Periodieke Rapportage 2-90

# AGRICULTURAL ECONOMIC REPORT 1990
## Summary

Agricultural Economics Research Institute LEI
The Hague
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ABSTRACT/REFERAAT

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This Periodical Report offers a summarized overview of the contents of the Agricultural Economics Report 1990 (210 p.), that is published in the Dutch language.

A general survey is given of the economic situation of Dutch agriculture and horticulture, mainly for the years 1988, 1989 and 1989/90. Among other subjects, attention is paid to the Common Agricultural Policy, the agricultural production in the world, in the EG and especially in the Netherlands, to some aspects of the structure of Dutch agriculture and to the relation between agriculture and the natural environment. Furthermore, the report deals with the development of rentability, incomes, investments and the financial situation of agricultural and horticultural holdings in the Netherlands.

Agriculture/Agricultural Incomes/Agricultural Policy/Agricultural Production/Farm Structure/Netherlands

LANDBOUW-ECONOMISCH BERICHT 1990; SAMENVATTING

Deze Engelstalige Periodieke Rapportage vormt een samenvatting van het Landbouw-Economisch Bericht 1990, dat een overzicht geeft van de economische situatie van de Nederlandse land- en tuinbouw, vooral voor de jaren 1988, 1989 en 1989/90. Daarbij wordt onder andere aandacht besteed aan het EG-landbouwbeleid, de ontwikkeling van de landbouwproduktie in de wereld, in de EG en meer in het bijzonder in Nederland en aan enkele aspecten van de landbouwstructuur en aan de Nederlandse export van agrarische produkten. Voorts wordt ingegaan op de ontwikkeling van rentabiliteit, inkomens, investeringen en vermogenssituatie van de land- en tuinbouwbedrijven.

Landbouw/Landbouwbeleid/Prijspolitiek/Bedrijfsstructuur/Produktie/Bedrijfsuitkomsten/Inkomens/Financiële positie/Nederland

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# Contents

# Preface

The Agricultural Economic Report is an annual publication, offering a global survey of the economic situation of Dutch agriculture and horticulture. The report contains a summary in English, which is published separately as part of the series "Periodieke Rapportages" (Periodical Reports). The complete report is only available in Dutch.

The report is based on data and contributions stemming from nearly all divisions of the Institute. The coördination and editorship of the report is in the hands of the General Economics and Statistics Division. The final draft of this issue of the report was closed in the course of July 1990.

The Managing-director,

J. de Veer

The Hague, September 1990

## 1. General economic developments

Economic growth in the joint industrialized countries in 1989 was somewhat lower, at 3.5 percent, than in 1988. Particularly in the USA and Japan gross national product increased less strongly, while the growth rate for the EC remained the same. The average unemployment percentage for the OECD countries fell only slightly. Above all through a rise in the capacity utilization in industry, inflation, at nearly 4.5 percent, was higher than in 1988. Attempts by governments to curb inflation led to higher interest rates. Because the differences in inflation within the EC decreased again in 1989, relations between exchange rates in the EMS were stable. The strong increase in the volume of world trade (7 percent) was accompanied by constant prices on average. With this the terms of trade deteriorated for the OECD countries and the deficit on their current account grew further.

The Dutch economy again grew strongly in 1989, among other things through a rise in private consumption of durables. Inflation remained very low - about one percent - and in connection with this the rise in wage costs was also limited. These factors were accompanied by an expansion of employment and a decrease in the financing deficit. Expectations for 1990 are somewhat less favourable, having regard to the rise in the interest rate and the somewhat higher inflation.

## 2. Agriculture in the world

Agricultural production in the world increased rather strongly in 1989, viz. by over three percent. This came about principally because the volume of production in North America rose by approximately ten percent. Conversely, in many developing countries production increased less than the world average, or even fell back. The result has been that the food situation in the developing countries has barely improved. In Africa, and in particular in the sub-Sahara countries, food production per head has fallen, a trend that has been occurring for some considerable time, except in 1988. Another alarming development is that world cereal stocks have reached a level the FAO regards as dangerously low. Various factors, including climatic changes and the fact that ecological limits have been reached or even exceeded, suggest that the hunger problem may be more serious in the future.

