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# ALTERNATIVE AND SUSTAINABLE PRODUCTION FOR TOBACCO CULTIVATED AREAS IN THE EUROPEAN UNION

STUDY

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POLICY DEPARTMENT B: STRUCTURAL AND COHESION POLICIES

AGRICULTURE AND RURAL DEVELOPMENT

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STUDY

This document was requested by the European Parliament's Committee on Agriculture and Rural Development.

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# ALTERNATIVE AND SUSTAINABLE PRODUCTION FOR TOBACCO CULTIVATED AREAS IN THE EUROPEAN UNION

## STUDY


**Abstract:**

The EU has been supporting tobacco sector since 1970 through a Common Market Organisation (CMO). The regime has been substantially reformed many times and most recently CAP reform 2005 aims to phase out the subside payment for tobacco cultivation.

This study determines diversification alternatives to the Tobacco cultivated areas that will ensure high income for the farmers, equal to the tobacco crop, and will maintain the highest number of both holdings and hectares in production and the highest number of employees in the Tobacco growing regions.



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# Acronyms

| | |
|---|---|
| **AWU** | Annual Working Unit = defined as full-time employment with 1.800 hours annually |
| **CAP** | Common Agricultural Policy |
| **CMO** | Common Market Organisation |
| **EUSTAT** | Statistical Office of the European Commission |
| **FADN** | Farm Accountancy Data Network = a network from the member states to explore agricultural farm statistics in the EU |
| **LAU** | Defines statistical entities on local basis in the EU member states |
| **NUTS** | “Nomenclature des unités territoriales statistiques” = regional based statistics for the EU member states |
| **NUTS 1 level** | Defines regions in the EU members states as statistical basis |
| **NUTS 3 level** | Defines sub-regions in the EU members states as statistical basis |
| **SPS** | Single Payment System = farm payment system by the CAP reform |
| **UAA** | Utilized agricultural area = the farm land used in a region for agricultural purpose (e.g. for field crops, orchards, grassland) |

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## Overview of the EU Tobacco sector

The Tobacco sector in the EU is composed mainly by three sub-sectors:

- the agricultural production of Tobacco leaves (Raw Tobacco) by the Tobacco farmers which are integrated in Tobacco farmers cooperatives (Producer groups),
- a first transformation of the Tobacco leaves grades the Raw Tobacco into different qualities done in specialised companies or at Tobacco cooperative level (First Processors) and
- the preparation of basic blends form different Tobacco varieties and qualities (Second Processors and Cigarette Manufacturers)

Along the production chain a high added value is achieved. From one kilogram of Raw Tobacco which delivers the Tobacco farmer after drying on his farm or at Cooperative drying facilities to the First Processor about 660 gram will reach the Tobacco bales for further blending. However, the residual 340 grams from the Raw Tobacco will not be disposed as waste, but sold for a cheaper price to the Cigarette manufactures to implement it into the Cigarette.

One kilogram of Tobacco basic blend requires about 1.5 kilogram of Raw Tobacco. Typically, a cigarette weighs approximately 1 gram of which the tobacco content can vary between 65-100% depending on the type of cigarette. This means that from 1 kg of a Tobacco basic blend 1000 to 1538 cigarettes can be produced or 50 to 77 boxes of cigarettes each of 20 cigarettes.

**Economically speaking:** From an average price of 0,796 €/kg of Raw Tobacco in 2006 which the EU farmers received from the First Processors an amount of 39,27 € (Latavia) to 406 € (UK) can be achieved by manufacturing and selling cigarettes from this original kilogram of Raw Tobacco. The actual average tax on cigarettes of about 57% reduces the gross sales volume of the cigarette manufactures to 16,88 € (Latavia) to 231 € (UK) per kilogram of the initial Raw Tobacco.

It should be stressed that although the Cigarette Manufactures **were** in the position to pay fair and reasonable prices to the EU farmers making the EU Tobacco cultivation economically feasible, they never did. An economically feasible Tobacco cultivation in the EU-15 member states (France, Germany, Greece, Italy, Portugal and Spain) requires a minimum price of 3,50 to 4,50 €/kg of Raw Tobacco ex Farm depending on variety and production region (cost level 2008). The big difference between actual costs and paid prices explains why Tobacco cultivation was only possible in the EU member states with the economic support of the national governments. The EU Raw Tobacco agricultural sector in key figures:

- Thirteen EU member countries produce tobacco – with a few regions in Italy, Greece, Spain and Bulgaria where the production is mainly concentrated. .
- The 27-member EU currently produces +/- 250,000 tons of raw tobacco annually, making it the world's fifth largest producer after China, the US, India and Brazil. EU production represents 4% of worldwide production in 2008. Italy is the biggest EU producer (36% of the 27 EU member countries' total production), followed by Poland (16%), Bulgaria (12%) and Spain (12%).
- The amount of arable land devoted to tobacco production in the EU is shrinking rapidly (currently some 115,000 hectares cultivated by approximately 81,509 producers). On average, each producer cultivates a mere 1.40 hectares of tobacco.

## The Common Agricultural Market Organisation for Raw Tobacco – in brief

When the EU started to create a Common Agricultural Policy (CAP) it was logic to integrate the Tobacco crop into the Common Agricultural Policy by the creation of a Common Tobacco Market Organisation. The Tobacco Common Market Organisation (CMO) is a part of the Common Agricultural Policy (CAP) of the European Union. The Common Agricultural Policy came into force in 1962 with the Treaty of Rome (1957). The Common Market Organisation for Raw Tobacco was established in 1970 and then reformed several times in line with overall changes in the CAP. Important reforms were undertaken in 1992 and 1998. The total value of the tobacco crop in 2000, meaning the total amount paid to the farmers by the processors, was 269 million €. The total amount paid to the farmers in premiums was 953 million €. Put simply, a crop worth 269 million € cost European taxpayers 953 million € to grow. That was the reason for the Council to bring the reform from 2004 on the way as the sustainability of the sector was not given.

The reform adopted by the Council in April 2004 (which came into force in 2005) envisages phased decoupling of the aid from production. Future support for tobacco producers will be included in the single farm payment scheme. There will also be a specific financial envelope for the restructuring of tobacco-producing areas.

The objectives of the Common Agricultural Policy of the European Union are defined in Article 33 of the EC Treaty (Amsterdam Treaty, previously article 39 in the Rome Treaty) and are still valid today:

- To increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production, in particular labour;
- Thus to ensure a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture;
- To stabilise markets;
- To assure the availability of supplies;
- To ensure that supplies reach consumers at reasonable prices

Put it simply, the Tobacco reform shall be executed in such a way “to ensure a fair standard of living, in particular by increasing the individual earnings” for the Tobacco farmers and “ensuring a rational development” of their agricultural production and “the optimum utilisation of the factors of production, in particular labour.”

