



**A LARGE
CARNIVORE
INITIATIVE
FOR EUROPE**

Livestock subsidy systems in Europe and reform proposals to benefit large carnivore conservation

1st draft

September 1997

IEA - Istituto Ecologia Applicata

Via Spallanzani 32

00161 - Roma, Italy

tel./fax +39-6-440315

e-mail: md2605@mclink.it

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Barbara Giannuzzi Savelli
Francesca Antonelli
Luigi Boitani

IEA - Istituto Ecologia Applicata
Via Spallanzani 32
00161 - Roma, Italy
tel./fax +39-6-440315
e-mail: md2605@mclink.it

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Foreword

The European Union is facing an adjustment period as it works toward the joining of Central and Eastern European countries and addresses the changing conditions of markets and international commerce. All European agricultural policies refer to the Common Agricultural Policy (CAP) that unites all aspects at the various sectors of the agricultural activities, including the breeding of domestic livestock. As the conservation of the large carnivores is strictly tied to a level of conflict with the zootechnical activities, a revision of CAP is seen as an important opportunity to insert a new and deeper attention towards the possible cohabitation between the large wild carnivores and the breeding of livestock. On these premises the “Large Carnivore Conservation Initiative for Europe”, has commissioned to the Istituto di Ecologia Applicata of Rome (IEA), with funds provided by WWF, the task to assess current livestock benefit systems and the potential for reforms in order to benefit large carnivore conservation.

The need for more integration between the conservation of nature and agricultural policies has already resulted in the constitution of the European Forum on Nature Conservation and Pastoralism (EFNCP), a non-profit network bringing together ecologists, nature conservationists, farmers and policy makers with the aim of increasing the understanding of the traditional farming systems and of promoting their maintenance.

This report focuses on the analysis of the current CAP and its proposed changes in the perspective of large carnivore conservation. The final chapter includes a proposal for adapting the CAP changes to the needs of carnivore conservation.

Executive summary

Europe is currently undergoing a period of changes, much of its policies must be reformed in order to focus on the objectives that must be achieved. In particular it must face great changes due to the future extension of the Union to other Central and Eastern European countries, as well as respect agricultural agreements on international commerce carried out at the time of Uruguay Round (1995), that will have to be renewed in the new negotiations foreseen for the year 1999.

The objective of this work is that to provide a picture of the different support systems of the zootechnical sector currently present in Europe and to give guidelines for a possible reform of the Common Agricultural Policy (CAP) that might keep in larger consideration the environmental problematic, in particular the Large Carnivores conservation.

The Treaty of Rome in 1957 saw the creation of the European Economic Community (EEC). A Common Market was to be accompanied by the establishment of a Common Agricultural Policy (CAP) amongst its Member States. The objectives of this policy were: to increase agricultural productivity, to stabilise markets, to secure availability of supplies, to ensure a fair standard of living for the agricultural community and to ensure that supplies reach consumers at acceptable prices.

In 1958, the basic principles of CAP were set down at the Stresa Conference. These were: single market (a single agricultural market where agricultural products circulate freely and benefit from stable, guaranteed prices), Community preference (preference is given to commodities and goods produced inside the Community) and financial solidarity (Community financing of CAP). After the Stresa Conference, the CAP went through a series of reforms, last being in 1992.

The financial instrument of CAP is the European Agricultural Guidance and Guarantee Fund (EAGGF). Through this fund, the CAP finances, among other things, all the measures aimed at supporting the livestock sector (prices support, export refunds, rewards for the livestock operators...).

In the others European countries the subsidy system varies greatly; Romania for example has a total absence of financial support for livestock sector, while complicated and considerable subsidies exist in Norway and in Switzerland. In the countries of Central and Eastern Europe, the loans are mainly aimed toward incentives for the production of pure-bred animals.

The present CAP has many intrinsic contradictions. As regards livestock breeding, although on the one hand the 1992 reform promotes production (market support and compensatory premiums for livestock headage), on the other it seeks to limit it, attributing each Member State with a quota. Moreover, the proposals to give more importance to the conservation of the environment and natural resources have led to the introduction of agri-environmental regulations (2078/92) and other accompanying measures, but without

sufficient financial support to allow a real and lasting change in the 'manner' of production.

The level of price support for livestock products is extremely high inside the Community, as well as in Switzerland and Norway. In particular in the EU the support policy substantially can increase the prices of livestock products, raising the prices of beef and sheep meats to almost 50% above world levels and milk to twice the world price. Economic studies have shown that if the price of a product increases, the farmers tends to produce more of it (CEAS-EFNCP 1997). This, together with the reward for headage payments, has often caused the production of meat for which there is no market.

Furthermore what comes out of this study is that the support of the market price of the breeding products, together with the payment of prizes directed to the breeders bound to the number of animals, have brought (or however have facilitated) to a management change in this sector. In fact with this kind of politics, intensive types of breedings are benefited as regards to extensive types of breedings, with evident repercussions of the environment: larger use of fertilisers to increase the pastures productivity, overgrazing and undergrazing problems, loss of natural pastures in advantage of monocultures forage species.

Moreover in some countries like Switzerland and Norway livestock breeding (especially ovine) has assumed the characteristics of a part-time job or furthermore of a hobby. The productivity of this kind of breedings is therefore very low and manage to survive only with the states' subsidies. This lack of management of the flocks and the pastures, has a negative impact on the environment and the little survey of the animals make them more vulnerable to eventual predation by large carnivores.

Our reform proposals of the current agricultural policies in the livestock sector, are principally based on the need to discontinue this link between production level and benefits, as well as the need to give more importance to problems concerning the environment. With this in mind, the gradual elimination of market price support and headage payments has been proposed; these forms of support would be substituted with payments per area according to a multilevel scheme already elaborated by the Centre for European Agricultural Studies and by the European Forum on Nature Conservation and Pastoralism. The principles on which the proposed system is based, are the payments for Forage Area unit (adopted on the basis of productivity of the latter) and zoning of the community territory on the basis of different agri-environmental zones.

A Forage Area Payment System has different advantages regarding the headage payment system, among which: is production independent (depending on how applied), is decoupled in GATT terms (depending on how applied), is more closely addresses to environmental concerns by targeting land use rather than livestock, is already applied to arable crops, and finally offer potential for a unified and consistent agricultural support system.

Of great importance is also the subdivision of the lands agri-environmental areas in which different basic characteristics may be considered uniformly. Examples of which may be the different characteristics to take in consideration for this subdivision are: the pastures

productivity, the kind of breeding, geographical characteristics, socio-economic aspects, political objectives, environmental interest, etc.

A first subdivision may be made at a community level, leaving to the single State Members the possibility to create other under-zones according to the local necessities.

The importance of this zoning comes from the constation that the actual CAP results being inadequate to answer to the necessities of this Europe, which we here remind, goes from Finland to Portugal passing through various different environments and cultures.

On these principles a multi level payment system is structured. A **first level of payment** is provided for all the producers, on the basis of the Forage Area Payment System. According to this system tied to the production, breeders with farms in more fertile zones will have a higher payment than breeders in less fertile zones (e.g. pastures on the plain rather than mountain pastures).

A supplement to the first payment (**second level of payment**) is assigned if a certain type of agriculture, particularly respectful of the environment, is practised (low stocking density of animals, little use of fertilisers, etc.). This payment should compensate largely the difference between basic payments closely connected to the productivity of the various agri-environmental zones, going in advantage of breeders that use less fertile pastures, but more interesting from an environmental point of view (higher diversity of flora and fauna species, higher diversity of habitats, ...)

Finally a **third level of payment** provides a further cumulative supplement (first level + second level + third level). This last incentive should be foreseen in areas particularly fragile where the main objective is neither agricultural nor breeding but rather of conservation. Once these areas have been singled out, programs will have to be elaborated at a local level to which to breeders will have to comply to be able to gain the third payment.

In the specific case of Large Carnivores the latter payment should be foreseen for those breeders which are in the areas which in the text we defined 1, 2 and 3 which include the core conservation areas, the buffer zones and the communication corridors between populations of Large Carnivores. In these zones the programs elaborated at a local level with the participation of the responsible personnel of the different sectors (i.e. breeders associations, conservationists, public administrators,...) which must foresee all the measurements to be carried out for a "pacific" cohabitation between domestic livestock and large carnivores (anti-predator husbandry method).

The measures to undertake for the conservation of the different species of Large Carnivores present in Europe (bears, wolves, lynx and wolverines) and of the areas to consider priorities for their conservation, must be put in evidence in plans of specific management. These management plans must be at the base of discussions for the elaboration of the programs to use for the attribution of the third level of payment. In these discussions all other environmental factors where breeding influences directly or indirectly (soil erosion, overgrazing, undergrazing, water pollution) must be taken in consideration.

It's important that these reform proposals in the livestock sector take into account the need to conserve large carnivores, tied to the producers by ancient conflicts because of depredation. The extent of the damages depends on a multitude of variables and the attempt to understand these variables is extremely difficult because of the complexity of the issue. In any case, it is wrong to believe beforehand that it would be impossible for carnivores and livestock to co-exist. In fact many forms of livestock production are considered compatible with the conservation of these animals. It is mainly the free and unguarded grazing that suffer high rates of depredation and are therefore less compatible with the presence of predators.

The use of anti-predator techniques and husbandry methods that take into consideration the predator's presence is fundamental for the co-existence of large carnivores and livestock. In fact the only definite relationship that has been found is one between animals killed and the unguarded practice of livestock production.

In Europe a compensation system that provides for the immediate reimbursement of damages in the case of livestock depredation is currently widespread. The positive aspects of such compensation are the systematic monitoring of the predator's population deriving from it, and the increase of tolerance of producers of predators. However no action is taken for the actual conflict and therefore it becomes necessary that a new system provide benefits for the solution to these problems.

What we have wanted to propose in this report could bring to the complete elimination of the compensations for damage sustained (except particular cases) and the introduction of incentives for the use of anti-predator techniques by the breeders especially in risk zones. This different approach could bring the conflict between breeders and large carnivores to be considered as a European problem and not only of local administration or national parks. It must be emphasised in fact that currently the European Commission pays the breeders for their livestock (even though for the majority of these there is not market) and at the same time different types of local companies repay the breeders in case of predator damage (not always due to large carnivores).

If the Community policies cause damages for these species (but above all for the breeder that suffers the losses), then a solution of the problem must be found on a Community level. Furthermore, the expenses for reimbursement of the damages are ridiculous compared to what the Committee spends each year to support the livestock sector, it is enough to think that in Italy alone the EAGGF-Guarantee section for livestock expenses in 1995 were equal to 145.3 million ECU, while the expenses to compensate the depredation on the domestic livestock were in 1995, inferior to 2 million ECU.

Introduction

Europe is currently going through a period of transition. To quote a phrase in the Agenda 2000 Communication (Commission Européenne Doc/97/6), “the internal and external environment of the Union is rapidly changing: Europe must adapt, evolve and reform itself... In a more vast and heterogeneous Europe, its role as defender of the common interest will be even more decisive than in the past. To be successful it will have to reorganise and modernise its structures”.

This reorganisation must come from the reform of particular Community policies such as the Common Agricultural Policy (CAP) and Structural and Cohesion Policies. This reorganisation also anticipates the future expansion of the Union to include Central and Eastern European countries.

To understand the types of support given to domestic livestock breeding, a general awareness of the market and market policies is necessary.

In this first part of the report we will try to shed some light on the countless regulations that govern the market and the domestic livestock sector (mainly cattle, sheep, goats and horses) in the EU, CEECs, Switzerland and Norway. It will be a short summary of all the information available on the subject.

Chapter 1 describes the present support system for the livestock sector in the EU. In particular, this section concentrates on CAP (nature, origins, objectives etc.), CAP financing (functioning of the European Agricultural Guarantee and Guidance Fund - EAGGF) and lastly the different kinds of market support (particularly for livestock breeding products) and premiums.

Furthermore, there is a description of the reform proposals for CAP and Structural and Cohesion Policies that recently appeared in Agenda 2000 package (Commission Européenne Doc/97/6).

Attached are a series of tables on the spending in this sector, (shown per kind of intervention and per Member State) and the number of premiums and level of production over the last years. All the data concerning CAP comes from European Commission sources (all documents are cited in the bibliography)

Chapter 2 concentrates on Switzerland and Norway. These two countries are not part of the EU and therefore have independent agricultural policies. We thought it useful to extend our study and include these countries as well, to obtain a global overview of European agricultural policies affecting livestock production.

This report is intended as a review of livestock breeding subsidies and does not take the form of an economic analysis; however, awareness of other subsidy systems may be important for discussion. There is a short introductory description on the situation of the economy and the livestock breeding sector, followed by an account of the different financial support measures.

Data for Switzerland comes from the Federal Office of Agriculture in Bern, and from the Swiss group for the mountainous regions (SAB) in Brugg. Data for Norway comes from

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the Royal Ministry of agriculture and from Norwegian Meat Cooperatives, both organisation are based in Oslo.

Finally, Chapter 3 introduces ten Central and Eastern European countries. A first overview of these countries and a comparison with the EU is followed by a review of subsidies to producers given in each country. There is also a short summary on the different national situations of agriculture and the livestock breeding sector, followed by a general description of agricultural policy that concerns livestock breeding.

Since different agricultural policies and different sources of information are used for each country there is no standard descriptive structure. The amount of data varies from country to country as some institutions and organisations were more helpful than others. Furthermore, certain countries are going through a phase of agricultural policy reorganisation.

Chapter 1 - Livestock subsidy system in the European Union

1.1 Introduction to the Common Agricultural Policy

The Treaty of Rome in 1957 saw the creation of the European Economic Community (EEC). A Common Market was to be accompanied by the establishment of a Common Agricultural Policy (CAP) amongst its Member States. The objectives of this policy were: to increase agricultural productivity, to stabilise markets, to secure availability of supplies, to ensure a fair standard of living for the agricultural community and to ensure that supplies reach consumers at acceptable prices.

In 1958, the basic principles of CAP were set down at the Stresa Conference. These were: **single market** (a single agricultural market where agricultural products circulate freely and benefit from stable, guaranteed prices), **Community preference** (preference is given to commodities and goods produced inside the Community) and **financial solidarity** (Community financing of CAP).

The principle of Community preference meant keeping the prices of Community products below the cost of goods imported into the European market. This led to the introduction of two basic CAP mechanisms:

- import levies (import duties are levied on imported goods making the latter more expensive than comparable domestic products).
- export refunds (subsidies are given for exported Community products making these competitive on the world markets).

The first Common Market regulation was established in 1962 and common prices were first applied in 1968. Between 1979 and 1988 a number of measures were taken to curb rising production, namely: joint levies, guarantee thresholds, milk quotas, the dismantling of a monetary compensatory scheme, introduction of a stabilising regime and budgetary discipline. In 1992 CAP was finally reformed (discussed in detail later).

1.2 The Common Agricultural Policy financial instrument

The CAP financial instrument is the European Agricultural Guidance and Guarantee Fund (EAGGF). This fund has two sections:

- the "Guarantee" section (41 billion ECU in the 1996 budget). This sector is responsible for stabilising and supporting the agricultural produce market. For this, many different mechanisms have been adopted e.g. direct support for producers (this support became important after the CAP reform in 1992) and export refunds to non-Member States and public storage.
- the "Guidance" section (3.9 billion ECU in the 1996 budget) is responsible for the structural development of agriculture and the European agricultural/industrial activities. This section jointly finances support for the

modernisation of agricultural structures and agricultural production in areas that are at a disadvantage due to the natural conditions (mountains, arctic regions, ...). Together with other structural funds - European Social Fund (ESF), European Fund for Regional Development (ERDF), financial instrument for the fishery (FIFG) and Cohesion Fund - this section also supports rural development, not only within the agricultural sector. There are specific financial programmes for each European region.

The figure 1 in annex n°1 shows the percentage represented by EAGGF - Guarantee section, Structural Funds and Cohesion Fund (from WWF 1997).

The EAGGF is part of the **General Budget of the European Union** and takes up more than half of this budget (almost 45 billion ECU credit payments in 1996). EAGGF is prepared by the EAGGF Direction along the lines of the budgetary procedure for the General Budget and integrated into the budget pre-feasibility study adopted by the Commission and later submitted to the Budget Authority, the Union Council and the European Parliament.

Once the budget has been adopted, the Commission, the EAGGF Committee and STAR are responsible for its application together with the National entity in charge of distributing the finances. The application of the EAGGF budget is controlled internally (Budget Management and the Financial Supervisor) and externally (Court of Auditors and Parliament). At a national level, its application is controlled by the Member States directly and the EAGGF services together with the Financial Supervisor and the Court of Auditors.

For an efficient administration of the budget, a five year financial plan is designed and there is a follow-up of the expenditures to make sure that the annual expense limit is respected.

1.2.1 European Union Budget Incomes

The European Union Budget incomes are called “own resources” and must cover all the expenses (see fig. 2 in annex n° 1).

The different incomes are classified into the following categories:

1- agricultural levies and “sugar and iso-glucose” quotas (2181.5 million ECU, 2.7% of 1996 Budget)

The levies (864 million ECU) were created according to the principle of Community preference. As from 1995, these levies consist in fixed import duties levied on imported goods, making these goods more expensive than comparable domestic products (by the year 2000 these levies have to be reduced by 21 %).

The “sugar and iso-glucose” quotas (1317.5 million ECU) drawn up by the Common Trade Organisation consist in:

- sugar production contributions (producers contribute towards market support costs and disposal of surplus).
- sugar storage contributions.

There are other sources of agricultural income which are part of CAP and are different from the other Community "own resources"; for example, there is a milk levy for producers who exceed their quota. This kind of income is considered a contribution to agricultural expenses and is part of EAGGF.

- 2- **Custom Duties** exist on all imported goods. The total amount in the 1996 budget was 12,634.8 million ECU, 15.4 % of total "own resources".
- 3- **VAT (Value Added Tax)**. Each Member State gives the Union Budget a part of its VAT income. The uniform rate was 1.22 % in 1996 for a total of 39,792.3 million ECU (48.6 % of total 'own resources'). This resource can penalise countries that have a high VAT rate or that centre their economic activity on the production of goods that have a large added value. Therefore, specific mechanisms have been set up and the following resource (4) has been created:
- 4- **The resource based on the GDP (the fourth resource)**. A rate is applied to the sum of the GDP of all Member States. The rate is fixed in the budget taking into account the other incomes. In the 1996 Budget, this resource (also known as a complementary resource) came to 26,711.8 million ECU, 32.6 % of 'own resources'.
- 5- **Other resources** are taxes paid by the officials of Community institutions, bank interests, etc. In the 1996 Budget this resource amounted to 568 million ECU, 0.7% of 'own resources'.
- 6- **Balance of credits**
- 7- **Export taxes**. It is occasionally necessary to tax exportation when the price of some product on the world market becomes too high compared to the European market. This measure aims to avoid product shortage in the internal market.

1.2.2 Budget constraints

The EAGGF grew with the expansion of the EU and it was necessary to support the agricultural market and make structural improvements in the new Member States. The budget grew very rapidly, so:

Guarantee section expenditure had to be kept in check; a quota system (1984) was applied to reduce milk production, budgetary stabilisers were introduced (Maximum Quantity Guarantee for cereals, oilseeds and others supplies (1987)) and intervention periods were limited.

In 1988, it was decided that a five year budget program should be respected and the EAGGF credits and expenses were to be kept below a certain limit (annual agricultural guideline).

Allowance for the **Guidance section** fund was increased; there was still the need to improve the economic structures. During the structural funds reform in 1988, it was decided that allowances for 1989-1993 should be doubled (1,462 million ECU in

1989 to 3,092 million ECU in 1993). An increase of 4,301 million ECU was planned for the next stage (1994-1999).

1.2.3 The CAP reform

A radical reform of the CAP was now needed, as the objectives fixed in 1957 had been reached and the economic environment had changed.

In 1992, the Council of Ministers agreed on a reform that deeply changed the Common Agricultural Policy. These decisions put an end to a long period of uncertainty during which there had been an attempt to avoid over-production and limit financial costs and consider other needs such as the environment, farmer income and rural economy.

Although there was a radical change of the previous regulations, the reform did not challenge the principles adopted in 1962 as the basis of the Common Agricultural Policy i.e. uniformity in prices, community preference, financial responsibility and solidarity (see § 1.1).

The fundamental mechanisms of this policy were therefore kept but their role was modified. The reform was based on three main principles:

- cut in prices of agricultural product to make these competitive on the internal and external market;
- a full and long-term compensation of the effects of this cut using compensatory sums or premiums, independent of product quantity;
- control of production by application of production limiting measures (animal density per hectare of pasture land, ...) such as quotas.

Moreover, the decision was taken to reinforce all the measures concerned with environmental protection and encourage modification of agricultural activity for this purpose (extensive agriculture and structural development). Likewise, there was an attempt to halt the activities of certain farming categories and use this land for forests and leisure activities.

The combination of a framework for expenditure and a complete CAP mechanisms reform encouraged more efficient financing (i.e. a better cost/efficacy ratio) and led to a decrease in expenditure in 1994 and 1995.

1.3 EAGGF, the Guarantee section

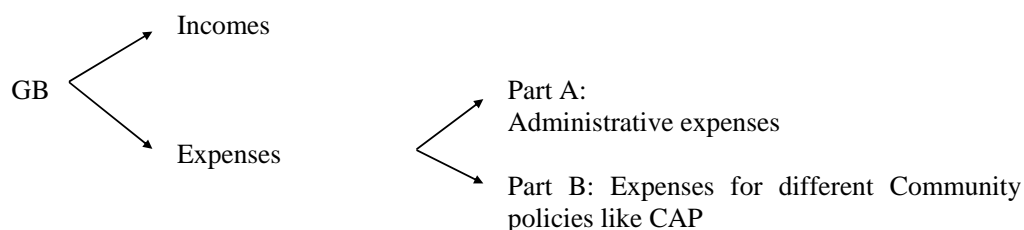
The Guarantee section fully finances the majority of CAP support measures for the agricultural market. The EAGGF reimburses the money spent by the Member States for this; the countries are responsible for guaranteeing the legality of these expenses and controlling that the funds are used properly. Furthermore, the Commission's balance procedures consist in a verification of the declarations and controls of the Member States.

In each country there are Paying bodies (listed on the Official Journal of the European Commission) that receive the granted funds from the Commission Accountant (part of the GD XIX) after a calculation by GD VI - Unit G2.

A small part of these payments (almost 150 million ECU) are direct payments from the Commission to the beneficiary without transit through national budgets. These payments concern specific food aid supplies, fight against fraud, promotion of agricultural products,

...

The General Budget of the European Union is structured as follows:



The EAGGF Guarantee sector credit payments are included in section B-1 of Part B. This section consists of 6 chapters (see fig. 3-4 in annex n°1):

B1-1: contains 9 chapters on **plant products**.

B1-2: contains 7 chapters on **animal products** (milk and dairy products, beef, sheep, goat, pig and poultry meat and eggs, ...) and the fishery intervention fund.

B1-3 : contains 10 chapters on **attached expenses**.

B1-4: concerns **income support**.

B1-5: a chapter on **accompanying measures**.

B1-6: concerns 500 million ECU for the **monetary reserve** (not in guideline).

1.4 Financial Models

Financial models concern financial mechanisms that regulate the common agricultural market towards the objectives of the Common Agricultural Policy cited in paragraph 1.1 and subsequently modified in the CAP reform of 1992 (see § 1.2.3.).

These mechanisms can be classified into classic market support measures in force since the creation of CAP, and into direct aid and accompanying measures introduced in the 1992 reform.

For the EAGGF - Guarantee section expenditure on livestock sector see tables 1,2,3 in annex n° 2)

1.4.1 Classic market support measures

These measures were created at the beginning of CAP:

intervention price and basic price
import and export arrangements;
public storage
guidance premiums
compensatory price support for production, processing and commercialisation

1 - Intervention price and basic price

The intervention price is the basic price set by the Commission and determines the intervention period (fig. 5 in annex n°1), i.e. the activation of mechanisms such as public (or private) storage of conservable products (see point 3), and the amount of export refunds (see point 2).

For the cattle sector, the **intervention price** is the price (for R3 adult male cattle) that determines support for the beef/veal market. Following the 1992 reform, the intervention price was decreased by 15 % in three steps, down to 347.5 ECU/100 Kg carcass weight.

For sheep and goat meat, the Council fixes the **basic price** (the same for the entire Community) each year for fresh or chilled carcasses. This basic price is seasonally adjusted by the Council, upon the Commission's proposal, to take into account seasonal variation in this market.

For 1996, the basic price (carcass weight) was 504.07 ECU/100 Kg.

2 - Import and export arrangements

Production prices in the Community are generally higher than those in the world market, as the latter are usually artificially high. Therefore, a specific system was created to protect the internal production market from intense competition and to support the development of the European Union export capacity. This system (fig. 6 in annex n°1) involves:

- import levies that correspond to the difference in amount between world prices and a previously fixed threshold price. Since the implementation of the GATT Uruguay Round in 1995, these levies have been replaced by custom duties (General Budget income).
- export refunds for European producers to compensate for the difference between the world price and European market price. Sometimes the world price can be higher than the European one, so the export refund can become a tax that discourages export.

3 - public storage

The modernisation of agriculture is one of the reasons for increased production. To avoid a large drop in a particular product as a result of an excessive market offer, a system of

public buying and storage has been created for conservable products (e.g. frozen meat, butter, powdered milk, ...).

When prices drop under a fixed intervention price, this activates the public purchase system. The Commission buys the stock through National Storage Bodies. The Commission reimburses the loss caused by the difference between the purchasing price and the depreciated value.

During the sale of these stocks, the Member States recover the part not yet reimbursed by the Commission. If the sale price is good (i.e. higher than the depreciated value) the Commission's Budget will gain by the sale, otherwise, the Commission has to compensate for the loss. From the time National Storage Bodies purchase the stocks, the EAGGF supports the storage expenses and the financial expenses resulting from the mobilisation of capital by the Member States at the time of purchasing the products.

Private storage permits a more flexible kind of intervention. This may be conceded when the market price falls below a certain percent of the guideline price.

4 - Guidance premiums

To avoid excess of certain products, certain measures have been taken for directing production towards different kinds of market (for example, in the milk quota regime, there are types of support that encourage termination of dairy activity).

5 - Price compensation premiums

These premiums support producers or operators that process and commercialise the majority of the agricultural products in the WTO, except pork, eggs and poultry which are subject to other mechanisms.

This support compensates for the drop in prices of certain base products, as a result of CAP. This support can be compared to the compensatory premiums for producers (see § 1.4.2.) but consist in a smaller amount.

1.4.2 Supports introduced by the CAP reform: direct support for production and accompanying measures.

This type of production support measures was introduced with the 1992 CAP reform and came into effect in the 1993/1994 campaign. As we saw in paragraph 1.2.3., this reform aimed at avoiding over-production and lowering costs by decreasing guaranteed prices. To compensate for the drop in prices of wheat and cattle meat in the European market, direct measures of support for production (premiums) were introduced, as well as accompanying measures for environmental conservation.

As we shall see later on (box 3), this kind of approach is opposite to that used for milk production. In fact the quota regime quantitatively limits the production of milk, maintaining its high market price.

Direct support measures were present in different sectors prior to the 1992 CAP reform (wheat, mutton -see box 1, Tab.1).

1 - Cattle premium (see box 2, Tab. 1)

These are premiums given to suckler cow breeders and male cattle where the stocking rate is below a fixed limit. Each type of premium is given for a quota of nearly 10 million animals per category (this fixed quota has not been reached yet).

2 - Accompanying measures

These measures are an essential component of the reform because they support afforestation of agricultural lands, agricultural activities that are environmentally friendly and early retirement (which frees land). These measures offer farmers different kinds of income from extensive production and conversion of agricultural land to forest area.

Agro-environmental measures (see box 4)

These kinds of measures have two objectives: limitation of production by encouraging extensive agriculture and recognition of the farmer's role in managing and protecting the environment and its natural resources.

Aid is given for farmers that decide to:

- reduce the use of fertilisers and pesticides ;
- extensive plant and animal production;
- act to promote conservation of the environment and natural resources;
- manage abandoned lands;
- manage land which is open to the public and is used for leisure activities.

Agricultural land afforestation

Measures were created to promote different uses for agricultural land and encourage the exploitation of wood. There are measures to support afforestation (as long as this activity is maintained for at least five years) and compensation of lost income following the cessation of agricultural activities.

Early-retirement measures

These measures encourage early retirement for farmers. Farmers are offered an indemnity which varies from country to country.

The freed land could give neighbouring farms a chance to expand and survive, or could be exploited for other uses which are compatible with the environment.

These accompanying measures are 50% co-financed by the EAGGF Guarantee section. For regions that come under objective 1, a further 25% is co-financed by EAGGF-Guidance section (see § 1.5). The remainder is financed by the Member State.

BOX 1 - SHEEP AND GOAT SECTOR PREMIUM*Ewe and goat premium*

The loss of income (i.e. the difference between the basic price and the arithmetical mean of the market prices recorded during the marketing year) is calculated at the end of the marketing year. The amount of the premium payable per ewe is obtained by multiplying the loss of income by the average annual production of lambs per ewe.

The Member States are authorised to grant all their producers two (six-month advance) payments that are 30 % of the foreseeable amount of the premium. The amount of the final premium is fixed at the end of the marketing year and the balance is paid accordingly.

In some clearly defined regions of the Community, the premium has been extended to two categories of animal, namely she-goats. In these cases, the total amount of the premium per animal is 80 % of the ewe premium.

A distinction is made between ewes producing heavy lambs and those producing light lambs. The calculation of the loss of income and the productivity coefficient are limited to the production of heavy lambs. The resulting amount is granted for ewes that give birth to heavy lambs, whilst for ewes that produce light lambs the amount is reduced by 20 %. In 1995 the premium was 17.79 ECU/ewe plus 5.5 ECU/ewe rural premium. In 1996 the premium was 16.869 ECU/ewe. This premium was paid for a maximum of 1,000 animals/producer in less favoured zones and 500 animals/producer in other zones. For producers that have a higher number of animals than the limit number, the premium is reduced by 50 %.