This contrasts sharply with the surplus problems in most western countries, problems that indirectly form the subject of the consultations that have been going on in GATT for some years now. Although these consultations have as yet yielded few concrete results, it is the intention that in the near future decisions shall be taken on at least two questions: must all forms of import restrictions be replaced by fixed import charges (tariffication), which are then gradually reduced, and may these charges also be applied to products that formerly were imported without restriction (rebalancing)? If a positive decision is taken on both matters, this will not leave agriculture in the EC unaffected.

A major effect of tariffication will be that agricultural prices within the EC will become more sensitive to price trends on the world market. One of the effects of rebalancing will be that within the EC cereals will become less expensive in respect of cereal substitutes and that the competitive position of stock farmers in areas around large ports will weaken. In addition, an agreement will probably result in a gradual reduction of the EC level of protection in general and of export support in particular. This will lead to a drop in selling prices and thus to a fall in agricultural incomes.

## 3. Agriculture in the European Community

The growth rate of the volume of production in the EC has been a modest one for some years now: between 1984 and 1989 less than one percent on average. Because in 1989 selling prices rose on average more strongly than the prices of means of production, agricultural income in the EC was able to rise sharply (16 percent). With the exception of Spain, all countries displayed an improvement.

In 1989 expenditure on market and price policy declined for the first time since 1981. Considerably less was spent on the two principal market-regulation products, cereals and dairy produce, than in 1988. However, agricultural policy entered smoother waters only temporarily as a result of this. That cereals policy became less expensive came about not so much through stabilizer policy but above all through external factors: higher world market prices and thus lower export refunds. With a less strained world market cereals policy will therefore soon come to demand higher expenditure. As regards dairy produce too there is still the danger of (expensive) surplus production, which makes it unlikely that milk quotas will be abandoned, despite the problems with this instrument.

It may further be noted that policies for "southern" products, such as olive oil, cotton and tobacco, became more expensive in 1989. Here too major policy adjustments are to be expected. It may also be noted that in addition to or instead of market and price policy other policy components are proceeding to acquire increasing importance for the agricultural sector in the EC. Particular examples are (socio-)structural policy, rural policy in general and environmental policy.

## 4. Farms and labour in Dutch agriculture

In 1988-89 the number of main occupation farms declined further again, above all in dairying and arable farming. The greatest decline occurred in recent years among the dairy farms: in 1984 there were still 50,000 farms of this type, and by 1989 this number had fallen to less than 40,000. For the years to come the rate of this decline is expected to level out.

In the eighties the average age of the farmers has increased further. Despite the increased number of successors, it may be expected that also in the years to come many farm heads will terminate their business for lack of a successor. On part-time farms it only rarely happens that farm heads have a successor.

The volume of labour in the agricultural sector increased slightly in 1988-89 through an increase in the number of female labour. The share of horticulture in agricultural employment rose in 1989 to 31 percent.

After the fall in the price of land from 1986, a rise occurred again in 1989. The price of milk quota also increased further, though less strongly than in previous years. When a hectare of grassland with quota changes hands, by far the greater part of the price is paid for the quota. One out of nine dairy farmers rented or hired out milk quota in 1989. This new possibility thus proves to meet a need.

## 5. Productive capacity and production structure

The productive capacity of Dutch agriculture and horticulture, measured in Standard Farm Units 1), again increased somewhat in 1988-89 for the first time since 1984. Through the growth of horticulture the share of the west of the country in total productive capacity rose to 35 percent, whereas that of the north fell to 16 percent.

For horticulture under glass a further growth in production of 75 percent is expected up to 2005. Having regard to the increasing yields per square metre, this would require an expansion of the area under glass by 1100 hectares. This forecast demonstrates that horticulture under glass needs a fairly considerable space for further expansion.