Council Regulation (EEC) No. 2075/92 of June 30, 1992 on the Common Market Organisation of the Market of Raw Tobacco was setting in forces the Tobacco Fund. In Article 13 of the mentioned EC regulation the following objectives are set:

“Article 13.1: A Community fund for tobacco research and information shall be set up. It shall be financed from the proceeds of a deduction not exceeding 1 percent from the premium at the time of payment.

Article 13.2: The fund shall finance and coordinate programmes of research and information to promote greater knowledge of the harmful effects of tobacco and the appropriate preventive and curative measures relevant to such effects and to orientate Community tobacco production towards the least harmful varieties and qualities.”

A total amount of 105.576.677 € have been available from 1993 to 2003 by the deduction of the premium payment to the Tobacco farmers. However, the only grants that have been given were with a total requested EU contribution of 43.883.511 €. And even this grant has not been spent entirely to the projects.

The Special Report 7/2004 of the Court of Auditors explained how the Tobacco Funds was managed: “The amounts withheld are not allocated to a ‘Fund’. In the preparation of the budget, the amount withheld for the financing of the ‘Fund’ is deducted from the calculated premium appropriations, whereby the final appropriation in the budget is only the net amount. Consequently, future expenditure from the ‘unused amounts’ must be covered by a future revenue i.e. it represents ‘a burden of the past’.”

The Commission Regulation (EC) No 2182/2002 of 6 December 2002 was laying down detailed rules for the application of Council Regulation (EEC) No 2075/92 with regard to the Community Tobacco Fund. In 2002, the research strand was replaced by action to help leaf tobacco producers convert to other activities at a National level, and the information strand was expanded. The research element has now been transferred to the EU’s Frame Work research programme from 2003. However, no research projects on Tobacco diversification have been granted so far.

One important aspect of the Commission Regulation (EC) No 2182/2002 is **that the Commission lost a tool to finance projects of general interests which may have a European Added Value.** By the transmission of the Tobacco funds budget to the mandatory power of the national governments, only national research entities have been accepted for selected projects and no entities from other EU member states got a project proposal approved.

In total 1278 projects have been founded with an expense of 51,2 Mio. €. 95 percent of the projects have been individual projects of Tobacco farmers according to article 13 of Commission Regulation (EC) No 2182/2002**.** Only 72 projects of general interest have been financed according to article 14 of the above mention EC regulation.

# The CAP from 2005 and its impact on Tobacco cultivated area, Tobacco production and employment

Tobacco was cultivated in eight from fifteen Member States until 2004. After the enlargement of the European Union in 2004 a total of twelve from twenty-five Member States cultivated Tobacco. The further enlargement in 2007 raised the number of Member States with Tobacco cultivation to fourteen from twenty-seven member states. However, due to the first effects of the CAP reform Tobacco cultivation was stopped entirely in three Member States (Austria, Belgium and Cyprus). In 2008 Tobacco was still cultivated in eleven Member States (Bulgaria, France, Germany, Greece, Hungary, Italy, Poland, Portugal, Romania, Spain and Slovakia.

Due to the Tobacco reform from 2004 the number of Tobacco farms, cultivated area and Raw Tobacco productions decreased dramatically. However, the two enlargements in 2004 and 2007 increased again all key figures for Tobacco cultivation in the EU. The following chapters explain and evaluate the figures obtained by Advisory Group for Tobacco at their meeting of May 23, 2008, the inter-branch statistics from UNITAB and a report from COGEA. In 2008 the total number of Tobacco farms decreased again to a total of 80.186 Tobacco farms.

## The CAP from 2005 and its impact on Tobacco cultivated area

The development of the Tobacco cultivation of the European Union from 1994 to 2007 shows that the Tobacco cultivated area went down from 159.135 hectares in 1994 to estimated 61.328 hectares in 2007. This is a loss in Tobacco cultivated area of 61.5 percent in the EU-15 Member States. The Tobacco cultivated area increased by 23.561 hectares with the enlargement and through the entrance of Tobacco cultivating countries (Cyprus, Hungary, Poland and Slovakia) into the European Union. An increase of the Tobacco cultivated area by 28.996 hectares was the result of the entrance of Bulgaria and Romania into the European Union. The total Tobacco cultivated area was about 116.936 hectares in 2007 and in 2008 116.741 hectares. This is still a decrease of 12,8 percent compared with the Tobacco cultivated area of 131.198 hectares (EU-15) in 2005 when the CAP reform for Tobacco started.

The Tobacco reform from 1992 reduced the Tobacco cultivated area from 1989 until 2002 by 116.000 hectares. The Enlargement in 2004 increased the total cultivated area by again 15.680 hectares. The Tobacco reform of 2004 brought a first effect in 2006 where the Tobacco cultivated area was again reduced by 39.968 hectares. Whereas the enlargement of the EU in 2007 with Bulgaria and Romania increased again the Tobacco cultivated area by 19.630 hectares. These two countries are also responsible for the further increase in 2008.

In general, it can be assumed that the reforms of the Common Agricultural Market for Raw Tobacco in 1992 and 2004 brought clear effects in the reduction of Tobacco cultivated area and decreased therefore the production of such Tobacco qualities which had no market.

## The CAP from 2005 and its impact on Tobacco production

A similar effect can be seen on the EU Raw Tobacco production. The absolute production height of EU Raw Tobacco production was noted in 1991 with a total of 430.000 tons. The Tobacco reform limited the yearly production to about 329.000 in 1994. The EU Raw

Tobacco production remained stable until 2002. The EU enlargement increased the Raw Tobacco production again to about 345.000 tons in 2004. The Tobacco reform from 2004 decreased again the EU Raw Tobacco production to about 250.000 tons (status 2007). The EU enlargement in 2007 added an overall allocation of national guarantee thresholds of 47 137 t for Bulgaria and of 12 312 tons for Romania to the EU production. However, without the two member states the production of Raw Tobacco would have been about 168.000 tons (EU-15) and 215.000 tons (EU-25). The two Tobacco reforms of 1992 and 2004 have been indeed very effective in the reduction of the EU Raw Tobacco production. From 1989 to 2007 the Tobacco production of EU-15 was decreased by 61%. These data show again that a great proportion of the EU Raw Tobacco production had no market and the production went in stock or have been exported with very low prices to Third Countries outside EU. However, in 2008 the EU Tobacco production increased (+14,7 percent) again. This is an effect to be seen in all Tobacco cultivating countries which is due to changing conditions on the world Tobacco market and increasing price levels paid by Tobacco industry. It is likely that the EU Tobacco production may reach again production levels as in 1994 quite soon.

The decrease in the EU Raw Tobacco production was so strong in the EU-15 member states that it easily compensated the increase of EU production by the two enlargements of 2004 and 2007.