In view of the increase in expenditure in this sector, the Council decided in June 1992 on an individual limit; each producer is to receive ewe/goat premiums within the quantity limits for the 1991 marketing year (after deduction of 1 - 3 % for a national reserve). If the number of ewes in a Member State increased between 1989 and 1991, this increase was added to the producer's individual limit.

Table 4 shows premiums for ewe and goats and tables 5-6 show ewe and goat production.

Stabiliser

Since 1988, premiums per animal that exceeded the maximum guaranteed quantity for a marketing year, were reduced by acting on the base price (reduction by a coefficient equal to 1% basic price for every 1% maximum guaranteed quantity exceeded) Since 1992 the coefficient has been 7 %.

Variable slaughter premium

Up to the end of the 1991 marketing year, the United Kingdom could grant a sheep slaughter premium in the region of Great Britain. As a result of this new variable slaughter premium, the ewe premium granted in Great Britain was reduced .

BOX 2 - BEEF SECTOR PREMIUMS

In November 1996, due to the beef sector market imbalance following the BSE (Bovine Spongiform Encephalopathy or “mad cow disease”) crisis, Member States had to choose between adopting the calf processing scheme, an early marketing scheme for veal calves, or both.

A premium of 120 ECU per male dairy calves (now up to 20 days old) in the processing scheme was maintained and a premium of 150 ECU for beef calves was introduced. Four Member States (UK, Ireland, France, Portugal) are applying the calf processing scheme. The other Member States have opted for the early marketing scheme, which awards a basic premium of 50 ECU per veal calf slaughtered at a weight 15% lower than the 1995 national average. France and Portugal are applying both schemes.

The schemes are intended to reduce the availability of calves for beef production (thereby lowering beef supplies) and in principle it has been agreed that they should last two years (in 1997 and 1998 there will be an annual reduction of about 1 million in the number of beef calves for fattening).

Headage premiums (Premiums per animal)

Following the 1992 reform, the main premiums for beef producers (the suckler cow premium and the special premium for male animals) were increased in three steps to compensate for the decrease in intervention price. In addition, a deseasonalisation premium and a supplementary amount for extensive breeding were introduced.

For supply control and environmental reasons, the suckler and special premiums were subject to a maximum stocking density phased over three years (3.5 LU/ha in 1993, 3 LU/ha in 1994,...) (see fig. 7 in annex n°1 for LU rate conversion).

Suckler cow premium

In 1995 the suckler cow premium was fixed at 144.9 ECU a year per cow.

Following the sharp drop in prices after the outbreak of the BSE crisis in March 1996, the Council decided to grant an additional 850 million ECU for beef producers. There were two types of aid. One model was based partly on a top-up payment of the 1996 premiums and partly on a sum to be distributed by the Member States. The second model gave maximum flexibility to Member States. The suckler cow premium was increased by 27 ECU and the special premium by 23 ECU, whilst the remainder was to be distributed by the Member States with a national envelope fixed for each Member State. Furthermore, Member States could add for their country, a similar amount when the Community aid did not fully cover the problems of certain producers. Finally, in December 1996, the Council decided on an additional 500 million ECU for the beef and veal sector.

Member States have the option of paying up to 30.2 ECU to supplement the Community premium.

For Greece, Portugal, Ireland, Northern Ireland, and other countries that come under Objective 1 (see § 1.5), the EU funds the first 24.2 ECU of the national supplement. Four

Member State (Denmark, Germany, Netherlands and UK - excluding Northern Ireland) do not grant the national supplement.

To qualify for the premium, producers must keep the animal for at least 6 months, beginning on the day after application.

Producers with mixed (dairy/beef) herds can only claim the premium for their suckler cows if their milk quota does not exceed 120.000 Kg.

To be eligible, the cow must be a pure beef or beef cross dairy cow. Purebreed dairy cows used for breeding with pure beef bulls are excluded.

There are individual quotas that limit the amount of premiums producers can claim (all Member States, except Greece, chose 1992 as reference year for determining premium rights).

Transfer and temporary leasing of premium rights (with or without land) between producers is possible in most Member States under certain conditions. In France alone, any change in premium rights has to be made through a national reserve.

Special premiums

The premium was originally granted twice during the life of each male cattle (i.e. bulls and steers): the first payment at the age of 10 months and the second at 22 months. To counteract the tendency to hold on to animals (in particular bulls) longer than required for obtaining the commercially desired slaughter weight, the Council decided to abolish payment of the second age bracket for bulls from 1997 onwards.

The producer must keep the animal for fattening over a two month period (starting from the day after application). Applications for the first payment can be made for bulls and steers between 8 and 20 months of age, and applications for the second payment can only be made for steers at least 21 months old. Member States decide whether to grant the premium whilst the animal is still at the farm or when it is slaughtered.

In 1995 and 1996, the special premium amounted to 108.7 ECU. For 1997, the first and only payment for bulls was increased by 24 % to 135 ECU, as compensation for the loss of the second payment.

Claims can be made for a maximum of 90 animals per age brackets on each holding. In addition, the total number of premium applications for the first age bracket is subject to a regional limit. If the ceiling is exceeded in any year, all claims are scaled back proportionately.

The 1992 reform set out that for suckler cows, Member States had the possibility to choose 1992 as the reference year for establishing the regional ceilings. In November 1996, the Council decided on a temporary reduction of the ceiling to 9 million head (EU-15) for 1997 and 1998.

Deseasonalisation premium

This premium was introduced to encourage a more balanced distribution of animal slaughtering throughout the year. In some Member States (mainly Ireland and Northern Ireland), as a result of predominant grass-based production systems, animal slaughter tends to be concentrated in the autumn.

In 1996, an additional premium was allocated if the number of steers slaughtered in a Member State between 1 September and 30 November exceeded 40% of the steer

slaughtered in the previous year. This additional premium of 72.5 ECU was allocated for animals which, having already qualified for the special premium, were slaughtered between 1 January and 30 April (mid-June in Ireland).

In 1996, the Council decided to lower the threshold to 35% of annual steer slaughters and link Ireland to Northern Ireland (granting the premium even if one country does not reach the threshold). The Council gave the Member States the option to continue paying the deseasonalisation premium even if the threshold is not reached (in this case the premium is financed by a reduction in the second steer premium). Under these new rules, Ireland, Northern Ireland, Germany and Sweden will qualify in 1997.

Extensive stocking rate

As from 1996, premiums claimed for suckler cows and male cattle cannot exceed 2 livestock units (LU) per forage hectare. Producers with up to 15 LU are exempt from these stocking density criteria. When calculating the density, the number of suckler cows, male cattle and ewes for which a premium has been requested is considered, as well as the number of dairy cows that correspond to the producer's milk quota.

Member States can apply appropriate environmental measures according to the conditions of the land used for breeding male cattle or suckler cows that qualify for the premiums. So far, only the UK has decided to apply environmentally friendly measures, e.g. prevention of overgrazing according to the carrying capacity of the land and the number of livestock that receive a premium.

For producers with a stocking density under 1.4 LU/ha, the suckler and male cattle premiums were increased by 36.2 ECU. Following the BSE crisis, the Council decided to provide (from 1997 onwards) an extra incentive for extensive producers by increasing the additional amount by 52 ECU for producers with a stocking density below 1 LU/ha.

* * *

Once the administrative controls have taken place, Member States can make an advanced payment equal to 60% of the suckler and male cattle premium (the advance payment for the male cattle premium was increased by 80% in 1995 and the advance payment for both premiums was also increased by 80% 1996).

Promotion

In 1993 a promotion fund of 10 million ECU was set up, primarily for supporting initiatives such as quality assurance schemes that improve the image of beef. In 1997, following the BSE crisis, the European Parliament decided to increase the amount available for promotion by 20 million ECU.

Tables 7-11 in annex 2 shows EU expenses for beef sector and tables 12-15 show EU production on bovine sector.

BOX 3 - THE MILK QUOTAS

In contrast with policies for the rest of the cattle sector, milk production is based on a quota regime (tables 16-17 in annex 2). Every Member State is given a certain level of milk production and dairy product quotas.

In the 1992 reform, these quotas were lowered by 2% (93/94 and 94/95 campaign) and subsequently by another 3%. To compensate for the reduction in quotas, the following measures were taken:

- 1) Producers whose quotas were reduced are to receive an annual compensation of 5 ECU/100 kg milk for ten years. This amount may eventually be integrated in a national contribution.
- 2) The compensation scheme grants bonds to producers and the Community pays annually for the whole of their duration (10 years). The producer can freely decide whether to keep the bonds and receive the annual payments or sell them to the private market.

Program of voluntary selling of quotas

The milk quotas can be sold and redistributed on a voluntary basis. Producers may sell specific quotas to national authorities and receive bonds in change (guaranteed by the Community and the Member State). In this way it is possible to continually increase the quota reserves of each Member State. These will be redistributed amongst the producers belonging to priority categories or cleared according to the market situation.

The Commission co-finances this program for a ten year period, with a 50% contribution and maximum annual premium of 2.5 ECU/100 kg of milk.

Prices and Premiums

a. With the reform, the institutional prices for dairy milk products were reduced by 10%. This permitted, amongst other things, a decrease in production costs following a decrease in cereal prices and concentrated animal food.

b. Since the lower costs of production might have favored intense milk production, the reform also introduced an annual premium of 75 ECU per dairy cow to avoid penalizing the more extensive producers. The premium was therefore assigned to the first 40 cows of each herd on condition that the following stocking rates were respected:

- Less Favorable Areas (LFA): 1.4 LU per hectare forage.
- other zones: 2 LU per hectare forage.

In the extensive-type production criteria, it is important to consider the total number of dairy cows, suckler cows, bulls and sheep.

c. For producers that annually deliver less than 24 000 litres, the premium is not given according to stocking rate conditions.

d. The joint responsibility milk levy has been abolished by the reform (in non-LFA zones this annually amounted to 1.5 % of the indicative price for quantities over 60.000 litres and 1 % of the indicative price for quantities up to 60.000 litres).

e. A Community program was established for the promotion of dairy products, jointly financed by producers, commercial dealers and the Community.

BOX 4 - AGRO-ENVIRONMENTAL MEASURES: Regulation 2078/92

Regarding regards livestock, this regulation provides:

- 250 ECU per hectare of pasture land a year;
- 210 ECU per livestock unit withdrawn (cattle or sheep);
- 100 ECU a year for breeding a LU of endangered animals

The maximum amount per pasture land is increased to 350 ECU/ha if in this area the farmer undertakes one or more of the following actions:

- a) reduction/maintenance at low levels of fertilisers/pesticides use or introduction/maintenance of biological methods of agriculture.
- b) use extensive plant production with different methods from the ones mentioned above, or maintenance of existing extensive production or re-conversion of sown ground into extensive pasture land.

In the same time the farmer has to:

- c) use environmentally-friendly production methods or breeding of local endangered species.

When a premium for reduction in number of livestock units is granted, support for a) and b) cannot be granted for the farm's forage areas; furthermore, for these areas the maximum premium granted to a farmer that carries out point c) is reduced by 50%.

The Member States distribute this aid over the whole national territory according to specific needs, through district/national programmes lasting several years (minimum 5 years).

Tab. 1 - Table of beef and ewe premiums (for more details see boxes 1 and 2)

Beef							Sheep & Goats
	Calf processing scheme	Early marketing scheme	Special Premium Scheme	Suckler Cow Premium	Extensification Premium	LFA Compensatory Payments	Annual Ewe Premium
Eligibility	- male dairy and beef calves (up to 20 days old)	- veal calves slaughtered at a weight 15% lower than the 1995 national average.	- male animals (bulls and steers) - claims subject to stocking density limits (2 LU/ha)	- pure beef or beef-cross cows - dairy herds: if only milk quota < 120 000 Kg - Claims subject to stocking density limits (2 LU/ha)	- male bovine animals and suckler cows - stocking density less than 1,4 LU/Kg	- hill livestock in designed less favoured areas	- Ewes producing heavy lambs
Value	- 120 ecu/calf for male dairy calves - 150 ecu/calf for beef calves	- basic premium of 50 ecu/veal calf slaughtered	- 108,7 ecu/steer - 135 ecu/bull - payment twice in steer's life (8-20 and 21 months) - payment once in bull's life (8-20 months)	- 144,9 ecu/head (1995) - plus 27 ecu/head (1996)	- 36,2 ecu/head	- member states determine payment levels - minimum 20,3 ecu/LU - maximum 150 ecu/LU	- 17 ecu/head (calculated each year at the end of the marketing year) - ewes producing light lambs and she-goats 80% of full ewe premium
Limits	-	-	- max. headage 90 animals per age brackets on each holding - Regional Reference Herd Limit for the first age bracket	- individual reference quotas - possible transfer and temporary leasing of premiums rights (with or without land)		- limited to first 1,4 LU/ha	- individual headage quotas
Additional payments	-	-	- Deseasonalisation premium (72,5 ecu/steer)	- member states option of paying an additional 30,2 ecu/head from national funds	- from 1997 an extra premium of 15,8 ecu/head exist for a stocking density below 1 LU/ha		- producers in LFAs eligible for supplementary payment of 5,5 ecu/head - LFA compensatory Payment (as for beef)

1.5 EAGGF, the Guidance section

As described in § 1.2., the Guidance section is one of the financial instruments of EAGGF. It comes into the so-called “structural policies” which in agriculture include all those measures which over the medium (1-5 years) and long-term periods (5-20 years) aim to change the conditions of production, processing and commercialisation of agricultural products.

The ‘Guidance’ Section also intervenes in ‘rural development’ which involves other economic activities besides rural agricultural activities.

At first this Fund was set aside for public and private projects which were presented as candidate projects by the final beneficiary through National Authorities to the Commission.

Since it was first set up, the ‘Guidance’ section has contributed in jointly financed projects. Community participation consists in a non-reimbursable contribution that varies between 25% and 45% of the final total cost of the investment (the remainder is provided by the State and the final beneficiary).

Despite the fact that in the 1960s positive economic and social results were obtained, the fragmentary approach led to aid being dispersed into numerous single amounts. Furthermore, the funds were generally asked for by regions that were less in need of help than others.

After a series of revisions of the Structural Funds over the last few years, we can now summarise the main principles:

Co-ordination: as highlighted in § 1.2., there are different types of structural Funds; these financial instruments are now governed by common rules and above all are non-cumulative.

Concentration on priority objectives: the Community structural action is concentrated in regions and zones that have greater handicaps and for intervention themes that are considered a priority. Six objectives have been identified:

Objective 1 (ERDF, ESF, EAGGF-Guidance and FIFG)

Promote development and structural changes in Less Favoured Areas (LFA).

Objective 2 (ERDF and ESF)

Reconvert regions, frontier zones or part of regions (including employment basins and urban communities) that are severely affected by industrial decline.

Objective 3 (ESF)

Fight long-term unemployment and facilitate entry into the work market for young professionals and people who risk being excluded from the work market.

Objective 4 (ESF)

Facilitate adjustment of labour to industrial changes and development of the production system.

Objective 5a (EAGGF-Guidance e FIFG)

Promote rural development and accelerate adjustment of agricultural structures within the framework of the common agricultural policy reform.

Objective 5b (EAGGF-Guidance, ESF e ERDF)

Promote rural development by facilitating development and structural adjustment of rural zones.

Objective 6 (EAGGF-Guidance, ESF, ERDF, FIFG)

Promote development and structural changes in regions with a very low population density (Finland and Sweden).

In figure 8 annex n° 3 is a list of the regions that come under the different objectives.

Complementarity and partnership: the principle of complementarity means that community action complements and contributes to national activities. It adds to that which the State would have done even without community aid.

Partnership underlines the close orchestration that must be present between the Commission, the Member State and National, Regional and Local Authorities.

Principle of supplementation: this principle implies that for each objective, public structural expenses must not be substituted with Community ones. The Member State must maintain, for each objective and for the whole of the territory concerned, public structural expenses at least at the same level as in the previous programming period ('89-'93)

Programming: whilst before the reform, structural changes in the agricultural sector were generally based on individual projects, in 1989 there was a switch to adopting projects that lasted several years (programming covers a 5 year period in the first phase ('89-'93) and six years in the second ('94-'99)).

Some examples of the actions EAGGF-Guidance co-finances in the agricultural sector are:

- measures that support agricultural income and maintain a strong agricultural community in mountainous regions and LFAs;
- concrete measures that help entry into the work market for young farmers;
- measures aimed at improving the efficacy of production (decrease in costs of production, better quality, ...); promote diversification of agricultural supplies (not food), improve sanitary conditions, breeding conditions, animal well-being and conserve and improve the environment;
- improvement of pasture land for individual or collective use;

- environmental protection and conservation in rural areas, besides reconstitution of the countryside (when this is not included in the accompanying measures of CAP).

It is practically impossible with the current information in our possession to quantify the costs of this and other structural funds in the livestock production sector.

1.6 AGENDA 2000 - Reform proposals

As mentioned in the introduction, the document of 15 July 1997, known as Agenda 2000 or Agenda Santer (Commission Européenne DOC/97/6), sets out the different needs for re-organisation and modernisation of the Community structures, in view also of the imminent expansion towards Central and Eastern European countries.

1.6.1 The new CAP reform

One of the priority issues is the CAP (Common Agricultural Policy) reform. This reform is necessary for several reasons:

- risk of new market imbalances (surplus of beef and non exportable products)
- the approaching of a new cycle of commercial negotiations (GATT/WTO - see box in the next page). This calls for the Commission to respect certain agreements reached at the Uruguay Round (1995) on a greater opening of the European market towards the world market (reduction in agricultural aid both in the form of market support and direct aid to farmers)
- increasing willingness to have an agriculture and industry that respects the environment and provides quality products.
- planned enlargement of the European Union to include Central and Eastern European countries

At the same time the need of a stronger rural development policy is becoming increasingly important.

Therefore, the new objectives of CAP are :

- to improve competitiveness of agricultural products both in the internal and external market; price cuts will favour the consumer and will allow greater differentiation in prices of quality products;
- to guarantee the safety and quality of food products; these products are often linked to geographical zones or particular methods of production. The compatibility of these methods of production with ecological needs and animal well-being is very important;
- to guarantee an adequate standard of living for farmers and to contribute to agricultural income stability;
- to integrate environmental objectives and develop for farmers the role of managers of natural resources and countryside;
- to create jobs and complementary sources of income for farmers by making use of the opportunities which the rural world offers today;
- ensure that policies related to agriculture and rural areas contribute to economic cohesion within the European Union.

GATT (General Agreement on Tariffs and Trade) which has been recently renamed **WTO** (World Trade Organisation) is a collection of commercial regulations promoting liberalisation of commercial exchanges between signatory countries. During the periodic negotiations, each called a "Round", different matters concerning products or services which are part of the international commerce are discussed.

The last cycle of negotiations which ended with the Uruguay Round, led to an agreement on agricultural exchanges which was applied from 1 July 1995.

For the European Union, the main consequences of this agreement have been:

- facilitated entry of agricultural products into the European market, through the transformation of variable taxation into fixed import taxes (to be progressively reduced). Starting from the year 2000, the level of guarantee for market access will be 5 % of internal consumption (import quota with reduced rights).
- the introduction of a threshold (quantitative and budget level) for subsidised export of agricultural products (export refunds).
- limiting of global support for the agricultural produce market.

A new cycle of multilateral commercial negotiations will start in 1999. The ending of border protection, the reduction in export subsidies and other types of support will allow the EU to adopt a stronger position. Furthermore, the application of environmental and social laws at an international level and greater care for consumer anxieties (quality of product) is becoming increasingly important.

In practice, this new reform aims to extend the 1992 reform and further substitute price support measures with direct aid, developing at the same time a stronger rural policy.

It is thought that the **beef sector** will be influenced by various factors, such as: the 1996 effects on beef consumption, short-term measures taken in 1996 for the transformation of calf meat and the early commercialisation of calves for slaughter, the banning in the UK of consumption of adult cows over 30 months old and the cyclic decrease in production until the year 2000.

Over the next years, the above mentioned factors will lead to a decrease in stocks. However, without a change in agricultural policy, after the year 2001 production will return to previous levels whilst consumption will continue to decrease. Considering the limited possibilities of export, this would lead to a restoration of intervention stocks.

The introduction of production limiting measures, such as quotas would cause significant administrative complications. The Commission therefore proposes to decrease by 2002 the intervention price to 1950 ECU/ton compared to the present 2780 ECU/ton. To

compensate for farmers' losses, an increase in direct premiums per livestock animal has been proposed, as follows:

- suckler cow	(annual payment)	215 ECU (at present: 145 ECU)
- male cattle	bull (single payment)	368 ECU (" : 135 ECU)
	oxen (two payments)	232 ECU (" : 109 ECU)
- milk cow	(annual payment)	70 ECU (no premium)

Mechanisms such as density factors and individual and regional limits will be adapted to account for the end of the aid regime for stored maize. Furthermore, extensive production will be encouraged for satisfying environmental objectives.

The present quota system will be kept for the **milk** sector. Between 1996 and 2005, the expected net excess will be between 9 and 9.5 million tons of milk equivalent, with a tendency to increase towards the end of the period. All dairy products are subject to the GATT/WTO agreements which limit export subsidies for cheese, powdered skimmed milk and butter.

However, the Commission refuses to adopt measures, such as the reduction in price and the abolition of the quota regime. It therefore proposes to:

- prolong the quota regime to 2006;
- make the present system more flexible and simple;
- progressively reduce by 10% the support price over the entire period;
- introduce a new annual aid of 145 ECU¹ for milk cows.

The Commission proposes to fix a limit for all direct help given within the framework of Community market organisations. Furthermore, the Member States will be authorised to apply differentiated criteria in accordance with common regulations.

Rural policy will aim to alleviate the great economic and developmental problems of certain regions. Furthermore it will help the development in rural regions of ecological and recreational activities which will offer new opportunities for farmers and their families. Therefore:

- present accompanying measures (EAGGF - financed by the Guarantee section) will be complemented by the plan for less favoured areas (LFA - regions of objective 1, EAGGF - Guidance section). All these measures will be applied horizontally and in a decentralised manner;
- in rural zones eligible under objective 2 (ex-objective 5a and 5b - see Structural Fund reform) the measures (accompanying measures) will be financed by EAGGF - Guarantee section .

In all rural regions that do not come under either objective 1 or the new objective 2, the rural development measures that are to accompany the market policies, will be co-financed by EAGGF - Guarantee section. These measures will include all the support measures for

¹ ~~This help would be in addition to the new 70 ECU premium for milk cows in the beef sector; the total of the premium (215 ECU) therefore corresponds to the sum of the premium for suckler cows.~~

Deleted: ale aiuto verrebbe a sommarsi al nuovo premio di

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structural work and rural development presently co-financed by EAGGF - Guidance section. These measures will be applied horizontally and in a decentralised manner according to a scale decided by the Member States.

Greater importance will be given to the **agro-environmental policy**. To better integrate environmental issues in common market organisations, the Commission will present a proposal that will authorise Member States to allocate direct payments according to the attention given to environmental regulations.

Unfavoured zones often coincide with zones of high naturalistic value. Therefore a study will be carried out on the possibility of progressively transforming the support regime for these regions into an instrument for the maintenance and encouragement of traditional methods of crop culture which often play an important role in nature conservation.

Tailored agro-environmental measures will be reinforced and encouraged (greater co-financing rates). These are measures that need an extra effort from the farmer : agricultural biology, conservation of semi-natural habitats, conservation of alpine breeding, ...

The **new financial model** will cover the period 2000-2006. The reformed CAP expenses for the fifteen Member States will cover:

- *Measures of intervention on the market and export refunds*: since Community prices will approach the world market ones, this expense will be decreased by about 3.7 billion ECU (1.2 billion ECU in the beef sector and 0.9 billion ECU in the milk sector).
- *compensatory direct help*: this expense will increase by approx. 7.7 billion ECU (4.1 billion for the cattle sector and 3.0 billion for the milk sector).
- *The existing accompanying measures* (agro-environment measures, reforestation and early retirement): the amount available for these measures will be approx. 2.8 billion a year, plus approx. 2.0 billion a year for new accompanying measures for rural development in addition to measures in the fish sector under the EAGGF "Guarantee" sector (a new financial rule will be proposed).

1.6.2 Structural and Cohesion policy reform

Economic and social cohesion was inserted in the Single European Act and permitted the reform of the structural funds in 1988. The European Union Treaty made this one of the pillars of European construction along with the economic and monetary Union and the single market.

The structural and cohesion funds will have to be used for decreasing inter-regional differences; especially the possibilities of a durable development and adaptation to new working conditions.

During the period 2000 - 2006, 275 billion ECU (210 billion in structural funds, 20 billion in cohesion funds, 45 billion from new Member States) will be allocated for this, compared to the 200 billion available for the period 1993-1999. Another 45 billion will be reserved for the new countries that will join the Union (7 billion as pre-membership aid).

The **Structural Funds** will be made more flexible and their management will be simplified and decentralised. At the same time, control and evaluation systems will be developed.

The number of objectives will be decreased from seven to three. Two will be applied regionally and one horizontally .

Objective 1: this objective regards the promotion of structural development and improvement in the less favoured regions; these are regions with an unemployment rate 60% higher than the average community rate. It therefore represents one of the main objectives of the structural policies and must continue to be considered a priority over the next few years. Finances for these regions are expected to represent about two thirds of the total structural funds for the fifteen Member States.

Objective 2: aims at the economic and structural reorganisation of other regions subject to structural difficulties. These areas are: economically (industry and services) changing areas, declining rural zones, crisis zones that depend on fishing and difficult urban areas. In these zones unemployment is 30% higher than the average Community level. A limited number of zones will be identified and for these zones an integrated strategy for economic diversification will be encouraged. Simple and clear eligibility criteria will be identified. To simplify procedures, the different structural funds (ESF, ERDF, FIFG, EAGGF) will take part in one programme per region.

Objective 3: development of human resources will have to be considered an important element both for regions that come under objective 1 and 2 and the whole European Union. Objective 3 will cover the regions that do not fall under objective 1 and 2. It will help Member States to adapt and modernise their education, professional training and work systems.

In addition to these main objectives, 5% of the structural Funds allocated for Community initiatives are mainly concentrated in three fields:

- * transboundary, transitional and inter-regional co-operation that encourages balanced and harmonious land management.
- * rural development ;
- * human resources within an equal opportunities context.

The present 1% of Funds for **innovative actions and pilot projects** will be maintained; however, it will be necessary to concentrate on more significant projects to avoid multiplication of mini-projects which are difficult to manage and control.

The **Cohesion Fund** was created at the time of the Maastricht Treaty for helping in the realisation of environmental projects and trans-European networks (transport infrastructures) (article 130 D of the Treaty).

The use of this fund is bound by three conditions. Firstly, it is destined for Member States with a GDP per inhabitant less than 90% of the average level in the Community. Secondly, it is limited to environmental and transport projects. Thirdly, it is conditioned by the presence of a national programme for satisfying the conditions of economic convergence (see article 104 C of the Treaty). This Cohesion Fund will be kept in its present state and it will be approximately 3 billion ECU per year.

In summary, there will be an attempt to simplify the way the fund works and increase its efficacy. This will be partly accomplished through:

- reduction in the number of objectives and community initiatives.
- a single multiannual programme for objectives 1 and 2.
- objective 3 will be a national programme or a collection of regional programmes.

Responsibilities will be divided between national, regional and local authorities and the Commission, according to the following scheme:

- development and intervention priorities will be identified by all parties
- the development of the project will be decentralized (State or Region) and there will be systematic reporting to the Commission on the use of the funds.
- the Commission will ensure that within each Member State there is a system of management, evaluation and control.

2.1 Introduction

Since June 1993 there has been a widening of the market and development of closer relations between the Union and most of the Central and Eastern European Countries (CEECs). Notably, the European Council meeting in Copenhagen first established that those countries which had signed the 'Europe Agreement' with the EU could be eligible for membership.

The Europe Agreements set down bilateral associations based on political discussion, progressive economic integration and financial assistance within the European Union. The bilateral associations are of unlimited duration and a transition period of max 10 years is provided for the associated countries to remove economic and commercial barriers.

From the Copenhagen Summit, 22-23 June 1993:

'...Accession will take place as soon as an associated country has achieved stability of institutions guaranteeing democracy, the rule of law, human rights and respect for the protection of minorities, the existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union. Membership presupposes the candidate's ability to take on the obligations of membership including adherence to the aims of political, economic and monetary union'.

Currently, there are nine such agreements (see the annex n° 4 for dates). Six are in force and involve **Bulgaria**, the **Czech Republic**, **Hungary**, **Poland**, **Romania** and **Slovakia**, whilst those involving **Estonia**, **Latvia**, **Lithuania**, are awaiting ratification (a tenth agreement has been initiated with **Slovenia**). As for **Albania**, a Trade and Economic Co-operation Agreement has been in force since '92, but the country has yet to meet the economic conditions required by the EU so therefore there is no Europe Agreement.

A pre-accession strategy was set out by the European Council at Essen at the end of 1994. The aim is to create mutual confidence through regular, well prepared political contacts with the associated countries concerning their integration in the EU's single market. In this context, great importance is given to the integration of the associated countries in the Common Agricultural Policy (CAP). One of the pre-accession strategy actions concerns the Commission's examination of the impact of CAP on the associated countries and of 'alternative' approaches for integrating their agriculture with that of the Union.

Today, the only EU tool used to improve the pre-accession conditions in CEECs is the PHARE program. Its three basic priorities are: policy convergence between the CEECs and the EU, productivity and income growth, and development of external trade. However, the PHARE program mainly provides technical assistance.

From 1990 to 1994 nearly 438 million ECU were provided for agricultural projects, restructuring, land reform and assistance for the improvement of land registration but not for food aid. Poland received the largest amount (nearly 39%), followed by Romania,

Hungary, and Bulgaria. Smaller amounts were assigned to the Baltic States, the Slovak Republic, the Czech Republic and Slovenia.

Beginning in the year 2,000 an aid of 500 million ECU per year will be granted for agricultural development and 1 billion ECU as structural aid.