In cattle farming meat production is gradually becoming more important. In 1989 a quarter of the cattle population consisted of meat cattle, as against less than a fifth in 1984. As regards

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1) A Standard Farm Unit (s.f.u.) is a unit for expressing the size of agricultural production on a basis of standardized net value added per hectare of crops or per animal. For example: 1 dairy cow = 2.5 s.f.u. and 1 ha of sugerbeet = 6.8 s.f.u.

dairy farming, there are no indications that the Dutch competitive position has deteriorated in respect of other regions.

Between 1987 and 1989 the number of farms with pigs or chickens fell by 13-14 percent. Although the number of hectares per farm has increased somewhat, there is no clear trend towards stronger attachment to the soil, at least on the farms with larger numbers of pigs and poultry.

Above all in arable farming, agricultural contractors play an important part, in particular in the use of new machines. In 1988 the Netherlands had approximately 2700 contractors, who on average had some 100 farms as clients.

## 6. Agriculture and the environment

The consumption of pesticides per hectare in the Netherlands is twice or more that in other developed countries. This is largely connected with differences in the composition of the production package and with the higher yields in the Netherlands. And yet at farm level there are great differences in consumption of pesticides between the farms, without a concurrent noticeable difference in physical yields.

The production of animal manure fell by more than ten percent between 1984 and 1989 thanks to the contraction of dairy farming. The joint livestock farms had in 1989 a manure surplus of 14.5 million tons, to which pig farming made the largest contribution. In 1988/89 specialized pig farms had to pay on average over 4600 guilders in surplus levy and selling expenses for manure. The intended tightening of the manure standards will lead to a further increase in these costs.

## 7. Production and sales

The production value of Dutch agriculture and horticulture increased in 1989 by over eight percent (Table 1). Above all in arable farming and pig farming, and also with respect to fruit, vegetables and pot plants the production value rose strongly. The increase in volume in arable farming has been caused above all by the record sugarbeet harvest, while the price increase related in particular to free market products, such as potatoes and onions. Owing to the fact that both milk production and dairy stocks in the European Community fell in 1989, the price of milk was still able to exceed somewhat the high level of the previous year. Pigmeat production fell by one and a half percent, but its price rose by nearly a quarter.

The production volume of poultry meat increased somewhat and that of eggs fell slightly. This was accompanied by price increases of 2.5 percent and 6.5 percent respectively. As a result of these factors the production value of intensive stock farming

*Table 1 Development of volume and prices of agricultural and horticultural production*

| Product | Value mln. Hfl. | Changes in % in relation to previous year | | | | | |
|---|---|---|---|---|---|---|---|
| | | volume | | | price | | |
| | 1988 (prov.) | 1987 | 1988 (prov.) | 1989 (est.) | 1987 | 1988 (prov.) | 1989 (est.) |
| Arable products | 3280 | -5.0 | -1.7 | 4.5 | -15.9 | 20.5 | 11.0 |
| Milk | 9495 | -7.7 | -2.3 | -0.5 | 0.9 | 5.5 | 1.5 |
| Meat and eggs | 12690 | 4.0 | -0.8 | -3.0 | -7.5 | -2.6 | 17.0 |
| Vegetables and fruit | 3745 | -3.9 | 6.4 | 7.5 | 15.3 | 2.4 | 4.0 |
| Cut flowers | 3205 | 3.1 | 4.3 | 6.0 | 1.7 | 2.0 | -5.5 |
| Potted plants | 1690 | 12.0 | 11.6 | 7.5 | -3.2 | -3.8 | 2.0 |
| Other horticult.prod. | 1490 | 1.1 | 0.1 | 7.0 | 0.3 | -0.9 | -2.0 |
| Total | 35595 | -0.5 | 0.5 | 1.2 | -2.8 | 1.2 | 7.3 |

increased strongly, despite a fall in volume. For fruit a sharp increase in both volume and price was registered. The production value of vegetables was able to increase by some ten percent, above all through a greater volume. In the case of vegetables under glass the growth in volume of sweet pepper production by 30 percent was striking, while the price remained the same. In contrast with previous years, the production value of cut flowers barely grew. Conversely, pot plants displayed a considerably higher production value because the price rose, despite an again greater volume. For flower bulbs and tree nursery products a growth in volume of some seven percent was accompanied by somewhat falling prices.