### The social dimension of the Tobacco reform

In total EU-27 it is estimated that 245.000 – 290.000 persons are working annually in the Tobacco fields. About 1/3 are full time jobs (81.500) and 2/3 are temporary jobs. About 50.000 jobs of the temporary jobs are mainly occupied by immigrants. The remaining temporary jobs (130.000 – 175.000) are occupied by family workers which are in majority female relatives (50-80%) who can not get easily a job elsewhere. It is ironic where the employment of females is encouraged by governments and society that a political measure will destroy in its vast majority jobs for female workers in economically disfavoured regions.

The Tobacco reform from 2004 lacks clearly any measure for the employees – permanent or temporally. Those employees which will loose the job due to the Tobacco reform will have in most of the concerned regions strong difficulties to find a new job. Also in regions with relatively wealth like Verona, Italy, it is unlikely that under the conditions of the actual economic crisis new job opportunities can be created so easily. It would be the best measure to hold the jobs in the agricultural Tobacco sector by a new deal for financing the support mechanisms than to add new jobless people without the change for a new opportunity.

The Tobacco reform from 2004 must be adjusted to a social context which is experienced actually and the employment can not be destroyed without feasible alternatives.

**The Employment of non-regular and non-familiar labour force** in Tobacco is in its majority work of immigrants who come from inside and outside the EU to work in agriculture in general. The situation is quite different in the EU Member States:

**France:** The non-family labour force is coming mainly from North African countries or Poland. The workers are shifting from one crop to another which is fruit harvesting, grapes harvesting and tobacco harvesting. This may also happen on the same farm.

**Germany:** The non-familiar labour force is coming mainly from Poland with an exactly defined work permission. After Tobacco harvest is finished they must return in their countries.

**Greece:** The non-familiar labour force is coming mainly from Bulgaria or Albania. Their work is not only restricted to Tobacco.

**Italy:** The non-familiar labour force is composed mainly by immigrants from North Africa which are mostly already established since years in the regions with labour permission.

**Spain:** The situation is the same as in Italy or the workers come with a specific permission from Northern Africa countries for a certain time period and return afterwards in their countries.

**Gender dimension of Tobacco employment:** The family labour force on Tobacco farms are mainly females. The family labour force on Tobacco farms is in the most cases composed by about 50 percent of spouses and the other 50 percent by other family members. At least one third of the "Other Family Members" is female relatives and in most cases elderly ones above 45 years. Without the possibility to work on the family farm they will not have the chance to work anywhere else. This is another social dimension of the Tobacco reform from 2004.

### Impact of the Tobacco reform on world market trends and conclusions

The Tobacco reform from 2004 seems to have an important influence on stocks. Decreasing stocks from EU Raw Tobacco production seems to have an important influence on world tobacco prices paid to Tobacco farmers. According to data from Universal Leaf Tobacco Company the trend in decreasing stocks will continue further 1 ½ year. Depending on the world stock situation at end of 2010 it will be possible to estimate whether the prices of the EU Raw Tobacco production will reach a price level to grow Tobacco without subsidies on a longer term in EU.

So far, the initial attempt and estimations of DG AGRI have been correct, in that the Tobacco reform from 2004 may reach commercial prices for EU Tobacco farmers to grow Tobacco without subsidies. However, it seems that the time period to reach that situation is longer than initially estimated. A commercial price level which allows a Tobacco growing in EU without subsidies may be reached between in 2013. It is unlikely that such a commercial price level will be achieved already at the end of 2009.

The current schedule of the Tobacco reform starts in 2010 the second phase which will transfer 50 percent of the actual paid subsidies into the Rural Development Plans. This will probably force most of EU Tobacco farmers to cut down dramatically Raw Tobacco production as the production is still not economically feasible without subsidies.

As given above in the Universal Leaf Tobacco Company Report a sudden stop of EU Burley Production (65 Million Kilogram harvest 2008) in 2010 will result in a dramatic increase of the price all over the world as actual stocks are only 9 Million kilogram. The supposed price increase will benefit the Tobacco farmers all over the world. However, as a consequence of the Tobacco reform about 22.555 EU Tobacco farms producing Burley in 2005 will be lost for ever as those farms are usually very small. That would bring an enormous social problem especially for regions with a low development level: All regions in Greece where

Burley Tobacco have been produced, all Tobacco farms of Campania, all farms in Spain and Portugal where Burley Tobacco are produced.

Exactly a similar situation will occur for Tobacco farms with “Flue cured” varieties production. Uncommitted world stocks are estimated to be 72 Million kilogram in 2008. EU production was in 2006 about 131,4 Million kilogram. A sudden stop of EU cultivation in 2010 in strong price increases without benefiting the EU Tobacco farmers. About 24.710 EU Tobacco farms producing “Flue cured” varieties will be ceased off.

A prolongation of the actual payment scheme for Tobacco farms until 2013 will probably bring a situation that Tobacco can be produced in EU without subsidies due to a rise in the level of commercial prices.

Such a procedure will have three effects:

- The aim of the Tobacco reform to introduce a market based approach in EU Raw Tobacco sector will be a full success
- Currently 81.509 EU Tobacco farms will be saved including most of the non-familiar and familiar employment
- The need to diversify into alternatives agricultural products for Tobacco farmers is limited only to certain groups of the Tobacco farmers with a maximum total number of 11.895 Tobacco farms.

## Alternative model for crop production in EU Tobacco growing regions

Only such diversification alternatives will be feasible which allow a high gross margin for the vast majority of the small family farms producing Tobacco in Europe. This can be achieved by production of high added value crops and by investments in production chains.

The investment in production chains will allow for (ex-) Tobacco cooperatives (which are producer groups) to manipulate and process the agricultural crops of the (ex-) Tobacco farmers.

Alternative crops for Tobacco diversification require:

- High profitability on a small land surface
- Stable market perspective
- No negative impact on the environment
- A high level of employment
- Adaptability to relatively poor regions

It is clear that a diversification for Tobacco may need other alternatives in France, Germany, Hungary and Poland, than in the Mediterranean Member States or Bulgaria and Romania.

For e.g. Bulgaria research on alternatives is underway, but no conclusions were achieved, so far. Therefore it is recommended that the Bulgarian farmers (37.000 farmers with 31.359 hectares) remain in Tobacco production. The same conclusion is valid for Poland (14.388 farmers with 16.841 hectares).

The most costs effective alternatives for Tobacco diversification in Greece, Italy, Portugal and Spain will be a combination of field vegetable production (either organic or conventional) with Stevia rebaudiana. Generally spoken, these alternatives are horticultural crops. A small farm with horticultural crops needs the employment of about 2,4 Annual working units per year (= 1800 working hours per year). The employment in those Tobacco regions may even increase where mainly small farms are located and horticultural crops are produced. Especially the jobs for female workers can be maintained or even increased. In some specific region fruit trees are also applicable (e.g. region of Toumba in Greece) and where animal production is already available also the production of corn or cereals (either organic or conventional).