Data on the agricultural situation in CEECs come from a series of ten reports prepared by The European Commission on the agricultural situation and prospects in the CEECs, on the contrary the source for Albania is FAO and FAOSTAT. Specific data about livestock subsidy systems come from direct contacts with Ministries of Agriculture and other official institutions.

2.2 General economy of CEECs

Most CEECs, with the exception of Hungary, Bulgaria and Estonia have gone through great changes in their agricultural food trade since independence. In fact, the former trade partner for these countries was Russia whilst today the most important trade partner for import and export is the EU.

After a significant decline in output during the first years of transition, the economy of most CEECs has shown signs of recovery. Fuelled by an increase in private sector activities which in most countries now represent over half of all economic activity, growth prospects in 1995 for most CEECs were encouraging. The data available up to 1995 indicates that Hungary as well as the Balkan countries were lagging behind due to difficulties in stabilising their economies.

Tab. 2.1 - CEEC GDP growth

	1990	1991	1992	1993	1994	1995
Poland	-11.6	-7.0	2.6	3.8	5.0	5.0
Hungary	-3.3	-11.9	-4.3	-2.3	2.0	0.3
Czech Rep.	-1.2	-14.2	-6.4	-0.9	2.6	4.2
Slovak Rep.	-2.5	-14.4	-5.8	-4.1	4.8	4.5
Slovenia	-4.7	-8.1	-5.4	1.3	5.0	5.0
CEFT	-6.2	-9.7	-1.5	1.0	3.9	3.9
Romania	-5.6	-12.9	-10.1	1.2	2.4	2.6
Bulgaria	-9.1	-11.7	-5.8	-4.2	0.2	1.0
Balkan	-7.0	-12.6	-8.8	-0.4	1.9	2.2
Lithuania	-3.3	-13.1	-34.0	-27.1	2.0	5.0
Latvia	2.9	-10.4	-34.9	-14.9	-2.2	5.0
Estonia	-6.5	-8.1	-14.3	-8.2	4.0	5.0
Baltics	-1.0	-11.0	-30.9	-18.1	1.2	5.0
CEEC-10	-6.2	-10.1	-3.5	0.2	3.4	3.7
EU 15	2.9	-1.6	1.0	-0.5	2.8	3.2

2.3 CEECs' agriculture

Contribution to Gross Domestic Production (GDP) (tab. 2.1) per area is relatively more important in the CEECs than in the EU. Romania and Bulgaria are the two countries most

dependent on agriculture, followed by the Baltic States. The share of agriculture in GDP has generally been declining in the CEECs since 1989, with the exception of Romania where it increased at the start of the transition phase. The relative decline in agriculture was strictly related to the rest of economy, which experienced a price-cost squeeze (input prices rising much faster than output prices). During the first stage of transition this squeeze was caused by a general drop in both domestic and external demand which created a surplus. In more recent years there are indications that output-input price relationships are stabilising in a number of countries (e.g. Poland, Hungary, Romania).

The livestock sector was most affected by this situation. Income per capita consumption of livestock products was high in the pre-transition period due to heavy subsidisation. The livestock sector was particularly hit by the fall in demand as subsidies were removed. Livestock in many countries was concentrated in very large and inefficient units which were restructured during the transformation process. As a result, in the livestock sector, a significant number of herds was eliminated between 1989-94 and this seems to be continuing in most CEECs. Most affected by this have been cattle and sheep in the CEFT countries, cattle and poultry in the Balkan countries, and pigs and sheep in the Baltic country. The least affected of the livestock sector has been the pigs sector.

The total cattle number of 1.8 million animals in 1994 still represents 24% of the EU cattle herd. Total cow numbers (mostly dairy) are about half of the EU dairy cow numbers, whilst pigs represent 39% of the EU herd and sheep 19% of the EU flock (tab. 2.2).

In most CEECs, measures have been introduced to stabilise the agricultural sector. Depending on the country, support to agriculture ranges from CAP- like intervention and border protection measures to administrative controls similar to those used under central planning.

Tab. 2.2 Livestock numbers in CEECs.

	cattle		cows		pigs		poultry		sheep	
	1989	1994	1989	1994	1989	1994	1989	1994	1989	1994
Poland (000) 94/89	10,391	7,270	4,885	3,866	18,835	17,422	66,188	53,330	4,409	891
		<i>0.70</i>		<i>0.79</i>		<i>0.92</i>		<i>0.81</i>		<i>0.20</i>
Hungary (000) 94/89	1,690	999	568	420	8,327	5,001	61,604	33,612	2,215	1,252
		<i>0.59</i>		<i>0.74</i>		<i>0.60</i>		<i>0.55</i>		<i>0.57</i>
Czech R. (000) 94/89	3,481	2,161	1,248	830	4,685	4,071	32,479	24,974	399	196
		<i>0.62</i>		<i>0.67</i>		<i>0.87</i>		<i>0.77</i>		<i>0.49</i>
Slovak R. (000) 94/89	1,594	993	568	386	2,698	2,179	16,369	12,234	648	411
		<i>0.62</i>		<i>0.68</i>		<i>0.81</i>		<i>0.75</i>		<i>0.63</i>
Slovenia (000) 94/89	546	478	243	210	576	591	13,279	10,592	24	20
		<i>0.88</i>		<i>0.86</i>		<i>1.03</i>		<i>0.80</i>		<i>0.83</i>
CEFT (000) 94/89	17,702	11,901	7,512	5,712	35,121	29,264	189,919	134,742	7,695	2,770
		<i>0.67</i>		<i>0.76</i>		<i>0.83</i>		<i>0.71</i>		<i>0.36</i>
Romania (000) 94/89	6,416	3,597	1,704	1,500	14,351	92,626	138,661	76,532	16,210	11,499
		<i>0.56</i>		<i>0.88</i>		<i>0.65</i>		<i>0.55</i>		<i>0.71</i>
Bulgaria (000) 94/89	1,615	750	648	419	4,132	2,071	41,805	18,211	9,045	4,439
		<i>0.46</i>		<i>0.65</i>		<i>0.50</i>		<i>0.44</i>		<i>0.49</i>
Balkan (000) 94/89	8,031	4,347	2,352	1,919	18,483	11,333	180,466	94,743	25,255	15,938
		<i>0.54</i>		<i>0.82</i>		<i>0.61</i>		<i>0.52</i>		<i>0.63</i>
Lithuania (000) 94/89	2,435	1,384	850	678	2,705	1,196	17,486	8,728	105	40
		<i>0.57</i>		<i>0.80</i>		<i>0.44</i>		<i>0.50</i>		<i>0.38</i>
Latvia (000) 94/89	1,472	551	543	312	1,555	501	10,321	3,662	197	86
		<i>0.37</i>		<i>0.57</i>		<i>0.32</i>		<i>0.35</i>		<i>0.44</i>
Estonia (000) 94/89	819	463	300	227	1,099	424	6,923	3,226	100	50
		<i>0.57</i>		<i>0.76</i>		<i>0.39</i>		<i>0.47</i>		<i>0.50</i>
Baltics (000) 94/89	4,726	2,389	1,693	1,217	5,359	2,121	34,730	15,616	402	176
		<i>0.51</i>		<i>0.72</i>		<i>0.40</i>		<i>0.45</i>		<i>0.44</i>
CEEC-10 (000) 94/89	30,459	18,646	11,557	8,848	58,963	42,718	405,115	245,101	33,352	18,884
		<i>0.61</i>		<i>0.77</i>		<i>0.72</i>		<i>0.61</i>		<i>0.57</i>
% EU	35	24	32	26	58	39			33	19
EU-15 (000) 94/89	85,845	78,747	36,009	33,617	101,841	110			101	97,753
		<i>0.92</i>		<i>0.93</i>		<i>937</i>			439	<i>0.96</i>
						<i>1.09</i>				

2.4. Livestock subsidy systems in the CEECs

The section that follows is a review of the subsidies systems for the breeders currently in force in Central Eastern European countries. A specific paragraph has been dedicated to each country with a brief description of the role that agriculture has on the country's economy. Following is the country livestock subsidies system including eventual loans the banks give for agricultural promotion programs. All subsidies are given in local currency. Exchange values are in annex n° 5.

2.4.1 Romania

Agriculture has declined less than other sectors of the economy. Agriculture's role in the overall economy increased at the beginning of the transition phase.

After privatisation and the dissolution of the cooperative sector, organised animal production was split into two different systems:

- commercial companies, mainly in industrial complexes which still exist today
- individual private holdings where a small number of animals are bred with poor technical facilities. Most of them are subsistence level units which mainly produce for domestic consumption

Declining trend of herd size has slowed down but not stopped (tab. 2.3).

Tab. 2.3 Livestock numbers in Romania 1989-1995

(000 head)	1989	1990	1991	1992	1993	1994	1995
Cattle	6 416	6 291	5 381	4 355	3 683	3 597	3 565
Milk cows	1 704	1 954	1 898	1 782	1 550	1 500	-
Pigs	14 351	11 671	12 003	10 954	9 852	9 262	7 727
Sheep	16 210	15 435	14 062	13 879	12 079	11 499	12 119
Poultry	138 661	123 868	121 379	106 000	87 725	76 532	75 133
Horses	702	663	670	749	721	727	-

Livestock subsidies

It is not easy to reconstruct Romanian agricultural policy; in 1990 the new government concentrated on agricultural reform in an attempt to improve agricultural production, and up to 1995 (year of last available data) the situation was still rather confusing.

The price system has been radically transformed. Under Ceauseuscu's regime, the producers were forced to sell their products to the State. Instead, today they receive incentives for selling their goods to the State at low fixed prices but in compensation receive short term credits and inputs and bonuses on final prices.

In 1997, financial support for farmers was completely abolished. Today, the main kind of support are low interest loans (provided by the Bank of Agriculture).

2.4.2 Slovenia Republic

In the Slovenian economy, agriculture plays a minor role (4.9% of GDP) and this role is decreasing. In the livestock sector there has been a significant decline in animal numbers which is still on-going. The cattle sector (dairy and non dairy) in particular have decreased considerably in contrast to the pig herd which is increasing (tab 2.4).

Tab. 2.4 Livestock numbers in Slovenia 1989-1995

	1990	1992	1993	1994	1995	1996
Total Cattle	546,048	483,865	503,770	477,548	477,400	495,535
cows and heifers	257,682	236,693	245,904	237,884	236,889	241,737
Pigs	557,878	529,041	601,850	591,514	570,774	592,034
Sows	57,871	51,890	55,511	55,130	55,854	56,232
Horses	11,298	10,790	8,898	8,509	7,959	7,994
total						
mares and fillies	5,988	6,485	4,819	4,510	4,168	4,432
Sheep	23,408	28,481	20,799	19,521	18,491	9,927
total						
breeding ewes	14,051	12,738	12,770	11,682	12,461	16,373
Poultry (1,000 heads)	13,521	13,134	11,424	10,592	10,194	9,320

Source: Statistical Office of the Slovenia Republic.

In Slovenia, farms belong to the 'private sector' (family farms) or to the former 'socially owned' sector. Beef and veal production takes place primarily in family holdings where more than 90% of the herd are kept. The same situation is found in the milk sector where, according to a survey in 1991, only 3% of cattle produced milk and 8% of the production is covered by socially owned holdings. Milk production is traditionally a surplus sector.

Livestock subsidies

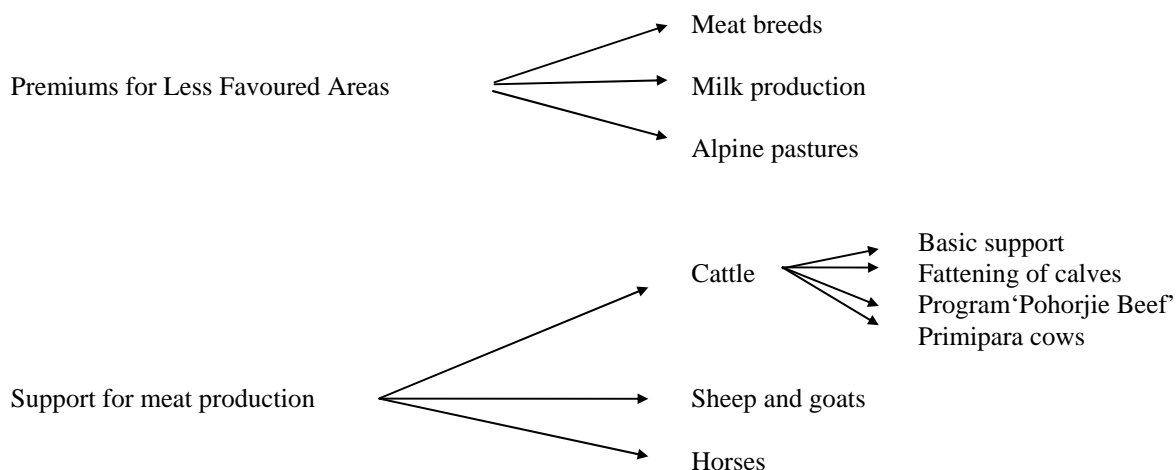
In Slovenia, the different kinds of support given to agriculture are:

- a central government price-fixing policy for wheat, milk and sugar
- a credit policy, input support and farm investment policy
- export aid and border protection

Great importance is given to Less Favoured Regions:

- 50% of Slovenia is covered by forests
- less than 43% of its territory is agricultural land of which 70% is in mountainous regions.

In 1997, direct subsidies for livestock in Slovenia were :



Premiums for Less Favoured Areas

Taking into account the different levels of difficulty in production, the kind of support varies according to regions.

Meat breeds

	Cattle SIT/Kg of live weight gain	Horses	Sheep, goats SIT/head/year
Hilly and highland regions	15	10,500	1,000
Mountainous, high altitude regions, Kras	20	15,000	1,400

Milk production

	Cattle SIT/head	No.	Sheep, goats SIT/head	No.
Hilly and highland regions	8,000	55,178	1,300	1,930
Mountainous, high altitude regions, Kras	12,000	43,933	1,800	2,606

Support for milk production can be increased by:

- 10% if livestock density is less than 1.5 LSU/ha; and/or
- 5% if animals are on pastures over 80 days/year (only if premiums for livestock on Alpine pastures are not applied).

Livestock on Alpine pastures

	SIT/head	No.
Milking cows , mares with foal	8,000	2,048
Young cattle , heifers	5,500	9,084
Horses , mares with foals	5,500	233
Sheep and goats (milk breeds)	1,500	2,125
Sheep and goats (meat breeds)	1,000	9,046

Support for meat production

Meat production is encouraged through a basic support system.

Cattle

	Cattle*	No.	Sheep-goats*	No.	Horses*	No.
Lowland	15,000	5,129	1,000	2,397	5,000	0
Hill and highland regions	18,000	9,202	1,500	4,672	6,000	611
Mountain, high altitude regions, Kras	20,000	13,883	2,000	18,151	8,000	759

*SIT/head/year

Special support

In 1996 additional special support was paid for cows (see table below).

	SIT/Head	No.
Fattening of calves	10,000	490
Fattening under 'Pohorjie Beef' program	20,000	13
Primipara cows for slaughter	20,000	371

2.4.3 Slovak Republic

In the first year of transition, agriculture declined significantly more than other sectors of the economy. The volume of agriculture output decreased by more than 30% during the transition period, with a relatively steeper decline in the livestock sector than in the crop sector. In 1994, the crop sector output started to rise again, whilst the livestock sector remained stagnant. This decline was partly due to an adjustment to a much lower demand, but also reflected lower profitability and problems in restructuring the industry.

Between 1989-94, cattle and sheep numbers fell by nearly 40%, dairy livestock by nearly 32% whilst pig and poultry sectors were less affected (tab. 2.5).

Tab. 2.5 Livestock numbers in Slovak Republic 1989-1994.

(000 head)	1989	1990	1991	1992	1993	1994	94/89
Cattle	1,594	1,622.5	1,563.1	1,396.6	1,201.7	993	62.3
cows	567.8	558.9	548.7	500.7	433.8	385.9	68.0
Pigs	2,698.3	2,708.5	2,520.5	2,428	2,281.2	2,179	80.8
sows	185	181.8	179.9	180.4	180.2	165.9	89.7
Sheep	16,369	16,395	16,478	13,866	13,372	1,223,4	74.7
ewes		8,426	8,134	8,144	7,568	7,308	
Poultry	648	621	600	531	467	411	63.4
hens				368	334	286	

Livestock Subsidies

There are several types of state support for agriculture e.g. market support and direct subsidies (data refer to 1995).

Market support

Market support involves intervention purchase, export subsidies and border protection for milk, milk products, beef and pork. A minimum guaranteed price is used for intervention purchase of slaughter cattle and pigs.

In 1995, a guaranteed price of 6.7 Sk/l milk was set for a national quota of 900 million litres. The base price can be supplemented by a bonus according to the quality of the milk (see below 'subsidies designed for improving the quality of cow, sheep and goat milk'). This quota is distributed by the Chamber of Agriculture and Food Industry to districts and individual producers. A producer can exceed his quota by 5%. Over 5 - 10% a producer loses his bonus and above 10% the price is freely negotiable.

Direct subsidies

Direct subsidies are provided for:

- breeding of sheep, goats and cows not used for market production of milk
- improvement of cow, sheep and goat milk
- preservation of the gene bank and improvement of livestock genotype.
- re-establishing livestock husbandry

Subsidies designed for promoting breeding of sheep, goats and cows not intended for market production of milk

This is a basic level of support for milk production. A further contribution encourages milk quality (see below).

	Subsidy per animal/ year	Minimum number of animals	Conditions
sheep (over 1 year) goats (over 6 months)	600 Sk	10 sheep and/or goats	for applicant-owner in the agricultural prime production
cows for meat	30,000 Sk		

Subsidies designed for improving the quality of cow, sheep and goat milk

When a producer does not exceed his milk quota by more than 10%, the following subsidies in the form of premiums for improving the quality of milk may be granted for sold, unprocessed cows milk according to quality class and season:

- in the winter period (the I and II quarter of a year) up to 1.50 Sk/litre in the class Q and I, and 1.00 Sk/litre in the class II.
- in the summer period (the II and III quarter of the year) up to 1.00 Sk/litre in the class Q and I, and 0.50 Sk/litre in the class II.

<i>Cows milk</i>	Winter period Sk/litre	Summer period Sk/litre
class Q and I	1.50	1.00
class II	1.00	0.5

Sheep and goat milk, and products obtained using adequate technical standards, may be granted subsidies of 5.0 Sk per litre milk or 23.0 Sk per one Kg of quality I class lumpy cheese .

	Sk/litre	or	Sk/Kg of cheese
<i>Sheep and goat milk</i>	5.0		23.0

Subsidies designed for preserving the gene bank and developing biotechnical livestock breeding methods

This kind of subsidy may be granted for:

- preserving endangered animal species that have been bred for a long time in the Slovak Republic
- purchasing breeding animals and livestock gene banks from abroad
- promoting domestic production and purchase of top livestock genetic stock
- keeping breeding books
- promoting breeding activities and monitoring utility of different inheritance factors
- purchasing technical facilities for biotechnology

- g) purchasing instruments for testing and sampling milk
- h) promoting participation of livestock in buyers' markets and national and foreign competitions

Subsidies designed for re-establishing livestock husbandry

I. Subsidies designed for promoting husbandry of livestock animals affected by disease may be granted to cover:

- a) up to 60% of costs for purchase of animals needed to restore herd numbers.
- b) up to 40% real costs for stabling items destroyed together with the animals and during disinfection (of yards, floors, etc.)
- c) up to 40% real costs for periodical and final disinfection
- d) up to 60% costs met by applicant as a result of carrying out orders given by a local anti-infection committee regarding infected matter and subsequent elimination of animals (costs connected with digging, incinerating, closing a community, business, etc.).

II. Subsidies designed for restoring cattle affected by an infectious bovine rhino-tracheitis, if approved by the State Veterinary Administration in the case that a recuperation program has been developed and approved for liquidation of infections, may be granted up to 70% of the real costs connected with diagnosis of the disease and vaccinating the herd against such a disease.

III. If approved by the Slovak Republic Veterinary Administration, subsidies may be granted for damages caused by high risk contaminants (arsenic, cadmium, lead, mercury and etc.) and dangerous infections in the fodder. Subsidies cover:

- a) up to 60% financial losses:
 - 1. in the production of meat, milk and other products
 - 2. due to exclusion of animals from the herd
 - 3. when carrying out control tests, withdrawals of control samples and analyses
 - 4. due to destruction of contaminated animals.
- b) up to 40% cost for the purchase of new animals needed to restore the herd.

2.4.4 Estonia

In the Soviet era, like the other Baltic countries, agriculture production in Estonia centred around the livestock sector which had considerable export potential, especially meat, butter and milk powder.

Before independence, animal production took place on large-scale farms, the sowkhoses (collective farms) and kolkhoses (state farms). After liberalisation, the livestock production changed radically and by 1994 animal numbers had dropped by more than 50% (tab. 2.6).

Tab. 2.6 Livestock numbers in Estonia 1989-1995

(000 head)	1989	1990	1991	1992	1993	1994	1995
Cattle total	819	806	758	708	615	463	420
cows	301	294	281	264	253	227	211
Hogs	1,099	1,080	960	799	541	424	460
Sheep and goats	135	140	140	143	123	83	62
Horses	10	10	9	8	-	-	-
Poultry	6,897	6,923	6,537	5,538	3,418	3,226	3,400

Source: ERS (Economic Research Service, United States Department of Agriculture).

Livestock Subsidies

Unlike Latvia and Lithuania, Estonia has until now adopted a very liberal attitude towards agriculture. There has been no border protection and almost no direct support for the farming sector. Direct subsidy is only given for animal breeding activities.

Subsidies are mostly used for covering costs of performance recording, which make up c. 25% of the total costs of animal breeding.

At present, the main instrument used to provide support for the agricultural sector is the 'Agricultural and Rural Life Credit Fund' (ARLCF). Established in 1993, it provides credits for small and medium sized farms and for the processing industry.

2.4.5 Lithuania

The importance of agriculture in Lithuania is strong but declining. Since the declaration of independence from the Soviet Union (1990), a downward trend has occurred and the herd numbers (except for horses) have declined.

Today, Lithuanian agriculture is dominated by a livestock sector which significantly exceeds domestic demand; this is the case even though productivity has fallen 35% since independence. The system of livestock production has changed: the big units have been broken up and most herds have been split into small ones. In fact, $\frac{3}{4}$ of milk producers (total 350,000) have small herds of 2-3 cows.

The key sector of Lithuanian agriculture is the dairy sector. Production of beef meat may be seen mainly as a by-product of milk production. Other livestock (sheep, goats and horses) do not play an important role in the agriculture sector (tab. 2.7).

Tab. - 2.7 Livestock numbers in Lithuania 1988-1995.

(000 head)	1988	1989	1990	1991	1992	1993	1994	1995
Cattle total	2,494	2,435	2,422	2,322	2,197	1,701	1,384	1,152
cows	862	849	848	842	832	738	678	615

Hogs	2,706	2,705	2,730	2,436	2,180	1,360	1,196	1,260
Sheep and goats	90	100	100	62	64	61	55	52
Horses	80	78	78	80	83	80	-	-
Poultry	17,364	17,200	17,500	16,815	16,994	8,259	8,728	8,600

Source: ERS (Economic Research Service, United States Department of Agriculture).

Livestock Subsidies

Few types of financial support are available for livestock producers: subsidies for price support, credit and direct subsidies.

Subsidies for price support are based on fixed 'minimal marginal prices'. Total expenditure for these price support programs take up 50% of the total budget for agriculture.

In summer 1997, the minimum support price for second grade milk was 550-590 Lt/t . If the average price per month for milk is less than the minimum support price, the difference between these prices is calculated and 10% max. of minimum support price is covered by the state budget in the form of subsidies.

Subsidies for price support may be supplemented by additional payments from the state budget . From the 1st of November, **additional payment** is applied instead of minimum support price, as follows:

- high quality milk 100 Lt/t
- first grade milk 70 Lt/t
- second grade milk 50 Lt/t

Additional payment is established to reduce fluctuations during the year and to encourage production of high quality milk.

In the **cattle sector** 380 Lt is provided for every sold animal, in case of mixed breed cattle over 400-600 Kg. a subsidy is provided according to weight and meat quality.

Agricultural Credits are managed by the regional branches of the 'Bank of Agriculture'. The most important are the Agricultural Support Fund and the Farmer Support Fund . In 1997, the Rural Support Fund was established to finance special programs such as setting up farmer co-operatives and agroservices, new technologies, introduction of ecological agriculture, development of advisory centres and an information network for the agriculture sector.

2.4.6 Latvia

Although in decline, agriculture continues to play an important role in the Latvian economy, contributing 7.8% to GDP in 1994. Due to the critical situation of the other sectors, employment in agriculture has grown significantly, reaching 18.4% of national employment in 1993 (EU-12: 5.8%) .

The breeding sector is the most important agricultural sector. During the 'Soviet era', production greatly exceeded consumption, thus causing an increase in meat and milk exports. With independence and the deterioration of relationships with Russia, the price of cereals has increased to such a point that production costs have also increased. Consequently, the number of animals has declined and export has fallen dramatically (tab. 2.8).

Tab. - 2.8 Livestock numbers in Latvia 1988-1995.

(000 head)	1988	1989	1990	1991	1992	1993	1994	1995
Cattle total	1,481	1,460	1,472	1,439	1,383	1,144	678	551
cows	551	543	544	535	531	482	351	312
Hogs	1,718	1,620	1,555	1,401	1,247	867	482	501
Sheep and goats	180	170	164	170	190	171	120	94
Horses	33	32	32	31	30	28	-	-
Poultry	1,925	1,878	1,860	1,752	1,673	1,293	786	689

Source: ERS (Economic Research Service, United States Department of Agriculture).

Livestock Subsidies

In Latvia, the most important kind of financial help is border protection. There is a 40% tax on import of live animals, meat and powdered skimmed milk, a 55% tax on butter and cheese and a 0.075/Kg Lat (ECU 112/t) tax on cereals and animal food. In 1994 there were interventions for mainly helping export of milk products.

Despite quite a thriving bank sector, there are very few low interest credits available for private companies.

The following table (tab. 2.9) shows the amount of subsidies for pure breeding.

Tab. 2.9 - Amount of subsidies for pure breeding in Latvia.

Type of animal	No. of animals recorded	Subsidy per animal per month, Ls	Subsidy per animal, Ls
Bovines			
dairy cows under recording scheme	70,000	2	
bull mothers	550	10	
young sire bulls	100		300
pedigree animal sell	1,700		150
daughter to be checked*	20,000		25
beef cattle			
pure beef breed animals	n.p.***		
401-465 Kg live weight			120 (1997)
over 465 Kg live weight			130 (1997)
cross breed (milk breeds + beef breeds)	n.p.		
401-465 Kg live weight			80 (1997)
over 465 Kg live weight			95 (1997)
pure milk breed animals	n.p.		
401-465 Kg live weight			40 (1997)
over 465 Kg live weight			55 (1997)
Sheep			
ewe	1,000	3	
ram	50	4	
performance test**	50	4	
Pigs			
boar	150	8	
boar mother	1,200	5	
sire line pigs	190		50
sire line boars	75		80
dam line pigs	1,200		40

dam line boards	150		60
test stations	1,180	2.5	
Horses			
purebred stallions	70	10	
purebred mare	500	3	
sport horses	24	50	
performance test	60		50

* Female calves of proven bulls. Subsidy is paid after evaluation of proven bulls.

** Performance test means evaluation of rams and stallions.

*** Non provided.

The subsidy is paid every 3 months (4 times a year) but the sum of the subsidies depends on the category (first column). For example:

- cows recorded: Ls 2 (a month) x 12 (months) = 24 Ls/ year
- pure breed animal sale: Ls 150 is the sum of the subsidies given for a breeding heifer after its sale.

Direct subsidies are mainly given for promoting high quality breeds as seen in table 2.9. Subsidies aim to promote local animals and form specialised beef and pig groups with high liveweight gain and feed conversion ratio. Subsidies are granted only for the best animals.

2.4.7 Czech Republic

During the transition period, agriculture declined and continued to do so in 1995. In 1995, agriculture contributed 3% to the total GDP. The decline in agricultural production was particularly severe in the livestock sector which experienced a steep decline in cattle, sheep and dairy herds (-40%, -50%, -33% respectively), whilst pigs and poultry were less affected. Today, the most important sector is dairy production (tab. 2.10).

Tab. 2.10 - Livestock numbers in Czech Republic 1989-1994.

	(000 head)	1989	1990	1991	1992	1993	1994	94/89
Cattle	total	3,481	3,506	3,360	2,950	2,512	2,161	62.1
	cows	1,248	1,236	1,195	1,036	932	830	66.5
Pigs	total	4,685	4,790	4,569	4,609	4,599	4,071	86.9
	sows	312	311	313	326	324	295	94.6
Poultry	total	32,479	31,981	33,278	30,756	28,220	24,974	76.9
	lay hens	15,699	15,437	15,215	14,894	13,385	12,556	80.0
Sheep	total	399	430	429	342	254	196	49.1
	ewes	205	216	220	180	120	86	42.0

Source: CSO, Ministry of Agriculture, RIAE.

Livestock Subsidies

No direct subsidies are given for production in the livestock sector, but many different kinds of support can be identified.

In 1991, **market support** was introduced in the form of intervention buying, export subsidies and border protection for milk, milk products, beef and pork. Market support is granted by the State Fund for Market Regulation (SFMR). This fund does not operate so much by intervention buying than by encouraging export of surpluses and applying tariffs to imports.

Currently, the main supported product is milk. Regulation of the milk market in 1997 included subsidised export of butter and of other dairy products. Subsidies given for export of surplus milk are based on the amount of fat. Also in the case of other dairy products with the exception of butter, subsidies are based on the fat content. For the latter the main criteria is the price recalculated for 1,000 litres of milk, with a standard milk content of 3.6 %.

In 1996, a total of 1,126,228,000 CZK was spent for milk market regulation. Subsidies granted in 1996 were used separately for butter export and for export of other dairy products. The average rate of subsidy for all dairy products, including butter (recalculated on the base of one litre of milk with a 3.6% fat content) was on average 1,352 CZK/litre in 1996.