## 8. Imports and exports of agricultural products

The volume of agricultural imports decreased in 1989 by nearly eight percent, whereas the average price rose by 5.5 percent. As a result, the import value of agricultural products fell by some 2.5 percent (Table 2). In the case of arable products imports of above all cereals and other materials for feeding stuffs decreased. Imports of livestock products likewise fell sharply, above all because less butter and skimmed-milk and whole-milk powder were imported from the EC countries. The rise in the import price of animal products by an average fourteen percent came about among other things through the improvement in the prices for livestock and meat.

For agricultural exports both an increase in price and a growth in volume were realized; as a result the export value rose by ten percent. Exports of arable products to non-EC countries fell above all because fewer cereals were re-exported. Exports of potatoes to EC countries increased as a result of the smaller

*Table 2 Imports and exports of agricultural products in 1989*

| | Value 1000 mln.Hfl. | | Changes in % in relation to previous year | | | |
|---|---|---|---|---|---|---|
| | | | world | | EC | |
| | world | EC | volume | price | volume | price |
| *Imports* | | | | | | |
| Arable products | 8.8 | 5.9 | -12.7 | 2.7 | -9.6 | 1.0 |
| Horticultural prod. | 3.1 | 1.8 | 2.7 | 1.8 | 5.4 | 2.6 |
| Animal products | 6.7 | 6.1 | -20.6 | 14.1 | -24.5 | 16.0 |
| Other agric. prod. | 15.2 | 6.4 | 0.5 | 4.1 | 3.0 | 6.5 |
| Total | 33.8 | 20.3 | -7.7 | 5.6 | -10.1 | 7.5 |
| *Exports* | | | | | | |
| Arable products | 9.1 | 6.3 | -3.3 | 10.0 | 5.0 | 5.1 |
| Horticultural prod. | 12.5 | 10.3 | 10.7 | -1.5 | 9.9 | -1.8 |
| Animal products | 20.0 | 15.8 | -2.9 | 16.0 | 0.0 | 12.3 |
| Other agric. prod. | 15.0 | 11.4 | 7.9 | 1.9 | 6.5 | 2.1 |
| Total | 56.5 | 43.9 | 2.7 | 7.2 | 4.7 | 5.1 |

harvest in the rest of the EC. The export value of horticultural products rose by nine percent. In the various ornamental cultivation sectors new records were set in 1989. Thus, cut flowers to the value of over three billion guilders left the country, exports of flower bulbs attained a value of one billion guilders and exports of horticultural seed, trees and shrubs also reached a record amount. The export value of livestock products rose because prices were much higher than in the previous year. Above all in the case of dairy produce, of which the export volume declined rather strongly, much higher export prices were made. In addition, pigmeat and live piglets - of which 1.8 million were exported - displayed considerable price increases.

The trade balance of agricultural products increased in 1989 through these developments by six billion guilders to the sum of 22.7 billion guilders. However, the agricultural trade balance with non-EC countries remained negative (-0.9 billion guilders). The improvement in the trade balance was mainly a question of volume effects, since the terms of trade changed only slightly.

## 9. Agricultural trade with Eastern Europe

Agricultural trade between the EC and Eastern Europe, which has recently taken on a new aspect, is for the time being of limited size. In 1988 the EC exported agricultural products to the value of 2.4 billion dollars to Eastern Europe; that was less than seven percent of the total agricultural exports of the Community. EC imports of agricultural products from Eastern Europe in 1988 amounted to nearly four billion dollars; this was over a third more than in 1986 and corresponds to about a quarter of the total agricultural exports of the countries of Eastern Europe.