The size of the farms which are very small (3-5 ha) and the Tobacco cultivated area do usually not exceed 1,0 ha per farm in those regions where the diversification is an urgent need. Therefore it can be estimated that the actual urgent diversification need will be for about 11.895 Tobacco farmers with about 18.000 hectares where Tobacco have been grown.

These 18.000 hectares are distributed within seven European regions which might serve as a model for further Tobacco diversification. It will be possible to have the reconversion of the above mentioned farms and hectares until 2013 if investments in further studies are done.

A conclusion which can be drawn from the DIVTOB project is that the EU Tobacco farmers do not trust on the EU Commission politics and they felt as been dropped off. It is very difficult to implement any diversification alternative, if the sector is not receptive on the measure. Therefore it is recommended to start with diversification with those Tobacco cooperatives (Producer groups) which are willing to switch from Tobacco to alternative crops.

## Conclusions

Under the hypothesis that a prolongation of the current subsidies payment will be possible from a political point of view, then the following regions may proceed with Tobacco growing:

Bulgaria: all regions with 37.000 Tobacco farms.
France: all regions with 2.482 Tobacco farms.
Germany: all regions with 328 Tobacco farms.
Greece: regions with Oriental Tobacco with 14.909 Tobacco farms.
Hungary: all regions with 1.240 Tobacco farms.
Poland: all regions with 14.388 Tobacco farms.
Romania: all regions with 205 Tobacco farms.
Italy: all regions with 6.758 Tobacco farms.
Spain: Extremadura only the subregions of Tietar" and “La Vera” with 1.732 Tobacco farms.

This means a prolongation of the current subsidies will keep a total of 79.042 Tobacco farms in the agricultural economy and will maintain in total 245.000 - 290.000 jobs.

The regions where a diversification shall take place as fast as possible are:

**For Greece:** A specific region can not be named as all varieties have been produced all over the country. In 2005 a total number of 47.796 Tobacco farmers produced Tobacco. In 2008 14.909 Tobacco farmers remained in production. This means a total of 32.887 Tobacco farmers stopped the Tobacco production due to the Tobacco reform which is about 2/3 of all Greek Tobacco farmers. The situation of the Greek Tobacco Farmers was evaluated during the DIVTOB Project (21). About 35.422 farmers produced Oriental Tobacco and 12.734 farmers “Flue cured” and “Light Air cured” varieties. From the Tobacco farmers producing Oriental Tobacco about 14.800 farmers remained in production and 20.622 farmers stopped production. Those farmers who stopped producing Oriental Tobacco may have stopped the agriculture production entirely and may not return to agriculture due to very small farms (< 1ha). The Tobacco farmers (12.734) who produced “Flue cured” and “Light Air cured” stopped mostly production. Due to a greater farm size it is more likely that they will maintain in agricultural production. About 5 percent of these Greek Tobacco farmers are only partial time farmers (-618 farmers). It is assumed that those farmers will not take part in any further diversification. It was further estimated from the received data that a substantial number of Tobacco farmers (11%) will retire until 2013 (-1.361 Tobacco farmers) and only 38 percent of those Tobacco farms have a successor (+517 farms). Based on these it was calculated that about 10.912 Tobacco farmers need urgently a diversification alternative, because they will not return to Tobacco production even under improved market conditions. **The final conclusion based on the figures from 2008** (2) **is:** From 47.796 Tobacco farms in 2005 only about 15.000 Tobacco farms may remain in Oriental Tobacco production. A total of about 22.000 farms have ceased agriculture production entirely (mini-farms with less the 1 ha or due to retirement) and about 11.000 Tobacco farms are in need for a diversification alternative.

**For Italy:** The only region where no Tobacco is cultivated since 2005 is Apulia. The Italian national project CoAlTa 1 and 2 and DiAlTa 1 and 2 have developed a lot of production alternative which are already applied in Apulia.

**For Portugal:** In Portugal a diversification plan is already under execution for the region of Beira Interior. For Beira Litoral a total of 118 farmers which produce still Tobacco are in need of a diversification alternative.

**For Spain:** In Spain it can be expected that the Virginia Tobacco growers may maintain with Tobacco which have been 1.361 Tobacco farmers in 2007. In the region of Extremadura the Burley Tobacco growers of “Tietar" and “La Vera” will remain also with Tobacco production. The Tobacco producers of “Valle del Alagon” must diversify to alternative crops. They account for a total number of 281 Tobacco farmers in 2007. Also the Tobacco growers of province of Granada must diversify which is a total number of 514 farmers. Therefore in Spain a diversification need for 795 Tobacco farms exist.

**General result:** An urgent diversification need exist for about 11.895 Tobacco farmers in seven European Regions and 79.042 Tobacco farms will remain in Tobacco production under the hypothesis of a prolongation of the current subsidies system

## Proposal for support for Tobacco Farmers until 2013

In the United States the Tobacco support politics was changed already in 2000. The US government bought the Tobacco quota and paid for 10 years buyout checks additionally to Rural Development Programs for Tobacco farm diversification. Next year the program comes to an end and it is likely that not all farms can survive without the aids of the US government. The executive director of the Southern Maryland Agricultural Development Commission Ms. Christine L. Bergmark told recently to the Washington Post: “A transition like this takes a lot longer than 10 years.”

Tax revenues on tobacco products have in most EU member states an important share on the total revenues for the central governments which is between 1,5 to 6,7 percent in 2005.

In 2005 the total tax revenues for all EU Member States together for all types of Tobacco products were 84 Billion €.

Smoking causes substantially increased risk of mortality from lung cancer, upper airway and other cancers, heart disease, stroke, chronic respiratory disease and a range of other medical conditions. There are also health risks from passive smoking, and smoking during pregnancy adversely affects foetal development. According to the World Health Report 2002, tobacco smoking is the leading risk factor for premature death due to cancer and cardiovascular diseases in the EU, causing 12,3 per cent of the total disease burden for men and 5.7 per cent for women. Corresponding figures from the 2002 World Health Report for the European region are 17.1 per cent for men and 6.2 per cent for women. Smoking is a significant cause of inequalities in health. Tobacco is responsible for more than half the difference in adult male mortality between those in the highest and the lowest socio-economic groups.

The European Parliament, on November 21, 2002, approved a resolution on the Council recommendation on the prevention of smoking and on initiatives to improve tobacco control which was in support of the policy suggested by President Prodi: “Promote economically viable alternatives for tobacco growers, and promote the gradual replacement of tobacco subsidies with alternatives”.