Another kind of support is **investment support**. In 1994 the Guarantee Fund for Farmers and Forestry (SGFFF) first started to operate, acting as a guarantor for bank loans. It also subsidises part of the interest due on these loans. In 1994, the borrower paid an average interest of 2.7% (compared to a market rate of 14-15%) and the remainder was paid by the SGFFF. Young farmers, less favoured areas or protected areas are entitled to special benefits.

Direct payments will in the future play a greater role. At the moment these payments provide limited support to less favoured areas and promotion of 'environmentally-friendly' farming.

2.4.8 Albania

Outbreaks of civil unrest in Albania since early March 1997 are aggravating the already difficult food supply situation. As a result of poor wheat production in 1996, in the current 1996/97 marketing year the country continues to rely largely on imports to meet its needs for bread, the basic food item, especially in urban areas. However, recent insecurity problems are threatening the continuity of wheat and other food supplies. State warehouses have been pillaged, imports interrupted due to border closures, and transportation within the country hampered by insecurity. Official and unofficial flows of other foodstuffs such as vegetables, fruit, dairy and livestock products, from rural to urban areas have also been disrupted by insecurity. As a result, food prices in urban centres are reported to have risen sharply.

Prospects for agricultural production in 1997 are very uncertain and, as mentioned above cereal crop production was well below its potential in 1996 and is likely to remain low in 1997. Introduction of a series of land reforms in 1991, promoting of large government owned and managed land to private ownership, resulted in a sharp decline in agricultural

production. Although, there has been some recovery in the agricultural sector since 1991, production remains limited by fragmented land ownership structure and small-scale farmers' access to credit (despite internationally supported Government schemes to provide credit for farmers). Wheat production in particular has been affected by the shift from large scale farming to small scale subsistence production of mainly cash crops and fodder. Although no clear indications on winter cereal plantings for the 1997 harvest are available, incentives for farmers to plant wheat last autumn are reported to have been increased because of higher price prospects.

The livestock sector (tab. 2.11) has been less affected than the crop sector.

Tab. 2.11 - Livestock numbers in Albania 1990-1996.

	1990	1991	1992	1993	1994	1995	1996
CATTLE	632,600	640,000	595,900	654,700	820,000	840,000	850,000
BUFFALOS	1,700	1,700	1,700	1,700	110	110	120
SHEEP	1,646,300	1,696,000	1,795,000	1,911,800	2,400,000	2,480,000	2,500,000
GOATS	1,144,000	1,193,900	1,234,200	1,293,600	1,717,000	1,650,000	1,900,000
PIGS	219,700	147,500	90,300	92,800	99,100	100,000	1,100,000
HORSES	57,200	55,800	44,100	58,200	58,000	58,000	58,000
ASSES	104,400	105,600	103,600	113,700	113,000	113,000	1,130,00
MULES	19,600	19,500	20,400	25,600	25,000	25,000	25,000
CHICKENS (000)	5,259	3,704	2,539	3,359	3,642	3,900	4,300

Source: FAOSTAT

Livestock Subsidies

In Albania there is no direct livestock subsidy system. Agricultural policy offers financial support for the most important zoonoses (tuberculosis, brucellosis and anthrax). For these zoonosis, a 100% subsidy is provided. The Animal Production Department (MAF) covers all the costs i.e. cost of drugs and diagnosis, cost of killing the animal, indemnities and veterinary costs. Animals that can be granted subsidies are cattle and small ruminants.

Breeding and artificial insemination (AI) is encouraged through partial financing of the Cattle Breeding Station in Tirana. Semen is produced at a 'semen centre' at the Animal Production Institute, and frozen. The operation cost of this centre is in part subsidised by MAF. The financial support given to breeders is 1.5 USD per dose of semen, which is only a part of the total cost per dose.

Mechanisation of farms, livestock development and other structural modernisation are backed by low interest loans.

Total expenditure per livestock in Albania in 1995 and 1996 was:

- veterinary preventive treatment: 116,000 000 Lek (about 1,160,000 USD)
- animal breeding and AI: 40,000,000 Lek (about 400,000 USD)

2.4.9 Hungary

In Hungary agriculture has traditionally been one of the most important sectors of the economy. In 1989, however, political changes resulted in an economic crisis which negatively affected the agricultural sector. Whilst in 1989 the relationship between the crop sector and the livestock sector was 50/50, in 1994 it was 60/40 (i.e. the crop sector became more important).

The livestock sector has been characterised by a very steep drop in the number of animals and production (tab. 2.12). The reasons for this have been:

- the removal of consumption subsidies in 1988
- a drop in living standards, causing a decline in meat consumption
- the collapse of traditional export markets (former Soviet Union)
- successive droughts in 1992 and 1993
- a lack of capital for restoring livestock numbers
- the disappearance of the traditional system of large scale farms and small family plots

Tab. 2.12 - Livestock numbers in Hungary 1988-1995.

(000 head)	1988	1989	1990	1991	1992	1993	1994	1995
Cattle total	1,664	1,690	1,598	1,571	1,420	1,159	999	910
cows	572	568	560	518	487	430	420	415
Pigs total	8,216	8,327	7,660	8,000	5,993	5,364	5,001	4,356
Poultry total	64,895	61,604	58,564	48,036	39,330	39,719	33,612	38,382
lay hens	27,184	26,950	25,992	25,171	22,000	22,000	22,000	-
Sheep total	2,336	2,215	2,069	1,865	1808	1,752	1,252	947
Horses	88	76	75	76	75	75	71	-

Source: CSO, Central Statistical Office, Hungary

Livestock subsidies

Border protection in the form of import tariffs and licensing was introduced in 1994. Since 1995 the average tariff rate has been 45%. Export subsidies have decreased between 1989 and 1991. The subsidy for meat and milk products is a value fixed per ton (HUF/t).

In 1994, the government set up the 'Agricultural Development Fund' to help investments in agriculture. Previously this fund was used for small-medium sized businesses but today it is mainly used for large businesses.

There are also short term (one year) credit loans with 10% interest, for agricultural production and storage of wheat and maize.

Farmers who participate in the competition for the allocation of premiums and who satisfy the required conditions are eligible for receiving the following premiums (amounts valid for 1997):

Type of animal	Premiums
Purebred bulls	50,000 Ft/animal
Purebred rams and goats according to weight:	90-110 Kg 10,000 Ft/animal
	111-130 15,000 Ft/ animal 131-
	20,000 Ft/ animal
Purebred cows	30,000 Ft/ animal
Purebred sheep and goats	
a) Breeding farm with controlled production.	8,000 Ft/kid
b) Reproduction farm	6,000 Ft/kid
Recording and identification of cattle:	450 Ft/calf
Genetic conservation	
a) Cattle (Hungarian grey)	5,000 Ft/animal
b) Sheep (Hungarian breeds)	2,000 Ft/animal
a) Horses (Hungarian breeds)	15,000 Ft/animal

Financial help is also planned for improving quality and increasing herd numbers,, following the drop in animal numbers. Approximately 2.5 billion florins/year are spent for this purpose.

There is aid to support breeding activities and breeding organisations:

CATTLE

- branding and identification	110 Ft/animal
- genealogical recording	100 "
- evaluation of external appearance	100 "
- control of production	670 "
- control of meat production	300 "

SHEEP

- identification and recording	50 Ft/animal
- genealogical recording	100 "
recording of reproductive capacity of qualified mothers	150 "
- recording of meat production capacity of lambs born from qualified mothers	300 "
- recording of lamb yield	1,000 "
recording of growing ram yield	5,000 Ft/animal
- separation of milk feeding mothers	400 "
- control of the farm descent of purebred rams	
(for wool)	30,000 Ft/animal
(for meat)	50,000 "

GOATS

- identification and recording	50 Ft/animal
- genealogical recording	100 "
recording of reproductive capacity of qualified mothers on the basis of every born kid	150 "
- recording of mother's meat production capacity based on the calves of known origin	300 "
- kid yield	1,000 "
- separation of milk feeding mothers	400 "
- control of farm descent of purebred rams (milk rams)	50,000 Ft/animal

HORSES

- identification and recording	400 Ft/animal
- conservation of data on purebred horses	400 "
- conservation of the data on stallions	2 000 "

- registration of origins in case of mating of the mares 650 "
- control of genealogical books (purebred mares) 800 "
- control of origin (blood group analysis) 800 "
- evaluation of the breeding value of mares 600 "
- analysis of colt yield 130,000 "

2.4.10 Bulgaria

The political history of Bulgaria has had a significant effect on agriculture. In 1989, with the fall of Communism, an agricultural reform set out that joint ownership had to go back to the legitimate owners. This gave way to the birth of new forms of property such as private co-operatives, family businesses etc.

Even though Bulgaria is considered an industrial country, agriculture contributes a significant 10 % to the GDP. The transition towards a new market economy has been accompanied by a decrease in both industrial and agricultural production. The latter has become increasingly severe.

Livestock breeding has suffered a greater decline in these last years compared to the crop sector. Since the reform period, the number of livestock has declined by 20-40% (tab. 2.13). During the process of eliminating state co-operatives, the animals were first distributed between the different beneficiaries. The latter found themselves having to manage a farm with limited stabling and feeding capacities.

Tab. 2.13 - Livestock numbers in Bulgaria 1989-1995.

	1989	1990	1991	1992	1993	1994	1995	% var 95/89
Cattle total	1,615	1,577	1,457	1,310	974	750	638	-60.5
cows	648	617	609	575	489	419	315	-45.8
Pigs	4,132	4,352	4,187	3,140	2,680	2,071	1,986	-51.9
Sheep and goats	9,045	8,563	8,436	7,256	5,425	4,439	4,193	-53.6
Poultry	41,805	36,339	57,998	21,707	19,872	18,211	19,126	-54.2

Source: FAO in general and National Statistical Institute for 1995.

Livestock subsidies

Since the start of privatisation which began in 1989, agricultural policy is still going through a reorganisation phase. Without going into details concerning all the reorganisation steps, we have reported below the information for 1995.

In the livestock breeding sector, the border measures on export and import include automatic and non automatic licensing (depending on the kind of product), minimal export/import prices, quotas and bans on some products.

There have been significant changes in the programmes for farmer support. In fact, with the liberalisation of prices, milk and meat bonuses, bonuses for less favoured zones and export subsidies have been eliminated; even direct subsidies have ended.

Half of the State's expenditure for the agricultural sector between 1989 and 1994 was used to cover part of the interest on credits. Another part was needed to cover debts incurred by co-operatives and agro-food plants. The remaining money was used mainly for financing some support programs; a fund for animal health and maintenance of the irrigation system, and aid to the crop sector, however the contribution given to all these programs just mentioned, was slight.

2.4.11 Poland

In the transition period that went from 1989 to 1994, agricultural production declined. GAP (Gross Agricultural Product), that is agriculture's contribution to GDP (gross domestic production), fell by 6% which is relatively little when compared to the 8% fall in GDP.

In 1994 plant production decreased by 17% whilst animal production increased by approximately 4% (only the pig sector) (tab. 2.14). Despite this negative trend, the level of self-sufficiency is still 100% with some products reaching production levels that are high enough to permit their export (fresh and processed fruit and vegetables, live animals and sugar).

In general, the problems of structural adjustments during the transition phase have destabilised the animal sector more than the crop sector. The most important reasons for these problems being:

- a fall in income which resulted in a decrease in meat consumption.
- the collapse of the traditional export market (ex Soviet Union)
- the elimination of subsidies for consumption
- a net increase in wheat and forage prices due to the drought of 1992.
- the lack of capital for maintaining the herds.

Tab. 2.14 - Cattle and sheep number in Poland 1989-1996.

<i>Year</i>	<i>Total Cattle (000 head)</i>	<i>Milk cows (000 head)</i>	<i>Sheep (000 head)</i>
1989	10,733	4,994	4,409
1990	10,048	4,919	4,158
1991	8,844	4,577	2,377
1992	8,221	4,256	1,493
1993	7,643	3,983	1,268
1994	7,696	3,863	870
1995	7,306	3,579	713
1996	7,305	3,576	506

Source: Central Statistical Office (GUS).

Livestock subsidies

The subsidy programs for cattle and sheep breeding stock in particular are largely the result of a drastic decline in the number of livestock (see table above) and the large loss in breeding stock following the collapse of state farms, where a significant proportion of this stock was kept. Animal breeding stations which were state owned before the transformation are still state property, but their activities are limited to keeping very limited breeding stock and scientific research.

Agricultural market policy

Intervention

As a consequence of the drastic transition measures, hyperinflation set in, mainly, as a result of price liberalisation and the parallel reduction in consumer subsidies, particularly in 1989 and 1990. In mid- 1990 the Agency for Agricultural markets (ARR) was established when the government decided to concentrate on agricultural income problems rather than simply stabilising short term market fluctuations. This agency is responsible for market intervention (intervention purchases or sale of goods), and for holding the State reserves of food and agricultural products. ARR is financed by the state budget and by its own revenues from sales of intervention products. Intervention measures are more important for grain, **dairy** and **meat** markets. In market stabilisation, a price range is fixed within which prices are allowed to fluctuate. If the market price exceeds these limits then direct market intervention is used.

Border measures and taxation

In 1989 liberalisation of foreign commerce was granted by the law on economic activity. In 1990 the State monopoly was abolished so that State owned businesses are no longer privileged.

Due to the removal of **protection measures**, Poland had among the European States one of the most liberal custom systems in Europe, maintaining also low custom tariffs. This policy proved untenable and in 1991 and 1993 the customs tariffs were increased to 21% (data up to 1995).

While **export subsidies** previously were rather high, in 1990 they were almost all abolished except for sugar, powdered skimmed milk, and butter.

To protect producers from imports, a law was passed in 1994 for taxing **imports**. In the meat production sector, pig and poultry meat are taxed. It was planned that this tax would be removed in 1995 (data up to 1995).

The descriptions which follow on the markets of the various animal products are reported from a document produced by FAPA (Foundation for Assistance Programs for Agriculture), Agricultural Policy Analysis Unit (SAEPR) of the Ministry of Agriculture and Food Economy (MAFE).

Policy Instruments Adopted for the Milk and Beef and Veal Markets

The Ministry does not apply any direct measure which would affect the production of milk and meat, such as production quotas or subsidies lowering production costs. However, indirect instruments are applied which are intended to stabilise the market and which improve the production profits. These are:

- intervention purchases (tab. 2.15)
- subsidising biological advancement
- preferential credit facilities
- protective tariffs

Tab. 2.15 - Intervention purchases from 1990 in Poland (thousands PLN).

Specification	1990	1991	1992	1993	1994	1995
Milk cattle breeding subsidies	2,398,235	817,530	9,181,025	10,434,000	13,011,540	1416,920,089
<u>Including:</u>						
purchase of heifers in calf	922,140	577,720	797,490	44,680	0	0
purchase of bulls	723,840	640	817,130	1,000,490	935,200	959,000
other breeding-related tasks*	673,255	410,170	7,566,405	9,388,830	12,076,340	16,360,689
Bull import	0	0	0	226,767	0	0
Imported semen and embryos	0	0	0	306,807	595,479	510,000
Subsidies for assessment of real value	2,312,007	611,721	5,856,761	7,257,630	9,650,107	13,012,828
Insemination-related subsidies	4,347,792	703,085	10,377,665	12,325,542	16,260,752	20,076,820

* Other breeding related tasks include, first of all, participation in the breeding program which is aimed at production and assessment of reproductive value of breeding bulls.

Subsidising biological advancement

The legal basis of subsidising biological advancement is the Regulation issued by the Minister of Agriculture and Food Economy, on the principles for granting subsidies to agriculture; an annual decree is issued in agreement with the Minister of Finance in respect of Art. 33, part 5 of the Act of 5 January 1991 (Official Journal of Laws 1993, No 72; item 344 and of 1994, No 76, item 344 as amended).

Subsidising biological advancement in cattle breeding allows for improving animal production by increasing their breeding quality. It also assists breeders in producing and increasing the population of beef cattle of various races, imports included. Funds are also allocated for technological advancement, research on the intensification of production processes and dissemination of the results. Subsidies are further earmarked for partial recovery of real value assessment costs for animal, bull semen production, insemination services and imports of genetic material.

The subsidy system which funds biological advancement will undergo gradual transformation. It will stimulate breeding development according to future market needs and prospective property transformations (commercialisation of insemination services).

Subsidies may be granted to private individuals or legal entities that own breeding dairy cattle, and the Central Animal Breeding Station for real value assessment and insemination services.

To obtain a subsidy, an applicant must breed dairy cattle of a specific breed and participate in the national breeding program for this breed of cattle. In Poland, there are no differences in the administration of different dairy cattle breeding regions (tab. 2.16).

Tab. 2.16 - Subsidy amounts disbursed since 1990 (PLN) for beef cattle in Poland.

	1990	1991	1992*	1993	1994	1995
Beef cattle breeding subsidies	52,500	50,000	0	53,750	183,980	444,000
Import premiums for:						
- breeding heifers	0	0	0	0	226,439	434,600
- semen and embryos	0	0	0	0	0	174,175
Subsidies for insemination	767,257	1,475,962	1,661,390	2,088,868	1,365,562	2,634,960
Subsidies for real value assesment	-	-	-	-	-	26,765

* Value probably due to inflation occurred in autumn 1989 and January 1990.

Until 1994 subsidies were allocated for purebred beef cattle herds which were considered reproduction stock. Since 1994 subsidies have sought to help the development of beef cattle breeding, including increase in number of purebred cows through imports of breeding heifers. Furthermore, subsidies were allocated for the reduction of fees for insemination services and assessment of real value; it should be noted that until 1994 assessment of real value for beef cattle was funded by subsidies for animal value assesment for dairy cattle.

This measure contributes a budget expenditure and is not a source of revenue.

Preferential credits

The legal basis:

- Act on the Establishment of the Agency for Agriculture Restructuring and Modernisation, 29.12.1993 (Official Journal of Laws No 1/1994, item 2)
- Regulation issued by the Council of Ministers giving detailed guidelines for the activities of the Agency for Agriculture Restructuring and Modernisation (ARiMR) of 30.01.1996 (Official Journal of Laws No 16, item 82)
- Regulation No 6 of 1.03.1996 issued by the President of the Agency for Agriculture Restructuring and Modernisation.

These credits are granted by banks which co-operate with the Agency for Agriculture Restructuring and Modernisation.

As regards meat production, preferential credits (tab. 2.17 - 2.18) cover any actions that have the following planned objectives:

- enlargement or creation of a new herd of breeding or productive beef cattle
- launching and continuation of production of young grazing and slaughter cattle (since 1996)
- improvement in technology for production of beef cattle (since 1996).

Credit may be disbursed to the following borrowers:

- meat processing plants and cattle and meat exporters; credit may be used for organisation of production and owners of breeding stock herds for export
- producers who sign long-term contracts with meat processing plants or exporters for delivery of slaughter livestock or calf and young grazing cattle.

Tab. 2.17 - Subsidy Amounts Disbursed for beef cattle in Poland.

Development program for beef cattle production	1993	1994	1995
Credits granted (thousand PLN)	-	1,590	3,277
Subsidy to cover interests (thousand PLN)	-	-	389.3
No of borrowers	-	4	41

Tab. 2.18 - Preferential credit used and subsidies to cover interests in Poland.

Dairy Sector Program	1993	1994	1995
Amount of credits granted (in thousand PLN)	-	18,485	16,5399
Subsidy to cover repayment of interests	-	-	19,648
No. of institutions that received credit	-	9	117
No. of farmers who received credit	-	75	3,271

The preferential credit system was introduced in 1994, therefore its effects may be expected in a few years to come. In view of the length of the production cycle, observation, analysis and assessment of the system's effects will perhaps be seen over the 1997-2000 period.

Preferential credit interest premiums are mostly payed out of the budget and do not bring any income. Credit applications are submitted to those banks which have a preferential credit agreement with the Agency for Agriculture Restructuring and Modernisation. Based on the credit applications approved by the banks, the Agency allocated subsidies to cover the interest on the credits.

Sheep keeping policy

The main objective of the sheep keeping policy consists in reversing the present declining trend in sheep production. In 1994, the Minister of Agriculture and Food Economy approved the "Program of decelerating the decline in and restoration of the sheep population number over the period 1994-2000". The Program's implementation and breeding work will be carried out by the Polish Association of Sheep Breeders.

This Program aims at directing sheep keeping towards the production of meat sheep varieties. This will be encourage through breeding work aimed at increasing sheep

reproductive capacity up to 1.5 lamb/ewe and crossing of local sheep breeds with breeds of high reproductive and meat capacity to obtain good quality lamb meat breeds. The country-wide program is assisted by a regional program, "Program of sheep population restoration and development of sheep origin product use in the Carpathian Region".

The sheep breeding restoration program in Poland is supported by subsidies for biological advancement, with preferential credits assigned, also for purchase of breeding animals or sheep fold modernisation and ARR interventions on the wool market.

As the share of live sheep in Polish exports is quite significant, Poland is striving to regulate animal transport legislation. An Act on Animal Protection during Transport is soon to become effective. The Act will comply with Council Directive 91/628/EEC as amended by Directives 90/425/EEC and 91/496/EEC.

Furthermore an Act on Farm Animal Breeding and Reproduction is in preparation. This is being formulated on the basis of the relevant EU regulations as follows:

- Council Directive 89/361/EEC of 30 May 1989 on purebred breeding sheep and goats
- Commission Decision 90/254/EEC of 10 May 1990 laying down the criteria for approval of breeders' organisations and associations which establish or maintain flock-books for purebred breeding sheep and goats
- Commission Decision 90/255/EEC of 10 May 1990 laying down the criteria governing entry in flock-books for purebred breeding sheep and goats
- Commission Decision 90/256/EEC of 10 May 1990 laying down methods for monitoring performance and assessing the genetic value of purebred breeding sheep and goats
- Commission Decision 90/257/EEC of 10 May 1990 laying down the criteria for the acceptance for breeding purposes of purebred breeding sheep and goats and the use of their semen, ova or embryos
- Commission Decision 90/258/EEC of 10 May 1990 laying down the zootechnical certificate requirements for purebred breeding sheep and goats, their semen, ova and embryos

Biological Advancement Subsidies

These subsidies (tab. 2.19) are governed by the decree issued annually by the Minister of Agriculture on the basis of the Budget.

The objective of the subsidies is to maintain sheep keeping and increase the sheep population. The subsidies are mainly assigned to the purebred stock breeders and, to a lesser degree, to the commercial stock breeders.

Subsidies are also granted for goat keeping. For example a subsidy is granted for primipara goats included in the milk class assessment.

Tab. 2.19 - Subsidies paid to the breeders from the State Budget in Poland.

Specification	1989	1990	1991	1992	1993	1994	1995
Subsidy amount (thousand PLN)	186.5	3,808.8	4,584.7	4,500.4	5,430.2	8,948.5	8,771.0
Subsidy amount in terms of 1 ewe equivalent (PLN)	0.07	1.56	2.47	3.87	6.97	16.30	19.50

Preferential Credits

The legal basis is the same as for cattle (see preferential credit for milk and meat products). The Agency financially supports the credits granted through the "Program for decelerating the decline in and restoration of the sheep population in the period 1994-2000". The credit amount cannot exceed 80% of the investment undertaken. The interest on credit is variable and cannot exceed 1.5 yearly rediscount rate. The financial support for the interest to be paid on the credit is determined by the ARiMR President on an annual basis. The maximum credit repayment period is 8 years.

The credits are assigned for:

- the purchase of ewes for restoration of breeding and commercial flocks or for the establishment of a new flock;
- purchase of imported rams and ewes of reproduction/milk and meat breeds;
- purchase of domestic reproduction ram breeds;
- purchase of milking machines, milk processing equipment and milk cooling equipment
- purchase of equipment for preparing grazing, fodder gathering, treatment and shearing;
- modernisation and restructuring of sheep fold.

The preferential credits supported financially by ARiMR may be applied for by people who run farms and have a positive record authorised by the agricultural consultancy centre. The breeders applying for credit have to purchase at least 20 ewes in cases of restoration or extension of the flock, and 30 animals when establishing a new flock. Maximum purchase of 500 animals is allowed.

Other kind of supports

Investment Credit is allocated for such work as modernisation, adaptation, construction and extension of farms. The investments for farms are for launching production (purchase of farm animals, feed concentrates, etc.). The longest allowable credit period is 8 years with a 2 year repayment delay. The credit amount covered by ARiMR refunding cannot exceed 500 000 PLN.

Credit for establishment of farms by young farmers up to the age of 40 is given for such work as launching production including purchase of farm animals and feed concentrates. Credit amount for one farm is 500,000 PLN.

Credits for the full use of a farmer's own resources is allocated for farm building equipment and purchase of basic animal stock, feed concentrates and increase in production. Maximum credit given is 500 000 PLN to be spent on production launching activity, including pig keeping.

It's important to specify that there is no continuity of the subsidies over the years and it is not known if the subsidies and their levels will be maintained in the next years. Subsidies payable in the year 1997 are listed in the following table (tab. 2.20).

Tab. 2.20 - Subsidies payable in 1997 in Poland.

TYPE OF ANIMALS	SUBSIDY	CONDITIONS
Cows		
primipara cows	183, 330 and 480 PLN*	must be part of the evaluation schemes for breeding stock
heifers 6 to 18 months old	400 PLN	Polish Red breed (in extinction) if kept in the herd which is recorded in a breeding stock Herd Book
cows	700 PLN	beef breed or Simmental breed kept in the herd for which the breeding stock herd books are kept
Bulls		
bulls	1,550 to 2,000 PLN *	qualified and licensed by the Central Animal Breeding Station
young bulls	150 PLN	must be part of the breeding evaluation scheme of its sire
young bulls	600 PLN 800 PLN	milk breed beef milk
young bulls sold to the breeding station	800 to 1,000 PLN *	5 to 8 months old
bulls sold for reproduction	1400 PLN	qualified bulls
Ewes		
ewes	165 PLN	meat breeds and breeds with high fertility for which herd books records are kept or, ewes subject to Level I of the PFI **
ewes	120 PLN	Merinos Polski, Owca Nizinna, Owca Długowenista, Polska Owca Górska (Polish breeds of sheep) kept in breeding stock for which herd book records are kept or, subject to the Level II of PFI **
ewes	75 PLN	Kept in reproduction herd or, subject to Level III of the PFI **
ewes	50 PLN	Kept in herd of at least 10 ewes registered with the Sheep Breeders Association, with one licensed ram and at least 15% of young ewes kept for herd development
Goats		
female goats	90 PLN	Must be kept in the stock for which herd books are kept, its parents must be of pure breed and recorded in the breed record books. Milk productivity must be evaluated for at least 150 days
buck	340 PLN	If registered in the main herd book (pure breed)
buck	210	Registered in the preliminary herd book (pure breed)

* depending on the breed and conditions

** Program for Fertility Improvements (Source: MAFE)

2.5 Agricultural relationship between the European Union and CEECs

Agriculture plays a very important role in the future adhesion of CEECs to the European Union. This is due to the relative importance of agriculture in some of these countries and the problems that might arise with the expansion of the Common Agricultural Policy (CAP) in its present form.

In CEECs, on average more than 22% of labour (9.5 million people) work in the agricultural sector compared to 5 % (8.2 million people) in the European Union.

The expansion of the EU will increase the Union's agricultural area by 60 million hectares, taking the total area to approximately 200 million hectares. Arable area will increase by 55 % compared to today, and the quality of the land and climatic conditions will greatly vary. According to EU-15, agricultural labour should reach 6.6 million people in the year 2000 but could reach more than double this amount in the event of an enlarged Union. In effect, the average agricultural surface available per person employed in this sector is 9 hectares in candidate countries compared to 21 hectares in the present Member States.

If all the candidate countries were to join, there would be approximately 100 million more consumers of food stuffs, with a purchasing power about a third, on average, of that existing in the Union.

The present agricultural situation in the CEECs is showing signs of recovery, although production remains much lower than before the transition. The livestock sector was affected more than the plant production sector. Over the past few years, the majority of these countries have become a net importer of agricultural and food products (products from the Union).

Agricultural prices in these countries are significantly lower than Community ones (in 1995 they were between 40 % - 80 % lower). Beef, milk and dairy products are amongst those products that have a greater price difference, probably due to an imbalance between the decrease in supply and the decline in demand. Another reason for this could be the difference in quality between the local product and that in the Community. For example, beef is of mediocre quality since production is mainly based on milk cow herds.

Over time the price margin should close as a result also of an increase in internal agricultural prices. The latter is due to the fact that the demand for food products increases more quickly than supply. Moreover, in the coming years there should be a decrease in Community prices (see § 1.6.1).

As we have seen above, the majority of candidate countries have adopted some kind of measure for stabilising the livestock sector (and the agricultural sector in general). The type and level of agricultural support varies from country to country, ranging from measures comparable to CAP measures (intervention, frontier measures, premiums), to administrative controls similar to those applied under a central planning regime.

Considering the limited budgets in most of these countries, public support for agriculture will not be able to increase much above its present level in the near future and this will limit the possibilities of market intervention and structural aid.

2.5.1 Impact of expansion on the present CAP

As we have seen in the preceding chapter, the difference between Community prices and those of CEECs should decrease for as a result of various factors. Even though it is impossible to predict what the gap will be at the time of joining, it is thought that there will still be a significant difference for milk products, whilst if the proposed reforms are carried out, there will be a minimum margin for the beef sector.

If a significant price difference exists at the time of European Union expansion, the sudden introduction of the CAP price levels would increase the price of food products in the new member countries where food is an important part of family expenditures. Such high prices would cause an increase in production and a decrease in internal demand; raw materials would become more expensive for the food industry which would find itself in difficulty due to the competition of the Community market.

A study by the Commission (Commissione Europea CSE (95) 607) has calculated projections for production, consumption of principle agricultural products, and livestock breeding up to 2005. The basic hypotheses used in this study on the impact of expansion were: joining of all ten candidate countries in 2002 and application of CAP in its present form.