In 1989 the Netherlands imported over 800 million guilders' worth of agricultural products from Eastern Europe, of which nearly half from Poland. In recent years these imports have been displaying a rising trend. In 1989 Dutch agricultural exports to Eastern Europe amounted to nearly 900 million guilders, of which about half went to the Soviet Union. These were largely products that were sold within the framework of EC measures with special support.

## 10. Returns and costs of the arable and animal sector

In 1988/89 the return value of the agricultural sector (arable and stock farming) rose for the first time in four years, and by over five percent. Higher prices formed the basis of this (Table 3). Only in poultry farming was there no or only a limited price increase. The production volume in agriculture was again lower, and that applied in particular to calf fattening and arable farming.

*Table 3 Returns and costs of the agricultural sector (excl. horticulture)*

| | Value mln. Hfl. | | | Changes in % in relation to previous year | | | |
|---|---|---|---|---|---|---|---|
| | | | | volume | | price | |
| | 1987/88 | 88/89 (p) | 89/90 (est.) | 88/89 (p) | 89/90 (est.) | 88/89 (p) | 89/90 (est.) |
| Returns | 24000 | 25330 | 27070 | -1.5 | -1.0 | 7.0 | 7.5 |
| Non-factor costs | 17600 | 17760 | 17730 | -3.5 | -0.5 | 4.5 | 0.5 |
| Net value added | 6400 | 7570 | 9340 | 5.0 | -1.5 | 13.0 | 25.0 |
| Factor costs *) | 11200 | 10940 | 11340 | -2.5 | -2.0 | 0.0 | 6.0 |
| Total costs | 28800 | 28700 | 29070 | -3.0 | -1.0 | 3.0 | 2.5 |

*) Calculated on a tenancy basis.

The factor costs, which fell in volume by a few percent, did not become more expensive on average. Of the non-factor costs, above all the prices of cattle feed rose, for the first time in four years. Owing to the fact that there was considerable economizing on the consumption of cattle feed and artificial fertilizer, the value of the non-factor costs remained stable. The net value added of the agricultural sector was therefore able to increase strongly. The percentage of cover, which expresses the ratio between factor costs and net value added, also improved considerably, namely from 57 in 1978/88 to 69 in 1988/89.

For 1989/90 a still stronger increase in the net value added has been estimated, as also of the percentage of cover, which should work out at over 80. This is again attributable to higher selling prices (see Table 1) and less use of means of production. However, the very limited price increase for non-factor costs was accompanied by higher labour costs and a higher interest rate.

## 11. Returns and costs of the horticulture under glass sector

The results of the horticulture under glass sector were less favourable in 1988 than in 1987. The non-factor costs increased both in price and in volume, so that an increase in value by six percent resulted. Above all the higher energy prices were responsible for this. Because the factor costs too rose in value - through a greater use of factors - the total costs increased by over four percent (Table 4). The increase in the return value - for which a larger volume was entirely responsible - was insufficient to make up for this. The net value added fell by five percent and the percentage of cover declined from 105 to 98.

*Table 4 Returns and costs of the horticulture under glass sector*

| | Value in mln. Hfl. | | | Changes in % in relation to previous year | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | volume | | | price | | |
| | 1987 | 1988 | 1989 (est.) | 1987 | 1988 | 1989 (est.) | 1987 | 1988 | 1989 (est.) |
| Returns | 6475 | 6580 | 6945 | 7.0 | 5.5 | 7.0 | 3.5 | -3.5 | -1.5 |
| Non-factor costs | 3900 | 4140 | 4455 | 7.5 | 2.5 | 7.0 | -7.5 | 3.5 | 1.0 |
| Net value added | 2575 | 2440 | 2490 | 5.5 | 11.5 | 7.5 | 26.0 | -15.0 | -5.5 |
| Factor costs | 2450 | 2480 | 2670 | 5.0 | 3.5 | 3.0 | 3.0 | -0.5 | 4.5 |
| Total costs | 6350 | 6620 | 7125 | 6.0 | 2.5 | 5.5 | -4.0 | 2.0 | 2.5 |

