real producer prices being rather stable. This has formed a good basis for a satisfactory enhancement of farmers' income. Real producer prices have, in fact, been falling in many countries recently. In particular, the world market prices of farm products have been low.

The growth of incomes depends on many other factors than prices. The development of farm structures and productivity are equally important, and climatic factors influence incomes strongly in the short term.

Farmers' incomes are reviewed in what follows from different points of view. The statistics are either total statistics or are based on sample surveys (PUURUNEN 1989). The latter ones can be applied to many-sided classifications according to the region, size of the farm and the line of production.

### **5.1. The whole agricultural sector**

There are two series of statistics which can be used to examine the growth of incomes in the agriculture as a whole: the total calculations of the Agricultural Economics Research Institute (AERI) and the national accounts of the Central Statistical Office. There are only slight differences in these series.

According to the total calculations of the AERI, the value of the total agricultural production (the gross return) has risen by about 80% from 1980 to 1989. Total costs have increased by about 70% in the same period. The difference between the gross return and the costs, the farm income, which is the compensation for the labour input of the farm family and for the capital input invested by the farm family, rose about 73%. The calculation includes agriculture proper and the subsidies paid by the state are included therein.

The evolution of nominal and real farm income in 1980-89 is presented in Figure 1. The period includes several climatically unfavourable years, which explains the great fluctuations in farm income. Severe crop damage was experienced in 1981 and 1987, whereas the year 1983 was very good.

In the beginning of the decade, the farm income was stable. As a result of the good

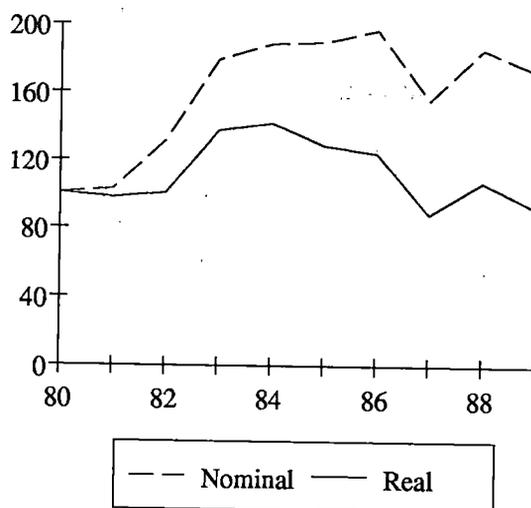


Figure 1. The evolution of nominal and real income in 1980-89 (1980=100).

Source: The total calculation of AERI.

crop in 1983, farm income rose by about 40% in 1983, and the good development trend continued in the following year. Thereafter the real farm income has been falling, and in 1987 it fell even below the base year 1980. The situation improved slightly in 1988 due to the crop damage compensations for the poor crop in 1987, but the downturn seems to have continued again in 1989 according to the preliminary estimates. The recent trend is disturbed by the above-mentioned crop damage compensations, which raised the farm income by FIM 1.5 billion in 1988.

The total calculation depicts the development in the whole of agriculture. It does not reveal anything about the trend in incomes of individual farmers, nor does it show internal developments in agriculture.

The income of an individual farm may differ from the average trend due to the geographical location, size of the farm and line of production. The AERI has studied income differences in agriculture comprehensively. Some results are presented in the following.

## 5.2. Regional development

The average farm income was higher in southern and western parts of the country than the average for the whole country in 1986 (Table 3). Farm size and the size of the herd are greater in this area, and about 60% of farms are situated here. Farm income per farm is clearly lower in eastern and northern parts of the country, where farms are smaller than the average.

Income differences are smaller if the size of the farms compared is the same. The growth of incomes has been about the same in various lines of production. As can be

Table 3. The evolution of real farm income in different areas in 1980-86 (PUURUNEN 1989, p. 16).

| Year | Southern Finland | Middle Finland | Ostrobothnia | Northern Finland | Whole country |
|------|------------------|----------------|--------------|------------------|---------------|
| 1980 | 100              | 100            | 100          | 100              | 100           |
| 1981 | 96               | 94             | 98           | 96               | 96            |
| 1982 | 111              | 100            | 104          | 102              | 106           |
| 1983 | 138              | 117            | 124          | 117              | 130           |
| 1984 | 151              | 134            | 130          | 134              | 141           |
| 1985 | 137              | 132            | 120          | 124              | 131           |
| 1986 | 144              | 127            | 132          | 134              | 136           |

seen in Table 3, income has grown a little faster in the south than in other parts of the country. The farms in the southern parts of the country have specialized in crop production and since the grain prices have risen faster than other prices in the 1980s, the income growth has been rather good in Southern Finland.

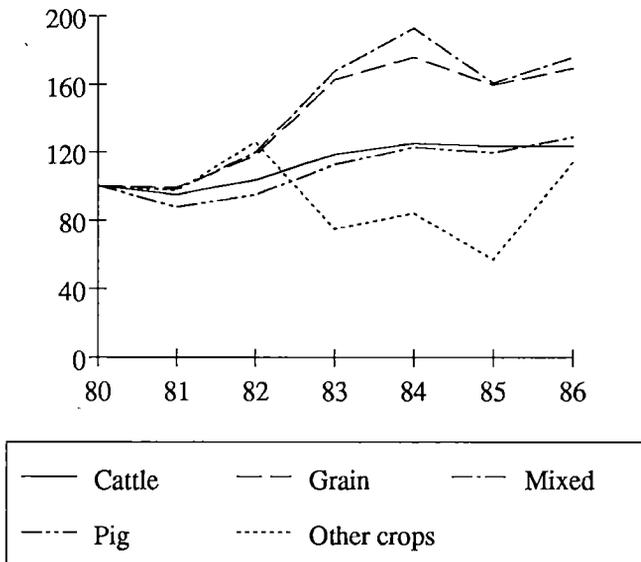


Figure 2. The growth of real income in different lines of production in 1980-89.

### **5.3. Farm income in different lines of production**

The development of farm income in different lines of production is examined by classifying the farms according to the gross income of farms. The most common groups are dairy cattle farms and farms having mixed production. In 1986 the farm income was highest on pig farms and on cattle farms, and lowest on farms of mixed production and on grain farms. If farm income is calculated per hour, the situation is different and the income is highest on grain farms due to their low labour input.

The income differences between various lines of production are due to the differences in size of farms and the intensity of production. The growth in prices and the farm inputs has been different.

The growth of real income has been similar both on cattle and pig farms as well as grain and mixed farms. Farm size has grown faster on cattle and mixed farms than on other farms.

The farm income per farm clearly grows independently of the line of production when the size of farms measured in hectares increases. Otherwise hectares are not the best way for classification, for example animal farms and arable farms vary due to the different intensity of land use.

Even though farm income on the average has grown nearly 50%, the growth is not similar in all farms (Table 3). Income has grown much more on the large farms than on small farms.

### **5.4. Income comparisons**

The aim of income policy has been an equitable income for farmers compared to other population groups. The realization of this aim has been studied by the AERI. The task is difficult, but some results can be presented. They indicate that farm income per farmer is about 50-70% of incomes in industry.

If the farm under consideration is defined as a farm which gives full income, the farm income per person is about 70% of the average wage in industry.

On book-keeping farms which are more intensive and more efficient than farms on average, the farm income per head in 1986 averaged nearly 80%, and in the crop failure year 1987 nearly 60%, of the income in industry. Only on farms of 30 hectares or more of fields did the farm income per farmer reach the level of the average wage-earner in industry.

The previous examination included only incomes from agriculture. If we take into account other sources of income (forestry, wages etc.) and social welfare, and other sums paid or carried by the State, the income level of industrial households is nearly reached.

## **6. Summary**

The income level of Finnish farmers has been developed by means of the Farm Income Act. According to the Act, the rise in costs due to the increase of the farm

inputs is compensated fully to the farmers. In addition, the increase in farm income is negotiated separately.

The Act has meant in practice that producer prices have risen at the same pace as the general inflation and that real producer prices have been rather stable. This has secured a satisfactory growth in farm income. The large fluctuations have been mainly due to climatic factors.

The income level of farmers is still about 30% below the income level of industrial workers, if fully employed farmers are considered. For the whole of the agricultural sector, the income level is even lower.

There are internal differences of income in agriculture due to the differences in the size of the farms. Regional differences have been eliminated quite efficiently by regional subsidies, but since the farms are smaller in remote areas than in the neighbourhood of population centres, the income level is lower in the less-favoured areas than in Southern Finland.

## References

- KETTUNEN, L. 1990. Finnish Agriculture in 1989. Publications of the Agricultural Economics Research Institute, Finland, No. 60a. 52 p.
- PUURUNEN, M. 1989. Viljelijäväestön tulokehitys 1980-luvulla. Abstract: Income Development of farmers in the 1980s. Agricultural Economics Research Institute, Finland. Research Reports 148. 84 p.

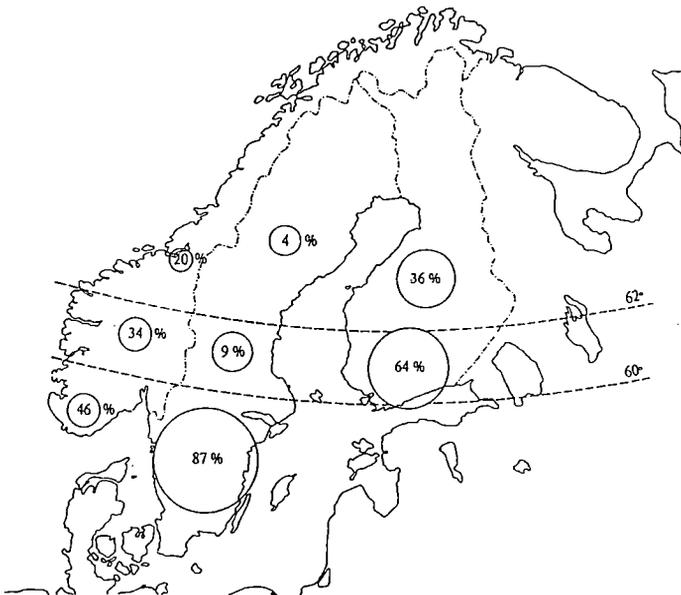
# THE STRUCTURE OF FINNISH AGRICULTURE AND RURAL DEVELOPMENT

SEPPO AALTONEN

*Pellervo Economic Research Institute  
Helsinki, Finland*

## Finland as a northern agricultural country

Finland is one of the largest countries in Europe. However, the total arable area covers only 2,4 million hectares, as the country is heavily forested and dissected by lakes and rivers. Finland's agricultural production is also limited by the shortness of the growing season, which in southern Finland is only about 175 to 180 days and in the northern parts of the country about 125 to 135 days. In neighbouring Sweden and Norway, most agricultural production takes place in regions, where weather conditions are much more favourable (Chart 1).



*Chart 1. Distribution of grain acreage in the Nordic countries*

In northern Finland, in particular, crop farming is confined to fodder grain and grass. This provides a good basis for animal husbandry, which is therefore the predominant form of farming in Finland.

Owing to the country's northern location, Finnish agricultural production is characterized by high costs of production. Moreover, the country's population, some 4,9 million, constitutes a rather modest basis of demand for domestic agricultural produce. Although, statistically, Finland is one of the most sparsely populated countries in Europe - 14 inhabitants per square kilometre - the population is nevertheless heavily concentrated to the towns and cities of southern Finland. By contrast, agricultural production is distributed fairly evenly through out the country, apart from Lapland, where reindeer husbandry is an important industry.

This brief article seeks to give a rather general survey of the structure of Finnish agriculture and changes that have occurred over past decades. Some future prospects are presented, as well. Since the agriculture is very closely related to the problems of the rural areas in the country, some of the recent developments of the rural policy has also been discussed.

## **Agriculture as part of the economy**

The significance of agriculture in the national economy has diminished in Finland, as in other industrial countries. In 1960, agriculture accounted for more than 10 per cent of GDP, but its share was no more than 2,8 per cent in 1988. If forestry, which is closely linked with agriculture in Finland, is included, the combined share of GDP rises to 6,1 per cent. Domestic agriculture and forestry form the basis for the Finnish food and forest industries and these account for 2,9 and 5,4 per cent of GDP, respectively (Chart 2).

The agricultural labour force has decreased rapidly. Some twenty years ago, it accounted for one third of the working population. At present, agriculture and forestry employ slightly more than 10 per cent of the total labour force. In the 1960's and 1970's, the rapid expansion of the manufacturing and service sectors greatly increased the demand for labour and there labour resources were coming mainly from the Finnish countryside. At the same time, new labour saving methods of production started to be introduced in agriculture, reducing the demand for agricultural labour.

This was the beginning of migration from the countryside to urban centres. The drift from the rural areas involved mainly the young age groups and was most vigorous in eastern and northern Finland. This has resulted in an aging of the agricultural population; in 1988, about one third of the farmers was over 55 years of age. The reduced number of farm and forest workers has been the major reason for the decrease of the rural population. In 1970, 37 per cent of Finland's labour force could be found in rural areas (statistically rural areas also include small more densely populated areas with less than 500 inhabitants); in 1980, the figure was 26 per cent and by 1985 it had dropped to 23 per cent. In the period between 1970 and 1985, the number of inhabitants in rural areas fell by 510 000 (28 per cent) and the volume of the labour force by 240 000 people (31 per cent).

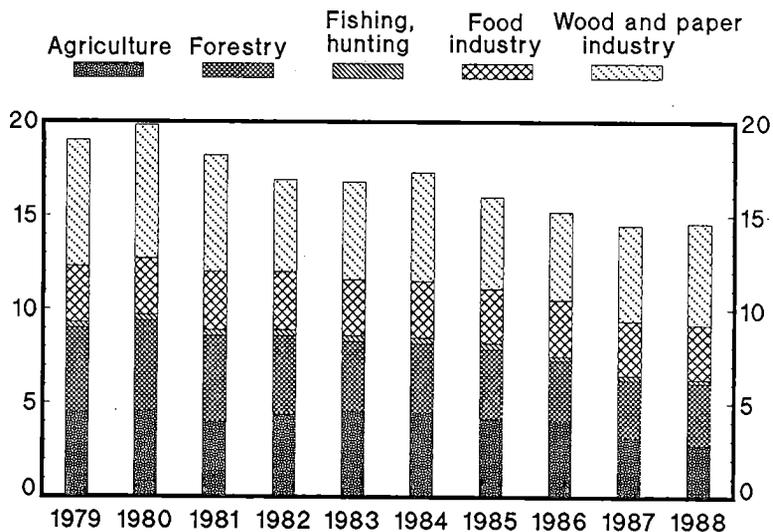


Chart 2. The percentage shares of agriculture and related industries of the GDP in 1980-1989 in Finland

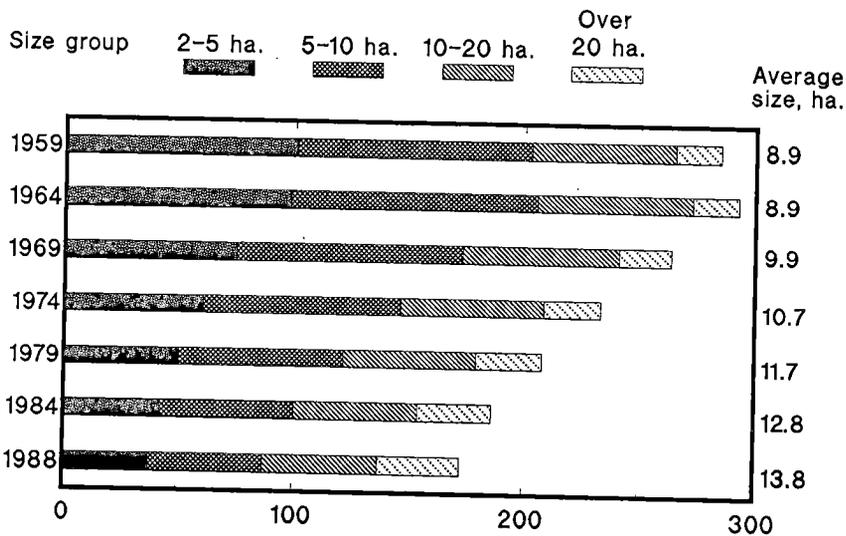


Chart 3. Changes in the distribution of farms by size in 1959-1988.