In the livestock sector in particular, the application of milk quotas would stabilise production after 2002. From the moment that price adjustments should decelerate the increase in internal consumption, surplus milk between 2000 - 2005 should double to 2 million tons, in addition to the 9.4 million tons predicted for the EU-15 (Commission Européenne Doc/97/6).

Concerning the beef sector, price adjustments would stimulate production but would have a negative effect on consumption. Surplus would reach 435000 tons in 2005 plus another 500000 tons predicted for the EU-15. Equally, there would be a surplus of pig meat and poultry (Commission Européenne Doc/97/6).

In this hypothetical situation, the EAGGF - Guarantee section would have to support a supplementary expense of approximately 11 billion ECU a year. Of this, 7 billion ECU would be for direct payments (aid per hectare and animal premiums) and 1.5 billion ECU for accompanying measures (agro-environmental measures, reforestation and early retirement). Market support measures (interventions and export refunds) for the 10 candidate countries would amount to approximately 2.5 billion ECU (largely taken up by the milk sector) (Commission Européenne Doc/97/6).

2.5.2 Future directions for CAP and expansion to EAST

As highlighted in the preceding paragraph, expansion towards the East whilst maintaining the present common agricultural policy, would only worsen the condition of the agricultural market.

In effect, the Commission proposes to use a different approach, as cited in paragraph 1.6. A decrease in the price of a few products would produce a minimum margin between the Community prices and those of CEECs when the latter join the Union. This margin can be closed more easily and the prices aligned with the world market.

At the time of expansion, in general there should not be any reduction in CEECs prices and therefore there will not be reason for planning compensatory payments (hectare or animal premiums). Furthermore, these direct payments would increase only farmers income (with no parallel decrease in prices) and lead to social imbalance in rural zones.

For a transitory period following the adhesion, these funds or part of these funds could be used in these countries for other measures which certainly have priority, such as: improvement of agricultural structures (modernisation of farms, ...) and other sectors connected to agriculture (transformation, storage, commercialisation, ...) as well as integrated rural development (improvement of living standards in rural areas, diversification of activities, environment, education, professional training, ...).

2.5.3 Pre-membership measures

There are several important conclusions from the studies completed by the Commission (Commission Européenne Doc/97/6). More importantly than an increase in prices and income support for farmers, CEECs need support for reorganisation, modernisation, diversification of agricultural productive capacities, and improving rural infrastructures.

To address this issues, 45 billion ECU was allocated in the Community budget for Structural and Cohesion Funds. Beginning in the year 2000, 1 billion ECU a year will be available as "pre-membership" aid. At first, all the candidate countries will benefit but then this money will be used only for countries that join later.

The "pre-membership" interventions are needed for bringing the candidate countries closer to Community regulations in matters regarding infrastructures. These interventions will also allow these countries to familiarise themselves with the way Structural Funds are applied.

Furthermore, starting from the year 2000, 500 million ECU a year support to agricultural development is planned, as well as the continuation of the PHARE program (see § 3.1) with a budget of 1.5 billion ECU a year.

2.6 Some considerations on new memberships

At present, none of the candidate countries fully satisfy the necessary political and economical criteria. Nine of these countries satisfy the political conditions and a few have made sufficient progress in satisfying the economic conditions and other types of obligations that govern membership.

Hungary, Poland, Estonia, the Czech Republic and Slovenia will in the medium-term be able to fulfill all the membership conditions if they continue with determination in their preparation efforts. The Council will then be able to start membership negotiations with the above mentioned countries.

2.7 General considerations on the subsidy systems for producers in CEECs

The subsidy systems in Central and Eastern European countries are rather heterogeneous; however, it is possible to highlight some general trends. The most common type of subsidy is granted for the conservation of different animal races (in the Republic of Slovakia, Latvia, Hungary, Poland). One of the criteria for allocating these subsidies is the subdivision of the territory, as in Slovenia and Slovakia, into more or less favoured areas. Albania is a case on its own and a fundamental financial support scheme has been established for fighting zoonoses.

Slovenia has one of the most well-organised subsidy systems, whereas in Romania and Bulgaria there are no direct subsidies.

Concerning price support, nearly all the CEECs have a system of intervention in the event of large market imbalance that has a negative effect on producers. The methodology and the degree of intervention differ between the countries, and the products subject to intervention vary according to their economic importance. One of the products that most benefits from this support is without doubt milk (Romania, Slovenia, Slovakia, Lithuania, Republic of Czechslovakia, Hungary, Poland).

CEECs have no support system similar to the structural aid system of the European Community, but low interest credits for investments in agriculture are quite common (Estonia, Lithuania, Czech Republic, Hungary, Poland, Bulgaria).

It is not easy to define the influence of these breeder subsidies in the single countries. However, it can certainly be said that the budget resources of these countries do not allow for a level of support similar to that in the European Community.

Chapter 3 - Livestock in Switzerland and Norway

3.1 Swiss agriculture and livestock subsidy system

Switzerland is a relatively small country but the industrial and service sectors are quite well developed. The main characteristics of this country are its mountains, in fact 45% of the national territory is 1200 m above sea level. The usable agricultural area (SAU) is 26% of national territory and the farms are rather small. In 1985 more than a third of the farmers had a surface less than 0.5 hectares which was managed as a 'hobby' (Federal Office of Agriculture).

Despite this situation and the high level of support for agriculture, the latter is an important sector of the Swiss economy. One needs only think that between 1979 and 1986 the contribution given to the GDP was 2.5%. In this context, animal production is certainly more important than plant production. In 1988, one-third of total agricultural production was due to milk production.

Over the years, the cattle sector has suffered a significant decline, whilst the sheep sector has seen a net increase in the number of animals (see table 3.1).

Tab. 3.1 - Livestock numbers in Switzerland

	Bovines	Pigs	Horses	Sheep	Goats
1983	1,932,897	2,191,308	46,325	355,307	-
1988	1,836,973	1,940,914	49,190	366,827	72,219
1989	1,850,300	1,869,400	48,110	370,900	69,400
1990	1,855,200	1,787,000	45,300	395,200	68,300
1991	1,828,900	1,722,600	49,000	409,400	65,200
1992	1,782,600	1,705,700	51,700	414,700	58,200
1993	1,745,087	1,691,781	54,257	424,027	56,687
1994	1,755,400	1,660,000	-	439,000	-
1995	1,761,900	1,610,700	-	436,500	57,554

Source: Schweizerischen Bauernverband (Union Suisse des Paysans, USP)

Formatted: German (Germany)

The livestock subsidy system in Switzerland is based on dividing the country into zones. Production conditions differ across the country to such an extent (2/3 of Switzerland are mountainous) that agricultural revenue shows considerable disparities.

Comment [LA1]:

The Confederation measures try to counterbalance, as much as possible, the difficulties that result from local natural conditions.

The zones were initially divided into plain and mountain zones. Today, zones are more diversified, as follows (see Fig. 9 in annex n° 3):

- *prealpine hilly zone* near mountainous zones, according to:
 - * land configuration
 - * weather
 - * lines of communication
- *livestock closed region* where livestock is traditionally very important, often for livestock aestivation (summer alpine pasture).

- *intermediate zone and extended intermediate zone* according to:
 - * land configuration
 - * weather
 - * lines of communication
 - * regional differences affecting cultures and harvest of field crops
- *mountainous zones I to IV* , going from the most favoured mountainous sites to the less favoured ones.

The number of cows in the herd is considered as well as the total livestock compared to the forage base of the farm, the importance of 'alpiculture'(alpine mountain culture), and the sale conditions for milk and livestock (ordinance of 17/04/91).

In Switzerland, livestock producers are granted the following financial support:

- **direct payments (§ 3.2)**
- **financial support for improving agricultural structures (§ 3.3)**

Milk

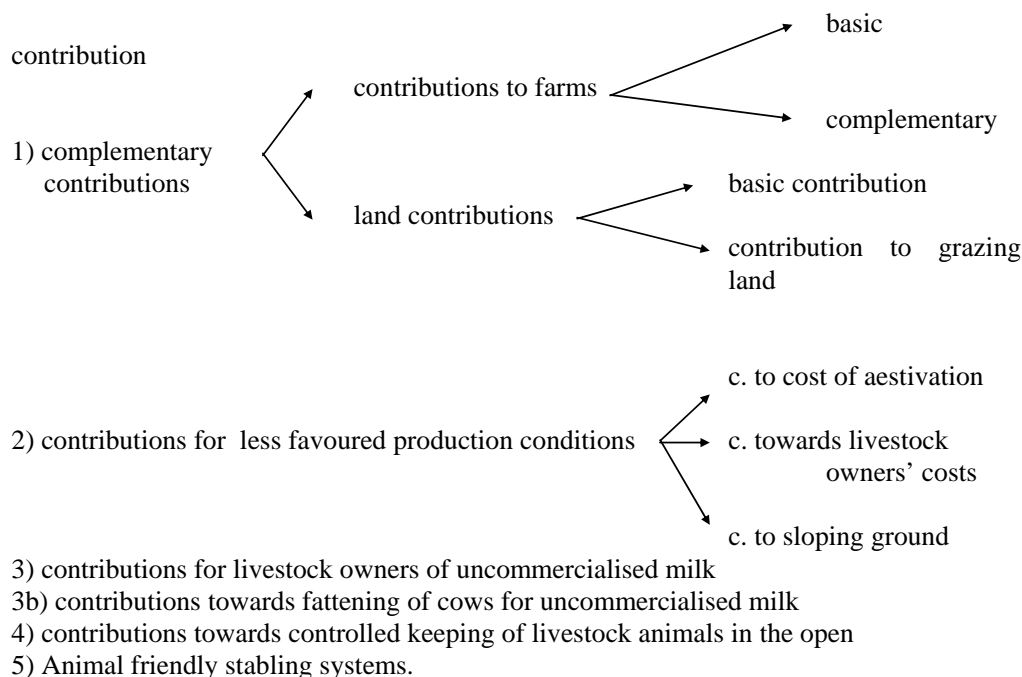
Milk is the most important product in Swiss agriculture. In fact the natural conditions and topography of the country do not favour crop cultures but do lend themselves to production of forage used in milk production. The Confederation measures consist of a fixed quantity which is divided amongst the producers (milk quota) for guaranteeing the price of milk per producer. In addition to the application of a milk quota, the Confederation continues to provide traditional measures for indirectly improving the milk market. It does this through:

- contributions for livestock owners with milk (par. 4)
- limitation and increase in import prices so that the price of concentrated forage increases. This encourages use of unprocessed forage produced in Switzerland for feeding dairy cows
- regulation of succedaneous (dairy products for fattening of cows) milk market
- promoting field crops
- investments aids for constructing milk production buildings

3.2 Direct payments

In 1995 direct payments for breeders amounted to 1925.4 million CHF (of which 1,212.7 CHF was allocated to mountainous regions). In 1996 direct payments amounted to almost 2 399 million CHF.

Direct payments to breeders are divided as follows:



3.2.1 Complementary direct payments

In order to counterbalance the fall of the slaughter animal market, the Federal Council decided on 26 January 1996 to provide (for '96) 90 million CHF by way of complementary direct payments, (article 31a of agricultural law). This is temporary aid which, according to the Federal Council, will last for three years.

This contribution is divided into two main categories, land contributions and farm contributions.

Land Contributions (as later shown) grants financial support per hectare and aims to encourage land use. This contribution offers the advantage of being simple to apply, it does not stimulate production and can be adapted to different production conditions.

Farm Contributions offer financial support for independent farms and aim at maintaining and promoting family type farms. A criteria is set for distinguishing between farms that are

kept as a 'hobby' and those that are not. This type of contribution discourages the fusion of many small farms.

General provisions for complementary direct payments (art. 31 of agricultural law)*Beneficiaries:*

- Managers of at least 3 ha of eligible usable area (SUI) farm
- Managers resident in Switzerland
- Married or cohabitant couples using more than one domain are considered as a single manager

Land entitled to contributions:

The contribution for farms is calculated according to eligible usable area (in French SUI = 'surface utile imputable'); vice versa contributions per area is calculated on the amount of usable agricultural area (SAU = 'surface agricole utile') entitled to contributions.

For direct payments, according to article 31a, there is a basic contribution per farm calculated according to the eligible usable area, a land contribution consisting of a basic contribution and a contribution per grazing area. The contribution per grazing area is calculated according to the area of natural and artificial grassland, owned pasture land and other pasture-land (excluding pasture-land for 'alpeggio' and aestivation).

Eligible usable area means:

- a) owned or rented usable agricultural area, excluding area for special crops
- b) double the special crop area
- c) 0,3 are per unit of large livestock aestivated, and per aestivation day.

- The SUI (eligible usable area) determines **contributions to farms** (= base contribution + complementary contribution to animals owners)
- The SAU (usable agricultural area) determines **contributions to land** (= base contribution + contribution to grazing surface)

Land not eligible for contributions:

- Land eligible for aestivation contributions
- Land managed by farmers that neither own nor rent the land
- Land delimited by public ways or railways
- Land used mainly for golf courses, camping, aerodromes, military ground, building area (articles 15 and 19 of the land management law (RS 700) 22/06/1979.)

Revenue Limits

- Decrease of contribution if income exceeds 105,001 CHF
- No contribution for incomes over 141,001 CHF

Special Provisions

- Grouped farms are considered as a single unit
- Farms managed by the same person are considered a single unit

- Managers who are eligible for direct payments but received a contribution towards 'la garde des animaux' in 1992 received direct payments (for a maximum of 5 years) for a sum equivalent to the last contribution, plus a 10% supplement.

3.2.1.1 Complementary contributions for farms

There are two kinds of complementary contributions for farms:

Basic contributions for farms depend on size of farms, as follows

for farm managers of more than 9 ha of SUI per year:

- Extensive culture and extended intermediate zones	CHF 1,500
- Intermediate and prealpine hilly zones	CHF 2,000
- Mountainous zones I - IV	CHF 2,500

for less than 9 ha of SUI

3 - 4 ha	40% of the basic contribution
4.01- 6 ha	40% -
6.01- 8 ha	40% -
8.01- 10 ha =	40% -

Basic contribution increase '96 - '98

- 1997 + CHF 1,000
- 1998 + CHF 500

Complementary contribution for farms is for animal owners with at least 5 LU, the contributions amount to CHF 2,700 and are given for a maximum of 50 ha of SAU per farm.

3.2.1.2 Complementary land contributions

Basic contribution per ha of SAU is CHF 380

Contributions for grazing land tend to support coarse forage production and compensate the fall in prices in the livestock sector. These contributions are paid per ha of grazing land (natural or artificial prairies, grazing land close to farms and other kinds of grazing land except for aestivation lands), as follows:

- Extensive culture and extended intermediate zones	CHF 290
- Prealpine hilly zones	CHF 260
- Mountainous zones I	CHF 240
- Mountainous zones II	CHF 220
- Mountainous zones III	CHF 200
- Mountainous zones IV	CHF 180

Basic contributions and contributions for grazing land are given for a maximum of 50 ha of SAU per farm.

3.2.2 Contributions for unfavoured production conditions

3.2.2.1 Direct contributions for mountain and prealpine hilly zones

Introduced in 1959 for mountainous zones II and III this contribution aims to compensate production costs resulting from difficult use conditions due to land configuration, short growing season, poor structures.

Contributions towards livestock owners' expenses are:

Cattle, pigs, horse per LU	
- Prealpine hilly zones	CHF 230
- Mountainous zones I	CHF 410
- Mountainous zones II	CHF 600
- Mountainous zones III	CHF 900
- Mountainous zones IV	CHF 1,160
Rams and goats per LU	
- Prealpine hilly zones	CHF 290
- Mountainous zones I	CHF 510
- Mountainous zones II	CHF 840
- Mountainous zones III	CHF 1,160
- Mountainous zones IV	CHF 1,500

Contributions are calculated according to livestock wintering time in the relevant zones.

The upper limit is 15 LU per farm.

For grouped farms, contributions are paid up to a maximum of 15 LU per associated farm.

Contributions are provided only if animals have a sufficient forage base* in the farm.

Livestock owners must observe the law on animal protection.

Contributions are lowered by 10% for every 2,000 CHF above 80,000 CHF taxable income.

Contributions are lowered by 10% for every 10,000 CHF above 80,000 CHF taxable income.

Contributions are allocated only for livestock owners holding at least 1 bovine LU or 2 other LU.

*BF calculation: SUI minus perennial crops, straw area, hedges and woods. SUI is then divided by LU of the alpine farms. Minimum surface per LU that consumes raw forage is:

- Plain	40 are
- Prealpine hilly zone	50 are
- Mountainous zone I	60 are
- Mountainous zone II	70 are
- Mountainous zone III	80 are
- Mountainous zone IV	90 are

3.2.2.2 Contributions towards aestivation costs

Aestivation or 'alpeggio' (summer alpine pasture) means the use of grazing land reserved for pasture in mountainous zones I-IV. Land must have been used for aestivation at least since 1975.

The contribution is paid per animal:

- Cows	CHF 300
- Cows on summer alpine pasture near the farm	CHF 200
- Livestock bulls over 1 year old and suckler cows	CHF 200
- Heifers and oxen 1 to 3 years old	CHF 100
- Calves 6 months old	CHF 50
- Horses, mules and hinnies over 3 years old	CHF 140
- Horses, mules and hinnies less than 3 years old	CHF 80
- Milking goats (milked in the alps)	CHF 60
- Other goats and rams	CHF 10

The contribution is granted only if the aestivation farm and the pasture land is properly managed, if possible in an environmentally friendly way and in accordance with any regulations set down by cantons, communes or cooperatives.

There is a decrease if aestivation duration is not typical for that locality.

CHF 100 is the minimum contribution given.

3.2.2.3 Contributions for areas of sloping land

Land used for grazing or crops may receive contributions per hectare according to slope gradient (only if the farm has at least 3 hectares of SU), as follows:

■ slope gradient between 18 and 35%	CHF 370/ha
■ slope gradient over 35%	CHF 510/ha

3.2.3 Contributions to livestock owners with uncommercialised milk

The use of milk for breeding and fattening of calves is often the only way for replacing production of commercialised milk in farms in mountainous or remote areas. The Confederation encourages this replacement by granting financial support for livestock owners that have uncommercialised milk. This contribution compensates for the difference in income between producers who do not commercialise their cows milk (lower income) and those who do.

Beneficiaries of this contribution are cow owners who give up selling milk, i.e.:

- farmers who fatten calves
- livestock farms in mountainous regions
- owners of suckler cows

Contributions per cow per year:

- from 2 to 10 cows, mountainous zones II- IV	CHF1,300
- from 2 to 10 cows, other zones	CHF 1,200
- from 11 to 20 cows	CHF 1,200
- from 21 to 50 cows	CHF 800
- over 50 cows	CHF 400

Conditions :

The farm must have sufficient forage supply for all livestock.

Contribution is given to owners of land which is not SAU (usable agricultural area).

Regulations on animal protection must be observed.

Regulations on water protection must be observed.

3.2.4 Contributions for fattening of cows

This contribution for uncommercialised cows milk is granted to owners of 20 cows maximum, where at least two calves are fattened per year.

Contribution per calf per period of contribution	CHF 200
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Conditions:

Maximum dead weight of calf is 120 Kg, live weight is 200 Kg.

Slaughter must be certified by an official weight document.

Regulations on animal protection must be observed.

Regulations on water protection must be observed.

3.2.5 Contributions for controlled detention of livestock animals in the open

If a breeder's record book on pasturing and outings shows regular pasturing and outings which assure enough movement and light, and stabling is suitable for the specific needs of the animal, the contribution increases per LU and per year (minimum 5 LU) as follows:

- cattle	CHF 120
- other ruminants that consume coarse forage (horses, rams, goats)	CHF 120
- pigs	CHF 180
- poultry	CHF 240

3.2.6 'Animal friendly' stabling systems

If animals are not tied up, receive sufficient daylight, are in stables at suitable temperature and are able to move, the contribution per LU (minimum 5 LU) and per year is:

- cattle	CHF 60
- other ruminants that consume coarse forage (horses, rams, goats)	CHF 60
- goats and rabbits	CHF 60
- pigs	CHF 90
- poultry	CHF 120

3.3 Subsidies for structures

Improvement of production and reduction in production costs is an important objective of Swiss agricultural policy, as well as environmental awareness and land management. Development of infrastructures, roads and drainage systems improve living conditions for farmers and increase the attractiveness of rural work. There are three kinds of support for such actions: unsecured subsidies, investment credit, and aid to farms .

3.3.1 Unsecured Subsidies

This type of financing aims to improve agricultural structures and infrastructures (as shown in the table 3.2) and is provided by the Confederation and the Cantons. Even in this case, a distinction is made between zones that are more or less disadvantaged. In 1995, the Confederation spent overall 82.4 CHF millions.

Tab. 3.2 - financing aims to improve agricultural structures and infrastructures(in CHF millions)

	Plain	Prealpine hilly zones/ mountainous zone I	Mountainous zones II-IV	Total
Total improvements	9.1	9.2	12.9	31.2
Drainage	0.3	0.2	0.6	1.1
Road construction	0.0	2.1	6.3	8.4
Irrigation	0.2	1.9	11.1	13.2
Water adduction	0.3	0.1	0.6	1.0
Other civil installations	0.0	0.1	1.8	1.9
Reparation of damages caused by storms	2.2	7.1	11.8	21.1
Buildings	0	0.5	4.0	4.5
Alpine buildings	-	-	-	-
TOTAL	12.1	21.2	49.1	82.4

Source: Annual report of 'Division des améliorations de structures (DAS)' of Federal Office of Agriculture .

3.3.2 Investment Credit

This kind of financial aid aims to rationalise the production and management of mountain farms. Since 1995, the Confederation provided Cantons with 1,544.6 million CHF. In 1996, the amount granted was 4.95 million (data from Federal Office of Agriculture).

3.3.3 Aid to farms

This is a social kind of aid where money is lent to farm managers that are temporarily unable to meet their financial obligations or are in debt. In 1995, the Confederation provided the Cantons with 60,126,341 CHF. Of these, 9,640,600 CHF have been spent on 198 candidates (data from Federal Office of Agriculture).

3.4 Norwegian agriculture and livestock subsidy system

Agriculture in Norway constitutes 1.9 % of GDP. According to the percentage of labour and contribution to the GDP, the importance of this sector decreased in the '80s.

Norwegian agriculture is strongly orientated towards animal production which represented 2/3 of the internal agricultural produce in 1987. Cattle breeding is the most important sector (38% of total meat production) and is mostly directed at milk production. On the other hand, sheep breeding is not particularly important and in 1979 represented 13% of total meat production (tab 3.3).

Tab. 3.3 - Livestock numbers in Norway

Animals	1995 *		1996 *	
	No. of farmers	No. of animals	No. of farmers	No. of animals
Cows	135,310	1,012,492	134,085	1,026,348
Sheep	36,426	1,139,444	35,697	1,107,284
Horses	9,373	19,118	9,648	20,210
Goats	3,070	77,351	3,030	76,666

* 31 December

Source: Statens Kornforretning

Livestock subsidies

During preliminary negotiations between the State and the different agricultural organisations (Norges Bondelag, Norsk Bonde- og småbrukarlag), discussions occurred on prices and initiatives for ensuring the same level of income for farmers as for the rest of the population. This is to be considered by Parliament for approval. If the State and the agricultural organisations can not reach agreement, the Government will pass a motion to the Parliament and made a decision unilaterally. The amount Norway has spent for direct payments in 1996 can be found in table 3.4.

In Norway, different kinds of subsidies are given to breeders for stimulating production. A first group of subsidies are base deficiency payments paid uniformly throughout the country (§ 3.4.1). A second group consists of payments made according to the geographical region (§ 3.4.2). Lastly there are the subsidies that are paid according to the land (§ 3.4.4) or number of animals (§ 3.4.3), for illness or holiday plans (§ 3.4.5), for transport of slaughter animals (§3.4.6).

Should a farmer have the right to one kind of support, he may use even other kinds of support, i.e. subsidies are cumulative.

Tab. 3.4 - Norwegian direct payments in 1996

Scheme	Year	Animal (mio NOK)				
		Cows	Horses	Sheep	Goats	All animals
Base deficiency payment for meat production	1995	252.1		119.2		
	1996	264.3		107.1		
Regional deficiency payment for meat production	1995	348.3		136.5	2.3	
	1996	347.5		135.1	2.2	
Headage support	1995					1,871.1
	1996					1,611.1
Transport support	1995	32.9		9.1		
	1996	30.0		8.4		
Wool deficiency payment	1995			189.1		
	1996			170.0		

Source: Royal Ministry of Agriculture, Department of Agricultural Policy

3.4.1 Base deficiency payment for meat production

This kind of subsidy is an aid to production and is calculated according to the difference between the **administrative price** and the market price. No regional distinction is made.

Kind of meat	Rate 1996/97 Kr/Kg	Change Kr	New rate 1997/98 Kr/Kg
Cattle (not milk)	3,05	-0,35	2,70
Mutton/lamb	4,60	+0,30	4,90
Goat	4,85	+0,30	5,15

3.4.2 Regional deficiency payment for meat production

Norway's financial aid towards production is differentiated according to zones. There are 5 different regions, the least favoured being zone 5 and the most favoured being zone 1. The map of the different zones is shown in annex n° 3 Fig. 10.

	Rate 1996/97 Kr/Kg	Change Kr/Kg	New rate 1997/98 Kr/Kg
Cattle, sheep, goat:			
Zone 1	0	0	0
Zone 2	4.05	0	4.05
Zone 3	6.55	0	6.55
Zone 4	10.20	0	10.20
Zone 5	11.10	0	11.10
Sheep, lamb:			
Zone 1	0	0	0
Zone 2	4.05	0	4.05
Zone 3	6.55	0	6.55
Zone 4	12.20	0	12.20
Zone 5	13	0	13
Pigs:			
Zone 1-3	0	0	0
Zone 4-5	4.8	0	4.8
Vestlandet	-	+3	3

These subsidies aim at standardising the agricultural income for farmers working in different environmental conditions. Naturally, there is the tendency to help more those regions that have a weaker agricultural and economic potential.

3.4.3 Headage support

This is a type of payment given per head on the base of the number of animals in the farm. A maximum limit of 77,000 kronas can be given per farm.

1996/1997

<i>Kind of animal</i>	<i>Interval</i>	<i>Rate Kr/animal</i>
Dairy cows	1-8	3,500
	9-25	1,300
	26-40	300
Cattle (oxes > 12 months, heifer)	1-25	575
	26-140	425
	141-200	325
Milking goats	1-40	850
	41-125	400
	126-200	250
Suckler cows (for milk production)	1-25	750
	26-100	550
	101-150	400
Suckler cows (for no milk production)	1-25	1,450
	26-100	1,250
	101-150	1,100
Sheep, suckler goats	1-50	380
	51-100	300
	101-250	140
	251-400	30
Breeding pigs (south Norway)	1-25	700
Breeding pigs (north Norway)	1-25	910
Slaughter pigs	1-250	35
Horses	1-40	400
Rabbits	1-200	68

3.4.4 Acreage support

This provides financial support for grassland production. A livestock producer can get acreage support for coarse feed production as shown in the table below. The zones for acreage support are different from the zones for meat production and are listed in annex n° 3 Fig. 11.

1997/1998 Interval	Zones						
	1	2	3	4	5	6	7
0 - 10 hectare	361 Kr	286	403	403	491	544	588
10,1 - 25	195	173	195	195	218	233	246
25,1 - 40	130	130	130	130	130	130	130

3.4.5 Holiday financing and compensation for being unable to work

The Norwegian government provides funds for farmer's holidays or replacements, so giving farmers the same opportunities as other paid workers. The budget provides credit to finance the holiday plans and replacement of farmers that for some reason are unable to work (tab. 3.5). This kind of holiday subsidy is calculated on the basis of the workforce required on a farm with a maximum of 2 men/year. It is possible to receive a reimbursement for the costs of replacing the missing workforce due to illness, maternity leave, military service etc. The condition is that the continuation of the work is vital for the upkeep of the stock farm.

Tab.3.5 - Kroner per day granted for holidays and impossibility to work, according to the number of animals owned.

Type of animal	Interval	NOK a day
Dairy cows	1-8	3,076
	9-20	924
Cattle	1-25	388
	26-140	283
Dairy goats	1-40	698
	41-100	246
Sheep	1-100	225
	101-250	141
Pigs for breeding	1-15	714
	16-60	693
Pigs for slaughter	1-200	30
	201-1 900	21
Poultry	1-1 000	7.19
	1 001-8 000	5,15
Horses	1-40	819
Rabbits	1-50	204
	51-300	126

3.4.6 Transport support

The government supports the transport of animals from the farms to the slaughter-houses. This support exists to ensure that a farmer that has a longer distance to travel to reach the slaughter-house still receives the same price for his animals as a farmer that has his farm closer to the slaughter-house. The support covers about 30 % of the transportation costs. The remaining difference is covered by the slaughter-house companies.

3.5 General considerations on the subsidy systems for livestock producers in Norway and Switzerland

Switzerland and Norway are characterised by a very well-organised subsidy system for producers, a system that offers quite a high level of support. In both countries, the territory is divided into more favoured and less favoured zones and more aid is given to mountainous zones (especially in Switzerland) or poorly accessible zones (in Norway). Switzerland is mostly an alpine country whilst Norway has quite a well-organised morphology and is characterised by vast and not very populated areas which are poorly connected to each other.

As mentioned above, the subsidy systems are well organised but subsidise producers in different ways. Indeed, in Norway, payments are linked mainly to production, e.g. basic deficiency payments and region dependent payments which allocate a certain amount per kg animal. In Switzerland, on the other hand, payments are not so tied to production as they are to different zones of production e.g. deficiency payments for farms according to land area, deficiency payments for pasture land, contributions in cases of difficult production conditions, and contributions for livestock aestivation. In Switzerland and Norway there are also other types of contributions (for animal transport, low animal density etc.)

In 1996, Norway spent 2,675.7 billion NOK in direct payments for livestock producers, equal to approximately 372 billion USD. In 1996, Switzerland spent 2.399 billion CHF (1.64 billion USD) on various contributions for livestock producers, out of a total agricultural aid of c. 4 billion CHF (2.73 billion USD).