For 1989 a further decline in the results of horticulture under glass is estimated. The volume of both non-factor and factor costs increased. That was largely connected with the growth of the production volume, while the selling prices fell somewhat. This time the lower energy prices could not do much to help here. Although the net value added increased by a few percent, the percentage of cover fell further to 93.

## 12. Profitability of farms and horticultural holdings

The developments at sector level can be found again in the results at farm level. On the farms the average entrepreneur's income in 1988/89 improved in respect of the low point of 1987/88 by over 50 percent and worked out at 55,000 guilders per entrepreneur. Above all in arable and dairy farming the operating results improved strongly (Table 5). The larger dairy farms even attained an on average positive net operating result; that had not occurred again since 1972/73. And although results on the arable farms in 1988/89 were still highly negative (nearly 35,000 guilders), the entrepreneur's income, at some 40,000 guilders, was able to increase in respect of the low level of 1987/88. The arable farms in the Veenkoloniën in particular were able to share in these improved results to only a limited extent, for the higher selling prices applied in particular to "free" products and to a much smaller extent to the products under strict market regulation. The results on the intensive livestock farms displayed a very mixed picture. Whereas the results on the pig breeding farms made a strong recovery, pig feeders and poultry farmers attained in general lower results than in 1987/88.

*Table 5 Average entrepreneurs income on farms on some groups of horticultural holdings (in 1000 guilders)*

| | 1986/87 | 1987/88 | 1988/89 | 1989/90 (est.) |
|---|---|---|---|---|
| *Dairy farms* | | | | |
| - larger farms | 58.1 | 75.7 | 91.7 | 89.8 |
| - smaller farms | 22.7 | 27.2 | 41.1 | 36.0 |
| *Intensive livestock farms* | | | | |
| - larger farms | 40.1 | 13.1 | 23.8 | 98.0 |
| - smaller farms | 26.6 | 4.0 | 9.4 | 40.0 |
| *Arable farms* | | | | |
| - larger farms | 57.8 | 3.3 | 48.4 | 76.4 |
| - smaller farms | 33.5 | 7.3 | 21.7 | 35.2 |
| *Horticultural holdings *) with mainly:* | | | | |
| - vegetables under glass | 47.4 | 111.8 | 73.9 | 86.0 |
| - cut flowers under glass | 58.6 | 81.8 | 91.8 | 57.2 |
| - potted plants under glass | 93.7 | 96.7 | 115.0 | 125.0 |

*) 1986/87 = 1986, etc.

According to the estimates for 1989/90 the operating results on the arable farms have again improved, and now also on those in the Veenkoloniën. The somewhat lower results on the dairy farms in 1989/90 seem to indicate that 1988/89 may rightly be called a peak year. The results on both the pig farms and the poultry farms improved to such an extent that the production in these branches was more than or nearly cost-effective respectively.

The average horticulture under glass holding still attained a positive net operating result in 1988, but both the return from labour and the entrepreneur's income were about twelve percent lower than in 1987. And because this decline continued in 1989, for the first time since 1986 a negative operating result was recorded. Only in the case of pot plants did the results in both years remain at a satisfactory level (Table 5).

The mushroom growers displayed in both 1988 and 1989 a rise in results, which are meanwhile at a fairly reasonable level. The outdoor vegetable holdings have been having rather poor results for some considerable time now; in 1988 these fell fairly strongly, and in 1989 a limited recovery probably occurred. More or less the same applies to the fruit growers. The tree nurseries have already been achieving fairly favourable results for several years in succession, although both in 1988 and the following year a decline set in. The results of the bulb growers are also fairly good on average: the decline of 1988 was followed in 1989 by a limited recovery.

