

Economic accounts for the primary sector

Results and methods



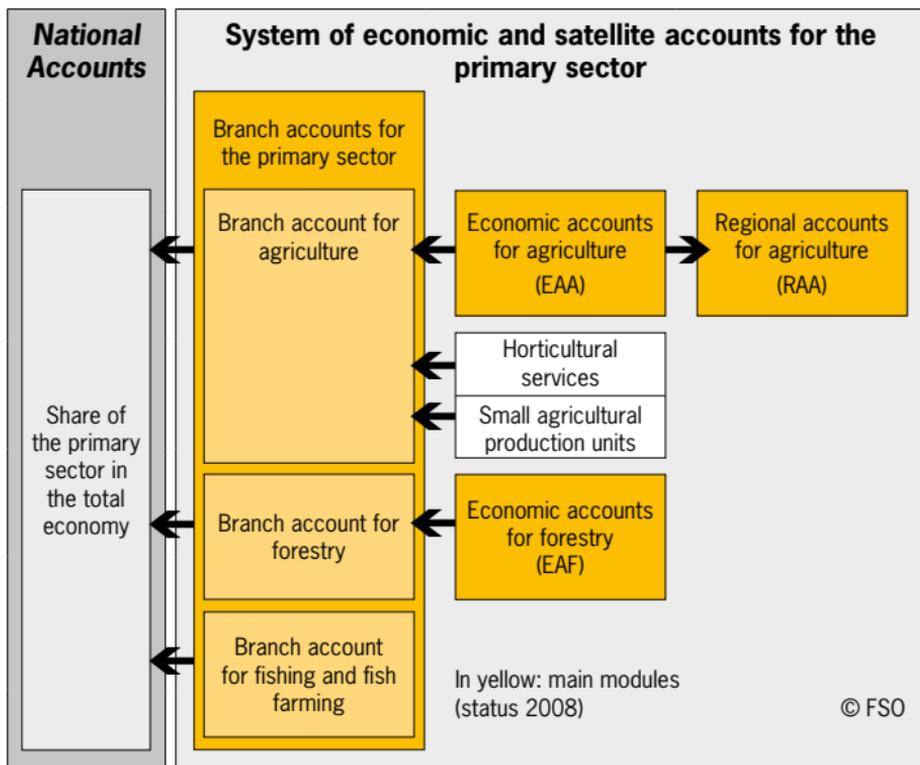
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Swiss Confederation

Federal Department of Home Affairs FDHA
Federal Statistical Office FSO

Neuchâtel, 2008

SYSTEM FRAMEWORK



Economic activities covered

The economic and satellite accounts for the primary sector cover the economic activities carried out on Swiss territory during the calendar year in the agricultural, forestry, fishing and fish-farming sectors.

Methodology

The methodology framework used for primary sector accounts is identical to that used for the national accounts. The various modules have been developed according to international standards (European System of Accounts, ESA, 1995, along with the specific extensions provided by Eurostat for agriculture and forestry).

Statistical structure

Primary sector accounts are summary statistics which are produced by the Swiss Federal Statistical Office (FSO). Part of the work involved in preparing the economic accounts for agriculture (EAA) is entrusted to the Offices of the Swiss Farmers' Union.

SUMMARY

Primary sector economic accounts describe the main economic features of the primary sector in Switzerland. At a simplified level, this brief statistical guide presents a progression comprising different stages:

- the production process (creating value added)
- revenue generation (making a living and investments)
- the renewal of the productive base (investing).

The basic accounting principles are viewed in the context of the specific figures and major trends since 1990.

Creating value added

Page 4

Value added is obtained by subtracting from the output value the value of goods and services which have been used in the process.

Agricultural output

Page 6

Involves measuring the total agricultural output and its various components in order to understand the diversity of agriculture.

Forestry output

Page 10

Describes the forestry output achieved between storms and the timber market.

Output from fishing and fish farming

Page 12

Describes the output between the reduction in catches and increased value added of fishing.

Generating revenue to make a living and invest

Page 14

Describes the role of the State and the remuneration for the factors of production in terms of labour, land and capital.

Investing in the renewal of the productive assets

Page 17

Looks at renewing the infrastructure to facilitate new production cycles.

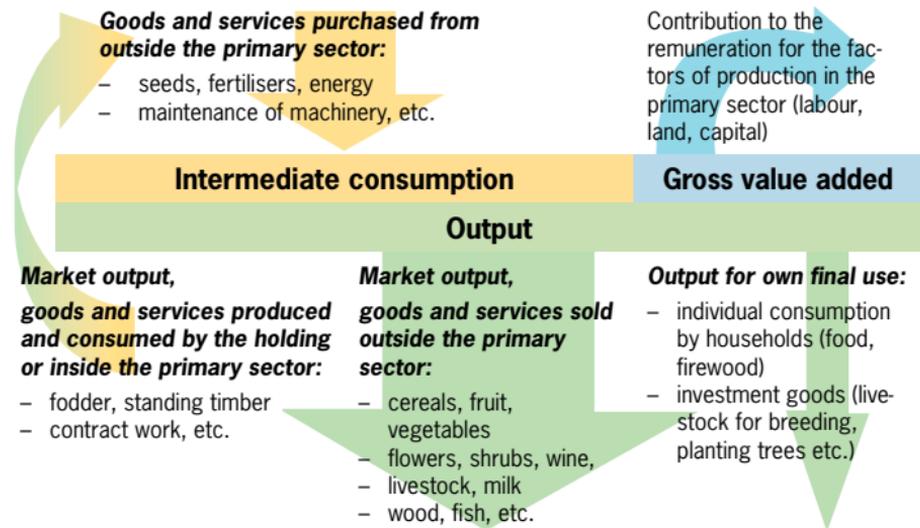
Trends in methods of production

Page 18

Highlights the trends in agriculture, indicating some useful links and addresses for finding out more on the subject.