## **Structure of the Finnish agricultural sector**

In the late 1960's, there were some 264 000 farms with over two hectares of arable land in Finland. In the subsequent twenty years, the number fell by one third to 173 000 farms. Since the decline in the total arable land area during the same period has been fairly small, the fall in the number of farms has been accompanied by a rise in the average arable field area per farm. At present, Finnish farms (over two hectares of arable land) have on average 13,8 hectares of arable land and 39 hectares of forest land. However, regional differences are great: the average arable land area is appreciably larger in southern Finland while, conversely, the average area of forest land is larger in eastern and northern Finland. In the South and South-west, three quarters of farms have less than 27 hectares, but in northern Finland the corresponding field area is approximately only 9 hectares (Chart 3).

Mainly due to the small average size of the farms, farmers have increasingly had to supplement their incomes in activities outside agriculture. Today less than half (47 %) of all farmers are engaged in farming on a full-time basis. The average arable field area on these farms was as high as 18,3 hectares varying from 27 hectares in southern Finland to 12 hectares in Lapland. The smallest farms are owned by part-time farmers, pensioners, heirs, etc. As a whole Finnish agriculture is still dominated by family farming.

Private farmers, fulltime or part-time, own 80 per cent of all Finnish farms. Due to the migration of young people outside agriculture, the average age of farmers is very high, 51 years of age. One third of private farms are 55 years old or more. This means a high retiring rate of farmers within the coming 10 years. The problem that will arise, is that many farms, in particular the smallest ones will have no successors. The high age of farmers may, however, give possibilities to a more rapid structural change in agriculture than what has been the case during the past decade.

## **Specialization of farming by region and type of production**

Agricultural production has become specialized in Finland both by region and type of production. There has been a rapid decline in milk production in southern and south-western Finland. As a result milk production is now heavily concentrated to central and eastern Finland. Reflecting the lack of alternative forms of production, milk production also occupies a key position in northern Finland. With the expansion in the cultivation of fodder grain, pig and egg production has, to an increasing extent, become centred on southern and south-western Finland. By contrast, beef production, which traditionally is closely associated with milk production, is more evenly distributed throughout the country. Beef production is also taking place on numerous farms specialized exclusively in beef. The grain-growing farms in southern and south-western Finland are, of course, larger than those specialized in livestock rearing in the eastern and northern parts of the country.

The latest statistics on the numbers of farms specializing in different types of production concern the end of 1986. At that time nearly half of the farms (47 per cent or 93 000) had domestic animals; the rest of the farms were cultivating grain and other

Table 1. Number of farms at the end of 1986 in Finland.

|                       | Number of farms | Share % |
|-----------------------|-----------------|---------|
| Total number of farms | 195 909         | 100.0   |
| - without animals     | 102 815         | 52.5    |
| - with animals        | 93 094          | 47.5    |
| Number of farms with: |                 |         |
| - cows                | 61 379          |         |
| - pigs and sows       | 16 265          |         |
| - poultry             | 16 222          |         |
| - sheeps              | 6 287           |         |
| - horses              | 7 442           |         |

Source: Farm Register 1986, Board of Agriculture.

type of plants. The distribution of different farm types was the following at the end of 1986 (Table 1).

Farm with domestic animals rather often, of course, combine eg. milk and beef production. The reduction in milk production has, however, been very rapid and at present, there are only about 46 000 producers delivering milk into dairies.

## Development prospects of the Finnish agricultural structure

There are numerous internal and external pressures challenging the Finnish agriculture and the structural development as well. Food prices are said to be too high and the consequence of this type of discussion is followed by requirements to reduce agricultural producer prices and the level of food import restrictions. Due to a serious imbalance between domestic supply of and demand for main agricultural products, numerous measures to curb production have been applied by the government. These restrictions are, however, slowing down the structural development and are limiting the possibilities of individual farms to increase production. On the other hand, if producer prices will be reduced even in real terms, the only way to guarantee a proper level of income to producers is to let agricultural output per farm increase. This means a reduction in the number of farms and an increased productivity in agriculture in the future.

According to recent research there are many alternative estimates as to the number of farms at the end of this decade. The expected total number of farms in the year 2000 varies between 130 000 and 140 000 farms. It is evident that farms with animal husbandry will be reduced to 40 000-45 000, of which specialized milk units to about 30 000 the rest being pig and poultry farms. This kind of alternative implies that the rate of selfsufficiency in main agricultural products exceeds 100 percent. If the level of selfsufficiency is set at a lower level, the number of farms will be diminished even

more. A type of crisis alternative, free food imports, would mean a serious profitability problem in Finnish agriculture and a rapid decrease in the number of farms and farm produce.

## **From agricultural policy to rural policy**

Rural policy is a fairly new concept in Finland, as proper rural policy conducted by the government did not get under way until 1980's. Before that rural policy was often referred to as regional policy and agricultural policy. The importance of agricultural policy has been and will continue to be substantial for the rural development in Finland, because the majority of the people living and working in the countryside are engaged in farming. Agriculture and forestry will be crucial to the most remote areas in the future, too, whereas industries not related to agriculture will have good prospects for development in regional centres and other urban areas.

Agricultural policy measures have been specifically designed to even out to some extent differences in income levels within the agricultural sector. In practice, this has meant that the higher production costs of agriculture in the northern and eastern parts of the country have been offset with various pricing and subsidy policies. A major part of the subsidies is allocated to livestock production, in particular to milk and beef production. Some of the subsidies can be regarded as direct income subsidies; they are granted on the basis of farm size and the farmer's income level. On the other hand, financial support for the structural development of agriculture is one of the measures of regional policy. Government loans and interest subsidies have been used to increase agricultural investment in poorer production regions.

Structural and other agricultural support measures have substantially improved income formation in agriculture in remote rural areas. Naturally government support does not benefit agriculture alone, but also affects other sectors such as industries supplying production inputs to agriculture, trade, transport and local authorities in the form of increased tax revenue. Thus the government's regional policy related to agriculture has had a positive impact on the rural area as a whole.

## **Labour force and employment of rural areas**

In Finland, internal migration has implied population transfer to the southern urban areas. The migration has been due mainly to the declining number of jobs in agriculture and forestry. In 1970-1985, the proportion of labour force by sector changed in rural areas as shown in the Table 2.

In 1985, some 38 per cent of the labour force in rural areas was still engaged in agriculture and forestry, about one quarter in industry and construction and a good third in the service sector. Thus the importance of agriculture and forestry for employment in rural areas is still significant even though the corresponding figure for the whole country was as low as 11 per cent in 1985 (Chart 4).

Although the volume of the labour force in agriculture and forestry has fallen on farms, the overall impact of agriculture and forestry on the economy has not decreased

Table 2. The distribution of labour force in the Finnish rural areas in 1985

| Sector                            | 1970<br>% | 1980<br>% | 1985<br>% |
|-----------------------------------|-----------|-----------|-----------|
| 1. Agriculture, forestry, fishing | 52.4      | 42.0      | 38.5      |
| 2-4. Industry                     | 15.4      | 19.5      | 18.6      |
| 5. Construction                   | 8.0       | 7.6       | 7.7       |
| 6. Trade and accommodation        | 8.3       | 7.6       | 8.3       |
| 7. Transport                      | 5.2       | 6.3       | 6.2       |
| 8. Financial sector               | 0.9       | 1.8       | 2.6       |
| 9. Social services                | 9.8       | 15.1      | 18.1      |

Source: Aaltonen & Torvela 1989, p. 9.

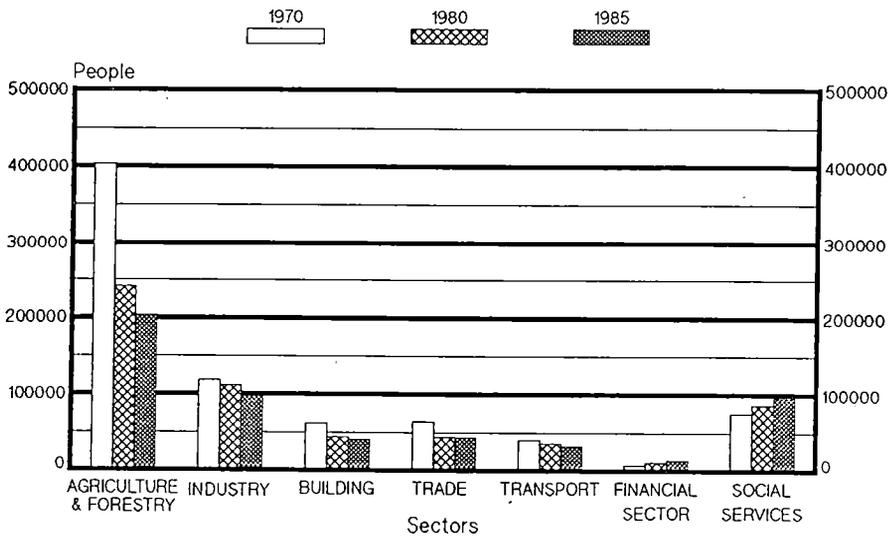
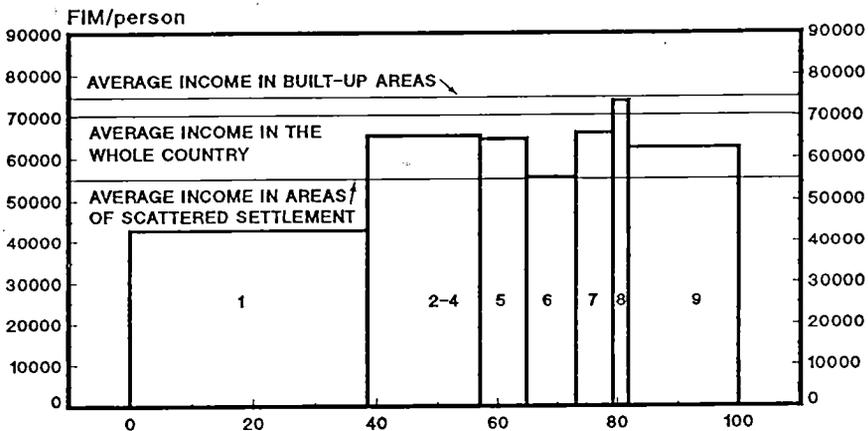


Chart 4. The volume of the labour force by sector in rural areas in Finland 1970, 1980 and 1985.

in the same proportion. The multiplier effect of the agricultural and forestry sectors, ie. the production generate work in other sectors of the economy, have increased in the other sectors, e.g. industry, trade and transport. According to a rough estimate, one person employed in agriculture and forestry provides indirect employment for two person in sectors, which produce inputs for the basic industries, process agricultural products and are involved with wood processing.

According to research results, migration is most often attributable to the fact that suitable jobs are not available in rural areas. Another important factor is the difference in income level between town and countryside (Chart 5). With the exception of the financial sector including insurance, the average income level in rural areas is below the national average in all sectors of the economy. Average income subject to central government taxation is one fifth lower in the rural area than the corresponding income for the whole country.

Industrial, trade and business enterprises are primarily located to urban areas or areas in their immediate vicinity. This fact threatens the supply of services, job oppor-



Sectors in Chart 5:

- |                                      |                     |
|--------------------------------------|---------------------|
| 1. Agriculture, forestry and fishing | 7. Transport        |
| 2-4. Industry                        | 8. Financial sector |
| 5. Construction                      | 9. Social services  |
| 6. Trade and accommodation services  |                     |

Chart 5. Average income per person employed in rural areas and the proportion of the labour force in different sectors in 1985.

tunities and settlement in particular in remote rural areas. Thus the viability of the most remote areas depends almost exclusively on traditional agriculture and forestry. Employment, and consequently the whole economic situation in rural areas, is further weakened by the fact that strong centralization of dairy and slaughterhouse operations and shopping and banking services into even larger units is still going on.

Rural development problems have been dealt with by many government committees in the 1980's. The objective of rural policy was defined as safeguarding the vitality of rural areas in the whole country, equal development of the living conditions of the rural and urban population, and narrowing the differences in income and employment within the rural area. These objectives, naturally, presuppose the maintenance of a sufficient population and settlement in the countryside. The particular emphasis has been laid on opportunities offered by sectors other than agriculture and forestry.

Today several ministries, central administrative boards and organisations are involved in rural development in Finland. At the same time as efforts have been made to increase cooperation between different authorities in a broadly based rural policy, decisionmaking has been decentralized to local authorities. In order to meet the requirement of close cooperation between authorities a separate rural development project was launched at the beginning of 1988. In practice this means cooperation between the Ministry of the Interior and the Ministry of Agriculture and Forestry in the control and integration of rural development measures. The cooperation is specifically aimed at furthering concrete measures for the benefit of the rural areas.

### **Sources:**

- AALTONEN, S. 1987. Agriculture in Finland. Bank of Finland Monthly Bulletin No. 10.
- AALTONEN, S., TORVELA, M. 1989. Problems in Rural Development in Finland. Agricultural Economics Research Institute, Research Reports No. 58.
- YLÄTALO, M. 1989. Alternatives of the Structural Development in the Finnish Agriculture. Pellervo Economic Research Institute, Reports and Discussion Papers No. 83.

## POSSIBILITIES OF REFORMING THE AGRARIAN STRUCTURE OF ESTONIA

JOHANNES KAUBI

*Institute of Economics, Estonian Academy of Sciences  
Tallinn, Estonia*

Besides the regulation of property relations and conditions for economic management it is indispensable for the acceleration of the development of Estonian agriculture to reform its agrarian structure. Such setting of the problem is justified since the establishment of the system of all-out autocratic large-scale production in the Soviet Union - including in Estonia - was in contradiction with the general development tendencies and agrarian economic positions of the world agriculture. Such agricultural system consisting of giant enterprises has never and nowhere existed. There has always been agricultural small-scale production besides large enterprises (latifundiums in ancient Rome, feudal estates, so-called megafarms in the United States today).

At the same time it must be taken into account that inclusion of the farmlands in the land of a manor that had been going on so far came to an end in the majority of European countries in the middle of the 19th century, and in the beginning of the 20th century farming came to be dominating. Socialist agrarian theoretician ignored this fact, and therefore the collectivization of agriculture in the Soviet Union and elsewhere must be taken as a deviation from the natural course of development.

As we know, the abstract aim of the collectivization of agriculture was creating social equality pursued by establishing large enterprises. That objective can't be reached, because a large enterprise can't function without leadership, and specific interests of directors and leading workers remain. An attempt was made to justify the collectivization by economic reasons, stressing the advantages of large-scale production. In fact, already the agrarian economists of the past (Fr. Aeroboe, J. Brinkmann, E. Laur, etc.) have shown that the variety of forms of agricultural production, coexistence of both large-scale and small-scale production ensures the efficient use of different natural and economic resources.

And so the idea of total large-scale production is very questionable, but the Soviet Union agriculture, and among others Estonian agriculture, was demanded not only by the foundation of large-scale production but above all the way it was done. The questionable idea could be implemented only by resorting to force. The agricultural collectivization was carried out brutally, with terroristic methods and ignoring real economic conditions. Psychic and moral damages and direct economic losses accompanied it. This caused considerable delay in the development of agriculture in the

following decades.

Collectivization threw into confusion the normal working and living surroundings of country people, their attitudes towards work was corrupted for decades. Deporting a large number of country people to Siberia and other reasons that made them leave countryside lessened the number of agricultural workers dramatically. That was reflected in the volume of agricultural production.

After the collectivization the production potential created by several generations quickly fell out of the production process. The total cost of production bases of 140 000 farms in 1940s can be estimated for approximately 2.5-3 billion roubles. This wealth was destroyed or neglected and had to be replaced.