## 13. Income and financing of farms

The family income on farms in 1988/89 was approximately 30 percent higher than in the previous year (Table 6). This was not only a result of an improvement in operating results, but also of the considerable rise in the income from outside the farm. The improvement in the income position was fairly general, so that only one out of eleven farms earned a negative or low disposable income (less than 20,000 guilders). In the previous year that applied to one out of four farms. Nevertheless, there were still fairly large differences in level between the various branches. Whereas on dairy farms an average disposable income of over 100,000 guilders was attained, on (mixed) farms with intensive stock farming it was about half that figure, and on arable farms about two thirds.

*Table 6 Income, savings and investments on farms (x 1000 guilders per holding)*

| | 1986/87 | 1987/88 | 1988/89 | 1989/90 (est.) |
|---|---|---|---|---|
| Family income from farm | 64.5 | 61.0 | 81.7 | 102.0 |
| Total family income | 78.2 | 75.2 | 97.9 | 117.0 |
| Disposable income | 64.9 | 61.0 | 85.6 | 100.0 |
| Savings | 14.7 | 7.3 | 32.7 | 47.0 |
| Total own financial resources | 51.2 | 43.9 | 73.2 | n.b. |
| Increase in outside capital | 15.3 | 3.1 | 8.7 | n.b. |
| Gross investments in holdings | 60.9 | 46.3 | 70.6 | n.b. |

For 1989/90 a further rise in the average family income in arable and stock farming is estimated, namely by some twenty percent. Thus an as yet unequalled level was attained. The rise applied to the arable farms and the intensive stock farms; the incomes of the dairy farmers fell somewhat.

The improvement of incomes in 1988/89 was accompanied by vigorous growth of the available funds for financing. These were partly used to strengthen the financial position which had been eroded in previous years, at least on many arable and intensive stock farms. And yet the financial position of arable farming, above all in certain parts of the north of the country, is not yet a rosy one. In addition about one and a half times as much was invested as in 1987/88, thus equalling the high of 1979/80. The dairy farms in particular made considerable investments in 1988/89, among other things in milk quota and manure storage.

## 14. Income and financing of horticultural holdings

On the horticulture under glass holdings lower incomes were earned in 1988 (Table 7). Because both the family income from the holding and the income from outside the holding fell by several percent and more tax and social security contributions (over the previous year) had to be paid, disposable income worked out sixteen percent lower than in 1987. Owing to the fact that consumer expenditure moreover increased, the saving ratio fell from 50% to 36%. That is incidentally still fairly high and therefore, partly with the aid of bank loans, horticulture under glass invested some 60 percent more, above all to make switching to substrate cultivation possible.

*Table 7 Income, savings and investments on horticulture under glass holdings (x 1000 guilders per entrepreneur)*

| | 1986 | 1987 | 1988 | 1989 (est.) |
|---|---|---|---|---|
| Family income from farm | 71.4 | 110.2 | 100.9 | 97.0 |
| Total family income | 86.2 | 124.1 | 113.7 | 111.0 |
| Disposable income | 65.3 | 103.2 | 86.6 | 86.0 |
| Savings | 12.0 | 51.3 | 31.0 | 31.0 |
| Total own financial resources | 94.6 | 106.0 | 97.8 | n.b. |
| Increase in outside capital | -30.3 | -12.3 | 38.2 | n.b. |
| Gross investments in holdings *) | 83.1 | 100.0 | 167.3 | n.b. |

*) 1000 guilders per holding.

Income deterioration in 1988 was borne almost entirely by the growers of vegetables under glass. A higher holding income was attained by the cut flower and pot plant growers. However, the disposable income of the pot plant growers fell somewhat on account of higher tax payments.

In 1989 the family income and the disposable income of the average glasshouse grower were practically identical with those of 1988. There was a rise for growers of pot plants and vegetables under glass, but a fall for the cut flower growers.