The gradual decrease and elimination of subsidies to tobacco production remain as important objectives in the overall spectrum of tobacco control measures. The European tobacco control report describes the tobacco control situation and the status of tobacco control policies in the WHO European Region as at late 2006; reviews progress following the adoption of the European Strategy for Tobacco Control (ESTC) in 2002; and establishes a baseline for monitoring implementation of the WHO Framework Convention on Tobacco Control (FCTC) in the Region.

It is logic that the health facts about Tobacco smoking make a case for the agricultural Tobacco sector very difficult, if not impossible. A general public support from all tax payers may unbalance the efforts of the European Tobacco Control Policy. However, those European citizens who smoke may pay additional taxes on cigarettes or other Tobacco products in order to maintain Tobacco cultivation at EU level. In the EU-25 the cigarette consumption was in 2005 about 34 Billion boxes per year (12). An additional tax of 0,05 € to 0,1 € on every cigarette box will generate about 1,7 to 3,4 Billion € on Community level.

This additional tax amount shall be paid in a specific fund managed by the EU Commission to finance the following measures:

- To maintain those Tobacco farmers who are associated in a Producer Group and are producing Tobacco with contracts for the harvests 2010, 2011, 2012 and 2013.
- Extended support of information campaigns against smoking including the support of new studies of the impact of smoking for health
- All measures against cigarettes smuggling into EU
- Studies for diversification alternatives to phase out the Tobacco farmers which can not produce Tobacco under market conditions after 2013
- All further help to Producer Groups and Tobacco farmers diversification programs
- All administrative and management burden arising from the above mentioned measures on European and National level

If such a tax can only be implemented on a National level then it is likely that only those EU member states may apply such a tax where Tobacco is cultivated. Based on the cigarette consumption figures from 2005 a model calculation is provided in table 1 to show how much shall be such an extra-tax in order to support Tobacco cultivation on a national level.

**Table 1:** Calculations of Extra-Tax on national level to support Tobacco cultivation

| Member States | Cigarette Consumption in 2005 | Production Forecast 2008 (tons) | Estimated Subsidies (Mio €) | Extra-Tax Revenues (Mio €) | Additional Tax cent/box |
|---|---|---|---|---|---|
| France | 2.74 Billion boxes | 16.900 | 45,4 | 49,6 | 1 |
| Germany | 4.8 Billion boxes | 9.559 | 25,6 | 25,4 | 0,53 |
| Greece | 1.73 Billion boxes | 23.000 | 86,8 | 86,5 | 5 |
| Italy | 4.64 Billion boxes | 90.200 | 245,7 | 255,2 | 5,5 |
| Portugal | 827 Million boxes | 1.749 | 4,9 | 5,0 | 0,6 |
| Spain | 4.96 Billion Boxes | 32.692 | 93,2 | 94,2 | 1,9 |

Such a model is in application in Switzerland since 1995 to support their 330 Tobacco farmers.

# Introduction

The EU has been supporting tobacco cultivation since 1970 through a Common Market Organisation (CMO) with an annual budget of some 1000 million Euro. The market has been substantially reformed, initially first in 1992, then again in 1998 and, most recently, in 2004. The total value of the tobacco crop in 2000, which is the total amount paid to the farmers by the processors, was 269 million €. The total amount paid to the farmers in premiums was 953 million €. Put it simply, a crop worth 269 million € cost European taxpayers 953 million € to grow.

The Commission's response at the time was to strengthen its commitment in finding a sustainable policy-approach for the tobacco regime, based on an assessment of the economic, social and environmental aspects of the sector. Thus, in May 2002, in its Legislative and Work Programme for 2003, the Commission decided to subject its policy reflections on the tobacco sector to an Extended Impact Assessment1, in accordance with its 'Sustainable and inclusive economy priority'.

The Commission's principal conclusion, from the Extended Impact Assessment for the tobacco sector, was that a step-wise decoupling of the existing tobacco premium, accompanied by a phasing out of the Tobacco Fund and the setting up, within the second pillar of the CAP, of a financial envelope for restructuring tobacco producing areas, would provide the most sustainable policy for the tobacco sector in the future. This option was found to balance adequately the need to break the link between supporting individual producer incomes and the growing of tobacco, while providing funding for a re-orientation of the sector towards alternative sources of income.

The CAP reform 2005 for the tobacco sector aims to phase out the subside payment for tobacco cultivation. From 2006 to 2009 a decoupled payment is provided under the Single Farm Payment Scheme. This will have a great impact on the tobacco growers in terms of income and employment.

The Study **"ALTERNATIVE AND SUSTAINABLE PRODUCTION FOR TOBACCO CULTIVATED AREAS IN THE EUROPEAN UNION"** shall determine such diversification alternatives to the Tobacco crop which maintain high income for the farmers equal to the tobacco crop and will maintain the highest number of both holdings and hectares in production and the highest number of employees in the Tobacco growing regions.

Five partners working in this study have been already partners in a research project of the European Commission within FP6: "Diversification for Tobacco growing Regions in the Southern European Union (DIVTOB)" covering the situation for the Tobacco farmers in Greece, Italy, Portugal and Spain (May 2006-January 2008).

However, it is well understood that actually no alternatives are available which will serve for a complete phasing out of all 81.509 EU Tobacco farms between 2010 and 2013. An adaptation of the actual policy is recommended. From a technical point of view a phasing out of about 11.895 farms with about 18.000 ha of Tobacco cultivation seems possible until 2013. These farms are distributed in seven European Tobacco growing regions of Greece, Portugal and Spain. These regions shall serve as a model for Tobacco diversification.

In the United States the Tobacco support politics was changed already in 2000. The US government bought the Tobacco quota and paid for 10 years buyout checks additionally to Rural Development Programs for Tobacco farm diversification. Next year the program comes to an end and it is likely that not all farms can survive without the aids of the US government. The executive director of the Southern Maryland Agricultural Development Commission Ms. Christine L. Bergmark told recently to the Washington Post: "A transition like this takes a lot longer than 10 years.[1]"

[1] Jenna Johnson: Ex-Tobacco farms at risk of withering as aids end, Washington Post February 19, 2009