Creating value added

The production process in the primary sector



Output (or output value) comprising:

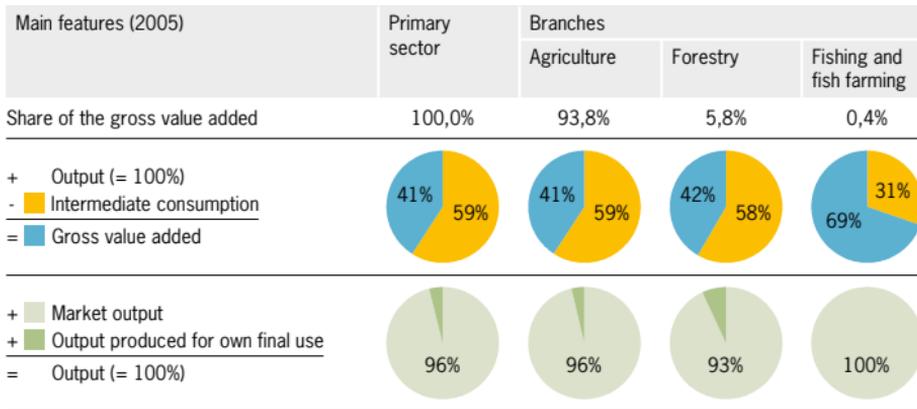
- 1. Market output**, which includes the value of goods and services produced for sale to other primary sector units and outside the primary sector, for intermediate consumption in the holding (e.g. fodder), as well as changes in stocks.
 - 2. Output produced for own final use**, which includes own-account production of fixed capital goods and for own individual consumption by the household.
- **Intermediate consumption** represents the value of the goods and services used as inputs during production. These goods and services are either transformed or entirely used up during the production process.
- = **Gross value added (GVA)** represents the increase in the value of the products (goods and services) resulting from the production process.

Limits of the economic valuation

In spite of the important role they play, certain aspects of the primary sector are omitted from the accounts:

- Use of «free» natural resources (without any human involvement: rain, sun, mountain pastures etc.)
- Environmental degradation (water tables etc.)
- Measures protecting the environment (conservation of the countryside, protective forests, biodiversity etc.). Some of these measures are remunerated by direct payments (subsidies).

Agriculture dominates the primary sector in Switzerland

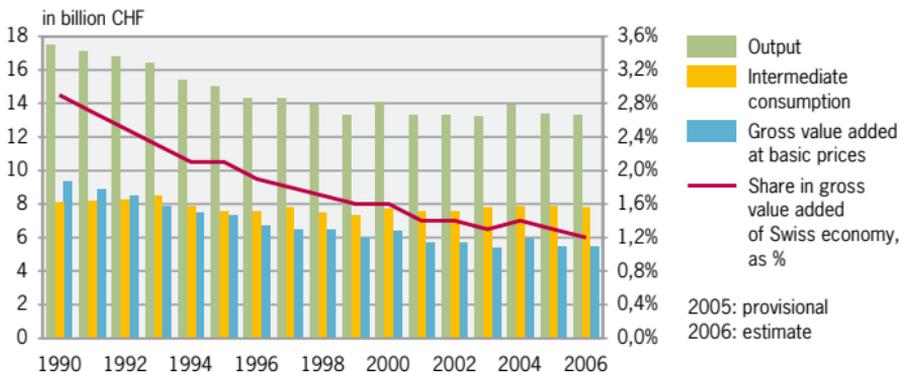


Development of primary sector since 1990

The primary sector utilises around 70% of Switzerland's territory (usable agricultural area, mountains pastures, forests and lakes), covering an area of nearly 30,000 km².

The primary sector's share in the Swiss economy's gross value added has decreased by 60% between 1990 and 2006. The main causes of this have been the sharp drop in prices for agricultural products (1990–1999) and the growth of other sectors in the economy (industry and services).

Primary sector and its share in the Swiss economy at current prices



Agricultural output

Definition

The agricultural sector is made of up of three areas:

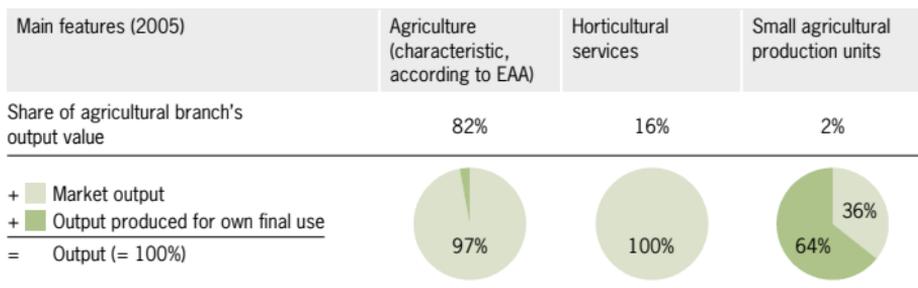
1. «**Characteristic**» **agriculture**, covered by the economic accounts for agriculture (EAA). This covers characteristic agricultural activities as recorded in the agricultural censuses.
2. **Horticultural services**: landscaping, upkeep of gardens, parks and walkways.
3. **Small agricultural production units**. Given that their individual size is too small, these units are not included either in the agricultural censuses or the EAAs.
However, these small units have a significant influence in certain activities and regions: apiculture (honey), viticulture (e.g. canton of Valais), along with the production of fruit and vegetables by non-agricultural households for their own consumption.