In these conditions country people still had to live and work. In the first place, they had to lay the foundation of the basis of new large-scale production. It was not easy. In 1965 collective and state farms had capital assets for agricultural production worth 0.5 billion roubles only, in 1970 1.2, and at the beginning of 1989 only worth 3.1 billion roubles. Thus, it took nearly 40 years to lay the foundation of the new production basis in the same value. It is understandable that agricultural development was restrained namely by the lack of adequate capital assets during the intervening years.

Negative experience from the past must be observed while forming the principles of current land reform. Assuming that the present predominant system of large-scale production should be changed into farming in full about 50 000 farmsteads must be founded. An average cost of a farmstead on the present technical level would be at least 100 000 roubles, and the total cost of their capital assets approximately 5 billion roubles. Investments in Estonian agriculture have been approximately 1 billion roubles per 5 years during the past decades. The accumulation of assets will probably be the same in near future, therefore it will take at least 20-25 years to re-establish farmsteads.

It is evident that the re-establishment of farming is a long-time process which can't be substantially accelerated. To guarantee stability both small-scale and large-scale production must exist side by side in the next decades. Transition must be flexible, conditions for setting up farmsteads have to be created, but at the same time adequate production and management conditions for previous large-scale farms must be ensured and the working zeal of their workers preserved.

It has been said that our present situation resembles to the land reform in the Estonian Republic in 1919 which was carried out extensively and fast. In fact, the situation is essentially different. The development of farming in Estonia began already in the middle of the 19th century when statute labour came to an end and buying farms for perpetuity began. In 1919 there were already 51 640 farms bought for perpetuity and almost 23 000 estate-rented farms in Estonia. At their disposal there were correspondingly 57 and 18 per cent of the farmlands. Directly as an estate-farmland only a quarter of agricultural land was used, though, according to the property form far larger portion of land belonged to the Baltic landlords. In the process of land reform a part of estate-farmland was expropriated and divided into settlement-farms and additional allotments for rented farms. About 54 000 farms were established by 1939.

The socio-economic importance of the Estonian Republic land reform in 1919 was more extensive, the whole feudal landed estate - including estate-farm woods - was expropriated, and state forest funds, etc. were formed of them. Thus, feudal relations



*Juhani Ikonen*

*While we were visiting the banking group OKO Director Raimo Tammilehto broadly explained how Finnish agriculture is financed.*



*Ossi Ala-Mantila*

*In the Agricultural Center of the region East Häme in Lahti Director Tapani Imeläinen and the President of the Board Matti Suntela gave an account of the agricultural advisory services at farms.*

were abolished once and for all.

For comparison with the present conditions it is essential to recall that the reform of that time embraced only a quarter of the potential of agricultural production, and it carried to its conclusion the process of establishing farming which started already in the middle of the 19th century. But today we must start re-establishing farmsteads practically from the zero point because of the dominating system of large-scale production. Farm labourers have got used to the work and the way of life in the conditions of large-scale production. Most of them are not sufficiently interested in starting all over again. There has been a 40-50 years period of isolation in experiences of practical farming, there is no examples in the form of the farmsteads of neighboring villages as in 1919.

At the same time, great changes in technical level and organizational forms of the farms abroad have taken place during this period. It takes time to get acquainted with these changes. There is no up-to-date infrastructure - e.g. services for supply and marketing of production, consultative offices, etc. - adapted to small-scale production, either. Therefore, the establishment of both farms and infrastructure needs rather large expenditures and there are other difficulties, too.

Taking these circumstances into account flexible development policy must be applied. The primary condition of the agrarian reform is supplying farmsteads with land - i.e. realizing the land reform. Flexible policy must be realized through the land reform in the first place: preconditions for establishing farmsteads have to be created, but possibilities for the existence of state and collective farms must be ensured, as well.

In Estonia a questionable concept is spread now according to which the agrarian reform means returning the farmsteads which existed 40-50 years ago, to their owners, more properly - to their successors from second-third generation. The idea of making up for historical injustice is in the forefront in this concept, but needs of stable agricultural production have not been observed. For one thing, contemporary farmsteads should be bigger than the former ones. We can't confine ourselves to fixing old borders, but farmlands have to be surveyed over again. Secondly, occasional distribution and location of farmsteads might hinder state and collective farms to continue their production.

Therefore, establishment of farmsteads should start practically from the zero point and with sensible land reform. In the traditional interpretation land reform means redistribution of land to be used for agricultural purposes from previous users to new ones according to agreements. Either a part or the whole land will be expropriated from the previous users (state or collective farms), either all at once or step by step. A reserve fund to be distributed by fixed rules to new users - farm founders - will be formed out of that.

On that account, on the territory of every large-scale farm the fund of farm- or spare land has to be found out and delimited. As the present agricultural enterprises, in most cases, are excessively large, reduction of their surface doesn't harm their production conditions, rather the other way about. But it surely is necessary that a compact territory around the production center would be preserved for the remaining part of the enterprise.

Farmsteads should also be located compactly by the whole villages so that farmers

could extend co-operation. Thus, on determining land for farmsteads villages with a larger number of potential farmers should be preferred. It is inevitable for the time being to give land far from centers - in the so-called borderland. This land needn't be worse as regards the soil quality, they have simply been used less intensively.

Flexibility of the above-presented development policy lies in the possibility of, - in the case of increasing number of applicants for farms - including more and more new farmsteads in villages until the liquidation of some large-scale farms. In case of the small number of farm founders state or collective farms can use the reserve lands on. Some restrictions should evidently be used in legislation to avoid untimely liquidation of better off enterprises.

The other side of carrying out the land reform lies in determining in which way and to whom give the land. It's obviously incontestable that in the first place land will be given to the successors of the previous farmers who have been working on this state or collective farm, and only after that to other applicants who have no such historical right. Through this condition the idea of making up for historical injustice can be realized.

At the same time it must be considered that in the majority of European countries rather strict requirements of professional qualification are put forward for the buyers of farmsteads and for the successors, as well. Obviously, it would be necessary to attest candidates for farmers in Estonia, too.

Together with the land reform a question concerning restoration of private property in land has been raised in Estonia. In 1940, as we know, land was nationalized and legally belongs to state now. In connection with making up for historical injustice it has been suggested that land be given to farm founders free of charge and for private property. This solution is not correct. If restoration of private property in land turns out to be justified the value of land should be paid off to the successors of former owners by the state first. New farmers should buy land (for their former farmland they get compensation, the value of the land exceeding it must be paid off).

As there is not many farmsteads for the present and they can't produce enough, state and collective farms should be retained and the efficiency of their activities increased in the next few decades. The process of regulating property relations must be continued. Its precondition is the existence of the so-called collective farm-cooperative property - i.e. the productive assets of the state and collective farms are neither the Soviet Union nor the Estonian SSR state property, but legally belong to the collective of workers of the enterprise. It's only necessary to personify the existing vague collective property - to determine the cost of the share in property for the members of the collective farms and register it officially as a share. Participation in the distribution of profit by the help of shares increases the farm labourers' interest in the growth of production efficiency.

Regulation of excessively large territories of the state and collective farms has begun. Some of them have been divided into smaller parts, at the same time, gradual distribution of farmlands reduces the total land of the large-scale farms. Improvement in the organization of labour and production in state and collective farms is of essential importance: the size of subordinate units will be reduced, their independence increased, relations between them will be arranged on the basis of purchase and sales transactions, etc. The forms of the so-called lease contract are wide-spread, coopera-

tives are established in large-scale farms. Foreign experiences of the so-called contractual integration - i.e. state and collective farms have offices attending to production and realization of output, they can act in the functions of an integrator and enter the contractual relationship with subordinate units or individual workers- ought to be taken into consideration as well.

Production efficiency of large-scale enterprises can be increased by regulating their management conditions. Independence of the state and collective farms will be, in the first place, increased by desisting from the existing directive planning of the volume of production. Application of the system of flexible price reform and justified taxes will also help.

Success of the land reform should be ensured by flexible development policy in which the right to live is given both to small-scale and large-scale production. Velocity of further development depends on actual economic conditions, but also on that to what extent economic efficiency of different forms becomes evident.

## PROSPECTS FOR MECHANIZATION AND MAINTENANCE ON A FAMILY FARM

JONAS VEGYS

*Lithuanian Research Institute for Agricultural Economics  
Vilnius, Lithuania*

The intensity of agriculture depends greatly on its material and technical basis, as well as on the level of mechanization.

Looking back into the history of Lithuanian agriculture, it should be said that its material and technical basis was very poor in 1930. It then had 8.5 kW of mechanical engine capacity, 6.7 double- and multiple furrow ploughs, 46 harvesting machines and 1.2 sowing machines per one thousand hectares of farming land. About 10 per cent of the farmers had not owned any agricultural machinery.

The mechanization of a family farm in pre-war Lithuania was based mainly on horsepower and manual work. On 355 000 farms there were only 544 tractors. However, due to the high prices of fuel they were practically unused, not taking into account corn threshing and other work.

On small farms (11-12 ha) the work was not efficient. They went on accumulating an excess of workpower which was hired by large farms on pretty favourable terms. This had an effect on the level of mechanization on large farms. It is known that before 1932 tractors were used for ploughing, cultivation and harrowing. Later when the upkeep of horses became cheaper, tractor usage became more limited. Tractors were used for energy-consuming work such as corn threshing, timber cutting, grain milling, fodder crushing, etc., where they would pay for themselves more rapidly.

In livestock-breeding the mechanization of separate working processes was poor. On some farms chaff-cutters, potato-washers and manual root-cutters were used. On farms electricity was rarely used, even for illumination.

In the war years Lithuanian agriculture had lost almost all tractors, combines, agricultural machinery, and a third of its horses. After the war special attention was therefore focussed on the problems of the mechanization of agriculture.

In the post-war years 135 machine and tractor stations were set up, having 8,518 tractors by 1957. Machine and horse-hiring stations were being established to hire horses and equipment for farms and to carry out mechanized agricultural work for a certain payment. It was of great help to peasants and collective farms in cultivating the land in the hard post-war period. After the collective farms gained strength economically, this form of technical servicing began to lag behind the development of the means production. In 1958 machine and tractor stations were discontinued and their machinery handed over to collective farms.

In the post-war years the more extensive mechanization of agriculture was limited due to small farms, natural impediments to cultivation, and damp fields. These obstacles to mechanization were eliminated by using land-reclamation and integration of fields, improving their configuration and cultivating the land. Almost 80 per cent of damp fields in Lithuania have now been reclaimed. After land-reclamation the average size of a field in Lithuania could be enlarged up to 25-50 hectares and more. Powerful machinery operates more efficiently on these fields.

The mechanization of agriculture was slower or more rapid depending on the supply of material and technology. In 1950 there were 4,230 tractors in agriculture; a decade later their number increased 4.2 times, and after twenty years for tenfold. As of 1988, there were 50,400 tractors being used in agriculture. At present there is one tractor per 48 hectares of arable land, one hectare of arable land using 1.6 kW of tractor power.

The kinds and use of tractors has changed markedly. While in 1952 caterpillar tractors accounted for 70% of the total number, by 1988 their number decreased by 17%. It is noteworthy that low- and average-power tractors increased greatly in number. They are especially good at hoeing and for transportation work. At present powerful wheel tractors from 180 to 220 kW make up about 18-20% of all the tractors. These changes in the tractor type created favourable conditions for their extensive application. Now the average employment of tractors per farm makes up 1,200 hours annually.

With the increase of the tractor and machinery park much has been done to create the basis for repairing and technical maintenance of agricultural equipment and large sums of money have been allocated for that purpose. In the republic there are seven large plants carrying out mechanical repair and 44 repair and technical maintenance enterprises. Complex repairing of tractors, combines and lorries including technical maintenance of powerful tractors is conducted. Moreover, all collective and state farms have arranged technical repair workshops, garages and sites for housing machinery to serve their own needs. Farms have their own fuel filling stations.

From 1965 to 1987 power supply in agriculture per 100 hectares of crop area increased from 96 to 510 kW, i.e. 5.3 times.

The reorganization of agriculture in the transitional period will mean that large-scale collective and state farms will make up still a great share (3,000 ha) of farming lands. They will gain certain advantages in the mechanization of work, in fixed working hours, in granting holidays and days off, and in guaranteeing remuneration. However, this does not satisfy many honest and diligent people. They wish to work independently, without direction and administration. It is most the industrious and skilled farmers who create family farms most frequently. Dozens of specialists in agriculture with higher agricultural education will begin to set up farms.

The prospective law on a peasant farm holdings envisages the establishment of farms from 10 to 50 hectares.

To solve the problems of mechanization on family farms it is necessary:

- to envisage prospects for farm development;
- to assess progressive production technologies;
- to evaluate the natural conditions of the farm, the volume of production

- and terms of work;
- to assess quantitative indices of machinery - reliability, durability and price.

The fundamental economic criterion of the efficiency of machinery is the cost per production unit.

It is necessary to calculate the optimum number of machines taking into account the size of a farm and the volume of work. If the number of machines per unit of work is too small, farms experience considerable harvest losses due to the work being done late, and farm expenses increase. If the number of machines for a given volume of work is too great, harvest losses are insignificant, but their general expenses go up due to high expenditures on machinery purchase and depreciation. Therefore it is necessary to replenish the machinery park to minimize the cost of production.

Investigations show that the need for machinery is directly proportional to the volume of work. The necessity for machinery grows with increased harvest losses, fertility, and cost of production.

The need for machinery decreases with the increase in their rate of operation, in the coefficient of worktime efficiency and comparative price of machinery.

On mechanizing a family farm it is important that the need for machinery should be balanced against optimum work completion. The analysis shows that the optimum duration of agricultural work goes up with the increase in machinery prices, the share of the work completed in general with the decrease of harvest losses, fertility, production price and machinery efficiency.

A rational machinery park should be defined for farms of different sizes. Exploratory data have shown that the greater the annual volume of work, the price of machinery and fuel, the more efficient machinery of greater output is. The greater the operation rate of machinery, the coefficient of worktime efficiency, the comparative price of machinery, the more efficient the machinery of lower output.

Calculations have shown that farms in possession of 10-20 ha of land should have one tractor of 22-37 kW power, those having 30 ha of land a 44-50 kW power tractor, and those with 50 ha two tractors.

Investigations have shown that with the decrease of the farm size capital investments in machinery per hectare of land goes up. Capital investments in machinery on a 50-hectare farm make up 499 roubles per hectare of arable land, on a 20-hectare farm 565 roubles, and on a 10-hectare farm 843 roubles. Production expenses per hectare of land on small farms are 1.4-1.9 times greater than on the larger farms. From the point of view of mechanization expansion small farms are less effective than larger ones.

The duration of machinery and tractor use is of great importance for the farm economy. The longer the service life of the machinery without increased repair costs, the greater its optimum service life. On collective and state farms the service life of tractors is 8-10 years. According to our calculations, the desirable service life of tractors should be 12-15 years on a peasant's farm. This limit of machinery life may be extended by better exploitation and maintenance.

Before purchasing complex and expensive machinery the farmer should decide whether it is better to buy it or to take it for temporary usage from the servicing

enterprises and collective farms. It is more expedient to purchase a machine if the work completed costs less than the cost of a servicing enterprise or a hirer employed for that work.

On acquiring efficient machinery for a small farm there is a problem of how to use it most efficiently. On a 50-hectare farm a MTZ-80 tractor will be used 850 hours per year on average, but on a 10-hectare farm it will be employed 170 hours annually. The cost per hour of tractor use on a large farm is one rouble, but on a 10-hectare farm 7.54 roubles. To prevent crippling expenditures in mechanizing production on a small farm, it is necessary to increase the annual output of machinery. The collective use of machinery on several farms is the most realistic way to raise the profitability of production. This practice was used in Lithuania in 1938-1939.