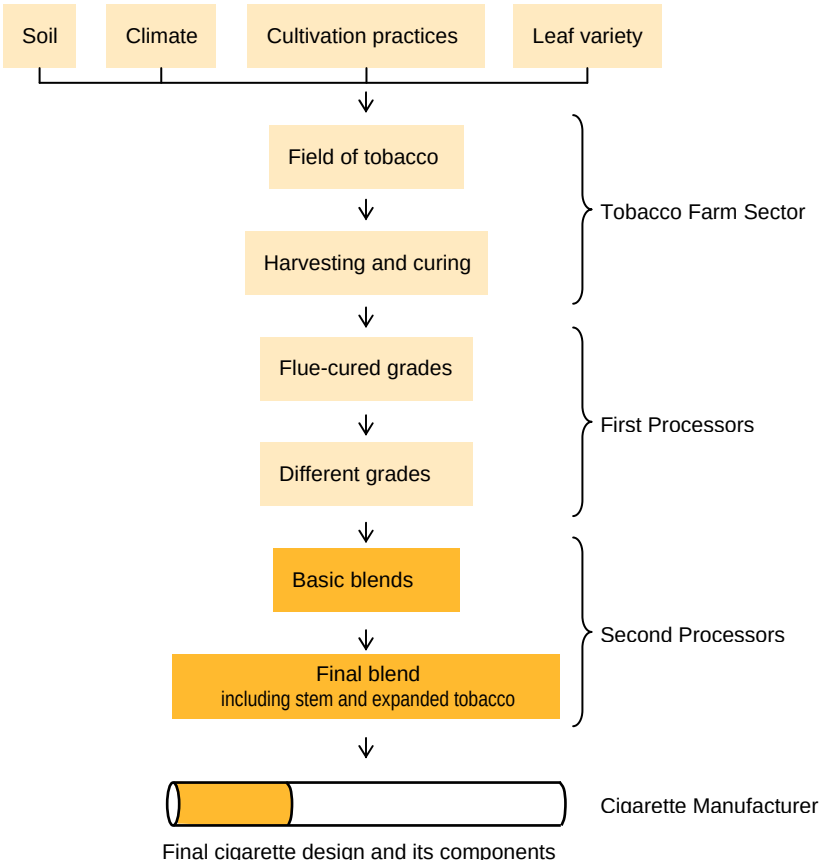
# 1. Overview of the Tobacco sector

The Tobacco sector in the EU of is composed mainly by three sub-sectors:

- the agricultural production of Tobacco leaves (Raw Tobacco) by the Tobacco farmers which are integrated in Tobacco farmers cooperatives (Producer groups),
- a first transformation of the Tobacco leaves grades the Raw Tobacco into different qualities done in specialised companies or at Tobacco cooperative level (First Processors) and
- the preparation of basic blends form different Tobacco varieties and qualities (Second Processors and Cigarette Manufacturers)

Once the basic blends are produced a final blending is done by adding Tobacco leaf stem and expanding the cut Tobacco leaves. Then the manufacturing of cigarettes takes place. The second processors are either independent companies or the Cigarette manufactures themselves.

**Figure 1:** Production chain of Tobacco

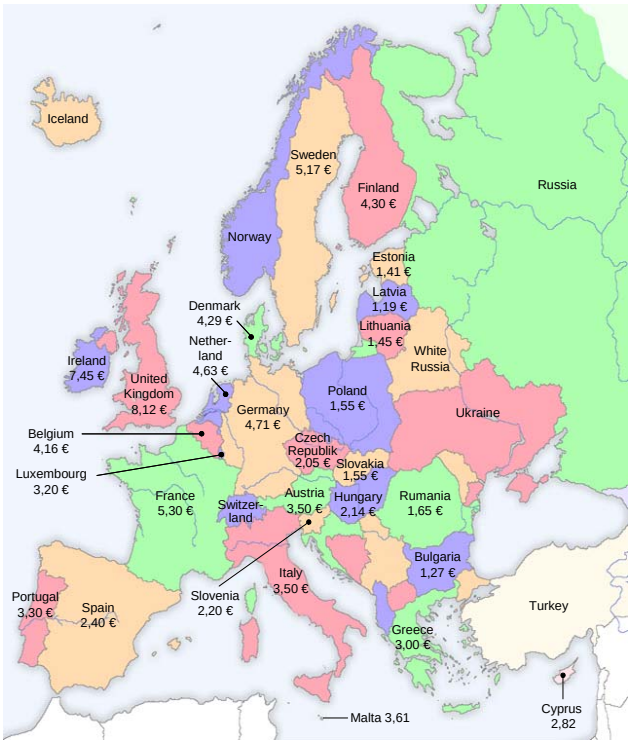



Along the production chain a high added value is achieved. From one kilogram of Raw Tobacco which delivers the Tobacco farmer after drying on his farm or at Cooperative drying facilities to the First Processor about 660 gram will reach the Tobacco bales for further blending. However, the residual 340 grams from the Raw Tobacco will not be

disposed as waste, but sold for a cheaper price to the Cigarette manufactures to implement it into the Cigarette.
One kilogram of Tobacco basic blend requires about 1.5 kilogram of Raw Tobacco. Typically, a cigarette weighs approximately 1 gram of which the tobacco content can vary between 65-100% depending on the type of cigarette. This means that from 1 kg of a Tobacco basic blend 1000 to 1538 cigarettes can be produced or 50 to 77 boxes of cigarettes each of 20 cigarettes.

Economically speaking: From an average price of 0,796 €/kg of Raw Tobacco in 2006[2] which the EU farmers received from the First Processors an amount of 39,27 € (Latavia) to 406 € (UK) can be achieved by manufacturing and selling cigarettes from this original kilogram of Raw Tobacco. The actual average tax on cigarettes of about 57% reduces the gross sales volume of the cigarette manufactures to 16,88 € (Latavia) to 231 € (UK) per kilogram of the initial Raw Tobacco.

**Figure 2:** Average over the counter prices of a box with 20 cigarettes within EU member states[3]




It should be stressed that although the Cigarette Manufactures were in the position to pay fair and reasonable prices to the EU farmers making the EU Tobacco cultivation economically feasible, they never did. An economically feasible Tobacco cultivation in the EU-15 member states (France, Germany, Greece, Italy, Portugal and Spain) requires a minimum price of 3,50 to 4,50 €/kg of Raw Tobacco ex Farm depending on variety and production region (cost level 2008). The big difference between actual costs and paid prices explains why Tobacco cultivation was only possible in the EU member states with the

[2] Advisory Group for Tobacco May 23, 2008.
[3] „Higher: Taxes: Cigarettes increase by 15,5 percent“ from July 16, 2008; http://www.oe24.at/zeitung/wirtschaft/article332911.

economic support of the national governments. The EU Raw Tobacco agricultural sector in key figures[4]:

- Thirteen EU member countries produce tobacco – with a few regions in Italy, Greece, Spain and Bulgaria where the production is mainly concentrated. .
- The 27-member EU currently produces +/- 250,000 tons of raw tobacco annually, making it the world's fifth largest producer after China, the US, India and Brazil. EU production represents 4% of worldwide production in 2008. Italy is the biggest EU producer (36% of the 27 EU member countries' total production), followed by Poland (16%), Bulgaria (12%) and Spain (12%).
- The amount of arable land devoted to tobacco production in the EU is shrinking rapidly (currently some 115,000 hectares cultivated by approximately 81,509 producers). On average, each producer cultivates a mere 1.40 hectares of tobacco.