Main calculation methods

More than 90 sources supplied by federal statistical and administrative agencies, as well as by professional organisations are required to calculate the economic values for agriculture.

- The **output value** is mainly determined by multiplying the quantities produced by the prices obtained.
- The **production costs**, especially the intermediate consumption purchased upstream of agriculture, are mainly valued by extrapolating the information contained in the book-keeping of agricultural and horticultural enterprises.

Agricultural output in Switzerland is mainly aimed at the market

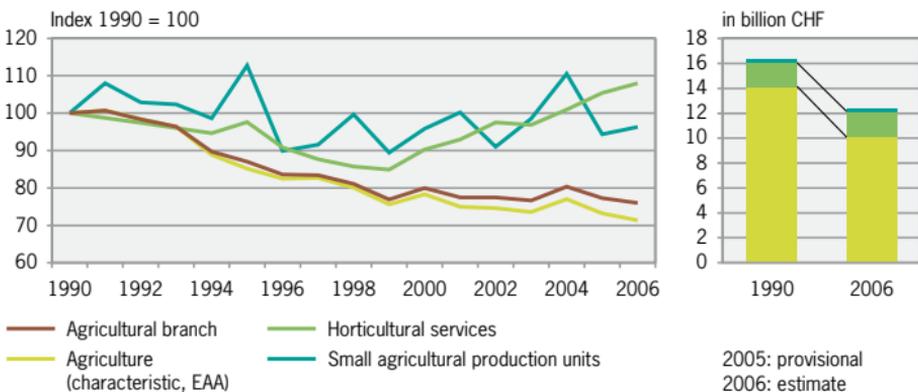


Swiss agriculture: a diverse sector

Agriculture in Switzerland is a diverse sector. Its three areas are subject to different external influences. Some of the most important of these influences are described below.

1. **Characteristic agriculture (according to EAAs):** agriculture policy reforms, meteorological conditions, discrepancies in trends relating to prices for agricultural products, inputs, labour, buildings and equipment.
2. **Horticultural services:** trends in the construction sector (recession between 1995 and 2000, then gradual recovery).
3. **Small agricultural production units:** meteorological conditions, trends in socio-economic, cultural and demographic factors.

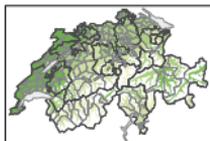
Output from agricultural branch at current prices



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Regional accounts for agriculture: principles and methods

Regional accounts for agriculture (RAA) are the results from the economic accounts for agriculture (EAA) broken down by canton, based on the statistical and administrative data available at regional level.



Numerous environmental, economic and social factors explain the diversity and disparities in regional agriculture.

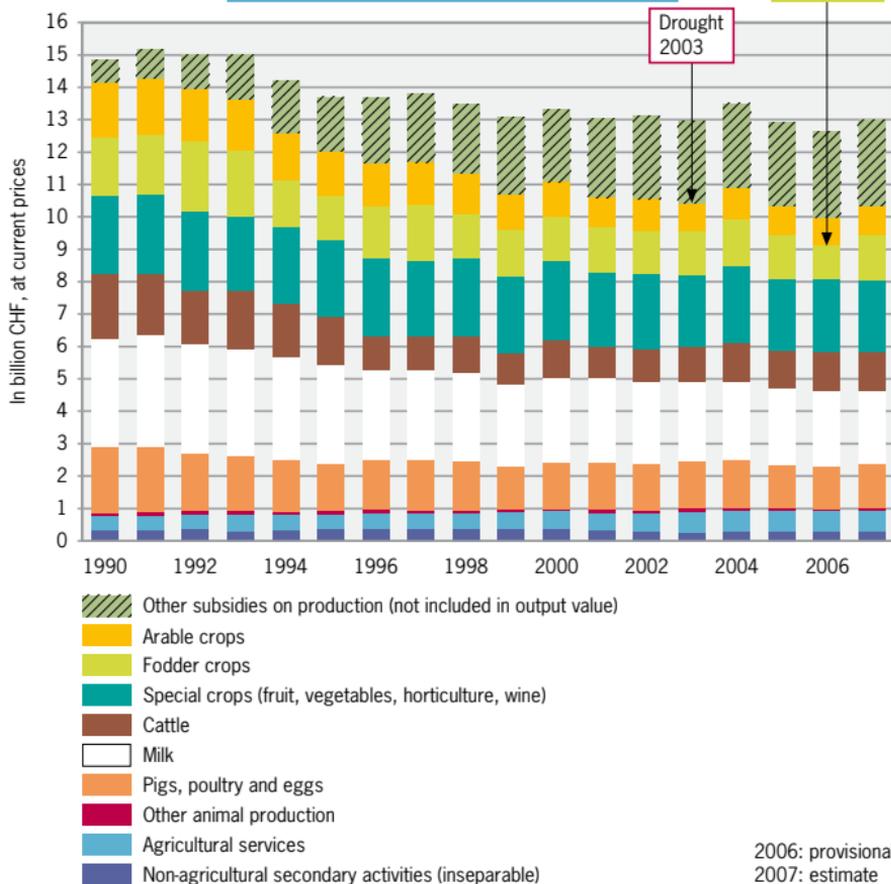
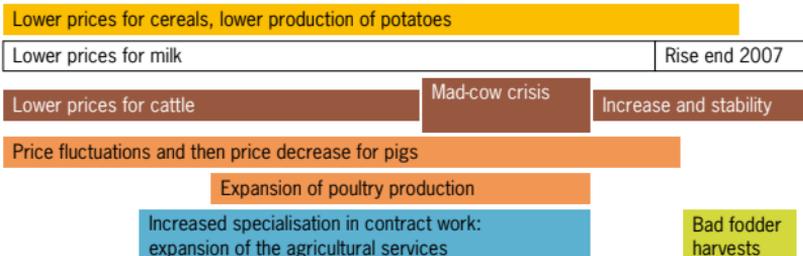
For instance, altitude, hours of sunshine, precipitation, soil, agricultural policy, markets, family life etc.