It is necessary to create favourable conditions for Lithuanian farmers to acquire and use expensive machinery - self-propelled mowing-machines; corn, sugar-beet, potato, flax combine harvesters; motor cars, etc. A collective agreement on purchasing and employing machinery should be concluded among farmers.

Specialization decides the need of a farm for machinery. The wider the specialization, the more numerous and more diverse the machinery and the greater the capital investments. Moreover, it is rational to grow field crops whose calendar periods of growth do not coin-cide.

In the first place, farms should acquire tractors, ploughs, cultivators, mowing-machines and other machinery. In calculating the efficiency of machinery one should pay attention to the fact that for a farmer it will serve 1.5 times longer than for a collective farm.

If cash and credits for purchasing expensive and efficient machinery, it should be hired from collective and state farms and agrochemical associations. It is useful to hire machines for loading and spreading of organic and mineral fertilizers, crop sprayers, crop harvesters, transporters and other machinery.

The elimination of faults occurring in the machinery their repair and technical maintenance should be undertaken at the workshops of collective and state farms, as well as at the state repair centres.

In the immediate future Lithuanian farmers will not be able to acquire a sufficient number of low-power tractors and agricultural machinery. Our industry has just started their production, and there is little probability that they will be obtained from abroad. For this reason, the solution of problems in mechanizing family farms will not be solved promptly. On many farms, especially the smaller ones, horsepower will be used for some time. This of course, will cause some reduction of labour productivity in agriculture. In future, the role of horses will diminish since our industry will start to produce the greater number of tractors and agricultural machinery that our farmers need. They will make up 0.3-0.5% of the total power of mechanical engines. The problems of mechanization will be handled more extensively, and the intensity and efficiency of agriculture will increase.

# CURRENT SITUATION AND PERSPECTIVES OF AGRICULTURE AND ORGANIZATIONAL GOALS OF FARMING IN LITHUANIA

ANTANAS POVILIUNAS

*Lithuanian Research Institute for Agricultural Economics  
Vilnius, Lithuania*

The agroindustrial complex plays an important role in the economy of Lithuania. 52% of the national income is created by it, 32% of that total by agriculture itself. Half of the workers in the national economy are engaged here, of that total about 1/4 in agriculture itself. Fifty percent of total basic production assets or basic production capital are accumulated in it, of that total 37% in agriculture itself. Agriculture today produces 2.4 times more farm produce than in the immediately pre-war years. Live-stock production and milk and beef accounts for 46%, pig production 15%, forage crops 13%, cereals 9% potatoes 6% of agricultural product. In 1989 per capita production was on average 984 kg grain crops comprising 34% barley, 35% wheat, 16% of rye, 873 kg milk, 144% of meat, including 47% pork, 42% beef, and 11% poultry.

In recent years the average yield of grain crops was 29 cnt/ha and of milk 3806 kg/cow. Since the population increased by 30% during 1940-1989, it might seem that such growth rates of agricultural production should satisfy us. In spite of great post-war agrarian upheavals agriculture in Lithuania remains vital and still guarantees sufficient food supply for the population. The comparison of per capita indices of actual production with nutritional standards confirms this.

The figures belie the reality, however. Food shops are becoming more empty from day to day, and the choice of foodstuffs, which has always been poor, is becoming even poorer. Lithuanian people are forced to waste much time away to get staple foods. Food products are delivered to the shops at different times in insufficient quantities and thus are quickly bought up. Therefore the inhabitants are forced to go shopping several times per day, adapting themselves to different delivery schedules for various products. The customers are worried about poor food quality, the absence of choice and unsatisfactory packing of food products. Thus the population's nutrition is not of full value. There is a particular deficiency in fruit and vegetables. There is also a poor choice of dairy and meat products.

Such a situation is also determined by the increased export of food products to the other republics. Planned export is not of great importance. For instance, all-union countings off account for 38% of the total milk and 32% of meat production. Still more telling are tourists, especially "shop tourists" who buy and take away products intended for sale in the domestic market. Due to great centralization of economic

management in all the republics, the development of agriculture has been considered to be a constituent part of the economy of the USSR.

The principle of producing as much production as possible, and at any price, has stimulated narrow specialization. Baltic republics, including Lithuania, have been directed to produce milk and meat, importing concentrated feedgrains to this region. This specialization demanded that the production of some farm products should be given up, although they have always enjoyed exceptionally great demand and their production had certain traditions. The established order of presenting an account of the fulfilment of target figures as well as the price structure virtually eliminated buckwheat and decreased horticultural and sheep production.

A nationalized policy-making structure, monopolistic, but subordinate to the highest governing echelons, has been formed to exercise control over the agricultural system at the direction of the central government.

This agricultural system is based on large-scale collective and state farms based on the public ownership of the means of production as well as collective work. It is oriented towards the development of a large-scale mechanized material and technical basis and highly concentrated production, and its organization is based on the example of industry. Farmers in this system are equated with industrial workers who had been deprived of the means of production and, thus, have become freely hired labourers whose incentives to work are ensured by remuneration and some other services and privileges rendered by the farm.

At present Lithuanian collective farms produce 48%, and state farms 22% of gross agricultural output.

Small-scale agricultural production based on manual labour, has also remained. These are personal subsidiary plots belonging to the workers of collective and state farms, orchards and kitchen-gardens round individual dwelling-houses as well as collective gardens situated outside the city limits belonging to the inhabitants living in communal and cooperative apartment houses.

It is normal to call the production of collective and state farms the public sector, and that of farming families the personal or private sector. The private sector accounts for about 30% of gross farm produce. This farm production mostly meets the producers' needs. The structure of the farm output produced in the countryside differs from that produced in the town. If livestock production milk, meat, and wool prevail in the countryside while potatoes, are the predominant crop. Collective and state farms create all the necessary conditions for the members of the collective, wishing to extend individual animal husbandry, to get extra pastures, provide them with feedgrains, help in cultivating their fields with publicly owned machinery. Of course, it is not so easy to practise individual farming after work on the public farm. Therefore, the individual farm's size is limited by the family's working potential, the necessity to get extra income, i.e. when it is necessary to buy a car, or to build a cooperative flat in the city. Townspeople can only rely upon their work and investments, having a limited land area, often far from their homes. That is why kitchen-gardening, horticulture and floriculture prevail in their farming activity.

It is noteworthy, that of late marketable production has also been on the increase in the personal sector. It is marketed differently. The greater part of the livestock production is purchased centrally. Therefore only a small part of the production gets to the

local market. Townspeople meet with some difficulties when selling their production. Thus, florists are united into the Florists' society, a kind of a cooperative, which helps them to market their production. Kitchen-gardening, horticultural, and to some extent floricultural production is sold by the producers themselves in the markets and partly in green-groceries.

There are two forms of production, i.e. large- and small-scale, in present-day agriculture. Large-scale production is subject to satisfying the centralized interests of the State, while small-scale production meets the needs of the producers. During collectivization middle-scale production, which would mainly have met the needs of the local market, was eliminated. The problem today is to restore middle-scale production by re-establishing family farming in Lithuania. Together with middle-scale production, its material and technical basis has also been destroyed. Therefore, nowadays it is imperative not to campaign for family farming, but to create the conditions that would interest farmers in choosing the new forms of farming. The following conditions are necessary for the extension of family farming:

Firstly, it is necessary to form a stock of land which farmers could acquire. When allotting land, the principle of economic usefulness for the Republic must be observed.

Secondly, it is necessary to prepare the projects for the operation of the new farms. The farms must be convenient for farming and should guarantee sufficient income.

Thirdly, we must create conditions for the development of the material and technical basis of the new farms' formation and extension. It should be done taking into consideration the newest scientific and technological developments.

Fourthly, the new settlers and their families should be taught farm-ing skills. The traditions of such learning in the family are forgotten and now it is necessary to develop such skills at school.

Fifthly, there must be legal guarantees and economic contracts. The law should ensure the farmer the status of a real owner. Farmers should be protected against forced resumption of land. The economic arrangements which guarantee the initial capital for the organization of the new business, a market for sale of produce, the acquisition the means of production as well as perfect agroservice should be ensured for the future farmer. Price, taxation, credit and property insurance systems are also of great importance.

Only the development of these conditions will stimulate the increase in the farming population. Initially it will be families living in the country who able to commence farming at once. Next will be town-dwellers who have not forgotten farming and are able to do such kind of work. In addition there will always be people ready will try their skill in a new business.

The extension of farming will not only saturate the local market with agricultural products, but will also have influence upon collective and state farms in improving their production organization.

Collective and state farms are not always to blame for the failures in farming activities. From the time of their enforced establishment until recently these farms have never operated under normal economic conditions.

The administrative management system has been regulating its economic relations with the state in an attempt to solve the problems of large scale production, in addition to dictating production systems technologies and finances of the farms, and managing

and regulating their micro-economic structures. That is why their potential has never been fully realized. But the potential great, as the achievements of some farms demonstrate.

In the meantime, the question arises: could not collective farms become prototypes of the farmers' cooperatives? These farms have a powerful production and social basis. It would be unwise to reject the idea for political reasons. We should change the production systems of these farms in such a way as to allow their members to become the real owners of the land and of the other means of production.

This short analysis of Lithuanian agriculture shows that we are on the eve of agrarian reform. Its goals are as follows: to re-establish middle-scale production alongside large and small-scale production, to revise the structures of production towards diminishing the Republic's dependence upon imported farm products; to join the European community; to change the farmer as hired labourer model into the farmer as owner of the means of production one. These are very complicated agrarian reforms. It does not mean that agriculture in Lithuania is being returned to the pre-war status, but that it is entering a new developmental stage.

# GENERAL GOALS FOR THE AGRICULTURAL ADVISORY SERVICES IN FINLAND

MIKKO SIITONEN

*Association of Agricultural Advisory Centres  
Helsinki, Finland*

## 1. Background

The Agricultural Advisory Services (AAS) were founded at Turku in the year 1797. During almost two centuries there have been many changes in their organization but no needs to change the principal ideas of the far-seeing founders. As their mission they wanted to promote agricultural production and family farming in this country by means of information, knowledge and know-how, which were based on research.

The utmost objective of the advisory work was to increase the intellectual, economic and material well-being of all the nation by helping farmers to adapt more effective practices in their work. This kind of thinking was very natural at the time, because almost everybody was working in agriculture.

Though many goals concerning agricultural production have changed during the history of AAS, the advisory work have been closely related to the general situation for producing and marketing agricultural products. In the times of deficiency AAS struggled to increase production, while in these times of overproduction they should help in decreasing surpluses. In both cases AAS have kept and they will keep in mind the farm family and there well-being.

## 2. Goals Related to the Organization

The founders of AAS thought that the advisory work was to be carried out by an independent organization owned and administrated by private citizens. In the very beginning the members were mostly university people and clergymen. The number of farmers, their wives and children increased later on and there are now about 257 000 members in the organization. In the 19th century the state also started to subsidy the work of AAS.

Today the organization has four levels. The farmers and their wives are members in farmers' clubs in the villages. In the communes the clubs are united in agricultural societies. These form the regional agricultural centres, which are members in the Association of Agricultural Advisory Centres other members being specialized advisory organizations.

Actually there are two almost similar organizations, one for the Finnish speaking farmers and the other for the Swedish speaking ones. The main difference is that the Swedish speaking organization has no agricultural societies.

The farmers elect all the members of all the governing bodies on all the levels of the organization. The Government pays about 40 percent of the costs of the organization. The rest is collected from the farmers as fees for services and also from other sources, e.g. communes.

The advisors are hired by the Central Association and the regional centres. In the Association they are national specialists in different fields of agricultural production, farm management, construction and machinery and also in home economics. In every regional centre there are experts for all the region and less specialized advisors for smaller areas consisting from one to three communes. All the advisors hired by the centres do work directly with the farmers, but the specialists are also responsible for leading the advisory work.

The goals related to the organization can be seen from two points of view. The administration of the organization should be as light as possible. Yet local and regional interests must be appreciated and every member should have an equal possibility to participate in the decision making. The number and specialization of the personnel must be in accordance with the demand of information and the tasks carried out by the advisors must be adapted to new demands necessary for the development of the industry. There must be a special concern about the in-service training of the advisors.

### **3. Goals Related to Society**

The general goals for the agricultural production have been given by Parliament in the law of agricultural income. This means that the amounts of the main agricultural products must be decreased, if the farmers don't want to pay more and more money for marketing these products abroad. The trends of the development in the field of integration in EC and GATT seem to increase the need to decrease the production even faster.

On one hand, the legislation supports the farmers to adapt their production pattern better to the new situation. In order to alleviate their economic situation and to make the decision making easier the Government gives them different kind of subsidies. Many of them are used, when a farmer is going to reforest his fields, give up farming or to retire.

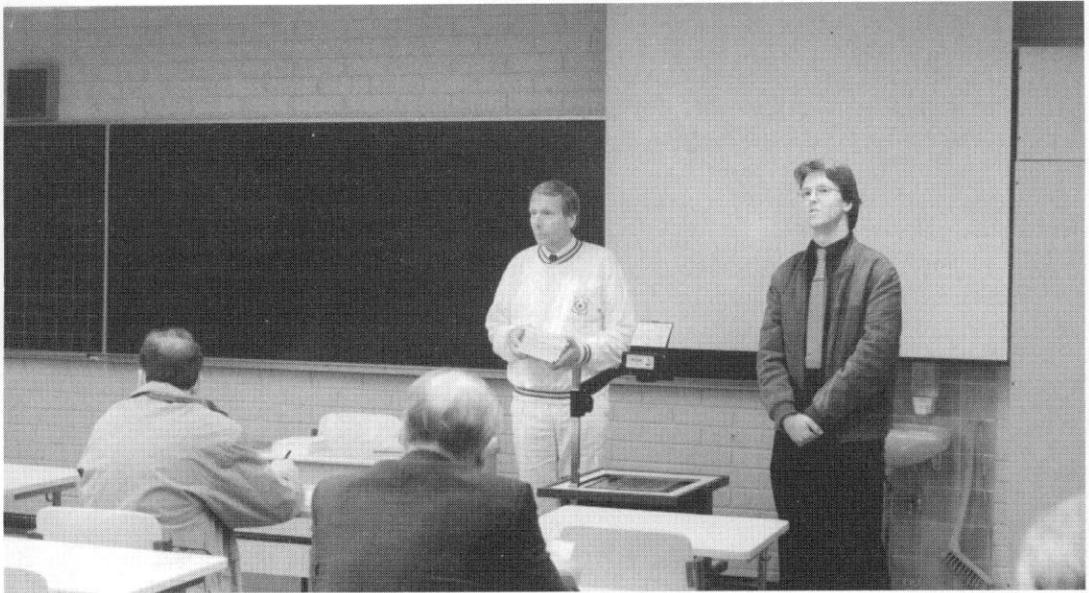
On the other hand, there are also such money from the Government as is used to help a farmer to buy the family property from the parents, to carry out investments on it, to start an ancillary activity or to develop such a one further in connection with the farming. It is the pluriactivity that is thought to be a model for farmers in the future. This doesn't mean that there will not be effective and specialized farm firms in the future. The situation will definitely be in the other way round: also the combined farming must be effective and profitable in order to be able to compete and survive in the future.

As to the support to the farmers, the agricultural civil servants make the decisions concerning the individual subsidies and other measures. AAS are to help farmers to



*Ossi Ala-Mantila*

*In the agricultural school in Asikkala the seminar became accustomed with the training future farmers.*



*Ossi Ala-Mantila*

*Tapio Pitkälä, the Vice Headmaster of the agricultural school (left) described interestingly the daily teaching activities.*

adapt their farming to the general frames given by the legislation and to manage their farms profitably. In other words: today we need less traditional products and have to make more efforts in the ancillary production and forestry in order to get enough income and a reasonable living on a family farm.

An organization promoting agriculture has to take into account also the main streams in the public discussion and design its goals in accordance with them in order to strengthen the status of the farmers in Society. The points of view of consumers are important. They want or don't want to buy what the Finnish agriculture produces. The quality of products and food safety are important factors to be taken seriously as well by the farmers as by their organizations.