[4] Website DG AGRI: http://ec.europa.eu/agriculture/markets/tobacco/index_en.htm

# 2. The Common Agricultural Market Organisation for Raw Tobacco

When the EU started to create a Common Agricultural Policy (CAP) it was logic to integrate the Tobacco crop into the Common Agricultural Policy by the creation of a Common Tobacco Market Organisation. The Tobacco Common Market Organisation (CMO) is a part of the Common Agricultural Policy (CAP) of the European Union. The Common Agricultural Policy came into force in 1962 with the Treaty of Rome (1957). The Common Market Organisation for Raw Tobacco was established in 1970 and then reformed several times in line with overall changes in the CAP. Important reforms were undertaken in 1992 and 1998. The total value of the tobacco crop in 2000, meaning the total amount paid to the farmers by the processors, was 269 million €. The total amount paid to the farmers in premiums was 953 million €. Put simply, a crop worth 269 million € cost European taxpayers 953 million € to grow. That was the reason for the Council to bring the reform from 2004 on the way as the sustainability of the sector was not given[5].

The reform adopted by the Council in April 2004 (which came into force in 2005) envisages phased decoupling of the aid from production. Future support for tobacco producers will be included in the single farm payment scheme. There will also be a specific financial envelope for the restructuring of tobacco-producing areas.

The objectives of the Common Agricultural Policy of the European Union are defined in Article 33 of the EC Treaty (Amsterdam Treaty, previously article 39 in the Rome Treaty) and are still valid today:

- To increase agricultural productivity by promoting technical progress and by ensuring the rational development of agricultural production and the optimum utilisation of the factors of production, in particular labour;
- Thus to ensure a fair standard of living for the agricultural community, in particular by increasing the individual earnings of persons engaged in agriculture;
- To stabilise markets;
- To assure the availability of supplies;
- To ensure that supplies reach consumers at reasonable prices

Put it simply, the Tobacco reform shall be executed in such a way “to ensure a fair standard of living, in particular by increasing the individual earnings” for the Tobacco farmers and “ensuring a rational development” of their agricultural production and “the optimum utilisation of the factors of production, in particular labour.”

The description about the development of the CAP for Tobacco follows mainly the studies of Bechtel[6] and Ferretti [7] where appropriate.

[5] Prodi, R. Speech/01/221 A sustainable Europe for a better world: A European Union Strategy for Sustainable Development – The Commission's proposal to the Gothenburg European Council; Brussels, Belgium, European Commission, 2001.

[6] Bechtel, Katja: “Supply-side Tobacco Control Policies in the EU and the USA - Collapse or Continuation of Tobacco Farming?”; Master Thesis, Erfurt School of Public Policies, 2008.

[7] Ferretti, Fabrizio (editor): Leaves and Cigarettes: Modelling the Tobacco Industry with applications to Italy and Greece; Franco Angeli s.r.L., Milano, 2006.

## 2.1. The Common Agricultural Market Organisation for Raw Tobacco from 1970

The regulation EEC 727/1970 founded the Common Market Organization for Raw Tobacco in order to eliminate the different national monopolies in the member states (e.g. Italy and France). By the creation of a Common Market Organization for Raw Tobacco the whole operation of the tobacco market came under the single control of the European Economic Community, which established a price regime for Raw Leaf Tobacco based on 36 reference varieties, comprising a norm price and an intervention price. This Regulation also instituted a system of premiums for tobacco processors and refunds for Raw Tobacco exported to countries outside the EU.

The creation of a Common Market for Raw Tobacco had the main aim to stabilize the income of EEC Tobacco farmers by promoting cultivation of high quality tobaccos which where required from the market.

To achieve the goals set by the regulation EEC 727/1970 two tools have been set in force:

a) Three types of support prices: the "*Norm Price"*, the "*Intervention Price"* and the "*Derived Intervention Price"*.
b) The "*Transformation Prices*".

In order to manage the Common Market Organisation for Raw Tobacco a Management Committee was established consisting of representatives of the Member States and presided by a representative of the Commission (Article 16 of EEC 727/1970). The Management Committee was informed and asked for their opinion by the Chairman about the measures the Commission wanted to adopt.

### 2.1.1. The Support Price Scheme

The Common Agricultural Market Organisation for Raw Tobacco started with three types of support prices, which were fixed on a yearly basis to ensure the income for the Tobacco farmers and in the same time low prices for the first transformation manufacturers:

- Norm Price: This price was set for every tobacco variety on the basis of the current market situation with the purpose to protect the farmer income. The "Norm Price" covered all costs of Tobacco cultivation.
- Intervention Price: This price was equal to 90% of the "Norm Price" and it was defined for every Tobacco variety "in leaf" and not transformed. The entitled Organisms of the European Community had the obligation to buy all tobacco offered by the Tobacco farmers at the "Intervention Price".
- Derived Intervention Price: This price was based on an analysis of the costs of the transformation of the Tobacco leaves. The "Derived Intervention Price" was paid to such first transformers who paid the "Intervention Price" to the Tobacco farmers who did not receive any "Transformation Price".

### 2.1.2. The Transformation Price Scheme (Premium Price)

The "Transformation Price" was granted to such first transformers who bought tobacco from EEC Tobacco farmers and who showed to have sold the transformed tobacco to other countries outside the EEC. The aim of this tool was to achieve a "Norm Price" and to aid the

totally selling of the EEC Raw Tobacco. The prize paid to the first transformers was calculated on the basis of the following factors:

- The market conditions for selling each of the Tobacco varieties
- The price of the imported Tobacco from outside EEC
- A lump sum contribution to guarantee the income of the EEC Tobacco farmers

These three factors together had the aim to guarantee the complete selling of the EEC tobacco.

### 2.1.3. Gradual improvements of the CMO for Raw Tobacco from 1971 to 1990

During the life time of EEC Regulation 727/1970 at least eleven gradual improvements have been adopted by the Council. The aim of all improvements focused on a better balance between production and demand and the management of the increasing stocks. Major changes have been:

- to fix the intervention price on 85% of the norm price (EEC Regulation 1461/82)
- to define recognized Tobacco growing regions (EEC Regulation 1576/86)
- to fix maximum quantities for each variety (EEC Regulation 1251/89)
- to fix an overall maximum quantity of 385.000 tons (EEC Regulation 1239/90) to which the CMO shall apply.

## 2.2. The Reform of the Tobacco CMO in 1992

The 1992 reform of the tobacco common market organisation (CMO) abolished intervention and export refunds, introduced production quotas as well as stricter controls. Following later refinements of the 1992 legislation, support to producers is currently provided through a premium system, linked to quantity of production, modulated on the basis of quality criteria and subject to individual production quotas for each group of tobacco varieties. The tobacco CMO also relies on measures to convert production, through a quota buy-back programme and a Community Tobacco Fund.