→ Refer to the interactive maps available on our website.

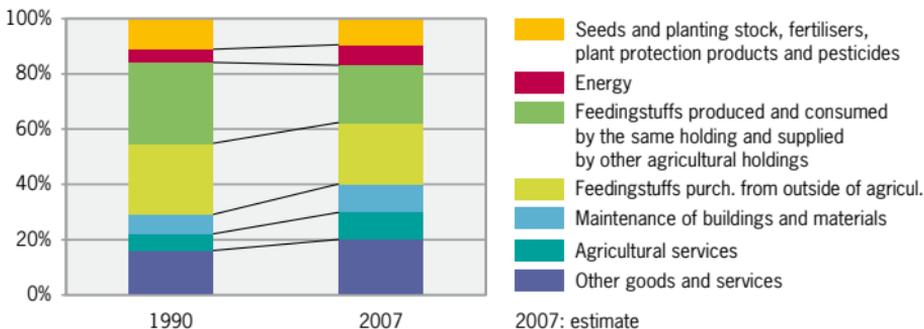
Agriculture (EAA): output and subsidies, commented results

Gradual reform of the agricultural policy | Generalisation of the direct payments

Main factors of influence per category



Intermediate consumption of agriculture (EAA) composition to current prices (in %)



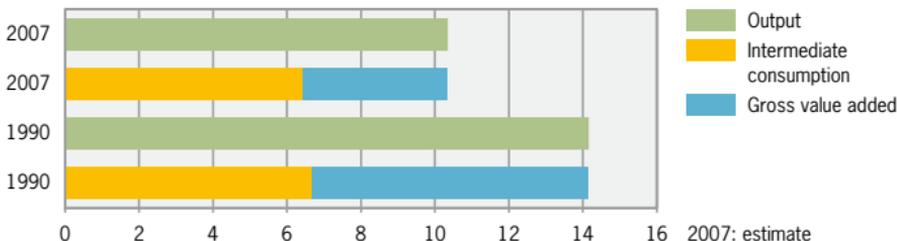
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Agriculture in Switzerland (EAA): key facts

The gross value added at current prices has decreased by almost 50% since 1990, but only by 13% at constant prices (characteristic agriculture based on the economic accounts for agriculture (EAA)):

- The fall in prices triggered a sharp drop in output value. The gradual deregulation of the markets was half-compensated by the direct payments made (including environmental contributions). However, the level of the quantities produced has only dropped slightly. The total volume produced has fallen by just 3% since 1990.
- Intermediate consumption has been maintained, although its structure has changed since 1990. The prices for inputs have fallen on the whole, even though those for services and energy have risen.

Gross value added of agriculture (EAA), in billion CHF



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Forestry output

Definition

The forestry branch comprises four areas:

1. **Public forest enterprises**, which manage forests for their own purposes and belong to the State or to public or private corporations.
2. **Private forest**, which includes almost 250,000 private owners.
3. **Forestry service contractors**, which supply contract services to units operating in the public and private forestry sectors or which buy standing timber from them which they then utilise.
4. **Forestry nurseries**, which produce forest plants, the majority of which are sold outside the forestry sector (for gardens, etc.).

Main calculation methods

Around 15 sources supplied by the federal statistical agencies and by organisations in the sector are used to produce economic accounts for forestry (EAF). The following are notable features:

- **The management of public and private forests** is valued by combining the forestry statistics with the detailed accounting results from the public forestry enterprises.
- **Forestry services** are initially calculated according to the demand for forestry contract services, then adjusted according to the supply of standing timber.
- The output of **forestry nurseries** is valued based on the areas managed.