There are also other important opinions. People are more and more interested in the nature conservation and the protection of the environment as a whole. They are also concerned about the living conditions of animals. These are some of the reasons, why AAS have decided to carry out a general advisory theme for next three years called Our Common Environment.

#### **4. Goals Related to the Farm Firm**

A family farm is a place to live in. It is also a firm though most the work is done by the farm family themselves. We have to remember that the role of the farmer's wife is a central one in Finland. She is one of the partners who is responsible for managing the farm and currying out the farming practices. The other partner is the farmer himself.

Because the economic features of the family farm are becoming more and more important, they must have an influence on the goals of AAS too. One of the targets is to help the farmers in creating prosperous farm firms, which have a good profitability, solidity and liquidity. Along with the economic safety safe working conditions are also an important requirement for every process in the production chain.

In order to have a good start a young farm family have to be able to acquire a farm at a reasonable price. On the other hand, the old generation should have an opportunity to retire and sell their farm at a just price. So it is a goal for AAS to even the change of generations on farms and to promote estate planning. The same principles as in estate planning are also used in planning and currying out investments on farms.

The farmer is the manager is his own firm. He must be able to handle his farm as an economic unit, which is one of the most important tasks for AAS in the field of farm management. The wholeness is combined of different enterprises, but some specialization is needed. The main enterprise can be in the field of agriculture, forestry, or ancillary activities. As any manager he is responsible for planning, currying out the plans, recording and bookkeeping, analyzing the results and making new plans again. All this covers production, marketing, financing and labor.

By now marketing agricultural products has been quite easy, but its role will be much more important in the future. In the same way the role of financing is growing in importance. When currying out the managerial and other tasks on the farm the farm families need special skills and tools for these purposes.

The goal of AAS in the field of farm management and all the production carried

out on the farms is to give farmers tools and advice to survive economically and intellectually in the changes, which are now occurring and will occur in the future.

There are not many studies on the results of the advisory work, but all of them show that the farmers participating in the advisory work have reached better results as those who don't take part in it. The same can be seen also in the results from bookkeeping farms, which activity is carried out jointly by the Agricultural Economics Research Institute and AAS.

The goals related to the economic results reached on the participating farms should be defined in the terms of the ones obtained by the farming community as a whole and compared with them and the figures from the farms not participating in the advisory work. An other goal is to decrease risks and uncertainty, which can be seen in the stability of the results from year to year.

## **5. Goals Related to the Farm Family**

The centre of a family farm is the farm family. Their personal goals as a family and as individuals affect on their goals as enterprisers. Many farmers want to be above all farmers and the other objectives come after that. There are of course farmers who prefer economic values, but most farmers divide the opinion about social equality in terms of income, social safety and living conditions.

The goal of AAS is to promote the living conditions and the family life on the farms. It is necessary that the farm families have the same opportunities to make their living as the other groups in Society. This is one of the most important prerequisites for the continuation of farming in the rural areas in the future. The advisory work in the field of home economics has an important role to play in this respect in AAS.

## **6. Goals Related to Delivering the Message**

The fields of the advisory work are farm management, production technology including agricultural engineering and information technology, fishery and other ancillary activities and home economics.

In their work AAS use different methods. There are mass, group and individual advice. For delivering information to a large public AAS have newspapers, magazines and other publications of their own. The advisors also write in local and regional newspapers. Electronic mass media is used only seldom. Videotex is used to a small extent in the agricultural weather service.

For educational purposes AAS arrange courses, where the advisors act as teachers and trainers and can utilize own publications and computerized programs as background material.

The most effective way of advising is the individual consultation. In our country the advisor goes to the farm after having been asked to do that. These calls can be sporadic or fixed by a contract. The main purpose for such a visit is to help the farm family in making different plans or calculating and analyzing results from financial and other records. There are also visits for other purposes, e.g. inspecting pests in

plants or the quality of a product. On these visits the advisors are mainly using different kind of computerized plans and calculations with a laptop or portable terminal.

AAS are not the only organization promoting agriculture. Because there are also other organizations working in the same field, cooperation and division of work is needed between them. The most important organizations for AAS are different institutions working in the fields of research, education and administration. AAS also have connections with banks, commercial firms and naturally with other organizations owned by farmers.

Starting from those points of view AAS have designed their goals for currying out different activities. AAS don't want to work in isolation. They want to cooperate, but they wait that the division of work is respected. AAS will be impartial, but they will always tell the farmer what is most profitable for him. The advice and information delivered will be based on research. As to currying out the message they struggle to decrease their operational and organizational costs and increase their efficiency.

## 7. Summary

It is possible to advise only if the receiver want to accept the message. Therefore it is of utmost importance that the farm families can and are willing to design the objectives for the advisory work. In a society like ours these goals must be accepted by Society too. It is very important to have a democratic model for decision making and currying out the activities, but it is even more important that the farmers do participate in the decision making in AAS.

# ENVIRONMENTAL MANAGEMENT IN FINNISH AGRICULTURE

JOHN SUMELIUS

*Agricultural Economics Research Institute  
Helsinki, Finland*

## 1. The issue of agriculture and the environment

The relation between the environment and agriculture is a complex one, and it includes many dimensions. On the one hand family farming is closely connected to the rhythm of nature and is dependent on the natural forces of weather. On the other hand there is increasing evidence that some agricultural practices have negative impacts on the environment. Agriculture is therefore very evidently connected to the environment in a double sense - depending on the environment and affecting it.

At first glance you do not associate agriculture in Finland with pollution of rivers, lakes and air or disappearance of important habitats for flora and fauna. Agriculture has traditionally been seen as a natural part of the countryside and the landscape. Indeed this is one important part of the environment. The cultural landscape is one aspect of agriculture and the environment which should not be neglected since our well-being is affected by it.

In recent years it has, however, become evident that the increased intensity of agriculture may, except increase the productivity, have other effects on the environment as well. The agricultural practices and inputs have had environmental repercussions on public goods such as water, air and wild species. The concern about these effects should not be looked upon as some sort of extravagance. The agricultural policy has not had any specific environmental objective as the impact of agriculture earlier were considered rather minor. The overall picture is, however, changing and it is encouraging to note that environmental management issues have received more attention within the agricultural community than a few years ago.

One should remember that environmentally favorable and productivity increasing measures are often seen as contradictory. Though this need not be the case there certainly is a trade-off between both aspects. We cannot demand a completely clean nature but we cannot demand perfect efficiency either. The reason for this is that the so-called external effects, of which environmental effects are the most important category, are not included in the prices of production inputs, or ultimately in the consumer prices for foodstuffs.

The negative repercussions of environmentally unsound practices include the loading of the waterways, emissions of ammonia into the atmosphere and a decline in the number of plant and animal species. The agricultural community also has expressed

fears for the heavy metals, for air pollution and for urban pressure on agricultural land near towns.

So how should these issues be managed in order to avoid a deterioration of the environment? In the following I will give a brief description not only of the problems but also of measures used to prevent such a deterioration. The description of measures, however, does not imply there is unambiguous evidence of success from the measures taken.

## **2. The loading of the waterways**

### **2.1. The effects on waterways**

The loading of waterways with plant nutrients is first of all due to emissions of phosphorus in the surface runoff water and attached to the sediments from erosion. Secondly, nitrate leaching increases the nitrogen content in waters. The phosphorus and nitrogen nutrients derive from slurry, solid and liquid manure and chemical fertilizers and to a certain extent from natural leaching independent of human activity. The surface loss of phosphorus and the nitrogen leaching may have a number of consequences; first, it increases turbidity of the water, thus reducing the light for plants on the bottom; second, it may accelerate the eutrophication, ie. the increase in plant nutrients in the water which subsequently may lead to an increase in undesirable biological productivity, like growth of blue-green algae which are poisonous for cattle and human beings; third, the plants may also slowly use up the oxygen in the lakes which affects the stock of fishes. As a consequence the recreational use of the lakes affected will diminish.

To illustrate the point it can be mentioned that according to a recent dissertation at the department of microbiology of the Faculty of agriculture and forestry, 44 percent of the samples of blue-green algae collected were poisonous (SIVONEN 1990). It might be true that there are no reason for panic and that we only have to learn to avoid those plants during flowering. The question is if the the blue-green algae could have been avoided to a larger degree? In any case, it is obvious that the algae should be counted as a negative external effect of certain production activities decreasing the quality of life.

If water supplies used for drinking water are contaminated with to high nitrate levels nitrites may be formed, which will present a potential health risk in particular for infants under six month of age. Fortunately increased amounts of nitrates in the groundwater is not a serious problem in Finland since the ground water reserves are scattered.

Among other countries in West Germany, the Netherlands, Great Britain and certain parts of USA increased nitrate contents in water reserves have, however, become a matter of serious concern.

Also press effluents, pesticides and microbes from manure may contaminate the waterways which may present a health risk for human beings.

The relative share of the diffuse loading of nutrients from agriculture has increased during the last fifteen years in comparision with the point source pollution from

industry and population centres. This is partly due to the fact that the point source pollution is under better control and partly because of the increase in intensity of agriculture.

## 2.2 Management measures for decreasing impact on water

The agricultural extension agencies have recently activated their extension activities concerning the protection of waters. For lessening the loading of waters information on the handling of manure, the right time of spreading and the necessity of ploughing down the manure is distributed widely.

More frequent use of soil and manure nutrient analysis could decrease excessive use of phosphorus. Because of this a campaign for soil content analysis have been launched. If the recommendations from such analysis are followed there will be no excess fertilization and at the same time the fertilizer cost of will decrease. It has been estimated that the phosphorus condition of fields is good because of extensive fertilization during the past twenty years. It has been estimated that on half of the agricultural land today 15 kg/ha of phosphorus would be enough to maintain the yield level and on a further 20% of the land phosphorus doses could be even less. In 1988 the average dose of phosphorus fertilizer applied on one hectare of land was 32 kg.

Fertilizer recommendations for phosphorus doses have also been renewed. The composition of the most common fertilizer has also been changed and as a combined result of these actions phosphorus fertilizer consumption decreased with 10% from 1988 to 1989.

Cultivation practices which would decrease the loading of waterways are being investigated. First of all they include buffer zones and buffer strips next to the waterways. Reduced tillage and contour ploughing are also options which substantially may reduce the surface loss. This is because the surface runoff (which contains phosphorus) is especially big after ploughing in the autumn, and during snow melting in the spring. Cover crops (grass, clover) can be used after harvest in more southern countries, but the short growing season in Finland makes this impractical. Filter strips have been found to be an efficient way to decrease the phosphorus runoff. Therefore a system for buffer strip premiums paid to farmers with fields next to highly vulnerable rivers should in my opinion be considered as a possible measure to decrease phosphorus runoff from fields.

The amounts of nutrients washed away from open fallow are much higher than from green fallow. Because of this a higher fallowing premium is paid for green fallow than for open fallow.

A highly discussed fertilizer tax on phosphorus came into effect in the beginning of the year, at first 0.5 FIM per kg of phosphorus fertilizer and from June onwards 1 mk per kg of phosphorus. The tax has been criticized since the money collected not will be used for environmental purposes. The tax has also been criticized for being unspecific and ineffective since farmers not contributing to nutrient loading of waters will be punished by the tax.

A hectareage premium for a transition period of three years is since December 1989 paid to farmers which switch to organic farming.

### **3. Air pollution.**

#### **3.1. The effects of air pollution**

The increase in the ozone level in the troposphere (the atmosphere next to earth level) and the associated negative effects on plant and tree growth has not been extensively investigated in Finland but there are some intentions at the Agricultural Research Centre. Until these efforts are realized we will not know if and to what extent agriculture is suffering from ozone pollution. The increased acidity on farm land can be prevented through liming, which in this case is an external cost for agriculture from outside pollution. The acid rains derive from sulphur and nitrogen pollution, both domestic and foreign.

The main Finnish source of nitrogen emissions in the atmosphere is traffic followed by energy production (power plant use of fuel oil) and industry. These sources are emitting nitrogen oxides  $\text{NO}_2$  into the air which next to sulphur oxide  $\text{SO}_2$  is the most important gas contributing to acid rains which cause problems in lakes and forests. Less known is that a certain amount of nitrogen from agriculture is emitted into the air, mainly in the form of ammonia.

KERÄNEN and NISKANEN (1987) have estimated that one fifth of the total nitrogen in animal manure, 62,800 tonnes, is lost through volatilization during storage and another fifth when the manure is spread on the fields. From chemical fertilizers 7,500 tonnes are vaporized. In the grazing season a further 5,600 tonnes of nitrogen evaporates from livestock. Total annual nitrogen losses from manure and commercial fertilizers through vaporization are estimated to be approximately 38,000 tonnes of ammonia nitrogen or 16 kg/ha. Ammonia has evidently always vaporized from manure. It is impossible to reach a state of zero ammonia vaporization and a certain trade-off is needed. A theoretical measure for this ammonia can, however, be calculated based on certain assumptions. If the ammonia should fall evenly within the borders of Finland, the annual nitrogen would amount to 1.12 kg/ha. If all ammonia nitrogen would nitrify into nitrates, the acidifying effect would correspond to a sulphur fall-out of 1.3 kg/ha, an amount corresponding to 17% of annual sulphur emission. For the sake of comparison, it should be mentioned that the ammonia produced in the Netherlands is estimated to 29 kg/ha for the whole area. The amount of ammonia volatilized from agriculture is rather low from an international point of view.

#### **3.2. Management measures for decreasing impact on air**

Manure handling and manure storage is important and includes the same measures as should be taken for protecting waterways from manure and slurry. The manure should be plowed down in earth. Preferably manure should be spread in the spring, not in the autumn (on frozen earth manure spreading is forbidden). Manure storage requirements have been established, the minimum requirement is the manure amount produced in six months. A twenty percent subsidy for extending or rebuilding manure storages has been paid. The condition for obtaining loans at a low interest rate is that the manure and the press effluent from silage has been properly stored.

Appropriate covers on the slurry (manure) holding tanks can reduce ammonia from volatilizing into the air. These covers include different options like plastic cover, foamed plastic cover or substances applied on the surface of the manure, for instance a substance named "frigolit" which has been experimented with in Sweden. Recommended but more expensive is also to fill holding tanks from below in order not to brake the surface and let gases out of the manure holding tank.

## **4. Nature and landscape**

### **4.1. Effects on species and landscape**

Agriculture as practiced in Finland is considered to enhance the landscape. As forests abound and the population is sparse, people highly appreciate the variation provided by fields and houses. The cultural landscape is considered to complement the natural forest and lake landscape. The landscape has emerged as a result of long work during several generations.

Of the total 40,000 species in Finland 427 are either vulnerable, are threatened with extinction or have disappeared and a furthermore 624 need special consideration. In the first mentioned group 87 species are or were living in cultural environments like meadows, parks or cultivated land, in the second group 113 species. Especially the populations of some vascular plants, fungus, and invertebrates, among others certain butterflies have declined. There are a number of explanations for the disappearance of these ecotypes according to a committee, which investigated these issues (ANON. 1986). The traditional agriculture created these environments. The committee, however, points out modern agricultural practices, ie. pesticide use and soil and water constructions to facilitate drainage, and on the disappearance of meadows, groves and certain cultivation plants (for instance hemp, flax and buckwheat) as reasons for the decline in the number of plant and animal species.

The populations of a number of bird species have declined, e.g. kestrel, partridge, stock-dove and corncrake are mentioned by the committee. According to ULFVENS (1989) the populations of starling, lapwing, house-martin, swallow and yellow wag-tail, have declined by 50-80% as the agricultural landscape has been made more uniform. The overall picture may be worse in some other countries, but more concern about the disappearance of species is needed.

### **4.2. Management measures to protect species and landscape**

The traditional agriculture will not return and because of this other measures are needed to preserve the species and the agricultural scenery. The increase in the hectare of green fallow will help to protect certain species. Certain areas have been protected or conserved in order to save some ecotypes.