Introduction

The first part of this report was needed to illustrate in the most objective manner possible the various types of support to livestock presently found in Europe. In this second part we have instead concentrated our efforts on the possibility of reforming the agricultural policies to benefit the conservation of the large carnivores. Before presenting possible guidelines to follow in carrying out such a reform, we felt that it was important to illustrate the effect that the present agricultural policies have had or could have not only on this species but also on the environment and on the natural resources.

For this reason the first chapter proposed to analyse the problem on a wider scale. Actually it's important to stress that although the conservation of the environment is considered one of the principal objectives and must be at the basis of all the Community policies, at the same time strategies and means are not supplied for obtaining concrete results.

Many people have shown how a livestock policy based on supporting the price of products and granting rewards according to headage numbers, stimulates an increase in production and favours the presence of a surplus for which there is no market. Furthermore, during the last years a drastic change in the manner of producing has been noticed, the extensive breeders are gradually disappearing leaving way to a more intensive type of breeding. The abandoning of some of the less favoured areas and the presence of a great number of domestic animals in more productive areas, have considerable consequences on the rural landscape maintaining and on the natural resources conservation.

A proposal for the reform of the current community livestock policy that allows the preservation of the environment without compromising the incomes of the breeders has been treated extensively in a recent work (CEAS-EFNCP 1997) to which we will refer often.

The above proposal has been used in the second chapter as a starting point to elaborate more specific measures to favour the conservation of large carnivores.

However before this, we wanted to illustrate the problems that are at the basis of the eternal conflict farmer-predator and the effects that a support policy to breeding such as the current would have or could have on the Large Carnivores conservation.

1.1 How the support policy influences the way of breeding

The approach generally adopted in Europe is that of supporting livestock breeding by support measures which considerably influence producers' revenues according to the country or livestock sector (see § 1.3 in this chapter).

The consequences of this aid is that the producers adapt their production methods to optimise their return.

1.1.1 In the European Union

In the EU, the CAP has de facto led to the production of a surplus of agricultural produce with the consequent increase in costs for the Commission, without efficiently resolving the problems of farmers incomes. Most (80%) of the funds spent under CAP ends up in the pockets of a limited number (20%) of big farms; this imbalance is further compounded by the continuous exodus from the countryside (WWF 1997).

Even though many traditional production systems have changed thanks to the advent of new technologies which are more economically advantageous (mechanisation, metal fencing, genetic selection of more productive forage, cheap fertilisers, etc.) it should be pointed out that CAP has undoubtedly facilitated the transition from an extensive to an intensive production.

In general, as emphasised by CEAS-EFNCP (1997), the possibility to earn more by producing more (thanks to high market prices and premiums) spurs the producer to:

- improve the productive capacity of the pastures aiming to increase the density of animals in this zones (sowing, increasing the use of fertilisers, giving the livestock additional forage, etc.);
- increase the total area used for grazing (annexation of less productive farms, working of previously unworked land, conversion of crop land to grazing, etc.);
- adopt a more intensive type of management to increase the productivity of the single animal (use of better performing breeds, more use of veterinary products).

CAP's effects on the breeding of dairy cows are quite different from those on sheep and meat cattle breeding. While the premium system for livestock headage can spur the producer to exceed the optimal number of animals per hectare in order to obtain the maximum premium possible, the dairy quota system forces the producer to aim at optimising his milk production to gain more advantages.

Simplifying, we can say that while the first system can lead more easily to overgrazing situations, the second spurs the use of large quantities of nitrogen substances and pesticides to improve pasture productivity and hence the quality and quantity of milk produced.

Furthermore, this type of policy, even though one cannot prove it is the direct cause, has helped the transition from a mixed- (cattle, sheep, horses) to a single-breed type of livestock breeding. Bignal's 1996 study gives an example of the trend found in recent years in Scotland, where there has been a transition from mixed livestock farms to specialised (and relatively intensive) farms of sheep only, with an evolution of 53.5 sheep

per cow in 1992 compared with 10.5 sheep per cow in 1945. The substantial change took place in 1980 with the introduction of the ‘sheepmeat regime’.

The present support policy also fosters the breeding of specific breeds according to the type of area in question (for example sheep in the hill zones of the UK and cattle in the Spanish *dehesas*); this comes about because breeders tend to locally adapt the type of livestock management basing this on the simplest way for increasing the number of animals and hence obtaining the biggest return from headage payments (CEAS-EFNCP 1997).

1.1.2 In the CEECs

In these countries, the agricultural sector has undergone considerable changes in recent years. Above all the end of the support for meat consumption and the lack of a trade outlet to Russia have led to a strong decline in production. The financial aid currently available in most of the countries is not such as to allow production to return to the pre-transition level and aims principally at obtaining quality product (selected breeds).

The dismantlement of the big state co-operatives under the privatisation programme flanked with lacklustre support for the agricultural sector ensures that a family-run agriculture has developed to date, consisting largely of small farms with extensive-type breeding (few external inputs and little environmental impact).

We have already examined the possible CAP’s impact on agriculture and in particular on livestock breeding in these countries in the paragraph 2.13.1 (Part I of this report).

1.1.3. In Switzerland and Norway

A study by P. Maty (1996) showed that in **Switzerland**, livestock breeding (mainly sheep and goats) is strongly influenced by the subsidies paid out by the state. In 1996, the direct subsidy per sheep amounted to 560 CHF and OECD data indicates that in the same year Switzerland spent 2.4 billion CHF (circa 1.6 billion USD) for the entire livestock breeding sector out of a total of 4 billion CHF (2.7 billion USD) for the entire agricultural sector.

The total number of sheep increased from 350,000 in 1983 to 436,500 in 1995, while cattle breeding, which was very common earlier, saw a strong decline (OECD data).

More than half the sheep breeders are ‘part-time’ breeders that is they have other sources of subsistence (second job). The flocks are small and the grazing area does not exceed 3 ha. In many cases, the flocks are managed part time more as a hobby than as a principal activity, which survives thanks to state financial support. The productivity of this type of farms is very low and is influenced by the absolute lack of supervision (little surveillance, little veterinary treatment, low level of pasture management, etc.) (Marty 1996).

Similarly, in **Norway**, the sector’s costs are considerable, in 1996 direct payments to breeders amounted to 2.7 billion NOK (circa 372 million USD) (OECD data). The support rate for a sheep amounts to almost two thirds of its market value (Kaczensky 1996).

As in Switzerland, also in this country sheep breeding is not a full-time occupation in most cases; the considerable funding leads to scant interest on the part of the breeder to improve his activities’ productivity and competitiveness (Kaczensky 1996).

1.2 The contradictions of CAP

The present CAP has many intrinsic contradictions. As regards livestock breeding, although on the one hand the 1992 reform promotes production (market support and compensatory premiums for livestock headage), on the other it seeks to limit it, attributing each Member State with a quota. Moreover, the proposals to give more importance to the conservation of the environment and natural resources have led to the introduction of agri-environmental regulations (2078/92) and other accompanying measures, but without sufficient financial support to allow a real and lasting change in the 'manner' of production.

Below are some of the principal contradictions of the livestock support policy. In citing these contradictions, we refer to the recent report by the Centre for European Agricultural Studies (CEAS) and by the European Forum on Nature Conservation and Pastoralism (EFNCP) (1997):

Special premium for male bovine: if on the one hand there are reference ceilings for each region (quotas) which could limit the damage in environmental zones which are most at risk from overgrazing, in reality this does not happen because most of the Member States have chosen to refer to the national quotas, thus endowing the latter with greater flexibility. In any case, even if applied at the lower administrative level (e.g., region or province), these limits would do little to avoid the concentration of livestock in the more productive zones and the abandonment of the poorer grazing areas.

Premium for suckler cow: the producers of dairy cattle who wish to receive this premium should have a quota which does not exceed 120,000 kg of milk; this is the equivalent of circa 20-25 dairy cows. While this limit is a severe restriction for the big farms of northern Europe which specialise in milk production, in some Mediterranean countries, where the herds are less specialised, nothing prevents the breeder from having a herd of dairy cattle and another of breeding cattle for which he receives the premium.

Stocking rate limits: the present limit for receiving the two premiums cited above is 2.0 LU (Livestock Unit)/ha. This ceiling may be effective in zones in which intensive breeding is practised and there is a high risk of pollution by manure. In other zones, generally the more interesting environmentally, where extensive breeding is the consequence of the low productivity of the pastures, the 2.0 LU/ha limit is meaningless, in fact a recent study (CEAS-EFNCP 1997) has calculated that the real storage average of these so-called agri-ecological zones is 1.1 LU/ha.

Premium for extensivisation: this supplementary premium is given to breeders who can prove that during the year their stocking rate was less than 1.4 LU/ha. Here, as in the previous case, the limit is effective for the more intensive farms (generally in northern and central Europe). In the more delicate mountain zones, the real average stocking rate ranges from 0.65 to 0.81 LU/ha and is therefore well below that envisaged for eligibility for the premium.

Annual premium for sheep (and goats): the definition of a maximum quota per farm is based on the number of sheep registered in the country in a reference year. This mechanism does not therefore take account of restrictions of an environmental nature on the number of sheep. In any case, the possibility to transfer or hire the quotas would have made them wholly useless.

Although the agri-environmental regulations (2078/92) were a step towards better awareness of the numerous repercussion which both agriculture and livestock have on natural resources, the results have failed to match expectations. Above all, as we have seen, it is in net contrast to the CAP as it asks breeders to reduce headage, while the support policy encourages production. The losses deriving from the sale of headage (intended as lost income) are more than the payment offered by 2078/92 (Beaufoy 1996).

The Member States are obliged to present multi-zonal programmes with a minimum length of 5 years based on the environmental needs considered as priority for each country. Often these are national programmes consisting of a series of small projects which concern those specific areas which are most at risk environmentally wise: they are programmes drawn up at regional level which suffer from the presence of administrative boundaries and do not respond to the needs of a geographical area as a whole.

In some Countries, as for example Portugal, the precarious situation of the national budget causes a lack of funds for the co-financing of some measures (25% of the total) making Regulation 2078/92 ineffective (Eden 1996).

A reform of the livestock breeding sector support system would encompass some principles of these regulations in the base support system (as we shall see in more detail below).

In general, one of the biggest limitations of this policy is that it does not take account of local needs. In a Europe which stretches from Finland to Portugal, it is very important to make distinctions between different pasture productivity, different ecological interest of some areas, etc.

Often the European and national agricultural programs are difficult to understand for the breeder, a study conducted in Germany (Aldinger et al. 1993 in Luick 1996) showed the presence of 58 different programs in the same region (support to the infrastructures, benefits, rewards, ...), in some cases there are also programs that are modified annually. This confusion forces the breeders to use consultants to help them find their way in the bureaucratic jungle.

There are for the community a series of norms not directly connected to the CAP, but that influence the management of the zootechnical firms. Considering this, we can cite as an example, the UE directives 92/46 and 92/47, relative to milk and its derivatives (these came into force in Italy with Decree n. 54 of the President of the Republic, 14th January 1997). These directives regard the hygienic norms that the breeders must respect for the production and marketing of milk and its derivatives (milking, product stocking, premises, equipment, personnel, etc.). At a first glance of the law it appears obvious that a large amount of small family firms will be obliged to submit to a number of rules, probably too severe for their survival.

This certainly is not the right place to judge these hygienic-sanitary directives, but we firmly hope that in the future the legislation regarding domestic cattle-breeding (bovine and ovine), will be considered as a whole including all the aspects regarding production and marketing (meat, milk and its sub-products). The new process of reform should basically be clear and have simple norms studied for a long-term strategy so to allow the breeder to manage rationally his resources.

1.3 How the support policy influences farmers' incomes

The yardstick most commonly used to quantify the influence of the support measures on farmers' income is the PSE (Producer Subsidy Equivalent). This type of measurement can be applied in all the states and for every type of support. It includes the market support measures (export refunds, intervention buying, etc.), direct payments (headage payments, area payments, etc.), reductions or increases in production costs (for breeding related to changes in the price of forage, etc.), indirect support (any type of facility such as tax concessions for example).

The PSE percentage measures the percentage of producer income which derives from the agricultural support policy. The remaining part represents the income considered as 'genuine' (i.e., unsupported income).

The table below (Tab. 1.1) shows the OECD's estimate of the PSE in the various breeding sections for the European Union, Switzerland and Norway.

In their 1997 report, CEAS and EFNCP attempted a more detailed calculation of the PSE in the European Union, seeking to highlighten the incidence of the direct support and market support measures vis-à-vis the 'genuine' income of the world market (Tab. 1.2.).

Tab. 1.1 - PSE percentage in the European Union, in Switzerland and in Norway

Livestock product	Percentage PSE (Return to farmers from agricultural policy support)		
	European Union	Switzerland	Norway
Milk	63%	84%	80%
Beef and veal	60%	88%	75%
Sheepmeat	59%	81%	82%
Pigmeat	10%	55%	45%
Poultry meat	23%	88%	59%
Eggs	5%	88%	61%
All livestock products	46%	80%	74%

Tab. 1.2 - PSE subdivided by direct support and market support compared with the unsupported returns from the market.

Livestock product	Direct support	Market support	Unsupported returns from the market
Milk	0%	25-63%	37-75%
Beef and veal	40%	20%	40%
Sheepmeat	41%	18%	41%
Pigmeat	0%	10%	90%
Poultry meat	0%	23%	77%

The support policy substantially increases the prices of livestock products, raising the prices of beef and sheep meats to circa 50% above world levels and milk to twice the world price. Economic studies have shown that if the price of a product increases, the farmers tend to produce more of it (CEAS-EFNCP 1997).

At the same time, the beefmeat and sheepmeat which are sold on the market at a supported price, received a further 'price' surplus which is comparable to the world market price (see the first and third columns of the Tab. 1.2) in the form of headage payment. The upshot of this is that some breeders produce meat for which there is practically no market only because there are headage premiums.

Spain furnishes an example of this. When this country became a member of the European Union, the existence of a sheep premium led to a rapid increase in production (Beaufoy 1996). Similarly, in the eastern European countries, production fell significantly when state aid was eliminated (see Part I - Chapter 2 of this report).

1.4 Livestock breed and environment

Many husbandry practices influence the environment negatively (for further details see CEAS-EFNCP 1997), for example:

- the replacement of natural pastures characterised by a high level of species' diversity , with more productive hay, alfalfa, etc. monocultures, directly reduces the diversity of plants and indirectly that of insects, birds and mammals which depend on that type of habitat;
- the herbicides used to boost the productivity of these monocultures can have toxic effects not only on the plants but also on some species of fauna;
- the fertilisers (both natural and artificial) tend to favour the growth of some species to the detriment of others;
- giving of additional forage to the livestock indirectly acts on the environment, allowing the storage of a bigger number of animals per area-unit and locally increasing the richness of nutrients (manure around the feeding areas);

- the cutting of hay normally takes place before the completion of the reproductive period of the other species (both plants and birds) causing their destruction; moreover, it is a practice generally associated with a type of intensive management which implies most of the foregoing points;
- the high concentration of grazing livestock can have direct effects of erosion and soil compacting, the destruction of ground nests, the reduction of the diversity of the species flora and microfauna, etc.;
- the removal of trees and bushes, the replacement of hedges and other natural barriers with iron and electric wires for fencing, the replacement of semi-natural ponds with artificial drinking places, ... are all factors which impoverish the rural landscape in addition to eliminating numerous ideal habitats for many wild species.

The above points are some examples of the possible effects of intensive farming practices. In many cases however, the grazing animals can produce beneficial effects, namely:

- prevention of the colonisation by tree and bushes of some grassland zones, hence maintaining the landscape and diversity of habitat needed for many species of plants and animals unchanged;
- control of the growth of the grass which, as we shall see below, is the critical factor for ground nesting birds and flowering plants.

1.4.1 Principal effects of the livestock system on the environment

Many recent publications (a literature review is given in the 1997 CEAS-EFNCP study) have shown that livestock breeding has a considerable impact on the environmental and landscape resources. The environmental indicators most frequently used to measure the state of health of the grasslands are flora and birdlife, in particular the diversity of the species (number of species and/or relative abundance).

The principal factors linked to the breeding systems which influence the natural environment are:

- a) the quantity and frequency use of fertilisers;
- b) the number of animals per surface unit and the length of their stay on the grazing area;
- c) hay cutting periods and other types of forage.

- a) As regards the use of **fertilisers**, experiments (Mountford et al. 1993 in CEAS-EFNCP 1997) have shown that even a level of 25 Kg N/ha produces a significant reduction in the diversity of the species of flora, hence well below the currently permitted levels (300 Kg N/ha). The optimal status which allows the flower species (more interesting from the environmental viewpoint) to compete with the others is a low level of nutrients in the soil.

The effects of fertilisers are cumulative in time and most of the plain grazing areas, above all in northern Europe, after years of intensive use of these products need a very long period to return to the “environmentally optimal” fertility status. Merely reducing the use of fertilisers would yield little result as regards the rehabilitation of the diversity of the flora.

Although there are no studies on the direct effects of the fertilisers used on grazing lands and the bird populations, one can in any case cite some indirect effects such as the height of the grass which limits the ground nesting capacity of some species; or else the presence of a bigger number of livestock per grazing unit in those zones which are more

subject to the use of chemical products, hence a greater risk of destruction of ground nests.

- b) Each type of grazing land has an **optimal density of livestock**, which allows the conservation of a high diversity of flower species and at the same time the ground nesting of some bird species. A number of animals either too high or too low, could modify this delicate equilibrium, causing the so-called *overgrazing* and *undergrazing* effects. The factor which influences both the nesting and the growth of flower species is the height of the grass, which is in turn influenced by environmental (climatic and soil) factors and by the action of the herbivores which feed on it (livestock). An optimal number of animals per surface unit therefore allows the maintenance of an environment suited for birds and flowers. The need for livestock stocking rates limits determined at local level and on the basis of environmental criteria rather than the maximisation of profit is therefore evident.

Another effect which the number of animals can have on the ground nesting of birds is that of 'trampling'. While in the previous case we talked of livestock density understood as Livestock Unit per hectare, where one adult cow was equivalent to 7 sheep; here we have to take into account the fact that a sheep has the same devastating effect as a cow as regards ground nests. In this case it is therefore evident that any reduction in the number of animals has positive consequences on nesting as does the change from sheep breeding to the breeding of a lesser number of cattle.

- c) As regards the forage harvest, the key factor is the **date of the first cutting**; if it takes place too early, it can lead to the destruction of the nests before the eggs open or the cutting of plants in flower before the seeds are formed. Deferring the date of the first cutting by one or two weeks (in some cases) can lead to very positive effects on the bird populations.

The principal drawback is that the nutritive value of the hay and the silo products achieves its optimal value before the period of flowering and deferring the cutting date would mean a significant economic loss.

It can be added that when farms are managed with little interest on the part of the owner, as in Switzerland (Marty 1996), the base knowledge for a correct management is often lacunous. This can lead to damaging consequences for the environment: animals left free in limited zones tend to exhaust all the resources available. The normal practices of alternating pastures, implemented to allow the regeneration of zones which have already been exploited, are not adopted, causing a continuous and often irreversible impoverishment of said areas.

1.4.2 Extensive livestock systems

The characteristics of extensive grazing, which is implemented in many mountainous zones and those of the Mediterranean, are different from those of the intensive grazing practised above all in the pastures of the plains of central and northern Europe.

As regards the impact this type of management can have on the environment, we would emphasise that (CEAS-EFNCP 1997):

- Fertilisers are used very rarely in view of the practical difficulties of application and low level of economic profit due to the poor soil and the adverse climatic conditions;
- the density of livestock per surface unit is decidedly lower, but this is due to the low productivity of the pastures, hence cases of 'overgrazing' can still be encountered;
- the structural shortcomings of many of these areas cause the abandonment of this type of activity, leading to 'undergrazing' effects.

BOX 1 - Ineffectiveness of the Structural and Cohesion policies

As we saw in the first part of this report, there are Structural and Cohesion Funds. These funds lie at the base of a European policy which aims to reduce the economic and social disparities within the EU. 30% of the EU's budget is invested in the so-called 'underdeveloped' regions (industrial areas, rural areas and regions in decline) (WWF 1997).

Unfortunately, development often means the construction of motorways, dams, irrigation systems, industrial centres, etc. Scarce consideration is given to the environmental aspect in the planning, implementation, monitoring and assessment phases of these structural policies.

Environmental impact studies are often carried out without taking account of all the variables involved and generally lead to conclusions which are not given their correct importance, this is because of the economic interests which lie behind the realisation of projects of this type, and because the environmental experts are not among those who actually make the final decision.

The structural funds are also characterised by operational difficulties. In effect, the implementation and financing criteria of these policies are based on subsidiarity: the local (and sometimes national) authorities have to design, organise and co-finance the various projects. When these capacities are lacking, the implementation of the structural measures is less efficient. Unsurprisingly, these design and organisational shortcomings are often found in those regions (objective 1) and in those sectors (agriculture) which most need structural intervention.

In recent years, considerable amounts of the funds made available by the Commission for some regions have not been used as a result of operational delays. Moreover, the public administrative bodies often find it difficult to mobilise the resources needed to obtain the European co-financing (these are amounts which have been made available but not actually issued) (Federazione Nazionale dei Cavalieri del Lavoro 1997).

All this can lead to a further increase in the disparities between the more developed and organised regions vis-à-vis those which are less developed and more disorganised.

If these policies are to achieve their objectives, the procedures should be simplified and above all the approach changed. Projects should no longer be decided only 'from above' but local initiatives should be supported with the involvement of citizens' groups and non-governmental organisations.

Moreover, financial support should be envisaged for the preparation of the development projects by the potential beneficiaries so as to allow, among other things, environmental impact studies to be carried out.

BOX 2 - The Need for a Sustainable Development Policy

In recent years, both CAP and the Structural and Cohesion Policies have been widely criticised for their inefficiency, inadequacy (out-of-date objectives), lack of co-ordination and in some cases the presence of overlaps and conflicts.

The principal objectives of both include the safeguarding of the environment but at the same time they furnish neither correct strategies nor sufficient means to achieve concrete results.

WWF has for a long time highlighted the need for a Regional Development Policy with a local and decentralised approach, integrated in a European framework which defines the guidelines to be followed.

Under this proposal, each region should be treated as an integrated system which considers the interaction of environmental, economic and social aspects (principal objectives) (Fig. 1.1).

The transition to a Sustainable Regional Development Policy should take place gradually through three main phases:

- a first period to develop the concept of integrated approach in which the measures and instruments of CAP, Structural and Cohesion Policies would be combined through: the introduction of practical methods for calculating the environmental impact not only at project level but also at planning and programming level, the training of sustainable regional development players, the promotion of innovative and exemplary approaches;
- a progressive transition to a Sustainable Regional Development Policy, with corresponding transfer of funds from the European budget;
- finally, the Sustainable Regional Development Policy should stabilise itself throughout the Union (including the CEEC countries). This should lead to a reduction in economic and social disparities, maintaining and improving the natural environment and cultural diversity in Europe.

1.5 First reactions to Agenda 2000

On 16 July 1997, the European Commission presented the Agenda 2000 communication which outlines the broad perspectives for the development of the European Union and its policies beyond the turn of the century (see § 1.6 of Part I). It gives the European Commission's opinion on each of the applicant countries and the future financial framework beyond 2000, taking account of enlargement. The Agenda 2000 document addresses the future reform of the Common Agricultural Policy (CAP) and the future of the Structural and Cohesion Funds.

WWF recognises the widespread impact of the Common Agricultural Policy (CAP) on Europe's nature, wildlife and wider environment and is therefore working to influence further reform of the CAP. In this paragraph we want to summarise WWF's reaction to the European Commission's proposals to further reform the CAP and rural policy, as set out in Agenda 2000, and outlines key areas where the proposals need amending to address environmental concerns (see annex n° 6).

1.5.1 General comments

Any reform would be better than the existing farm support system. However, WWF is alarmed that the Commissions proposals continue to leave the environment at the periphery of the CAP. The package does not go far enough to shift policy from production-related support towards environmental and sustainable rural development measures, offering little hope for Europe's declining wildlife and rural areas. The lack of concrete proposals for better environmental integration into the agricultural policies of Central and Eastern Europe is a major omission.

Agenda 2000 does however outline a wider range of objectives for the CAP, including the need to improve the competitiveness of agriculture, the production of quality food, the integration of environmental concerns and the need to promote rural development. However, Agenda 2000 does not back these objectives with detailed proposals and financial commitments. 85% (50 billion ECU) of the total agricultural expenditure will still be spent on market mechanisms in 2006 according to the Commission forecasts in the current 15 Member States. Only 2.1 billion ECU has been earmarked for new rural development accompanying measures and horizontal fisheries measures and 2.8 billion ECU for the three existing accompanying measures. WWF believes that a greater share of the CAP budget should be allocated to sustainable rural development and environmental measures. WWF recommends that 25% of the CAP Guarantee budget be re-allocated to agri-environmental programmes and 50% to sustainable rural development programmes by 2006.

Reductions in price support are welcome, however, they will be compensated by new compensatory direct payments to farmers. WWF is shocked that the Commission has not proposed to phase out these payments over time. Open ended and unconditional compensatory payments will not be acceptable to European tax payers nor to our trading partners. WWF believes that public money supporting rural areas can however be justified on the grounds of environmental and sustainable rural development criteria. Member state Finance and Agriculture Ministers must take responsibility to initiate a significant shift in agriculture policy from product-related support towards environmental and sustainable rural development payments. They must agree a phase out plan for compensatory direct payments with the subsequent shift of savings to environmental and sustainable rural development payments. Such a shift is indicated in Agenda 2000 but is in no way sufficient. This shift of resources would not only benefit the environment but would also reduce trade distortions which are currently the subject of major concerns with respect to the next round of GATT negotiations.

The farming sector should realise that the support systems proposed in the Agenda 2000 will be challenged by trading partners. They would do better to actively promote a move to environmental and sustainable rural development payments than to stay paralysed in a system which is losing support from all other sectors of society.

WWF is also very disappointed that the Commission is only proposing to enable Member States to make direct compensatory payments conditional on the respect of environmental provisions. WWF believe that farmers should only be entitled to direct payments if they comply with basic environmental standards. All Member States must be required by the

European Commission to develop a base line of environmental standards which farmers must comply with in order to receive compensatory direct payments until these are phased out. Additional transitional payments to help farmers enter environmental and rural development programmes should be offered. They should contain a strong emphasis on environmental management.

For more detailed information on WWF reactions to the CAP reform proposals contact N. Yellachich, WWF European Policy Office and Gail Murray, WWF UK.

BOX 3 - Modifications to Agenda 2000 - summary of WWF s key recommendations.

Compensatory direct payments must be made dependent upon farmers meeting basic environmental standards, and must be phased out over time. The European Commission must require all Member States to define environmental baseline standards. All direct payments to farmers must be dependent upon farmers meeting these standards. The European Commission should develop a plan setting out a timetable for phasing out compensatory direct payments.

Greater resources must be allocated to agri-environmental and sustainable rural development programmes: 25% of the CAP Guarantee budget must be shifted to agri-environmental measures and 50% to sustainable rural development programmes by 2006.

Countries of Central and Eastern Europe must make the environment central to their agriculture policy: the European Commission must earmark 25% of the proposed CAP budget for these countries to agri-environmental programmes and provide 100% funding for pre-accession pilot projects.

Chapter 2 - Reform livestock policy in order to benefit large carnivore conservation

This chapter aims to present some proposals for reforming the livestock subsidy system currently implemented in the European Countries in order to benefit Large Carnivores conservation in the light of the considerations in the first part of this report and in Chapter 1 of this second part.

Before analysing all the difficulties regarding the coexistence between large carnivores (LC) and domestic livestock it seems appropriate to give a brief description of the LC species present in Europe (wolf, lynx, bear and wolverine).

It seemed important for our purpose also to describe briefly the strategies and means available to reduce this conflict, and the system of reimbursement which currently seeks to compensate the losses suffered by livestock breeders.

To conclude, the present subsidy system's influence on the livestock-large carnivore relationship will be highlighted and some reform proposals for the former discussed, with the aim of promoting the conservation of the large carnivores, as far as possible in harmony with the needs of the livestock sector.

2.1 The Brown bear biology (adapted from Swenson et al. 1997)

Numerous species and subspecies names have been assigned to the brown bear (*Ursus arctos*, ord. *Carnivora*, fam. *Ursidae*), and as a result the synonymy is formidable and confusing.

Their colours varies considerably, and some individuals may seem light or dark from different angles due to the variegated guard hairs. Normally adult males are larger and heavier than females and generally weigh 140-320 Kg while females weigh 100-200 Kg. Brown bears exhibit a long life span, late sexual maturity, and protracted reproductive cycles. It is a polygamous species, several males may mate with a female and each male may mate with several females from mid-May to July, in breeding season.

In late autumn, brown bears, that have gained sufficient adipose tissue become lethargic and hibernate for 3-7 months. Dens are either dug into the ground or old anthills (common in eastern Scandinavia) or they use natural cavities under rocks, etc. In southern populations (e.g. in Croatia and Spain) bears may remain active all year. Denning is probably an adaptation to seasonal changes in food availability and perhaps for the birth of tiny young that are incapable of thermoregulation.

Distribution and population numbers

The brown bear is the most widespread bear, with a holartic distribution in Europe, Asia and North America, ranging from northern Arctic tundra to dry desert habits. The brown bear originally occurred throughout Europe (except from the larger islands such as Ireland, Iceland, Corsica and Sardinia), but it disappeared from most areas as the human population grew, suitable habitat was lost due the deforestation and agriculture, and the species was persecuted by hunting. Today the total number of brown bears in Europe is about 50,000

bears (13,000 outside Russia). These bears found in two large ($\geq 5,000$), four medium (500-2,500), one small (100-500), and five very small (< 100) populations. The present geographical distribution of brown bears in Europe is shown in figure 12 annex n° 7.

Population density varies and seems to depend on food availability, rate of harvest by humans and stage of population expansion/retreat. The highest densities (100-200 bears/1,000 Km²) are found in the Romanian and Ukrainian part of the Carpathian population, whilst extremely low densities (0.5-1 bear/1,000 Km²) are found in areas of Finland and Norway.