Diversity of the forestry sector in Switzerland

Main features (2005)	Public forest	Private forest	Forestry services contractors	Forestry nurseries
Share of forestry branch's output value	51%	15%	30%	4%

+  Market output
 +  Output produced for own final use
 = Output (= 100%)

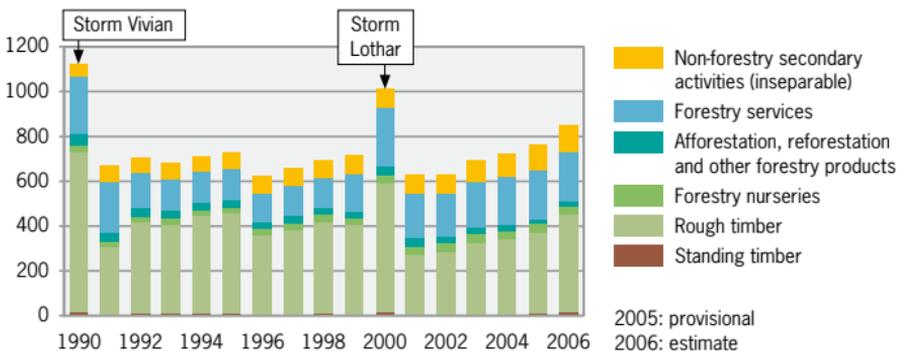


Scope of production:

-  Standing timber (only sales)
-  Rough timber (logs, timber for industrial uses, firewood)
-  Forestry nurseries (forest plants)
-  Afforestation, reforestation and other forestry products
-  Forestry services
-  Inseparable non-forestry secondary activities (gravel pits, sawmills, timber trade, etc.)



Forestry output at current prices, in million CHF



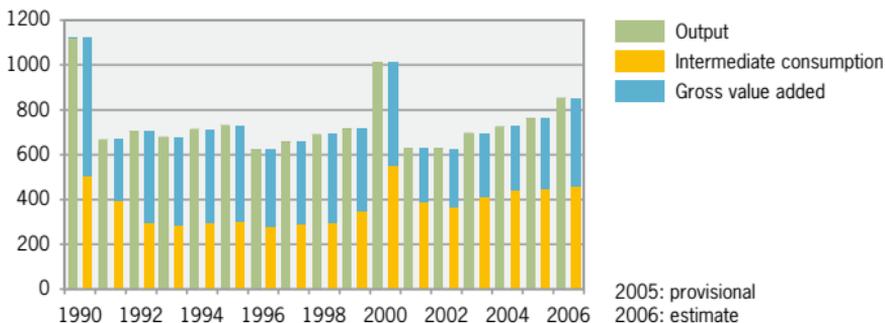
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Forestry sector in Switzerland caught between storms and the timber market

Since 1990, Swiss forestry has been hit by two storms (1990: Vivian, late 1999: Lothar). As a result of being forced to process the timber from the devastated forests, the market became saturated, resulting in a price collapse.

Since 2004 the demand for timber in Switzerland and the neighbouring countries has increased, as have the prices. This has encouraged growth in the increasingly specialised management of forests (expansion of forestry services).

Gross value added of forestry at current prices, in million CHF



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Output from fishing and fish farming

Definition

The fishing and fish farming branches comprise 2 areas:

1. **Professional lake fishing**, including fishing of Swiss lakes (Swiss territorial waters). These units catch edible freshwater fish for sale, especially using nets and pots. They process part of the catch.
2. **Fish farming**, which includes enterprises that farm edible fish in artificial tanks or in ponds.

Limitations of the economic valuation

The following are not included in the accounts:

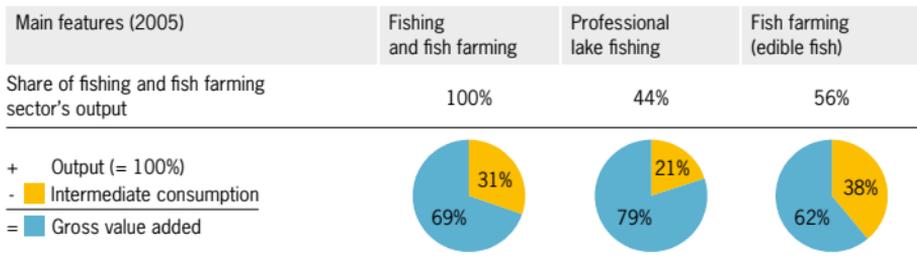
1. Angling (around 250 tonnes per year)
2. Fish farming designed to restock lakes and watercourses (production of fry and young fish), as well as sales between fish farms.
3. Fish stocks (population of fish in lakes and watercourses) and their development without any direct human intervention.

Main calculation methods

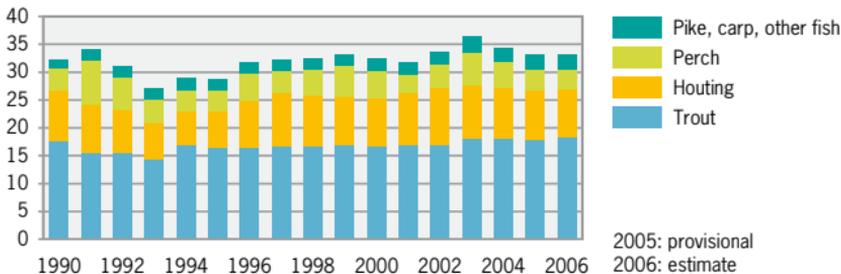
Around 15 sources supplied by federal statistical agencies (in particular fishing statistics from the Federal Office for the Environment, FOEN) and by professional organisations are used to produce this account. The following are notable features:

- **The output value** is determined by multiplying the quantities produced (sold) by the prices obtained. The valuation of the fish is taken into account (filleting, smoking and other processes). Only market output (sales) is recorded.
- **The production costs** (intermediate consumption etc.) are valued in particular according to the maintenance and operation of the infrastructure (boats, tanks, fish processing equipment etc.), as well as the foodstuff used in fish farming.