Care should be taken with the use of pesticides. Unnecessary application should be avoided, it is also an extra cost. Spreading equipment and nozzles should be checked regularly and nozzles should be changed every second year or after every 200 spread-

ing hectare. The Finnish pesticide regulation is, however, considered internationally strict. Because of the cold climate less pesticides are needed than in more southern climates.

In some countries training for the spreading of certain pesticides is mandatory, while the courses in Finland are voluntary. The interest for integrated pest management which includes biological and physical control in addition to chemical control of pest seems to be increasing in other parts of the world.

The value of the landscape should be recognized and campaigns launched pointing out esthetical values connected with properly kept buildings, gardens and fields. In Sweden there is a premium paid for the preservation of valuable grazing and wooded meadows and also in the Netherlands similar agreements can be made by farmers to internalize such positive external effects with the market. In Finland it is possible to obtain loans for the preservation of old buildings.

## **5. Soil and food safety**

Soils are polluted by heavy metals because of depositions from the air and from impurities in fertilizers as well as from excessive use of sewage sludge. Cadmium is the heavy metal which has received most attention. The Finnish apatite used in fertilizer production anyhow contains less cadmium than the North African apatite widely used for fertilizer production in West Europe.

Sludge from sewage treatment plants is used on some farms. The major limiting factor in the use of sewage sludge is the content of cadmium. The allowed cadmium content to be spread per year per hectare has been 20 mg. LUOMA (1990) has estimated the average cadmium content in the Finnish sewage sludge to 5.3 mg/kg dense matter, the variance, however, being considerable. The potential area for spreading the sludge is extensive, and the abundances of heavy metals have remained within the recommended limits. The use of sewage sludge has been discussed recently and the allowed content to be spread per year is likely to become tighter. The proper management mainly comprises not to exceed the recommended annual dose of sewage sludge to be spread. The sludge should primarily be used on green areas but modest amount of sludge can be used within agriculture, preferably no more often than every fifth year.

The issue of food safety has recently been discussed and some diverging statements has been made. According to KUMPULAINEN (1990), however, the content of heavy metals and pesticides in Finnish food seems to be internationally low.

## **6. The educational aspect**

In order to deal with environmental problems and environmental regulations the vocational education and extension will become still more important for famers. The normally recommended crop husbandry practices which aim at keeping a good drainage and a good structure of the soil will also decrease nutrient leakage. People have to be made aware of the consequences of their daily management and habits, both as

producers and as consumers. The environment has for a long time been a public good. It is time to realize the use of environment may imply external costs. When You start developing the agriculture in Your countries I hope You are able to take into account the environmental concerns.

## References

- ANON 1986. Uhanalaisten eläinten ja kasvien toimikunnan mietintö Report given by the Commission on preservation of threatened animal and plant species. Committee report 1985:43. General part. 123 p. Helsinki.
- KERÄNEN, S. and NISKANEN, R. 1987. The effects of nitrogen fertilization on acidification in Finland - a review. Environmental Ministry, Series D 30/87. 64 p. Helsinki. (In Finnish with English summary).
- KUMPULAINEN, J. 1990. The Finnish food is still clean (in Finnish) Newspaper article. Helsingin Sanomat 15.5. 1990.
- LUOMA, T. 1990. Agricultural Use of Sewage Sludge. Institute of agricultural technology, University of Helsinki, res. rep. 61. 142p. Vaasa. (In Finnish with English summary).
- SIVONEN, K. 1990. Toxic cyanobacteria in Finnish Fresh Waters and the Baltic Sea. Reports from Department of Microbiology, University of Helsinki. Report 39. Helsinki.
- ULFVENS, J. 1989. The farmer can do much for variety in the landscape. LOA 1989 6-7. 70:250-251. (In Swedish).

## THE ACTIVITY OF THE FINNISH FARMER'S UNION MTK

ESA HÄRMÄLÄ

*Central Union of Agricultural Producers MTK  
Helsinki, Finland*

Around 85% of Finnish farmers are members of MTK. Besides MTK there is a smaller organization, called SLC, for Swedish speaking farmers. These two organizations work in full cooperation. MTK has 290 000 members. Half of these members are farmers and the rest their spouses or grown-up children who work on the farm. Membership in MTK is totally voluntary.

MTK is financed partly by membership fees and partly by income from real estate investments. Our originators and their successors have been clever enough to obtain real estate property during the 73 years of MTK's existence. No government money is received.

The main objects of MTK is to promote the economic and social position of the farmer, and to improve his position within the community, in short, to achieve an overall socio-economic parity with other sections of the population.

MTK is politically independent and, by no means, a political party. MTK's role is to be a pressure organization towards the government and political parties. MTK is not an advisory organization but its newspaper, *Maaseudun tulevaisuus*, disseminates also technical information to farmers.

The basis of the Finnish agricultural policy is the Agricultural Income Act. In this Act the Parliament has recognized our position by stating that the Government must negotiate about producer prices with us. In these annual negotiations also many other policy matters besides prices are settled. We are in close cooperation with the Ministry of Agriculture and Forestry and we are represented in many committees dealing with agricultural and forestry matters. However, this interest watching is not limited to the Ministry of Agriculture and Forestry only but we work for our interests with other ministries as well.

MTK is not a marketing organization for agricultural products. Major part of the marketing takes place through agricultural marketing cooperatives. This means that farmers are members of both MTK and of one or several cooperatives. On the political level we, of course, work for the interests of these coops.

MTK represents also the interests of forest owners. Timber prices are annually negotiated with the wood processing industry. The government does not take part in these negotiations.

MTK also protects the interests of land owners in general. The more urbanized the society becomes the more important these questions are.

MTK is active in international cooperation. We are a member of the Nordic Farmers Central Council and the International Federation of Agricultural Producers. More and more interest in international cooperation is devoted to urgent trade policy matters, namely the GATT Uruguay Round negotiations and the European integration.

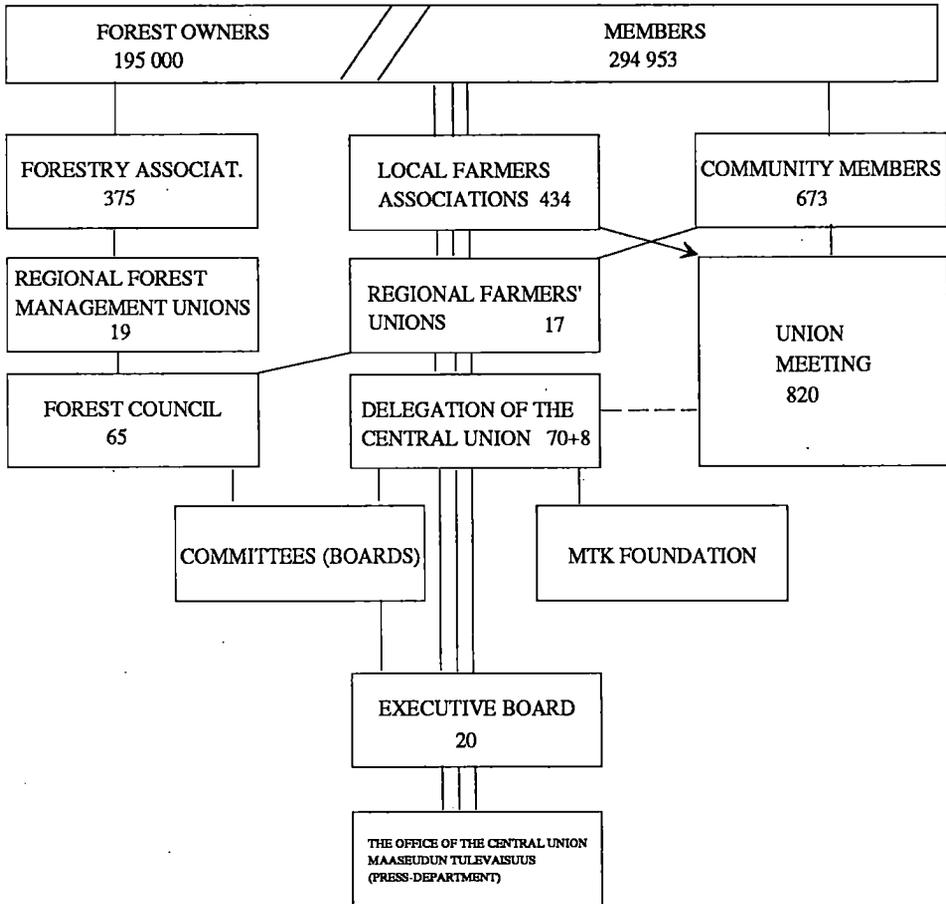


Figure. The organization of MTK

# COOPERATION RELATIONS IN AGRICULTURE IN CONDITIONS OF DIVERSITY OF ORGANIZATIONAL FORMS OF PRODUCTION

JAAN TIMMERMANN

*Scientific Research Institute of Agriculture and Land-reclamation  
Saku, Estonia*

As the result of decades-long rigid administrative compulsion, administrative antagonisms and not equivalent commodity exchange between countryside and town, between industry and agriculture, the Estonian agriculture has been driven to crisis. Production resources are used uneconomically, environmental pollution increases and the culture of living is corrupting. In order to overcome this situation, the development of agroindustrial complex should be orientated to the free development of personality. Up to now production has always been in the first place, but from now on the attention must be paid to the person and contenting all his needs, at which production as a means for guaranteeing it, should be based on the economic interests of producers and the free choice of organizational forms of production.

The development of countryside should be based on local administration (village community, county). The people of given community must have full rights to decide on the fate of their community. No decisions can be made without the participation of people whom these decisions concern. At the same time people's work should be considered not only as a source of personal means of subsistence, but as the integrity of institutions which reproduce life at the given place.

The functioning of village (village community, parish) as a whole many-sided system should be re-established, so that the self regulation mechanism of a social association will come into being again and the main values - farm - the way of life, society activities and production cooperation - will be appreciated again. This is possible thanks to the reconstruction of farms and establishment of production cooperatives, consortiums and small enterprises. At the present moment this kinds of production forms are as following:

*Perpetual farm.* The land is allotted in perpetuity. All means are the farmer's property or have been bought for credit, which the farmer pays back during a number of years. The farmer's income is equal to the realization sum minus production costs minus taxes and interest rate.

*State tenancy farm.* The land is allotted for long-term use or use for unlimited duration. The buildings and roads have been built and land improvement has been

done with state money. Other means (machines, cattle) are bought by the farmer himself, with the help of a loan, if necessary. The leaseholders income is equal to the realization sum minus production costs minus rent charge minus other taxes and interest rate.

*Tenancy farm of a large-scale farm.* The land is allotted by a collective or state farm for long-term usage and all other production means (machines, cattle) are leased for a certain rent charge. Production is sold through large-scale farms. The income of the leaseholder is equal to the realization sum minus production costs minus rent charge and other taxes.

*Consortium.* It is established at an enterprise or as an independent organization, to which at least three members belong. It functions on the ground of statute, it has the rights of legal person and keeps accounts on costs and profits. It pays the income-tax according to its income. The income is formed on the principle of surplus, while in case of loss, the total loss is covered by the members proportionally to their shares.

*Cooperative.* It is established at an enterprise or as an independent organization, to which at least three members belong. It functions on the ground of statute, it has the rights of legal person and keeps accounts on costs and profits. It pays the income-tax by the progressive scale according to incomes. The income is formed on the principle of surplus, while in case of loss, it is covered by the members to the extent of the share.

*Small enterprise.* It is established at the big enterprise with a written order and the small enterprise is subordinated to the big one. There may be up to 50 employees at the small enterprise, it has the rights of legal person and an independent balance. The enterprise determines the allocation norms for local and state budgets, wages fund, production and social funds and the norms of reserve fund and centralized capital investments. The self-financing income at the small enterprise is formed on the principle of surplus. The increase of wages fund can not exceed the increase of total income. Small enterprises themselves determine the number of employees, which is confirmed by the big enterprise.

There will be many organizational, economic, psychological, etc. problems in coordinating the work of all these organizational forms (including collective and state farms). One possible way for co-operation is to organize unions of local cooperatives, consortiums and farms on the basis of previous collective and state farms (look at the scheme). In this case the production on large-scale farms may be continued in some parts of the territory, but the functions of collective and state farms change. In addition to the usual work, they have to attend to and supply established cooperatives, consortiums and farmsteads and market their produces according to the contracts. In order to make the book-keeping easier in the cooperatives and consortiums as well as to credit the farms, it is advisable to organize an internal accounting centre. Even establishing joint-stock companies can be conceivable, in order to use the means of workers for developing production and social spheres.

The highest organ of power in this kind of union of agricultural producers is the assembly of trustees, where each member of the association is represented by one trustee plus one trustee per 20 workers. The members themselves determine the way of electing trustees and also the way and circumstances for pre-schedule recall of



*Ossi Ala-Mantila*

*In Asikkala we also visited the family farm of Marja and Jaakko Järvinen, where the family members described in detail the management activities at the farm.*



*On the same farm we astonishingly met an Estonian agricultural trainee.*

*Ossi Ala-Mantila*

trustees. The assembly of trustees adopts the statute and makes alterations and amendments in it, decides the questions of joining and resigning from the association, elects the chairman and auditing commission and determines the number of members in the administrative body, confirms perspective plans for developing the association, etc.

The everyday operative-economic activities of the association is led by the administrative body, which is headed by the chairman, who is accountable to the assembly of trustees.

The association is liquidated by the decision of the assembly of trustees.

In the regions, where large-scale farms are not interested in developing small-scale production, the smallholders organize their association on the territory of the village community.

The development of agriculture in the present conditions is impossible without price regulations. A price reform should be carried out and in order to get the right proportions, the prices of international market should be taken as the basis. To bring them into line with out present actual situation, a system of coefficients may be used.

We have to proceed from the principle, that every producer must use and be control of his means and production without any restrictions and norms. The criteria for the evaluation of the outcome is profitable work.

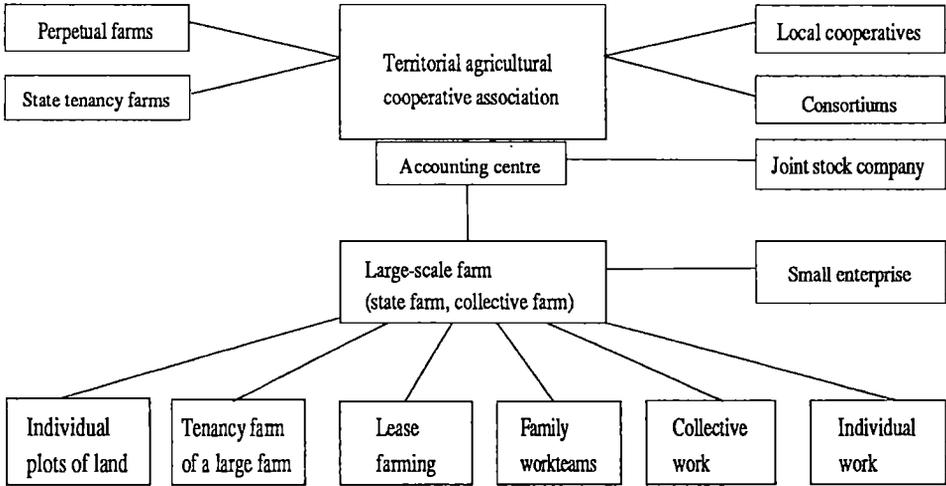


Figure. The association of agricultural producers.