Food ecology

The omnivorous diet of the brown bear is reflected by its dental adaptations and adaptations in the digestive tract. The digestive tract is basically a carnivore tract that has been lengthened, probably to allow better digestion and absorption of plant material. Brown bears can not digest cellulose but they can, however, digest about half of the protein present in plants and most of the starch and sugar.

Brown bear pass through 3 biochemical and physiological stages in their active period from spring to autumn, changing from low food intake (hypophagia) in spring to high food intake (hyperphagia) in autumn. The importance of food high energy density during late summer and autumn must be underscored, as this is the period of accumulation of adipose tissue, which is essential for hibernation. The brown bear is a geographically widespread species which relies on different food depending on area, and time of the year, selecting the most profitable food items available at a given time.

Bears switch to berries and fruits when they ripen. Insects, especially the order *Hymenoptera* (ants, bees and wasp) may be an important food.

Due to its high nutritional value, meat, obtained either as its own prey, as carcasses or as baits seem to be selected when available. Bears are not effective hunters of adult ungulates, unless they are favoured by hard snow crust during spring. In North America brown bear were found to kill 40-50% of the neonatal moose calves (*Alces alces*). Predation rate on moose calves in central Sweden is about 20-25%. On the average each bear > 2 years old kill 5.6-6.5 moose calves during late spring/early summer, and moose calves are the most important food during this period when little other nutritious food is available. In general brown bears seem to be more predaceous in its expansion areas than in its core areas.

Habitat requirements

The historic distribution of the brown bear in Europe illustrates its adaptability to different environmental conditions. With little or no human interference, brown bears occupied not only forested areas, but also steppes and northern and alpine tundra. Today, most of its former range is not suitable habitat due to human habitat alteration and human presence, and bears are found in forested areas with generally low human density when they survived the persecution that in most places, did not stop before sometime during the first half of this century.

Population density is positively associated with food availability, and populations in the productive beech forests in the Carpathian and Dinaric Mountains reach far higher density than populations in the northern coniferous forests. Area with high availability of preferred

food such as berries, fruits, hard mast, colonial *Hymenoptera*, and ungulates are of special importance for brown bears.

The survival of brown bears in forests is not connected to food alone. Food availability may be quite good in more open habitat, but bears prefer to take refuge in nearby forests during day. In areas where bears are subject to hunting and poaching and have a long history of being persecuted by man, protective shrubs or forest cover will likely be an indispensable part of the bears home area and crucial for their survival.

To summarise, bears need large continuous areas of habitat with sufficient availability of preferred foods. If poaching is a problem, these areas should be relatively inaccessible for humans.

Territoriality and dispersion

As most other large carnivores, brown bears occur at low densities, especially in northern populations (e.g. 16 bears / 1000 Km² in central Sweden, 100-200 bears / 1000 Km² in Romania) and have large home ranges. Home range size for adult male and female varies between areas, probably due to variation in food availability and distribution, and population density. Male home ranges averaged 5430, and 128 Km² in central Sweden and Croatia, respectively, whereas the female home ranges were 345 Km² and 58 Km², respectively. Little is known about the social organisation of brown bears, but the relationship among individuals, especially adults, depends largely on spacing and mutual avoidance except during the mating season. Brown bear exhibit male-biased dispersal, and female generally establish home ranges in or adjacent to their mothers' home range. However, extreme dispersal from the mother's home range has been documented in an expanding Swedish population.

Threats and limiting factors

Brown bear have a low reproductive rate and the events in the past show us that they are very vulnerable to human caused mortality. This make brown bears vulnerable to changes in, or lack of, management.

The main threats and limiting factors are: the small size of the isolated brown bear populations in western Europe; the population bottleneck during the first half of the century and the expected low genetic variation; the loss of habitat (physical loss of habitat that could be used by bears); hunting, legal killing of nuisance bears and poaching; artificial source of food like garbage or feeding station (as bait for bear hunting) that make bears human habituated and often involved in human conflicts.

2.2 The wolf biology

The wolf (*Canis lupus*, ord. *Carnivora*, fam. *Canidae*) is the second largest predator in Europe, after the brown bear. It looks like a large German Shepherd dog. Since the species has a large distribution area and lives in a variety of habitats, its phenotype variation (size, colour, and weight) is remarkably high.

Distribution and population numbers

The wolf is the terrestrial mammal that had the largest distribution area in recent historical times (see Fig. 13 annex n° 7). It occupied the whole Northern Hemisphere north of 20° N, including the entire North American continent, Eurasia and Japan. Following extermination efforts by man, the species' range is greatly reduced today. At the end of the 18th century, wolves were still present in all European countries with the exception of Great Britain and Ireland. During the 19th century, and especially in the years following the Second World War, wolves were exterminated from all central and northern European countries. During the sixties, wolf distribution was similar to what it is today, with small remnant populations in Portugal, Spain, Italy, Greece, and Finland, and more numerous populations in the east.

In the last twenty years, the species has been recovering naturally in several parts of Europe: a positive, though uncertain trend in number and range size is behind the signs of re-colonisation of France, Germany, and Switzerland.

The largest populations are found in eastern countries, particularly Romania, the Balkan area, Poland and its neighbouring countries on the eastern border. Distribution in central-western Europe largely reflects mountain areas with lower human densities and less intensive agricultural utilisation: the distribution pattern is very irregular and remaining patches are often small and isolated. The overall number of wolves living in European countries is relatively high: however, only 6 countries have a population of more than 1000 wolves, only 11 have more than 500 and 8 countries have very small populations of less than 50 animals.

Small numbers of wolves in a few countries (i.e. France, Portugal, Germany, Czech Republic, Hungary, etc.) are due to the presence in territories that border on neighbouring mountainous areas. The presence of these small populations appears strongly dependent on the health of neighbouring populations and their ability to produce a sustained flow of dispersing animals.

Food ecology

The wolf has a very diversified diet and is a true generalist that feeds opportunistically on what is most available in its habitat. The wolf diet may include large prey, such as moose, deer and wild boar, or small vertebrates, invertebrates, vegetables and carcasses. Diet composition throughout the geographic range and seasonal variations depends on the relative abundance of potential prey, as well as their accessibility and availability. A wolf typically requires 3-5 kg of meat per day, although it can fast for several days when prey are not readily available.

Habitat requirements

Wolves live in the most diverse types of habitat and their broad distribution ranges show the species' adaptability to the most extreme habitat conditions. The wolf habitat has been described as everywhere where humans do not kill the species and where there is something to eat. Where wolves depend on wild ungulate preys, their habitat is that of their prey. Habitat quality should then be interpreted in terms of human disturbance, prey densities and range size. In general, large forest areas are particularly suitable for wolves in Europe, although wolves are not primarily a forest species.

Territoriality and dispersion

Wolves are territorial and each pack actively defends its own territory from wolves of neighbouring packs. Territory size varies greatly, depending on wolf and prey densities,

geographical features, human disturbance, and human-related infrastructures: while territory size in North America ranges from 80 to 2,500 Km², in Europe it is generally from 100 to 500 Km². Territories are actively advertised by wolves, through markings with urine and faeces left in strategic sites within the territory and along the boundaries. Territory boundaries are rarely trespassed; when this occurs, it may lead to violent aggressions and intra-specific mortality.

Internal use of the territory varies throughout the year, depending on prey seasonal distribution and wolf reproduction activity. During spring and summer, when the entire pack contributes to feeding and caring for the young, wolves tend to return more frequently to the den or the “rendez-vous” sites. The latter, of which there may be several in each territory, are traditional sites to which the pack returns after hunting. Wolves can travel many km per day (up to 38 km in southern Europe), depending on the pattern of territory used as a function of food resource dispersion and human disturbance.

A small number of wolves live with no territory: these animals are dispersing from their parent territory in search of a new area in which to settle, or they may be animals that have been rejected by a pack (as when a dominant loses its status). They move mostly along the periphery of existing territories and hunt alone. Dispersal distance can be substantial and in North America has been found to be from 8 to 354 km (886 km maximum). Territoriality, social behaviour and dispersal are the intrinsic mechanisms regulating wolf density: territoriality limits the number of social units, social behaviour limits the number of reproducing females, dispersal contributes to expanding the population and increasing its genetic exchanges.

Demography and population dynamics

Sex ratio is usually slightly biased in favour of males, but it can be in favour of females in populations that are substantially controlled by man or are at very low densities. Young animals of the year make up to a third of the total population - or more when the population is expanding rapidly. Non-territorial and dispersing wolves have been estimated at no more than 5-20% of the total population.

In areas without human influence, natural mortality (intra-specific aggression, illness, wounds from hunting accidents, starvation and malnutrition) can affect up to 50% of the total population. However, human action is by far the most important cause of mortality for European wolves. It can be accidental or intentional (shooting, poisoning, trapping) and is particularly significant where wolves cause damage to human economic activities. Local mortality can account for temporary local extinction of small populations.

Adult wolves have the highest survival rates (80%), followed by the young of the year (55%) and then pups (6-43%). Pup survival after the first winter is strongly correlated with prey density. Dispersing animals have lower survival rates. Wild wolves can live up to 10 years, while in captivity they can reach 16 years of age.

Wolf density is clearly related to the density of available prey: higher prey biomass allows for larger litter sizes and greater pup survival. The numerical response of the wolf to variations in prey numbers lags behind by 3-5 years. Where wolf populations are controlled by man, it has been found that a mortality rate of over 35% of the total population may cause a decline and eventually extinction.

Densities vary significantly: in North America they are generally from 0.3 - 4.3 wolves/100 Km², and appear to be regulated essentially by the prey biomass. In Europe the densities are generally 1-3 wolves/100 Km², although a comparison is extremely difficult due to the differences in methods and time of the year to which the estimates refer.

2.3 The European lynx biology (adapted from Nowell et al. 1996)

Eurasian lynx

The Eurasian lynx (*Lynx lynx*, ord. *Carnivora*, fam. *Felidae*) is the largest of the lynxes. Adult males weigh on average 21.6 Kg (n=103), while females are slightly smaller at 18.1 Kg (n=93). The lynxes of eastern Siberia consistently reach the greatest size. The Eurasian lynx has relatively long legs, and large feet which provide a “snowshoe effect”, allowing for more efficient travel through deep snow. In winter the fur grows very densely on the bottom of the feet. The coat is greyish, with tint varying from rusty to yellowish. A bright reddish tint, which profuse spotting, is seen most frequently in the south-western part of the lynx’s range (southern Europe, Asian Minor and Caucasus).

There are three main coat patterns: predominantly spotted, predominantly striped, and unpatterned.

Eurasian lynx have long, predominant black ear fur tufts, and short black-tipped tails. Lynx activity peaks in the evening and morning hours, with resting mainly around mid-day and midnight.

Status of the population

The Eurasian lynx have one of the widest ranges of all cat species, with approximately 75% of the range within the borders of Russia (Fig.14 annex n° 7). Lynx have been recorded as far as 72° N, near the edge of the continental landmass.

The stronghold of the Eurasian lynx is a broad strip of southern Siberian woodland stretching through Russia from the Ural mountains to the Pacific. The Russian population has been estimated to be 36,000-40,000. Lynx re-colonised areas where they had previously been extirpated, mainly due to a sharp decline in commercial hunting during this period of social upheaval.

The most comprehensive data on species status is from the European sub-region, where lynx are thinly distributed and isolated into discrete sub-populations. The species was actually eradicated from most of the subregion within the past 150 years surviving only in the north and the east. In this regions, numbers fell in the early 1990s, but recovered concurrently with increases in small ungulate populations. Lynx have since been reintroduced in several parts of western Europe, a relatively large but isolated population is found in the Carpathian Mountains. Small populations are found in the French Pureness and Vosges mountains; the Jura mountains (France, Switzerland); the Alps (Austria, France, Italy); the Balkans (Albania, Croatia and Slovenia); and the Bhoemian forest (Czech Republic).

The most thorough estimates of resident adult density (per 100 Km²), derived from radiotelemetry studies, are available for Switzerland 0.94 (Jura Mountains), 1.2 (northern Alps), 1.43 (central Alps); based on snow tracking for Sweden 0.74. Where ungulates prey is abundant, density estimates are high: 10-19 lynx/100 Km² in the Bialowieza Forest in Poland and Byelorussia. Where hares are the major prey, density estimates from Russia are of the order of less than four lynx per 100 Km².

Food ecology

Although the Eurasian lynx is often classified with the three other lynxes as a predator of lagomorphs, this is a major misconception. Small ungulates particularly roe deer, chamois, and musk deer, are the main prey when ungulates are scarce. When young blue sheep are not available, lynx in China have been reported to prey on pikas, large rodents, and hares. In some part of their range, lynx prey mainly on large ungulates species (mostly females or young), including red deer, reindeer, and argali. Lynx are capable to killing prey 3-4 times their own size.

Habitat requirements

Throughout Europe and Siberia, lynx are associated primarily with forested area which have good ungulate populations. In central Asia, lynx occur in more open, thinly wooded areas. Lynx are probably found throughout the northern slopes of Himalayas, and have been reported both from thick scrub woodland and from barren, rocky areas above the treeline. On the better-forested southern Himalayan slopes, the only record is a sighting in alpine tundra (4,500 m) from the Dhaulagiri region of Nepal. Lynx occur locally over the entire Tibetan plateau, and are found throughout the rocky hills and mountains of the central Asia desert regions.

Reported average home ranges for male of $264 \pm 23 \text{ Km}^2$, and $168 \pm 64 \text{ Km}^2$ for females. Within these home ranges, core areas averaged $185 \pm 58 \text{ Km}^2$ for males, and $72 \pm 27 \text{ Km}^2$ for females. Females tended to use the central part of their home ranges more intensively, whereas males regularly visited the periphery of their home ranges. Thus, male home core areas averaged 70% of their home ranges and showed some overlap, while those of females were exclusive, and averaged only 44% of their home range. With the exception of the overlap zones, one male and one female shared the same areas. On average, 86% of a female's home range was covered by a male's home range. Studies from Sweden and Russia have also concluded that males generally share their ranges with just one female and her kittens. However, males seem to avoid female core areas, and thus appear to control a zone around females and their kittens, avoiding competition for prey and excluding other male competitors.

Threats and limiting factors

Lynx are vulnerable to destruction of their ungulate prey base. Under harsh winter conditions, that may not be able to subsist successfully on smaller prey. Large ungulate prey are favoured in the winter because of their vulnerability in deep snow. Hunting pressure may also play a role in lynx population declines.

Problems are most severe in the western Europe where lynx have been reintroduced. After native wild ungulates readapted to the presence of predators, livestock killing increased, but later declined as lynx dispersed and became less concentrated. Overall stock losses are relatively low in these countries, and are compensated either by the government or environmental groups.

Iberian lynx

The Iberian lynx (*Lynx pardinus*, ord. *Carnivora*, fam. *Felidae*) looks like a smaller version of Eurasian lynx, being only half its size, with adult males weighting an average of 12.8 Kg (n=5) and females 9.3 Kg (n=4).

The ecology of Iberian lynx is very different from the Eurasian lynx. While the Eurasian lynx is a forest animal which prey on ungulates, the Iberian lynx is found in scrub vegetation and preys almost exclusively on European rabbits. In both ecology and average body weight, the Iberian lynx is very similar to the Canada lynx and bobcat of North America.

A radio-telemetry study in the Coto Donana National park showed lynxes to be primarily nocturnal, with activity peaking at twilight as the animal moved out of their daytime resting places to hunt. Daily travel distance averaged 7 Km², with males generally travelling further than females. Diurnal activity peaks during the winter.

Status of the population

The total number of Iberian lynx, including sub-adults but not kittens, probably does not exceed 1,200, with only about 350 breeding females. The lynx population is extremely fragmented (Fig. 15 annex n° 7).

The Iberian lynx has historically been restricted to the Iberian peninsula, where it was widespread, and southern France. By the 1960s, its range was essentially limited to the south-western quarter of the peninsula. At present, lynx range in Spain (where 95% of the population is now found) covers only 14,000 Km², of which about 11,000 Km² is believed to be breeding range. This represent only about the 2% of the country's total area. In Portugal appear to be only three breeding subpopulations, occupying a total range of only about 700 Km², with the largest now found in the Serra da Malcata Nature Reserve and the Algarve Mountains of the extreme south. Lynx distribution is centred on mountains ranges, where land use is mainly in the form of privately owned hunting reserves. Lynx are mainly found between 400-900 m elevation, but will range up to 1,600 m.

Habitat requirements

The Iberian lynx occurs in Mediterranean woodland and maquis thicket. It favours a mosaic of dense scrub for shelter and open pasture for hunting rabbits. Lynx were generally absent from cropland and exotic tree plantations (eucalyptus and pine), where rabbit were also scarce.

Threats and limiting factors

The decline of lynx population since the 1960s has been primarily caused by habitat loss and a decline of their main prey species, the European rabbit. Nevertheless, there are some

areas where habit quality and rabbit density appear sufficient, yet no lynx are found. Particularly in these areas, it seems that human are directly responsible for an appreciable level of lynx mortality. Most of the adult recorded in Donana National Park in the last 10 years were human-related, and had only 8.3% of the annual mortality rate can be related unequivocally to natural causes.

Traps and snares, particularly gin traps set for rabbits, have been the principal known cause of death for lynx, although the practice of trapping rabbits is now declining.

The small, isolated sub-populations of Iberian lynx are theoretically vulnerable to genetic drift.

2.4 The wolverine biology (adapted from Landa 1997, and Banci 19..)

The wolverine (*Gulo gulo*, ord. *Carnivora*, fam. *Mustelidae*) is the largest-bodied terrestrial mustelid, it has a robust appearance, rather like a small bear.

The coat is typically a rich, glossy, dark brown, but the colour can vary strikingly even within the same geographical area, from a pale brown or buff with well defined lateral stripes to a dark brown or black with faint or no lateral stripes.

Typical weights for males are 12-18 Kg and for female 8-12 Kg. In this specie birth can occur as early as January or as late as April. For many mammals, winter may be an inhospitable time to give birth. However, ungulate carrion may be more plentiful in winter, which may favour parturition at that time in wolverines. Parturition in Norway was shown to correspond closely with the period when reindeer were most vulnerable. Security cover for kits may also be enhanced during winter; snow tunnels or snow caves are characteristic natal and maternal dens for wolverines in many areas.

Distribution and population numbers

It is considered as one species throughout its Holarctic distribution in the alpine, tundra and taiga zones of North America and Eurasia. In southern Norway the wolverine was exterminated 30 years ago, but survived in central and northern Scandinavia in the most remote upland areas along the Norwegian-Swedish border.

The Scandinavian population (one year old and older) is estimated to be 391 ± 103 individuals, 143 ± 38 being in Norway and 248 ± 65 in Sweden. In general, wolverine densities are low relative to carnivores of similar size, although there can be a tremendous range, from 40 Km² to 800 Km² per wolverine.

Food ecology

Wolverine is able to kill prey that are several times its own body weight, for example reindeer and moose (*Alces alces*). The distribution of wolverines in the Palearctic is sympatric with that of reindeer (both wild and semi-domestic), and most studies agree that large herbivores, probably mainly obtained as carrion, constitute the bulk of the wolverine diet. This specie use lower altitudes in winter than in summer, a behavioural pattern also seen among larger samples of wolverines in Alaska and Montana. This is probably due to a grater availability of small prey (like rodents) and carrion in the low-lying areas in winter.

Wolverines can increase their reproductive success by utilising small rodents during abundance peaks. Because peaks in small rodent abundance in Scandinavian alpine areas usually occur at intervals of 3-4 years, there will be significant variations in wolverine productivity from year to year within a given area. This will lead to pulses in the production of young animals to colonise vacant territories and disperse into a new areas.

The effect of such cyclicity on wolverine dispersal patterns needs to be further investigated and incorporated into management plans.

As a scavenger largely dependent on large mammal carrion, the wolverine needs the tenacity to survive long periods without food and the strength to use available food. Not a hunter, it depends on wolves and other predators to provide carrion, and contrary to legend, is at times killed by these carnivores.

Although it has been found that wolverine is an important predator on domestic sheep, there is no evidence that sheep comprise an essential part of the wolverine diet. That sheep are only seasonally available and this availability does not coincide with the denning period, also indicates that sheep are not an essential resource.

Habitat requirements

Within its geographical range, the wolverine occupies a variety of habitats. Preferences for some forest cover types, aspects, slopes, or elevations have been primarily attributed to a greater abundance of food, but also to avoidance of high temperatures and of humans. In fact, a general trait of areas occupied by wolverines is their remoteness from humans and human developments. But human presence is not a deterrent to the presence of wolverines, as evidenced by their feeding in garbage dumps.

Wolverine populations that have been or are now on the edge of extirpation have been relegated to the extensively modified, or accessed by humans.

Conserving wolverine populations may require large refugia, representative of the vegetation zones that wolverine occupy and connected by adequate travel corridors.

Territoriality and dispersion

Home ranges of adult wolverine may range from less than 100 Km² to over 900 Km² in North America, for the Sinohetta Plateau (Norway) has been reported an home range of 763 Km² for males and 335 Km² for females animals. The variation in home range sizes among studies partly may be related to differences in the abundance and distribution of food. Home ranges of females should reflect the minimum size necessary to obtain food more than those of males. This because wolverine females typically cover their home range uniformly, unless they have kits and concentrate their movements at natal dens or rendezvous sites.

Home ranges of subadults, especially males are transitory areas used before dispersal. Typically, home range use by immature males is characterised by extensive movements out of the natal home range. Adults may make temporary long-distance movements outside the usual home range, which are apparently not related to dispersal.

The basic spatial pattern, like has been described for other *Mustelidae*, is an intrasexual territoriality, in which only home ranges of opposite sexes overlap. Although partial overlap of home ranges of some wolverines of the same sex is common. At abundant and concentrated sources of food, such as large carrion, tolerance among adult wolverines appears to increase and adult individuals of the same sex may feed concurrently at the same site, or at the same food source.

Young females typically establish residency next to or within the natal home range. Although some immature female disperse, males are more likely to do so. Dispersal can include extensive exploratory movements. Rivers, lakes, mountains ranges, or other topographical features do not seem to block movements of wolverines. At times,

wolverines will use rivers and streams as travel routes probably because prey species also use these travel routes. Considering the wolverine's avoidance of human developments, extensive human settlement and major access routes may function as barriers to dispersal.

2.5 Influence of livestock support policy on large carnivore

As shown in chapter 1 part II, price support policy and direct premiums to the breeders carried out in the European Union countries and in Norway and Switzerland, as well as farms adoption of more modern and efficient production systems, have resulted in drastic changes of production system..

Furthermore, intensive farming practice together with excessive exploitation of natural prey (harvest) or simply their bad management, have exacerbated large carnivore depredation towards domestic animals rather than towards their natural prey.

Effects on large carnivores

If the abandonment of small rural centres with the interruption of grazing activities in many mountainous and isolated areas can on the one hand be interpreted negatively from a socio-economic viewpoint, on the other it has led to a slow recolonisation of these areas by large carnivores in recent years. There are areas which have succeeded in reacquiring their "wild state", thanks precisely to this abandonment which allows the reconstruction of habitats which are suitable for the survival of large carnivores. These species are generally wary and need a high degree of tree and shrub cover in those places where they make their dens, for their hunting, etc.

This recolonisation has been made possible thanks also to the reconstruction of natural corridors with little presence of man which have allowed or will allow the populations which were once isolated from each other to join up again. For example, the biggest obstacle for the actual conservation of the Iberian Lynx (as for other large carnivores) is the fragmentation of the habitat (Beaufoy 1996).

Areas once inhabited by man, where agriculture and breeding were practised, have been replaced by abandoned fields and pastures where shrubs and trees have taken or are reacquiring the upper hand to the advantage of the wild fauna. For example in Spain (Blanco 1995 in Beaufoy 1996) this decline in the presence of domestic animals and the human population, has brought the return of some large mammals such as the wolf and deer to many mountain areas.

In some cases however this decline was seen as a reduction in the availability of an important food resource for the large carnivores, but specialists in the sector have shown that domestic livestock is rapidly being substituted by wild species (Beaufoy, 1996). The forage resource needed for a sheep can support 2.5 deer, while the equivalence consumed by a cow can support up to 20, (Blanco 1995 in Beaufoy 1996).

Leaving the historical conflict between breeders and large carnivores to one side, the presence of domestic livestock in areas of interest for the conservation of large carnivores, can be viewed positively, if maintained within acceptable levels; for these animals it is in fact an additional source of sustenance.

On the other hand if livestock levels per area unit are too high, the effects will be catastrophic and also lead to the physical deterioration of the environment (overgrazing = impoverishment of the soil, deforestation, erosion, etc.) also because of the indirect disturbance related to the increased presence of man to which it would give rise.

Effects on prey species

Indirectly however, the total absence of livestock can lead to disadvantages for some of the species which are the natural prey of the large carnivores. Micromammals and small and large ungulates need a certain level of 'interspersion' of the habitat, so as to have a grassland zone where they can nourish themselves (clearings) and shrub zones where they can hide. This level of fragmentation of the habitat is maintained in various zones thanks to the presence of livestock; practices such as transhumance (periodic migration which generally takes place to move plain/hill grazing animals to grazing pastures at higher altitudes) have provided many species of fauna with the possibility of living in environments which would otherwise have been inhospitable.

In some zones of Spain for example, the maintenance of such habitats is of vital importance for the survival of the lynx, which does attack sheep and goats but rather to hunt small mammals such as rabbits, hares and small ungulates (Beaufoy 1996).

High stocking rate and surplus killing

The surplus killing has been defined as the killing by a predator of prey, without the killing individual or its offspring or members of the same social unit eating anything from the kill, although there is free access to the carcass, and usually the particular prey species would be eaten by that predator. This phenomenon observed in several species of predators (wolf, bear, lion, leopard, hyena, etc.) is rare in nature and it has been suggested that it is the consequence of behavioural compromises in both predator and prey to meet opposing environmental requirements, (Kruuk 1972).

Observations of this mass-killing behaviour are probably best known on domestic animals where the unnatural conditions of high density in which the domestic livestock finds itself, together with the ease of depredation (due to the lack of anti-predator instincts, the presence of enclosures and the unguarded circumstances) undoubtedly stimulate the triggering of this predatory behaviour, the result being considerable losses for the livestock breeder.

Effects on type of breeding

The breeding support policy has also led to an annulment of the diversification of breeding farms (CEAS-EFNCP 1997, Bignal 1996). The effect of depredation on mixed breeding farms (cows, sheep and goats) is much lower than that on sheep or goats only farms (Kaczesky 1996). Moreover, in many regions, such as for example in Switzerland, cattle farms have been replaced by sheep farms which are much more vulnerable to depredation (Marty 1996). The native races of livestock have been substituted by more productive races (Luick 1996, Kaczesky 1997) that require less care, with the consequential loss of the anti-predator instinct and therefore an increase in vulnerability.

2.5.1 Rural development and possible consequences

As seen in chapter 1, in Europe exist measures of support to rural development that aim at stimulating activities different from agriculture and breeding, as for example the so-called agri-tourism. In some agricultural areas particularly interesting from an environmental point of view and where large carnivores are present, in particular in those areas in which the priority objective is the conservation of these species, this kind of support should be linked to programs elaborated on the basis of environmental impact studies. Such studies are generally neglected, while a deep analysis of the consequences that the development of such activities could have on the population of these predators should be necessary.

The promotion of recreational activities or others, can bring on the one hand socio-economical benefits in disadvantaged areas where there is a high risk of abandoning by local communities, but on the other hand, if these activities are not based on a serious long term planification they could bring negative consequences for the viability of large carnivores populations.

As cited in the previous paragraph, the return to wilderness in some areas (due, among other things, to a decrease in the anthropic pressure) has allowed the recolonisation of various species of big mammals. The return of human activity in these areas, even if different from agriculture or breeding, could bring to such a situation as to compromise the optimal conditions for the survival of these species (predators as well as prey species).

2.6 Large carnivore depredation of livestock

The conflict between large carnivores and livestock is a normal predator-prey relation. Livestock losses are recorded in all those European countries where there are large predators (bear, wolf, lynx and wolverine, see the distribution chart in annex n° 7). To give an idea of these losses, in Italy wolves caused the death of approximately 1,500 sheep per year between 1974 and 1978 (Boitani 1982); in 1989 in the French Jura Mountains, lynxes killed 389 sheep and goats (Vandel and Sthal cited in Kaczensky 1996); in Spain wolves killed 5,179 sheep and goats, 1,196 horses and 444 cows in 1987 (Garcia-Gaona 1995 cited in Kaczensky 1996).

The size of the losses depends on the number and type of predator, the number and type of prey, the husbandry methods used, the availability or absence of alternative prey and the geography of the area where the conflicts take place.

The complexity of the phenomenon makes seeking specific correlation extremely difficult. As regards Europe, the losses caused by lynxes and wolverines are less than those caused by bears and above all by wolves (Kaczensky 1996).

It is therefore wrong to exclude a priori co-existence between large carnivores and livestock, many forms of breeding are in fact deemed compatible with the conservation of large carnivores. It is mainly free and uncontrolled grazing which is subject to high rates of depredation and hence incompatible with the presence of predators.

In Europe, this type of breeding is currently common principally in those areas where there are no predators and have been none for a long time (Kaczensky 1996). In this respect,

Switzerland and Norway furnish an example of the negative effect uncontrolled grazing can have in countries where predators were extinct (Marty 1996). The return of the large carnivores was followed by exaggeratedly high losses of livestock. In Norway, some 2 000 sheep per year were killed by 15-20 bears, compared with the 100 killed in Sweden, where the bear population numbers some 700 (Swenson in prep. cited in Kaczensky 1996).

In any case, except in some very rare cases, the economic loss caused by depredation of domestic livestock has never been significantly high. Kaczensky's data (1996) show that in the majority of the 12 European countries analysed, the losses attributable to depredation amount to less than 1% of the total animals. Indeed, the only positive correlation found is that between the number of animals killed and the practice of uncontrolled grazing, when the correlation is at local level (i.e., not compared with data from different regions). There is no obvious correlation, on the other hand, between the size of the predator population and annual killings of livestock, or between sheep available and sheep killed.