Fishing and fish farming: two different production types



Output from fishing and fish farming at current prices, in million CHF



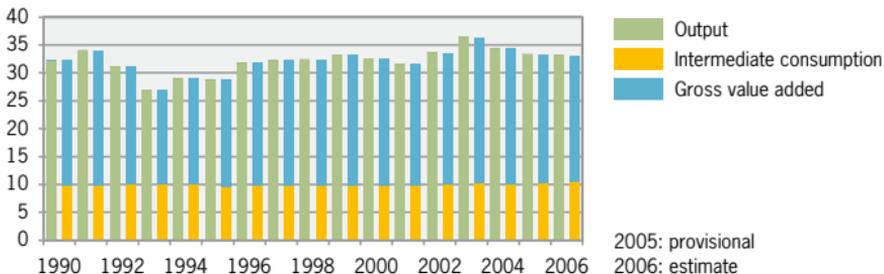
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Sustainable management of lakes and increase in value of fishing

The number of holdings involved in professional lake fishing has fallen by a third since 1990: fewer jobs, but better equipment. The expansion in the facilities for preparing and packing fish (increasing the value of fishing) during the 1990s helped to maintain the value added, in spite of the reduction in the size of the catches in relation to the period 1960–1990.

Since 2000 the average catch size has been 1500 tonnes per year (mainly houting and perch), which represents, according to the Federal Office of the Environment (FOEN) a sustainable use of the lakes. Fish farm production (1200 tonnes per year, mainly trout) supplements the domestic supply, covering 10% of the Swiss population's fish consumption (FOEN).

Gross value added of fishing and fish farming at current prices, in million CHF



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Generating revenue to make a living and invest

Principles and methods

The primary sector accounts highlight the involvement of enterprises operating in the agricultural, forestry, fishing and fish farming sectors in the economic cycle. The various operations ranging from production to the creation of primary revenue are brought together by an accounting sequence. Some of the current transactions include the following:

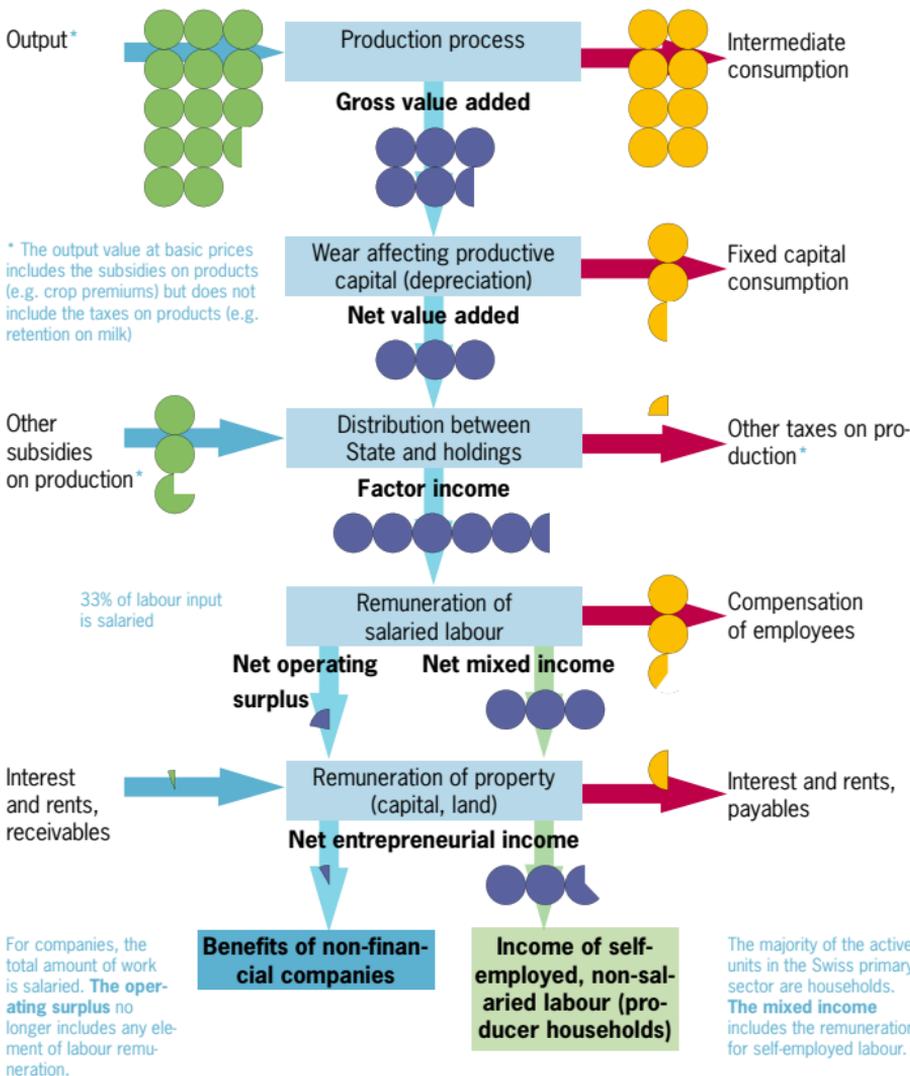
- Producing primary goods by implementing production factors (labour, land, capital).
- Remunerating production factors (salaries and social contributions, rents, debt interest).
- Providing «non-market» services for the community. Part of the subsidies paid by the State are aimed at remunerating these services (e.g. direct ecological payments, maintenance of protective forests).
- Paying State taxes (e.g. land taxes, motor vehicle taxes).
- Guaranteeing an income to companies (in order to invest and repay debts) and households (for them to live on, invest and repay debts) which are involved.