# THE MODELLING OF THE ACTIVITIES ON A FAMILY FARM UNDER MARKET CONDITIONS

NATALIJA KAZLAUSKIENE

*Lithuanian Research Institute for Agricultural Economics  
Vilnius, Lithuania*

The present stage of development of agriculture in Lithuania is notable for its multistructure. Alongside the public and individual sectors previously existing, a private sector has begun to form; state, cooperative and individual forms of property are now supplemented by the private ownership of land and means of production. The number of family farms is rapidly increasing; the first organizations expressing and defending the interests of farmers are starting to be formed. Nevertheless, despite of the rapidity and scale of the process, there are quite a number of obstacles hindering its further development. In most cases the destiny of a family farm depends on the already existing relations with the nearest neighbours and partners (collective and state farms, processing enterprises) and their approach towards an emerging new production unit.

Of great importance for the process is the availability to the farmer of the basic resources which determine the future trend, nature and scale of agricultural production. It is not a rare occurrence that would-be farmers are allotted land of poorer quality, quite a distance away from the main communications. A graver situation exists with agricultural machinery and buildings. The position is different if a peasant's family that lived and worked in the collective or state farm, usually having a house and household premises, forms an independent farming unit and is allotted land near the house. This family-owned farm has a more favourable starting point as compared to the farm organized by those would-be farmers who come from towns and other country localities and must practically start from zero. Under such conditions the financial and credit questions are especially important, as well as the supply of agricultural machinery and building materials, the creation and rapid development of an agroservicing network designed for maintenance of family farms, and all-round assistance of the state to newly establishing farms.

All this calls for the creation of a unified state programme for the re-establishment of family farms that will define precisely the status of family farms in the multistructural system of agricultural production, farmers' rights, privileges and the guarantees offered to them. In our opinion, the initial steps in this direction could be the following:

1. The re-creation and reinforcement of the right to private property.
2. Public credits to newly establishing farms on the most favourable terms.

3. Allotment of currency resources for purchasing small agricultural machinery and means of small-scale mechanization abroad.
4. Production of agricultural machinery for family farms through the joint efforts of the Baltic republics.
5. Expansion of the network of small-scale enterprises in building materials, organizing, for example, the construction of a brickworks with a capacity of 5,000-10,000 bricks per shift for local purposes.
6. Setting up cooperative or publicly-owned and cooperative service establishments.
7. Organization of the information system, the system of training and qualification improvement, establishment of district and intradistrict consultative and extension services on the basis of regional agricultural departments.

Moreover, it is necessary to ensure factual rather than declarative equality of the rights of family farms among other agricultural producers. It should embrace such spheres as supply of machinery, building materials, fertilizers, etc., means of realizing production, determination of prices and taxes.

Family farms as an integral part of the agricultural production system will function in both market conditions and under state regulation. In addition with further decentralization the processing of agricultural produce, separate independent or cooperative processing units will emerge. Under such conditions it is necessary for a new farmer to accept all-round substantiated solutions to handle the following problems:

- 1) the size of a farm and production structure,
- 2) processing of agricultural produce and means of realization.

In the first case the maximum size of a farm, i.e. a plot of land, is at present restricted by law to an area of 50 hectares. In handling this problem a farmer must resolve a number of questions, answers to which he can get by making use of the possibilities and advantages afforded by the methods of mathematical modelling. For this purpose, the following more detailed groups of issues may be distinguished:

- making plans for growing of agricultural crops (preparation of designs for crop rotations, technologies and machinery usage);
- drawing up plans for livestock-breeding (total circulation, selection, fodder production, and fodder ration planning);
- generalization of the results of economic activity (in preparing plans for evaluating both the common activity of farms and separately according to each kind of agricultural produce).

These tasks should be handled periodically, whereas the accounting of works and related expenses should be conducted continuously.

The following major problems may be distinguished, solutions to which, to our mind, are desirable given the changes in the principal conditions of production namely; the choice of farming activities and the determination of rational concentration level. These problems embrace the choice of marketable kinds of plant and livestock pro-

duce; rational intercoordination of marketable and non-marketable branches dependent on the area of the farm, available or planned buildings; productive resources; basic means of production, available or to be acquired; establishing prices of production marketing; credit and tax systems. In any case these problems can be described mathematically and solved using mathematical programming methods.

In solving the second above-mentioned question of the processing of agricultural produce and the choice of means of realization a complex of factors should be taken into account in finding a rational solution. Thus, an individual farmer may market his production through these basic channels: a) to the state, signing an agreement with a collective or state farm, b) to the state processing enterprise, c) to the cooperative processing enterprise or organization, and d) selling the production directly in the market-place. Moreover, a farmer individually or in cooperation with others may enter into an agreement on selling the production to a separate collective of industrial or repair enterprises or a part that has an obligation to help in providing maintenance and repair of the available technical means.

Each of these channels of production marketing has its own merits and drawbacks and assumes some degree of risk. Thus on marketing his production to the state according to an agreement with a collective or a state farm, the farmer is guaranteed a return and transportation expenses are less. Nevertheless procurement prices are lower, since in conformity with existing practice at present, farms do not pay various additions to state procurement prices received from the state to individual producers.

When marketing his production to the state and cooperative production processing enterprises, a farmer has the opportunity to sell it at a higher price, though here he meets with greater transportation expenses, including the need to rent the means of transportation, and expenditures in time.

It is most profitable for a farmer to sell his production at the market-place of the town or the nearest locality. Here the level of the price is determined by the ratio of supply to demand of the goods to be sold. Nevertheless, this means of marketing requires extra time, transportation and other expenditures, as well as assuming some uncertainty and the greatest degree of risk of all the above-mentioned cases. Thus, on choosing the means of production marketing a farmer should evaluate the advantages and disadvantages of each of them. It is necessary to assess a practical situation comprehensively, paying attention to a number of related factors. To make this task easier, a mathematical model may be successfully applied.

There are problems that are related to the fact that peasants' farms are being set up in various climatic zones, obviously having different production conditions, with differently developed infrastructure and agroservice. It is urgent under such conditions to prepare recommendations for new farmers, taking into account the diversity of conditions and production trends on the farms. Mathematical modelling here may be also used with success, preparing and automatizing problems for the so-called basic or typical farms. In this case most information necessary for problem solution should be stored in a standard model matrix in the computer memory in the form of normatives. In any actual case it should be supplemented with the economic and production indices of the family farm concerned. This organization of problem solution enables the expenses of information collection, formulation, and the solution of problems to be diminished.

At present in the republic there exists a district network of computer centres. It makes it possible to create an information servicing system for individual farmers allowing all who wish to get a consultation on the various problems related to modeling of their production activities, to apply to the district consultative centre.

In conclusion, it should be said that in solving numerous problems concerning the choice of a farming specialization and its scale, planning production and marketing of output, recommendations and suggestions of scientific research institutions and consultative services prepared by applying extensively methods of mathematical planning, could be of considerable assistance to the farmers in the field of information allowing the simulation of constantly changing farming conditions and the development of optimal solutions in each actual situation.

# FAMILY FARMING IN LITHUANIA FROM THE HISTORICAL AND ECONOMICAL POINT OF VIEW

PRANAS PABREZA

*Lithuanian Research Institute for Agricultural Economics  
Vilnius, Lithuania*

In recent years agriculture in Lithuania has entered a new stage, i.e. family farms are being restored. To forecast their further organizational and economic extension, it is useful to analyse the way it has been managed in different historical periods. In analysing this question the following periods should be defined:

- peasant (family) farm formation in Lithuania until collectivization;
- the amalgamation farms in to collectives;
- restoration of family farming in recent times.

The first period of family farm formation in Lithuania started in the second half of the 16th century with the so-called *v a l a k a s* (about 20 ha plots of land) reform. Land users were given regular plots of land and their farmsteads were moved to villages. The three-field system of agriculture which enabled an increase in the productivity of land was implemented at the same time.

The next period began in the second half of the 19th century, when the previous village system which relied on serfdom, began to disintegrate, creating the necessary conditions for individual farming.

After the restoration of independent Lithuania and the introduction of land reform the process of the break-up of villages into farms was continued. By 1936, 5584 villages were reorganized into 128,000 farms, totalling 1,400,000 hectares of land. However, over 4000 villages were untouched. According to the 1940 data, there were about 355,000 farms in Lithuania at that time. (See Table 1).

Both positive and negative aspects have been observed in evaluating the consequences of the agrarian reform in Lithuania. The most important are the presumed economic benefits of land reform. Positive aspects included firstly, the transition of the villages to farms did away with the constraints of economic independence and opened up the market for production. Under the plot system, crop rotation common to the whole village had been applied, hence all field-work had to be done at the same time. In fact, it was an enforced farming interdependence or so-called "field coercion."

*Table 1. Farms in Lithuania in 1940 (excluding Klaipeda region).*

| Farm size<br>ha | The number of farms |       | Area           |       | Average farm<br>size, ha |
|-----------------|---------------------|-------|----------------|-------|--------------------------|
|                 | thousand<br>units   | %     | thousand<br>ha | %     |                          |
| under10         | 186.6               | 53.1  | 932.1          | 20.6  | 4.9                      |
| 11-20           | 104.9               | 29.6  | 1494.4         | 33.2  | 14.2                     |
| 21-30           | 38.6                | 10.9  | 938.5          | 20.8  | 24.2                     |
| 31-50           | 15.9                | 4.5   | 614.5          | 13.7  | 38.7                     |
| 51-100          | 5.7                 | 1.6   | 375.1          | 8.3   | 65.8                     |
| over 100        | 1.1                 | 0.3   | 153.4          | 3.4   | 138.6                    |
| Total           | 354.8               | 100.0 | 4507.0         | 100.0 | 12.7                     |

Thus it was difficult for the farmers to agree about land-reclamation and other land-improvement measures. Land was used irrationally; for example, plot boundaries took up 2-3% of land.

The sheer number of fields and their distance from the farms became a hindrance to the development of machinery use and thus a hindrance to an increase in labour productivity. In addition to the economic land reform problems, solutions were sought to legal problems, and the advantages of improved health and sanitation become obvious.

Negative factors included high farm-building transfer and construction costs; destruction of plantations; problems with water-supply, sewerage, and electrification; high road-building expenditure; worse conditions for cultural and educational development.

How are the economic achievements of the newly-formed family farms of independent Lithuania to be evaluated? Investigations of land use, livestock numbers, crop structure as well as crop and animal husbandry indices suggest that the productivity and quantity of production has increased, though not very rapid, in independent Lithuania. For instance, in the period between 1913 and 1939 crop area increased by only 5%; crop yields by 21%, the number of livestock by 30%, but the number of pigs decreased by 10%. The total increase in meat production was 8%, in milk 42%. In 1939 Lithuania already exported 475,000 tons of meat (26.4% of gross production), 420,000 tons of milk products (40% of gross production). The annual production per capita of meat was 58 kg, of milk 400 kg, of eggs 87 units. The consumption per capita of meat was 41 kg, of milk 240 kg and of eggs 50 units. A slight increase in agricultural produce has been achieved through better productivity on larger farms, i.e. by using fertilizers and machinery, applying land improvement measures, improving crop structure and up-grading animal breeds. With a better economic and technological basis and higher standards of farming, larger farms produced more exports.

However compared with other European countries, the development of Lithuania's agriculture in 1919-1940 was comparatively slow, for the following reasons:

1. Due to the establishment of private farms it was impossible to accumulate enough material and financial resources for the construction of farm buildings, land-improvement measures, road-building and other needs. Thus it was impossible to allot enough capital for machinery, fertilizers, superior stock, etc. Agricultural products were high-priced in Lithuania and in small demand on the world market. Exports of agricultural products were limited and imported goods were expensive. A vicious circle hindering rapid progress was formed.
2. Due to the slow development of industries in Lithuania the growth of towns has been slow, too. Therefore most of the natural increase in the rural population has been forced to stay in the countryside or emigrate. For that reason the process of land concentration has almost stopped. Most people (53%) were peasants having little land and consuming the agricultural produce themselves.

On July 22, 1940, the so-called People's Seimas of Lithuania declared land to be the property of the whole nation, not to be purchased, sold or rented. Family farms were limited to 30 hectares of land. Landlords and large farmers were deprived of land which was allotted to people having no land at all, or turned into collective farms. Thirty-three thousand more new farms having on average 8 ha of land were established. See the number of farms and their size in Table 2.

Under newly adopted laws the agrarian relations have been thoroughly changed. Land has ceased to be the subject of private ownership.

Though peasants having little land have been given some privileges, the system of taxation as well as agricultural produce levies hampered the increase of production on a large scale.

Farm product deliveries and income taxes have been differentiated by a growing progression. A taxable income of 2,000 roubles was taxed at 1,75%, 6,000 at 6% and 10,000 roubles at 15%. A farmer having over 25 ha of land had to deliver to the state 5.5 times more grain, 3 times more milk, 10 times more meat per hectare than a farmer having no more than 5 ha of land. While farms having no more than 5 ha of

*Table 2. Farms in Lithuania in 1941.*

| Farm size<br>ha | The number of farms |       | Area           |       | Average farm<br>size, ha |
|-----------------|---------------------|-------|----------------|-------|--------------------------|
|                 | thousand<br>units   | %     | thousand<br>ha | %     |                          |
| under 5         | 65.7                | 17.2  | 156.8          | 3.6   | 2.4                      |
| 6-10            | 154.7               | 40.0  | 1068.2         | 24.7  | 6.9                      |
| 11-20           | 104.9               | 27.1  | 1494.4         | 34.5  | 14.2                     |
| 21-30           | 61.0                | 15.7  | 1609.7         | 37.2  | 26.4                     |
| Total           | 386.3               | 100.0 | 4329.1         | 100.0 | 11.2                     |

land had to deliver 30 kg of meat, farms having 25-30 ha of land had to surrender 300 kg per hectare. These discriminatory taxation imposts prepared for collectivization which the war interrupted.

At the beginning of post-war period peasant farms still were tolerated, but farmers started to be attacked and the transition to collectivization was prepared for. This was done firstly by economic measures. In post-war period (1941-1946) the quotas of taxes and levies compared with those of 1941 were lower but since 1947 they have been on the increase again, especially for larger farms. As for instance, in 1945 farms of 25 hectares of land had to pay 3,236 roubles, but 1948 5,143 roubles.

Prosperous, highly organized farmers were called kulaks. Such kulak farms were under constant economic pressure which they could not withstand. Farms were eliminated, and farmers subjected to repression.

By 1948-1951 a forcible mass collectivization was under way.

Peasants have been deprived of the right to own land and the means of production, lost their independence and private initiative, become hired labour without any right, merely fulfilling of the commands of others.

Almost 40 years have passed since that forcible collectivization, which raises a pertinent question: has the peasant's desire to become a master of his farm died out? A whole generation of farmers has come and gone during the period, changing people's psychology, and their views on land ownership and individual farming.

At the time of forced collectivization, farmers were deprived of livestock as well as land and means of production. A family was allowed to keep for its own needs only 1 cow, 2 sheep, 1-2 pigs, and a few poultry. A family was allotted 0.5-0.6 ha of personal plot, the limits of which was strictly observed, the yard around the house, to say nothing of a garden being included in it.

During this 40 years the peasant's personal plot, later called a personal subsidiary plot (PSP), has been fulfilling different functions.

Since the beginning of collectivization and up to 1964, the PSP has been the main means of meeting their personal need of most collective farmers. The personal plot has been the main source of the collective farmers' subsistence, i.e. income in product and money. Collective farmers' needs have not been satisfied in the public sector for the reason that workdays were not paid. At that period the PSP was either not producing marketable farm produce or it was negligible, since almost everything went for personal consumption.