2.7 Strategies and means for reducing the livestock-large carnivore conflict

There is currently little literature available regarding the application and effectiveness of methods and strategies for reducing the conflict between breeders and predators in Europe. On the other hand, there are numerous publications which document the use and effectiveness of anti-predatory techniques in the United States. The report by Linnel et al. (1996) to which we shall refer, is a complete and very detailed review of this issue, mainly based on the currently available literature. Such an analysis is not, in fact, among the objectives of this study, but we believe it's important to briefly indicate the strategies and techniques which have been most experimented and deemed more or less effective, as they play an important part in the reform proposals mentioned in section 2.5.

As already mentioned, the level of depredation depends on a host of factors and it is incorrect to seek a universally valid cause-effect correlation. The species of predator, the type of breeding management and the zone in which the conflict takes place are some of the variables in play. The choice of the methods used to reduce the conflicts should therefore be adapted locally, taking into account the variables which play a significant role, according to the single cases. Our recommendation is therefore that a combination of several measures should be used with the aim of reducing the conflicts while observing a carnivore conservation plan.

Type of livestock and differing vulnerability

Not taking account of the other ecological implications, in zones with a high level of conflict with predators, it is important to encourage the breeding of cattle rather than of sheep and goats. Cattle are bigger, more aggressive and their anti-predator behaviour makes them less vulnerable. Moreover, it is easier to control a herd of cattle than a large flock of sheep.

Although cattle are less vulnerable than small livestock, they are also subject to depredation by large carnivores, particularly when there are calves. The calves should therefore be reared in controlled (fenced) conditions and allowed to graze as little as possible.

In addition to the level of species (cattle rather than sheep), it can be important to select the breed to be bred. Livestock's herding instinct can vary from breed to breed, and herding instinct facilitates control of grazing, thus reducing the risk of depredation.

Control of livestock

Electrified fences can be an effective means of protection against predators. They can be used to protect the herd at night, and to furnish greater protection to calves and foals. Electrified fences are particularly effective for small flocks/herds and in zones with scrub vegetation. Electrified fences can be used to delimit extensive grazing-only areas to prevent predators gaining access (during both the day and night). However, this practice is not only very costly, but establishes a barrier to the movements of many terrestrial species, fragmenting the areas and reducing the quality of the habitat.

Other types of non-electrified fences can be used to limit the livestock's movements. The advantage lies in a control of an area's utilisation rate, and ease in concentrating the flock/herd for the night. This type of control is particularly useful in those cases when the use of shepherds round the clock is too expensive.

Another type of control is that of using dogs to guard livestock, a centuries-old practice which was born in Europe. With the extinction of many predators, this tradition is gradually dying out in Europe, while in the United States it has become quite common. The breeds of dogs most commonly used are in fact European or Asian. The benefits of the use of guard dogs include a reduction in depredation (from 11% to 100% according to Linnel's analysis of current literature on the issue), less work on the part of the shepherd and the possibility to increase the number of animals in a flock/herd.

Finally, the presence of one or more shepherds is of vital importance. The shepherd can keep the livestock away from high-risk areas and close it in protected areas at night, he can also interrupt the depredation, inducing a negative experience for the predator. Linnel reports that it has been proven that depredation is much lower where shepherds are employed.

Modern prevention methods

Aversion conditioning vis-à-vis predators is a strategy which has been experimented in America, but its lack of long-term effectiveness and excessive cost have caused interest in it to wane. The method uses visual and audio repellents and non-lethal poisons to associate the act of depredation with unpleasant experiences such as vomit, fear, etc.

Protective collars worn by livestock is one method which has been adopted in Europe and is currently in use in Norway. The collars are made of thick leather and have spikes or repellent smells. Their effectiveness would appear to be limited to depredation by lynxes and wolverines, but additional experimentation is needed.

Protective collars should not be confused with toxic collars, which have been used in the United States since 1985 and are collars containing poison which are attached to the potential prey's neck. When the predator attacks the prey, it receives a dose of lethal poison. The advantage of toxic collars is that they are extremely selective vis-à-vis the

animal which creates problems, a disadvantage is, however, that they sacrifice the animals which wear the collar. Moreover, they are not applied to all the animals of a flock/herd due to their high cost and it is by no means certain that the predator will choose an animal with a toxic collar. It is important however, that the animal chosen to wear the collar be one of the most vulnerable of the flock/herd (lambs, sick animals, etc.).

Alternative sources of food

There is to date no proof that the existence of alternative prey influences livestock depredation. Linnel reports that some studies have shown a high rate of livestock depredation in areas with little natural prey and that others indicate peaks of livestock depredation where there is a scarce seasonal availability of natural prey. Whatever the case, an effective programme of carnivore conservation should, in general, envisage the availability of natural prey. The revitalisation of the natural prey populations (or repopulating when required) together with a programme for controlling livestock losses (improved husbandry, zoning, etc.) promote the carnivores while protecting the livestock.

The use of artificial food such as slaughter fodder, on the other hand, can be a useful distraction from livestock, but implies a series of ethical and ecological considerations which should not be undervalued.

Elimination of individual predators

The elimination of individual predators which cause disproportionate losses in accordance with meticulous plans is an operation which requires not only skills and considerable financial commitment, while furnishing no certainty that it will yield the expected results. The area left free by the elimination of the individual predator may be occupied by other predators which merely repropose the same problem. In any case, should one deem the elimination of an individual predator a solution, it is important that it does not entail uncontrolled elimination, and that the entire operation is entrusted to skilled personnel.

Zoning

Should the anti-depredation breeding techniques prove inadequate or too expensive, one possible solution is to reduce the spatial overlapping between livestock and predators. In other words, the livestock should be kept in areas where the carnivores are excluded and vice versa. Buffer zones between the two areas can be of considerable advantage in reducing the possibility of those carnivores who move from their conservation area meeting livestock.

A programme of this kind is undoubtedly very demanding, implying studies to identify the boundaries of the areas, significant changes in agricultural practices, and above all local consensus.

2.8 Compensation for livestock depredation in Europe

In Europe, compensation is the most common instrument for remedying the losses to livestock caused by large carnivores. This compensation envisages that in the event of loss of livestock as a result of depredation, government and non-government sources reimburse the loss incurred. In practically all European countries which have populations of large

carnivores, a compensation system exists, but the level of compensation, its manner, and sources differ from country to country. The compensation is generally paid by government organisations (Ministry of the Environment, state insurance companies, etc.), but in some European countries, non-state organisations are the main source of compensation (for a detailed description see Kaczensky 1996).

The amounts spent for this purpose can also be very high, in 1994 Norway spent 23 million NOK (circa 3.22 million USD) (Kaczensky 1996), in 1993 Italy spent 3,359 million lire (circa 1.95 million USD) (Ciucci et al. 1997).

In reality the compensation is not a remedy for losses, but rather an attempt to make the livestock-predator conflict 'supportable' for breeders.

The role of compensation is therefore not to reduce the losses, but rather to increase the breeder's tolerance of large carnivores by reducing the economic losses incurred. The peaceful cohabitation of breeders and predators is of vital importance for the conservation of large carnivores as their extinction from many areas (such as Switzerland) was the 'effect' of intolerance vis-à-vis these animals. Actually such a monitoring on a long term basis gives us the possibility to plan a series of measures that in particular satisfy the local needs for conservation.

Compensatory systems are also important because they monitor the conflicts, which are an index of the presence/absence of predators in a given area. When the monitoring continues over the years, it can furnish an indication of the evolution of the predator population, which is vital information for any conservation measures.

The compensatory systems suffer, however, from some defects. In those countries where the compensation level differs according to the type of predator, breeders tend to attribute the loss to the predator which qualifies for bigger compensation. When both the wolf and dogs which have reverted to a wild state are found in an area, the losses caused by the wolf are almost always overestimated as it is impossible to distinguish between depredation by wolf and that by dog. Finally, the bureaucratic procedure for the compensation is often long and complicated and the farmers, disheartened, do not even bother filing a compensation application. The compensatory system should therefore be very simple and efficiently managed.

A compensatory system which would appear to be effective in reducing conflicts is that adopted in Sweden in the reindeer breeding areas. Here, no compensation is envisaged for dead animals, but compensation is envisaged if there are predators in the grazing areas (Linnel et al. 1996). The breeder is therefore spurred to protect his livestock with anti-predatory techniques, and thus earn the highest possible profit.

In conclusion, systematic monitoring and an increase in breeders' tolerance of predators are the merits of a traditional compensation system. However, there is no intervention in respect of the actual conflict, unless the awarding of compensation is not conditional on the use of anti-predatory techniques (see section 2.2). This would act on the root of the problem, preventing the loss, or at least reducing the conflicts.

2.9 A CAP reform proposal favouring environmental conservation

This section shows some of the principal points which a reform of CAP should take into consideration to encourage the conservation of the environment, of the landscape and of natural resources. More specifically, the proposals concern the livestock breeding sector and are the results of studies carried out in recent years. The recent CEAS-EFNCP (1997) report, of which we cite some parts in the annexes n° 8, 9 should be consulted for further details.

With this report we tried to demonstrate that the CAP support encouraged livestock breeders to engage in intensive production. We can add that, as it favours a management of this type, it consequently increases the cost for the breeder (in terms of lost incomes) should he decide to espouse extensive breeding instead. Similarly, extensivisation costs more in the more productive zones, for example where a large use of fertilisers allows the production of a bigger quantity of forage, a reduction of the amounts used would lead to considerable economic losses, the opposite of this happens in zones where the soil is poor in nutrients and increases its productive capacity only slightly even with the use of fertilisers where the losses would undoubtedly be less.

In any case, the effects of livestock breeding on the environment, whether negative or positive, are strongly dependent on the local conditions, i.e., whether the areas risk abandonment or undergrazing, areas which risk overgrazing, or other zones of low environmental interest in which a change in the type of management would yield few results as regards the conservation of the biodiversity.

Also in this section we will try to give some “guidelines” for a possible reform of such policies to the advantage of large carnivores. We’re dealing with the integration of the needs of these large carnivores for their conservation in wider measures of conserving the environment.

The previous paragraphs allowed us to illustrate the problems caused by the co-existence of these animals with domestic livestock (damages) and different options to reduce the conflicts due to such a co-existence (indemnity and anti-predator strategies). It’s a very complicated situation in which the co-existence of two categories of predators are found (man and the so-called carnivores) that compete for the same category of prey (domestic livestock). It should be stressed that for a breeder the loss of an animal not only represents an economical loss (made greater by the presence of various forms of benefits), but also an “emotional” loss.

In the light of the support policy’s impact on the environment, various authors have proposed a different type of approach to that currently implemented (WWF, EFNCP, CEAS, ...). The principal points, which envisages more consideration of environmental problems, on which the proposal of a possible reform of CAP are based (CEAS-EFNCP 1997) are:

- subdivision of the EU into a number of agri-environmental zones;
- introduction of support for breeders which is independent from production (which replaces the headage payments and gradually also the market price support);
- an adaptation of this support on the basis of the grazing land quality.

2.9.1 Zoning

As we said before, the current CAP is not adequate for the various environments present in the EU and will therefore be even less adequate with the annexation of the Central Eastern European countries. It is furthermore important that a subdivision of the European territory should be carried out, according to areas with characteristics in common like environment conditions, type of breeding carried out, political aims (e.g. avoiding rural depopulation, conserving landscape, etc), and in which CAP may be applied in a differentiated manner.

Our proposal implies the creation of a series of geographical regions of environmental interest and differing socio-economic needs, in which the livestock breeding policy can be adapted to the local needs (different types of economic support, different stocking rate limits,...).

At Community level, an initial series of zones should be established, leaving the Member States to subsequently subdivide them according to their priority and administrative needs. The annex n° 8 cites Chapter 6 of the CEAS-EFNCP (1997) report which proposes a possible zoning of Europe on the basis of areas of differing agri-environmental value.

When approaching the creation of these areas, the necessity to conserve the wild species "in danger", should be taken in consideration. Considering this it is necessary to remember that the creation of limited natural reserves for the wildlife conservation is not sufficient to large carnivores. For species with large home ranges is necessary a conservation plan comprehending the entire landscape management (Noss et al. 1996).

Land use zoning is a division into areas with a priority use for each of them. A zoning plan implies the design and management of the entire landscape in order to reach a specific goal. Designing the landscape for zoning implies a lot a difficulties because is quite impossible to satisfy all interests in a given area.

An example of zoning is the spatial separation between agricultural-priority areas and large carnivore conservation-priority areas in order to reduce overlap between these two different landuse areas. This kind of separation between predators and domestic livestock might be a solution to the old conflict that, as already stated, has often been the cause of the extinction of large carnivores, in areas where they could be found in conflict with livestock and then persecuted. The "wild" areas are those in which livestock do not exist and where, consequently, the conflicts are absent. These are also the best areas for the conservation of large carnivores, but not for the need of the species of a particularly wild habitat (in fact the carnivores are a rather generalist species) rather because the lack of livestock eliminates the problem of persecution that derives from it (Linnel 1996).

The availability of these areas however is limited, and the future of large carnivores does not lie in an exclusive zonation that provides a net space segregation, rather a multiple-use approach of the overlapping territory. In fact, according to a program of total segregation, the lack of real wild areas (that is not exploited by men and therefore lacking zootechniques), could mean either the extinction of the predators due for the lack of territory, or the elimination of the breeders in areas considered as priority for the conservation of the various species of large carnivores. Without a doubt this cannot be proposed. Therefore, the alternative is an efficient program for the co-existence of predators and breeders.

Once identified the different "agri-environmental zones" in Europe, one should then proceed in elaborating management plans for each LC species in which areas will be defined according to the following criteria:

AREA 1 : are the areas with the highest priority, where the conservation of large carnivores is considered a primary objective with respect to other environmental objectives. In this zonation level are included those areas where strong restrictions for the breeders should be planned, according to the different local realities, so that the breeding does not disturb the carnivores. The restrictions could be the type of breeding allowable, a limitation in the stocking rate (or other), always keeping the various individual needs in mind on a national and regional level. Besides this type of restriction it becomes necessary that the livestock are not made available to the predators (anti-predator husbandry method).

Inside this area can be included zones in which livestock could be damaging. These represent a small percentage of the area of a large carnivore specie's population and are those absolutely strategic territories (such as reproduction areas) for the conservation. In these areas the possibility for the breeder to be able to choose to interrupt his business should be provided, compensating him financially. This option however must be restricted only to some areas and applied only if the local situation (predator species, type of breeding present, etc.) actually suffers from the presence of livestock. In some cases it is in fact preferable to have the presence of breeders (even if at a low density to avoid the risk of overgrazing) rather than totally abandon the environment to the natural successions. One example is the Iberian Lynx (*Lynx iberica*) that needs closed areas for security but also open areas for hunting (Beaufoy 1996).

Those natural parks in which species to be preserved are residence could be included inside of area 1.

AREA 2 : include those zones in which the conservation does not imply restrictions as strong as those in area 1, and includes the buffer areas, and the communication corridors between populations of large carnivores.

The buffer areas are those areas outside the core conservation area, in which the arrival of wandering individuals in phase of dispersal can be foreseen. Instead the corridors are those communication lines between the populations, that are fundamental in order to guarantee a degree of genetic exchange that is at the basis of maintaining small viable populations. In all of these areas the presence of the large carnivores must be tolerated and the subsidy to the breeders will be given only if the latter practices a type of breeding that is anti-predator. Another form of support must be foreseen if the breeder undergoes a considerable loss despite the anti-predatory techniques and is not sufficiently compensated by the support given via direct payment.

AREA 3 : in these areas the main objective is not the conservation of the large carnivores. Possible damaging intrusions by the carnivores must be eliminated through the removal of the single individual when this results to be effective, or through the total

elimination carried out by the competent authorities. However, even in this case (as well as for area 2) if carnivores kill livestock a compensation must be provided.

The application of such a strict rule such as the elimination of an animal, could raise disapproval but is instead a very important compromise that must be submitted. In fact, if a reassuring message is transmitted to the farmers about the will to solve the problem, one can be put into the position to expect the same type of respect in the application of those rules aimed at safeguarding the large carnivores. For example in the case of payment provided for those breeders that must demonstrate the use of anti-predator techniques, the benefits can be stopped if those conditions are not respected. The strictness can be obtained only through legislative support as well as strict and systematic controls.

* * *

A crucial aspect of this program is the choice of the areas to reserve to the conservation of the large carnivores according to the three priority levels described above. For the definition of the boundaries of these areas biological and ecological knowledge needs to be applied in a socio-economic context. In fact besides establishing the delimitation of these areas and the space needed so that the conservation program is effective, the difficulties that could be found in tracing the boundaries must be taken into consideration. The limits will depend on the actual availability of the most suitable habitat, as well as on political obstacles and on the cost of this operation. In fact, the changes in the agricultural practices and breeding method, implicate short term expenses, but is also an investment for the future if the decrease in indemnities for damages on account of depredation is taken into consideration and the earnings that could be made through tourism re-establishing the “wilderness” (that could be exploited as a tourist attraction).

The choice of these areas requires quite a lot of scientific support and it is not the duty of this study to draw up a management plan of such proportions. It is above all necessary to define the objective (such as the size of the population to preserve). Subsequent studies are necessary to verify the indispensable area to support the established population, to trace the availability of the habitat and to ascertain the possible presence and abundance of natural prey and competitors. An action plan is practically needed to manage these carnivores. The plan must provide for the continual monitoring of species trends. The costs of the survey of the damages caused to the livestock on account of the predators can be included in this management program because, as already mentioned in paragraph 2.8, it gives an index of presence/absence of the predators that in the long term provides important information.

2.9.2 Support unrelated to production

Since the community support for breeding is linked to the amount of animals (headage payments) and stimulates the production, making it independent from the markets real necessities, it is important to find another form of help for this sector that compromises in a minor way the preservation of the natural resources.

Interviews with breeders (see annex n° 9) of various countries indicate that the most practical and politically acceptable system for maintaining a form of support, without however encouraging intensive production and stocking rate limits not related to the actual carrying capacity of the pastures, is that of a type of payment related to a unit of area

(CEAS-EFNCP 1997). This type of payment not tied to the headage payments should make the breeder more interested in having a quality product rather than a higher number of animals, and should therefore help adapt the breeds to the parameters ignored until now, as for example the respect of the natural carrying capacity of the pasture. In the majority of the cases this adoption should result in a reduction in the stocking rates with the relative positive effects such as the restoration of large carnivores wild habitat, the presence of alternative prey species, the decreasing in livestock depredation due to a more efficient surveillance (small sized herds are more easily controlled), ...

The insert (Tab.2.1) shows the advantages and disadvantages of the area payment vis-à-vis the headage payment (from CEAS-EFNCP 1997).

Forage Area payment Systems

This Area payment must be adapted to pasture productivity. Given that the productivity of pastures varies from region to region and, within a single region, from farm to farm, a payment system related to the forage area has been proposed. It is adapted to a Forage Unit defined as: the area of forage land which, with a normal system of sustainable agricultural production, could support a livestock unit.

This adaptation aims to establish a productivity coefficient or carrying capacity of the various types of forage land. It is obvious that to identify the agri-environmental zones mentioned above, one must consider this different productivity (mediterranean pastures and north european pastures).

The support system, that includes supporting market prices as well as direct payments, could therefore be substituted by a Forage Area payment System (FAPS) adapted to the productivity of the pastures and the payments could be hierarchised on three cumulative levels according to the respect or lack of respect for some environmental measures.

- 1) A first basic payment should be common to all the breeders, without distinction between regions, type of management or anything else (but adapted to the productivity of the pastures). According to this scheme, the breeder located on flat country (high fertility of the soil but of little interest to the environment) receives a higher basic reward with respect to the breeder located in mountain areas (less fertility of the soil but of great interest for the environment).
- 2) A second level payment based on a broad range of environmental commitments like for example the respect of the pasture carrying capacity with normal stocking rate based on LU per Adjusted Forage Hectare, with a maximum and minimum defined so as to discourage under- and overgrazing at local level.
- 3) Finally a third level payment that is tied to respecting the environmental rules that are more restrictive established locally. In particular this third payment is modulated according to the priority objectives to achieve in a local context, it would be a payment tied to the participation of the breeders in environmental programs (saving landscape, flora species in extinction, pollution of waters,...) elaborated at a local level. In fact it's important to stress that the environmental needs vary greatly with local conditions. An environmental restructuring program for example, could make sense in a geographic, environmental and socio-economic context but could be extremely inadequate, useless or even damaging in a totally different context.

Measures for LC

The identification of the European agri-environmental zones will allow to establish the first level of area payment, based only on the pasture productivity. As for the zones of particular environmental interest, the States Members' and the local administrations will have to elaborate programmes for conservation and rational use of the natural resources. These programmes should show the measures that the breeder should take to have access to the second and third level of payment.

In particular for LC, once identified the areas (see paragraph 2.9.1.) for which the primary aims, both political and conservative, have been defined: LC integral protection (area 1), tolerance of LC (area 2) and elimination of LC (area 3); programmes will have to be studied to which the breeder will have to comply to be able to gain to the second and third level of payment.

In some areas particularly delicate for the survival of LC, the third level of payment could offer the breeder the change to interrupt his activities so as to allow the environment to revert to its 'wild' state.

These levels of (cumulative) payment should therefore provide an incentive for those producers who commit themselves to regional environment and natural resources conservation programmes.

2.9.3 Other options for potential CAP reform in order to benefit large carnivores conservation

The following are other options to define the standard for assigning the third payment level mentioned above; in the hypothesis mentioned until now, the breeder receives a reward only if he participates in an established program and therefore only if he uses anti-predator techniques or anything else. The alternatives we have taken into consideration are:

1. in zones of "high depredation risk", the payment of an annual "direct payment" calculated on an average of damages costs suffered by the breeders over the last years (the calculation must be done on a local basis).
2. always in areas of "high depredation risk", the payment of an insurance, that allows for compensating the damages suffered.

The payment of the annual "direct payment" or of the insurance could be part of the third payment level already considered, even if it's still necessary to carry out a deeper study on the consequences that this could have on the Community's expenses.

The advantage of the first option would be that it does not imply any control by the institutions on the use of these funds, as no specific measure is tied to the application, while the advantage of the second option is that it compensates the damages in the same way for all the breeders, thus eliminating the current disparity among regions, giving more guarantees to the breeder of an actual reimbursement (often the reimbursement for

damages carried out by the public administration are delayed making this system totally inefficient).

The main disadvantage of both systems mentioned above is that they do not directly involve the breeder in management programs concerning large carnivores. In fact the breeder is not stimulated to apply methods that reduce depredation. While once the breeder managed the livestock considering the presence of predators and taking the necessary steps, with these benefits there would no longer be any interest in maintaining traditional breeding techniques and the most productive races would be favoured at the cost of the native ones.

Furthermore it must be stressed that the conservation of the large carnivores also implicates a return of these predators to a diet based on their natural prey. It can be understood that this return to a “natural” behaviour is hindered by the ease with which the depredation on unguarded livestock is carried out, as well as the lack of an adequate instinctive sense of survival towards the predator.

For both options the need should finally be considered for a systematic registration of the damages suffered by the breeders, so that the population of the large carnivores can be monitored in the long term and therefore conservation programs can be adapted to the changes that these populations can become subject to through the years.

2.10 Compensations

This payment system based on three levels in which the third level would be included in a conservation program of the large carnivores, would substitute the various current compensations systems. It is necessary to have the possibility to refund eventual mass-killing or livestock killing by LC in the zones that are not included in the conservation program of these species. It is infact possible that depredation of unsupervised breeding takes place by animals in dispersion out of the corridors or buffer zones. Conflicts in these areas are expected to be rare and each depredation episode must be quickly declared to the competent authority in order to promptly intervene.

In the same manner if options 2 or 3 (annual “indemnity” or insurance) are considered more suitable, these measures would substitute the current ones. As already cited in this paragraph, the reimbursement is carried out by various institutions, variable not only from country to country but also within the same country. This variability and fragmentation of the way to manage the problem, besides making it fundamentally inefficient, makes the breeder feel less reassured.

The payment system of a subsidy decided on a Community level would give, besides greater economic security for the breeder, a simplification of the procedures and administrative controls as well as on a local level. Not less important is the political advantage for the “large carnivores” of such an approach, the importance of their conservation on a Community level would actually be officialised, as well as importance of the domestic animals, grain, etc.

It is also important to stress here that, if the Community policies cause damages for these species (but above all for the breeder that suffers the losses), then a solution of the problem

must be found on a Community level. Furthermore, the expenses for reimbursement of the damages are ridiculous compared to what the Committee spends each year to support the livestock sector, it is enough to think that in Italy alone the EAGGF-Guarantee section for livestock expenses in 1995 were equal to 145.3 million ECU, while the expenses to compensate the depredation on the domestic livestock were in 1995, inferior to 2 million ECU (Ciucci et al, 1997).

2.11 Importance of training and sensitivity

Next to the economic support for the losses caused by the depredation, it is necessary to directly involve the breeders in the problems concerning the conservation of the large carnivores and the use of husbandry method that are carnivore friendly. Often intolerance is caused by ignorance toward the biology of these species as well as of the techniques and means used to reduce the conflicts. The livestock breeder would be disincentivated by the use of drastic methods such as the direct elimination of these animals and should be involved in finding the solution to the problem.

It's important that the breeder realise that his problems are taken into consideration in a concrete manner by the administration as well as by various environmental groups. At the same time means must be furnished to allow all to be able to have an objective vision of all the factors involved (economic, social, biological...).

Finding the most agreeable option to the solution of the problem (payment tied to using anti-predator techniques, annual "subsidy" or insurance) must therefore be done with the most participative approach possible, involving the local category associations (breeders) and experts in the sector (biologists, agronomists and agro-economists), revealing the short and long term impact on the option chosen (damages to the livestock, damages to the environment, risk of killing the carnivores by the breeders...).

Technical support should finally be provided for those breeders that decide to participate in conservation programs and therefore to use the anti-predator techniques.

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Contacts list

Albania

Dr. Arben Kipi
Director of Animal Production Department, Ministry of Agriculture and Food (Tirana)
Fax: +355 42 27924

Dr. A. Scappini
Coordinator of integrated livestock programme in Albania c/o Ministry of Agriculture and Food (Tirana)
Fax: +352 42 27924

Belgium

Natacha Yellachic
European Agriculture Coordinator, WWF European Policy Office (Bruxelles)
E-mail: NYellachich@ wwfnet.org

COPA-COGEKO
Rue de la Loi 200 B -1049 Brussels
Tel.: +32 2 287 27 11

European Commission Directorate-General for Agriculture (DG VI)
Rue dela Loi 200 B - 1049, Brussels
Tel.: +32 2 295 34 40/ 29 11 11 /Fax.: +32 2 295 84 53

European Commission DG IA-IB
Rue dela Loi 200 B - 1049, Brussels
Tel.: +32 2 296 78 15/ Fax.: +32 2 266 11 01

Bulgaria

Dr. Zahari Alexiev
Ministry of Agriculture, Foreign Relation Department (Sofia)
Fax: +359 2 9803448

Czech Republic

Ing. Josef Cizek
Director of Foreign Relation Department
Ministry of Agriculture (Praha)
Fax: +42 2 24810652

Estonia

Dr. Ene Lepp
Deputy Head of the Foreign Relation Department, Ministry of Agriculture (Tallinn)

+37 6 919026

Hungary

Permanent Representation of the Republic of Hungary to FAO (Rome)
Fax: +39 6 5032121

Italy

William Pratesi Urquhart
LCIE Coordinator c/o:
WWF Mediterranean Programme - Via Garigliano 57, 00198 Rome, Italy
Tel.: +39 06 844 97360 - Fax.: +39 06 8413866
e-mail: mc2248@mclink.it

AIMA (Azienda Italiana per il Mercato Agricolo)
Via Palestro 81 (Roma)
+30 06 494991

Latvia

Dr. Marja Brunovska
Head of Livestock Farming Division, Ministry of Agriculture (Riga LV)
Fax: +371 7027422

Dr. M. Sprindzuks
Ministry of Agriculture (Riga LV)
Fax: +371 7830272

Lithuania

Dr. V. Katkevicius
Department of Economics, Ministry of Agriculture and Forestry (Vilnius)
Fax: +370 2 616074/ 224440

Dr. Celestine Kulvieciene
Deputy Manager of Phare project “support to cattle breeding in Lithuania”
Fax: +370 2 614575

Norway

Dr. Bernt Snapa
Information manager, Norwegian Meat Cooperative (Oslo)
Fax: +47 22 155908

Dr. Håkon Grotli
Livestock Department, Royal Ministry of Agriculture (Oslo)
Fax: +47 22 249556

Poland

Dr. Francka I.
Central Animal Breeding Office (Warsaw)
Fax: +48 2 6320115

Dr. Agata Zdanowicz
ADF Project, Ministry of Agriculture and food Economy (Warsaw)
Fax: +48 22 6231470

Dr. Anna Andrychowicz
FAPA Foundation for Assistance Programmes for Agriculture (Agricultural Policy Analysis Unit)
E-mail: a.andrychowicz@fapa.com.pl

Dr. Andrzej Zadura
Agricultural Property Agency (Warsaw)
Fax: +48 22 6256173

Romania

Dr. Roxana Stoleru
Program manager unit, Phare. Ministry of Agriculture and Food (Bucharest)
Fax: +40 1 3110276

Slovak Republic

Dr. Stefan Kuruc
Foreign relation department, Ministry of Agriculture (Bratislava)
Fax: +42 7 3066294

Slovenia

Dr. Lojze Senegacnik
Head of Agricultural Sector, Ministry of Agriculture (Ljubljana)
Dr. Marta Hrustel
Land Use Planning and Soil Protection Department, Ministry of Agriculture (Ljubljana)
Fax: +368 61 1332389

Switzerland

Ing. DeGiorgi Paolo
Groupement suisse pour les régions de montagne (SAB). Brugg.
Fax: +56 44 13642

Dr. Ing. Jörg Wyder
Director of groupement suisse pour les régions de montagne (SAB). Brugg.
Fax: +56 44 13642