Income formation in the primary sector

Main features (2005)	Primary sector	Branches		
		Agriculture	Forestry	Fishing and fish farming
Branches' share of the primary sector's total resources («revenues»)	100,0%	94,0%	5,8%	0,2%
Resources («revenues», as %):				
<ul style="list-style-type: none"> ■ Output* ■ Other subsidies on production* ■ Interest and rents, receivables 				
Uses («expenses», as %):				
<ul style="list-style-type: none"> ■ Intermediate consumption ■ Compensation of employees ■ Other taxes on production* ■ Interest and rents, payables 				
Balance (income), in million CHF				
Gross entrepreneurial income	5270	5227	31	12
- Fixed capital consumption (depreciation)	2471	2278	186	7
= Net entrepreneurial income	2799	2949	-155	5

* The output value at basic prices includes the subsidies on products (e.g. crop premiums) but does not include the taxes on products (e.g. retention on milk). The other production subsidies (e.g. direct ecological payments) and other taxes on production (e.g. land taxes) are recorded independently of the output value at basic prices.

From output to income: accounting sequence for the primary sector (2005)

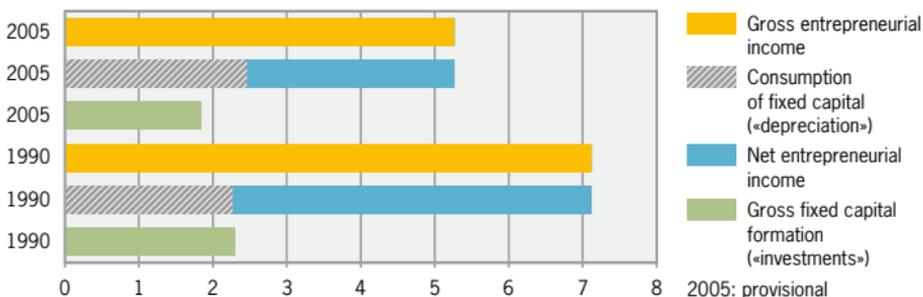


○ = 1 unit = 1 billion CHF (2005, provisional). Only monetary flows are represented in this diagram, without the physical counterparts.

● Resources (=revenues, to be added), ● Uses (=expenses, to be deducted),

● Balances, who are used as resources (=revenues, to be added) for the following accounting stage.

Primary sector: income and investments, in billion CHF



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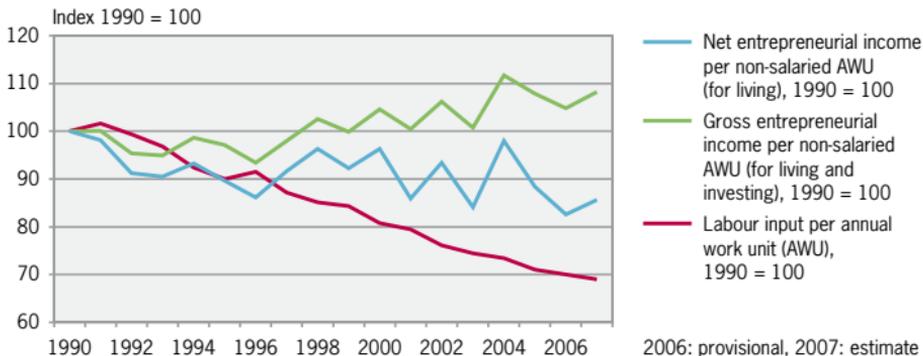
Sharp falls in sector income and labour input

The primary sector's gross entrepreneurial income, heavily influenced by agriculture, fell by over 25% between 1990 and 2005, and even by over 40% if depreciation is deducted (net entrepreneurial income).

In the forestry sector, the accounting deficit (negative net entrepreneurial income) can be put in proportion. In particular, 57% of investments (2005) have been covered by investment grants.

In agriculture, the gross entrepreneurial income generated per self-employed work unit (non-salaried) has been tracking, on average, the rate of inflation since the second half of the 1990s, thanks to a fall in the labour input volume, an improvement in economic efficiency and direct payments. However, the growing gap between gross and net incomes means that agricultural households must carry out a rational renewal of the infrastructure and diversify their sources of income outside agriculture.