After 1964, when a new economic agricultural policy was begun, increasing the farmers' income level from the public farm the PSP has gradually become the means of getting additional income because of imperfect livestock production pricing. For instance, it has become more profitable for the farmer to sell livestock production through a public farm and to purchase products for consumption in a shop. Production relations between the PSP and the public farm were also changing at that time. Earlier the PSP's production was diversified; cereals, potatoes, forage crop, livestock, poultry, but later and at present the production of cereals and to some extent of potatoes has been given up. These are grown as common crops, cultivated by public production means. Only food crops, livestock and poultry have been left in the PSP. Both the PSP and the public sector have been producing farm products by common means and manpower. This process has two purposes: the farmer's being to get more income, the

public farm's being to raise production. Of recent years various constraints from above have diminished; under current collective farm rules, when making a contract on livestock production and sales through the collective farm, land area and livestock number are not limited. To simulate independence and private initiative, a new form of collective farming i.e. family teams sprang up in 1987. On the basis of such a contract a family team is either allotted some land to cultivate feedgrains or is supplied with them as well as with seeds, fertilizers, transport, other machinery, and provided with veterinary service. The production is paid for at contract prices. The purpose of the family contract is to conciliate the conflicting interests of personal and public farms. The public farms' top-priority task is to produce as much agricultural produce as possible, whereas family farms seek to produce it with the lowest labour and material inputs possible. As early as 1987 so-called leasing contracts came into being. The public farms, on the basis of the contract leases land, farm buildings, means of production, to the peasant announcing his desire to become an independent farmer and creates the conditions for purchase of essential materials. The peasant sells his produce to the farm at contract prices, covers the costs of the purchased materials and the main means of production. He also pays land rent. Profits gained remain at his disposal as payment for work. Lease contract is a real step forward in reviving individual farming. However, this system has not been a success because it has not solved the basic problem, i.e. the freedom of farming, which was constrained by contractual relations.

At long last on July 4, 1989, the Supreme Soviet of the Lithuanian SSR adopted the law "On Peasant Farms of the Lithuanian SSR", which determined the economic, organizational, social conditions and legal basis for individual farming. This law guarantees the citizens of Lithuania the right to independent farming, determines the basic principles for the extension of family farming as well as social justice. Thus, on the basis of this law family farms as well as state, cooperative, joint-stock and mixed agricultural enterprises and organizations have become equal parts of the economic system of Lithuania.

However, this law has not solved the principal problem, i.e. the problem of ownership. True, Article 5 is to the effect that "land, buildings, constructions, equipment, means of transport, agricultural machinery, plantings, crops, afforestation, livestock, production, commodities, cash and other assets are the objects of the peasant's property". However, the most important means of production, i.e. land is not to be purchased, sold, rented, or mortgaged. Consequently, land is not the peasant's private property. For this reason peasants are not in a hurry to undertake individual farming.

There are other reasons hampering the spreading of individual farming: deficiency in material and technical supplies, especially tractors and agricultural inventories, construction materials, credits, etc. Collective farms can also offer strong opposition to the distribution of land at the expense of the public sector's reserves.

Reviving the peasant farm raises an urgent question; what size should the farm be? The law provides for a farm size of 10-50 hectares. However, out of the first 4,000 applicants for individual farming, 20% wish to take land under 5 ha, 35% about 6-10 ha, 27% 11-20 ha, 14% 21-30 ha and only 4% would like to have over 30 hectares of land. Farms in Lithuania seem to be much of a size currently compared with Finland's.

To spread and coordinate the farmers' activities, the National Farmers' Union and its Council has been established in Lithuania and local branches of the Union set up. The main functions of their activities are as follows:

- to develop cooperation between individual farmers, between family farms and collective and state farms, between farmers and supply and production enterprises, between farmers and agricultural machinery repair pools;
- to implement the achievements of scientific and technological progress for purposes of family farming;
- to develop cooperation with foreign countries for purposes of scientific and technical progress, production organization, etc.
- to support independent farmers by providing them with financing and credits;
- to organize the improvement of young farmers' qualifications in Lithuania as well as abroad;

This short historical and economic review the family farming in Lithuania allows us to draw the following conclusions:

1. Under a different land-use system the Lithuanian peasant has been able to produce farm products not only for his own needs, but for the market as well.
2. Under current restructuring, having adopted new laws on family farming and having legalized private land ownership, all the necessary conditions for the economic development of peasant farming, involving competition with other forms of agricultural production, will be created.

## Memorandum

The first seminar between the agricultural economists of Finland and the Baltic countries was commonly arranged in Helsinki 28.-31.5.1990. The topic of the seminar was: Family Farming in Finland and in the Baltic Countries. The participants consisted of four economists from Esthonia, four from Latvia, five from Lithuania and twelve from the host country Finland. The list of participants and the program of the seminar are annexed to this report.

The Agricultural Economics Research Institute in Helsinki was responsible for the practical arrangements. The family farming was treated broadly in the seminar.

On the part of Finland the whole field of agriculture and the particular features of dairy and grain farms were presented. The Act on agricultural income and the livelihood of farmers were presented too. The following subjects were also presented: rural development of the whole countryside, economic planning within agriculture, environmental management, the activities of the producers' organizations and the finance of agriculture.

The Esthonian economists presented the development potential of family farming, the reorganization of agriculture in general and the cooperative activities, among other things.

The Latvian participants gave an account of the economic and organizational problems which are connected to organizing and developing agriculture in their country.

The circumstances for Lithuanian agriculture were illustrated in presentations dealing with the social and psychological problems on family farms. The presentations also involved general as well as particular aspects in developing agricultural production in Lithuania.

In addition to the presentations mentioned above the seminar visited an agricultural centre for extension in Lahti, an agricultural school and a family farm. The participants of the seminar also were guests at the Central Union of the Finnish Co-operative Banks (the OKO bank) and took a closer view to the activities at the Agricultural Economics Research Institute.

The quality of the papers presented was good and they created a lively discussion. A conclusion was that many problems are connected to the organization of agriculture, to the management of farms, to the organization of production, finance, mechanization, etc. The vocational skills of farmers were considered important and the finance of agriculture requires government support. The environmental problems in each participant country have become important questions. Many solutions in the Finnish circumstances gave rise to interest, but it was noted that not all of them can be applied as such in the other countries.

In the discussions it was concluded that research and extension in the field of agricultural economics is central in developing the agricultural sector. Especially in

the Baltic countries there is a need to develop research on economic issues, education and extension as family farming is gaining in importance.

Some wishes were expressed during the seminar that cooperation between the countries should continue in the field of agricultural economics. This cooperation should take the form of exchanging researchers between the institutes, among others young researchers. It was noted that exchange of research reports also would be useful.

The seminar held was useful in many respects. From the discussions it appeared that there is a need for future seminars. No actual proposal for this was made, but in future meetings the issue will be taken up. The topic of a possible future seminar was left open.

The organizing institute promised to make a report from the seminar, where the presented papers are published.

The participants expressed their votes of thanks to the Agricultural Economics Research Institute for a well organized seminar. They also thanked the Finnish Ministry of agriculture and forestry, which had supported the seminar financially.

Helsinki 31.5.1990

*Matias Torvela*  
Representative of the  
Finnish delegation

*Johannes Kaubi*  
Representative of the  
Estonian delegation

*Inesis Feiferis*  
Representative of the  
Latvian delegation

*Antanas Poviliunas*  
Representative of the  
Lithuanian delegation

## FAMILY FARMING IN FINLAND AND IN THE BALTIC COUNTRIES

*Time: May 28th - 31st 1990*

*Place: Hotel Hospiz, Vuorikatu 17, Helsinki*

### Program

- Sunday 27.5.      Arrival by boat in the evening.
- Monday 28.5.      Theme: SITUATION OF FAMILY FARMING  
*Chairman: Prof. Matias Torvela*
- 08.30-10.00      Breakfast at the hotel
- 10.00-10.30      Family farming in Finnish agriculture  
Prof. Matias Torvela, AERI
- 10.30-10.50      Family farms specializing in milk production in Finland  
Lic Agric Forest Sc Anna-Maija Heikkilä, AERI
- 10.50-11.20      Discussion
- 11.20-11.40      Break
- 11.40-12.00      Family farms specializing in grain-growing in Finland  
MSc Ossi Ala-Mantila, AERI
- 12.00-12.30      Discussion
- 12.30-14.00      Lunch
- 14.00-14.30      Social and psychological preconditions for family farming in Lithuania.  
Dr. Saulius Budvytis, Lithuanian Research Institute for Agricultural Economics
- 14.30-14.45      Discussion
- 14.45-15.15      Coffee
- 15.15-15.45      About the possibilities for the development of family farms in the Estonian SSR.  
Dr. Jaan Kivistik and Dr. Viktor Jullinen, Estonian Agricultural Academy
- 15.45-16.00      Discussion
- 16.00-16.30      Economic and organizational problems in the formation of farmers' household in the Latvian Republic.  
Deputy director Dmitrijs Romanovs, Scientific Research Institute of Economics, Agroindustrial Complex of the Latvian Republic
- 16.30-17.00      Discussion
- 18.00              Dinner (Hotel Metrocity)

Tuesday 29.5. Theme: THE STRUCTURE OF AGRICULTURE AND THE STRUCTURE OF FARMS

*Chairman: Dr. Saulius Budvytis*

- 07.30-09.00 Breakfast  
09.00-09.30 Protecting the income level of Finnish farmers  
Prof. Lauri Kettunen and MSc Marja Hokkanen, AERI  
09.30-09.45 Discussion  
09.45-10.15 The structure of Finnish agriculture and rural development  
Research Director Seppo Aaltonen, Pellervo Economic Research Institute  
10.15-10.30 Discussion  
10.30-10.50 Coffee  
10.50-11.10 Possibilities of reforming the agrarian structure of Estonia  
Dr. Johannes Kaubi, Institute of Economics, Estonian Academy of Sciences  
11.10-11.30 Prospects for mechanization and maintenance on a family farm.  
Dr. Jonas Vegys, Lithuanian Research Institute for Agricultural Economics  
11.30-12.00 Discussion  
12.00-14.00 Lunch and transport to AERI  
14.00-14.30 Current situation and perspectives of agriculture and organizational goals of farming in Lithuania.  
Prof. Antanas Poviliunas, Lithuanian Research Institute for Agricultural Economics  
14.30-15.00 Discussion  
15.00-15.30 Coffee  
15.30-16.00 Meeting of the representatives of the Institutes  
- The future co-operation between the Institutes  
18.00 Dinner at the hotel

Wednesday 30.5. Theme: THE ORGANIZING OF AGRICULTURE AND FARMERS

*Chairman: Dr. Johannes Kaubi*

- 07.30-09.00 Breakfast  
09.00-09.30 General goals for the Agricultural Advisory Services in Finland.  
Program Director Mikko Siitonen, Association of Agricultural Advisory Centres  
09.30-09.50 Discussion  
09.50-10.20 Environmental management in Finnish agriculture  
Dr. John Sumelius, AERI  
10.20-10.40 Discussion  
10.40-11.00 Coffee

- 11.00-11.30 The activity of the Finnish Farmers' Union MTK  
Head of Department Esa Härmälä, MTK
- 11.30-11.50 Discussion
- 11.50-12.10 Cooperation relations in agriculture in conditions of diversity of organizational forms of production  
Dr. Jaan Timmermann, Scientific Research Institute of Agriculture and Land-reclamation
- 12.10-12.30 Discussion
- 12.30-15.30 Lunch and break
- 15.30- Financing of agriculture  
- Visit to the cooperative banking group OKO  
Presentation by the bank
- 18.00- Dinner offered by the bank OKO

Thursday 31.5. VISIT TO THE COUNTRYSIDE

- 07.00-08.00 Breakfast
- 08.00 Departure from the hotel
- 09.30 Visit to the Agricultural Extension Centre of Lahti.
- 11.00 Visit to the Agricultural School in Asikkala.  
Lunch
- 13.30 Visit to a farm in Viitaila, Asikkala
- 18.00 Closing dinner (Restaurant Karelia)  
Return back to the hotel by about 20.30

Friday 1.6.

- 07.30-09.00 Breakfast  
Departures

## FAMILY FARMING IN FINLAND AND IN THE BALTIC COUNTRIES

*Helsinki, May 28th - 31st 1990*

### List of participants

#### LITHUANIA:

*Lithuanian Research Institute for Agricultural Economics, Vilnius*

Prof. Antanas Poviliunas  
Dr. Saulius Budvytis  
Dr. Natalija Kazlauskiene  
Dr. Pranas Pabreza  
Dr. Jonas Vegys

#### ESTONIA:

*Institute of Economics, Estonian Academy of Sciences, Tallinn*

Dr. Johannes Kaubi

*Estonian Agricultural Academy, Tartu*

Dr. Viktor Jullinen  
Dr. Jaan Kivistik

*Scientific Research Institute of Agriculture and Land-reclamation, Saku*

Dr. Jaan Timmermann

#### LATVIA:

*Scientific Research Institute of Economics, Agroindustrial Complex of the Latvian Republic, Riga*

Director Inesis Feiferis  
Deputy director Dmitrijs Romanovs  
Researcher Tamara Belousowa  
Mr. Ilmars Rimshevitch (interpreter)

#### FINLAND:

*Pellervo Economic Research Institute, Espoo*

Research Director Seppo Aaltonen

*Association of Agricultural Advisory Centres, Helsinki*

Program Director Mikko Siitonen

*University of Helsinki, Faculty of Agriculture and Forestry, Helsinki*

Prof. Viljo Ryyänänen

*The Finnish Farmers' Union MTK, Helsinki*

Head of Department Esa Härmälä

*Agricultural Economics Research Institute, Helsinki*

Prof. Matias Torvela

Prof. Lauri Kettunen

Head of Bureau Heikki Järvelä

Dr. John Sumelius

MSc Ossi Ala-Mantila

MSc Anna-Maija Heikkilä

MSc Marja Hokkanen

MSc Juhani Ikonen

Ms Jaana Ahlstedt (secretary)

## Publications of the Agricultural Economics Research Institute

- No 48. Heikkilä, A-M: Perheviljelmän koko ja viljelijäperheen toimeentulon lähteet. (Summary: The size of family holdings and the source of farm family income.) 1984, 95 s.
- No 49. Kettunen, L. Maatalouden omavaraisuus Suomessa vuosina 1970-83. Summary: Self-sufficiency of Finnish agriculture in 1970-83. 1985, 75 s.
- No 50. Kettunen, L. Suomen maatalous vuonna 1985. 1986, 42 s.
- No 50a. Kettunen, L. Finnish agriculture in 1985. 1986, 42 s.
- No 51. Anon. Tutkimuksia Suomen maatalouden kannattavuudesta. Tilivuodet 1982-84. Summary: Investigation of the profitability of agriculture in Finland in business years 1982-84. 1986, 136 s.
- No 52. Kettunen, L. Suomen maatalous vuonna 1986. 1987, 44 s.
- No 52a. Kettunen, L. Finnish agriculture in 1986. 1987, 44 s.
- No 53. Anon. Maatalouden kannattavuustutkimus 75 vuotta. Summary: Farm accounting in Finland 75 years. 1987, 123 s.
- No 54. Kettunen, L. Suomen maatalous vuonna 1987. 1988, 36 s. -
- No 54a. Kettunen, L. Finnish Agriculture in 1987. 1988, 36 s.
- No 55. Tuotantokustannuksista maatilamatkailuun. Matias Torvelan 60-vuotisjuhlajulkaisu. 1988, 161 s.
- No 56. Kettunen L. Suomen maatalous vuonna 1988. 1989, 50 s.
- No 56a. Kettunen, L. Finnish Agriculture in 1988. 1989, 52 s.
- No 57. Agriculture in difficult circumstances. Finnish-Hungarian-Polish seminar, Saariselkä, Finland 1989. Helsinki 1989. 99 s.
- No 58. Aaltonen, S. & Torvela, M. Maaseudun kehittämisen ohjelmat Suomessa. Problems in rural development in Finland. Helsinki 1989. 30 s.
- No 59. Anon. Tutkimuksia Suomen maatalouden kannattavuudesta. Tilivuodet 1985-1987. Summary: Investigations of the profitability of agriculture in Finland in business years 1985-1987. Helsinki 1989, 144 s.
- No 60. Kettunen, L. Suomen maatalous 1989. 1990, 52 s.
- No 60a. Kettunen, L. Finnish Agriculture in 1989. 1990, 52 s.
- No 60b. Kettunen, L. Finlands Lantbruk in 1989. 1990, 52 s.