Agriculture (EAA): entrepreneurial income per self-employed work unit



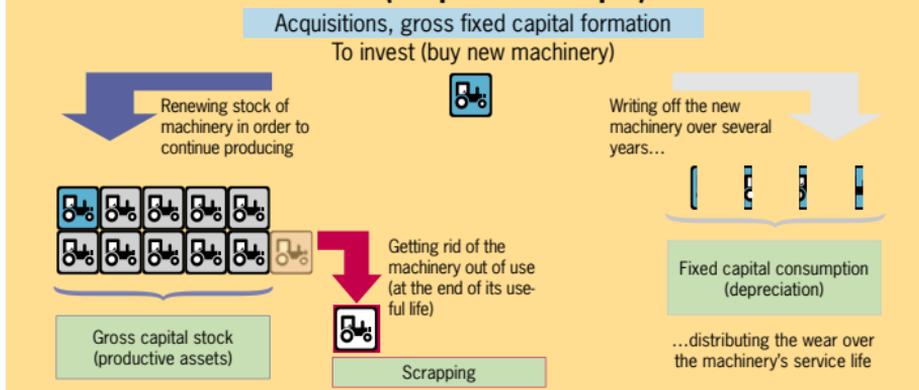
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Investing in the renewal of productive assets

Principles and methods

The infrastructure required to carry out economic activities must be regularly renewed to facilitate new production cycles. The assessment of the infrastructure's value (productive assets) is based either on the census of the stock (productive livestock) or the cumulating of the investments (buildings, equipment etc.) over the years, reduced by the scrapped assets («permanent inventory method»).

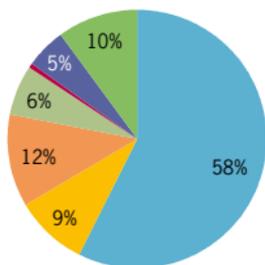
From investments to assets (simplified example)



Only part of the productive assets are renewed

Investments of 1.8 billion CHF could no longer cover more than 2.5 billion CHF in depreciation for the primary sector in 2005. The old productive assets are «eaten up» and the (over)capacity is no longer renewed. The productive assets (without the land) are valued at close to 61 billion CHF.

Productive assets in the primary sector (2005)



Total value: 61 billion CHF

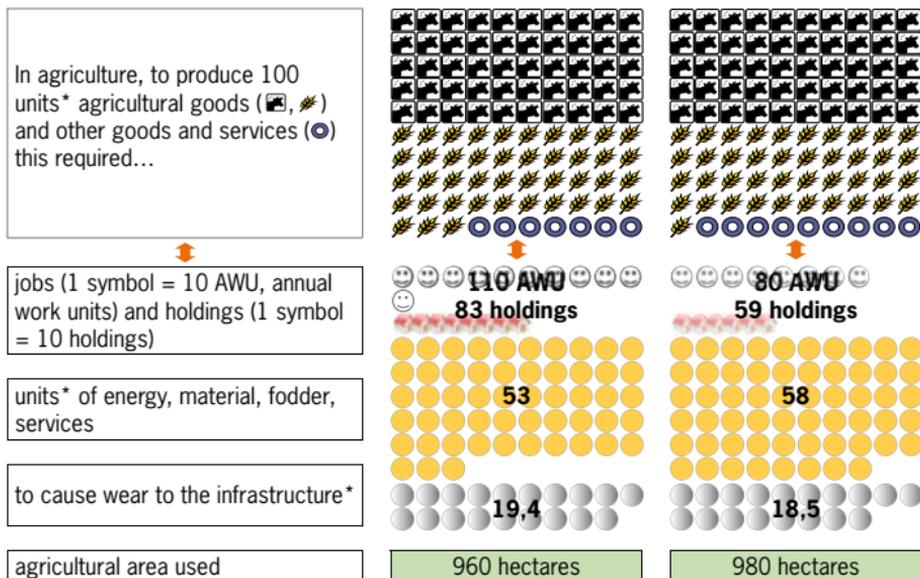
- Buildings and other structures (paths, roads, etc.)
- Transport equipment (tractors, boats, etc.)
- Other machinery and equipment
- Livestock for breeding, dairy, etc. and plantations (cultivated assets)
- Intangible fixed assets (software and operating plans for forestry), <1%
- Inventories (work in progress, finished goods)
- Non-produced assets (land improvements, reforestation, without the value of land)

Trends in methods of production

The primary sector, and agriculture in particular, has changed its production techniques considerably since 1945. The main reasons for this are the rural exodus, the fall in the number of holdings and jobs and ever-larger structures.

After decades of expansion, the volume of investments started to tail off in the 1980s. The number of machines is decreasing, but they are becoming more complex and more expensive. The period between 1990 and 2005 highlights the latest trends observed in Switzerland.

How was production carried out in Swiss agriculture in 1990 and 2005?



* 1 unit = 100,000 CHF in volume at constant prices of the year 2000

Additional source: Agriculture censuses, FSO

Example: grassland harvest



The grassland harvest is crucial for Swiss agriculture. Dependent on the meteorological conditions, a large workforce used to be involved in this activity in the past. It has become highly mechanised and requires much less time and effort, but needs specialised services.

Fodder is now stored in large bales (photo), which has led to the falling into disuse of a large number of hay barns used long ago.

To find out more

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www.statistique.admin.ch

Topic: Agriculture and forestry

To find out more about the methodological aspects, download our specialist publication: (available in French or German)

Primary sector economic accounts: methods, introduction to theory and practice, FSO, Neuchâtel 2008

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(Federal Office for Agriculture)

www.environment-switzerland.ch

(Federal Office for the Environment)

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(Swiss Farmers' Union)

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Sources and status of the results:

- Branch accounts for the primary sector (2005: provisional, 2006: estimate)
- Economic accounts for agriculture (2005: semi-definitive, 2006: provisional, 2007: estimate)
- Economic accounts for forestry (2005: provisional, 2006: estimate)
- National Accounts (2005: provisional, 2006: estimate)

FSO, Neuchâtel, status October 2007