The new CMO consisted essentially of:

- “Implementation of a quota-system”: an overall guarantee threshold was set, equivalent to 350 000 tonnes (370 000 tonnes for the 1993 harvest), specific to eight groups of varieties (classified by drying method) and per Member States. This was initially divided into quotas for each primary processor and, from the 1995 harvest onwards, allocated directly to Raw Tobacco producers.
- Support Price System: a system of fixed premiums per kilo of Raw Tobacco for each group of varieties, designed to support producers' incomes and payable exclusively on the quantities covered by the guarantee thresholds, supplemented by an additional amount for certain varieties grown in Belgium, Germany, France, and Austria since accession.
- “Tobacco Funds and aids for Tobacco cooperatives”: measures to guide production by granting a specific aid (worth 10% of the premium at the beginning of the period) to producer groups, and by founding a Community tobacco research and information fund, financed by withholding 1% of all premiums.

### 2.2.1. Gradual improvements of the CMO for Raw Tobacco from 1992 to 2002

Between the period of 1992 and 1998, Regulation 2075/92 was amended a number of times, in particular by Regulation (EC) No 1636/98. The main amendments were as follows:

- "Improving of the quota-system": quotas were now allowed to be transferred between different groups of varieties (while conserving budget neutrality) and between individual producers. A national reserve of quotas was established, for redistribution among producers.
- "Implementation of quality measures": to improve tobacco quality, the premium is now divided into a fixed part (granted to all producers) and a variable part (granted only to producers who belong to a producer group) that depends on the purchase price paid by the primary processor. Member States also have the option of opening auctions to sell tobacco-growing contracts.
- "Measures to guide production": the amount of the specific aid is now fixed at 2% of the premium; the deduction for financing the Community tobacco fund has been increased to 2%; a system has been introduced for buy-back of quotas not taken up by other producers, with a reduction of guarantee thresholds by a corresponding quantity; and structural assistance is available through rural development programmes in underdeveloped tobacco-growing areas, to help producers switch to other products or activities.

## 2.3. The Reform of the Tobacco CMO in 2004

In preparation of the Gothenburg Council meeting, the Commission proposed "A European Union Strategy for Sustainable Development" that should build on and complete the Lisbon strategy of 2000. In the Lisbon Strategy the EU established the goal "to become the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion."[8]

CAP expenditure for tobacco was EUR 973 million in 2001, that is, an average of about EUR 7 700 per tobacco Annual Working Unit (AWU) or EUR 7 800 per ha, which took a 2.3 % share of the 2001 EAGGF Guarantee budget.

In Gothenburg, the Council decided that all EU sectors and policies should comply with the objective of sustainable development – naturally this also held true for the tobacco sector: "Reorient support from the Common Agricultural Policy to reward healthy, high quality products and practices rather than quantity; following on from the 2002 evaluation of the tobacco regime, adapt the regime so as to allow for a phasing out of tobacco subsidies while putting in place measures to develop alternative sources of income and economic activity for tobacco workers and growers and decide an early date accordingly" (8, p.11). Furthermore, the Commission proposed to allocate more CAP funds to rural development (second pillar of the CAP) (8, p.13).

Concerns were raised among member states regarding the inconsistency of simultaneously subsidising tobacco growing and fostering smoking cessation. In accordance with the Commission proposal it was discussed as well that a potential reform should avoid social hardship for tobacco-dependent growers by providing supporting measures

[8] Presidency Conclusion of the Lisbon European Council of March 2000 http://www.europarl.europa.eu/summits/lis1_en.htm.

As a response to these consultations, the Commission elaborated a sustainable reform strategy for the tobacco CMO. Based on an Extended Impact Assessment[9], the Commission discussed three options regarding the future of the tobacco sector. These options comprised a prolongation of the current CMO (Option 1), a decoupling along CAP reform lines (Option 2), and a gradual phasing out within a sectorial approach (Option 3). Finally, the Commission recommended the implementation of Option 2 and considered it as being the most aligned with the Strategy of Sustainable Development (9, pp. 21-22).

As is the case for other CMOs, the reform of the tobacco sector had to be linked with the new objectives of the overall CAP reform adopted in 2003. These objectives comprised enhanced competitiveness, stronger market orientation, improved environmental respect, stabilised incomes and a higher regard for the case of producers in less favoured areas.

Based on these central features of the CAP reform and in compliance with the objectives of the Strategy for Sustainable Development, the new tobacco CMO have had the following essentials:

(1) “promoting a more market oriented and sustainable tobacco production. This can be achieved by including the current coupled direct payment into the decoupled Single Farm Payment, based on historical references and subject to compliance requirements;

(2) an agriculture sector which can achieve a fair and stable standard of living for agricultural producers without receiving unacceptable subsidies;

(3) the need to provide a better balance of support and strengthen rural development by transferring funds from the first to the second pillar of the CAP and expanding the scope of instruments currently available for rural development;

(4) contributing to a simpler agricultural policy;

(5) strict respect of the budgetary constraints decided at the October 2002 Brussels Council in an enlarged Union” (8, p. 21, emphasis in original)”.

With the Council Regulation (EC) No 864/2004 of April 29, 2004 the CAP reform was then applied to the tobacco sector. It contains the following provisions[10] (pp. 20-21):

- The premium system and the system of production limitation ended with the 2005 harvest.
- Phase 1: In a transition period from 2006 to 2009 a minimum of 40% of tobacco aid (reference period 2000-2002 premium) is decoupled from production and integrated in the Single Payment System (SPS).
- The payments available from decoupling for each farmer are paid whether or not tobacco is grown but are subject to cross-compliance as all CAP payments.
- In order to allow markets and producers to adjust to the new situation, member states may maintain up to 60% of the tobacco aid coupled during the transition period (10, pp. 20-21).

[9] Commission of the European Communities (2003b): Tobacco Regime: Extended Impact Assessment; Commission Staff Working Paper; Brussels, 23.9.2003.
[10] Council Regulation (EC) No 864/2004.

- Phase II: From 2010 onwards all subsidies will be decoupled; 50% will be transferred to the Single Payment System and 50% will be shifted to the restructuring envelop.54 Concurrently, the remaining subsidies will gradually be reduced until 2013 when only a diminished area based flat rate will endure. Hence, in 2010 the tobacco CMO will already come to an end (10 p. 9) and the tobacco market will be fully liberalized.

By the end of 2009, the Commission shall submit a report to the Council on the implementation process of the tobacco CMO including proposals for adjustment, if required (10, p. 29).

In summary, the 2004 reform ceased the production-coupled subsidies in place since 1970 which constituted a major impact for tobacco growers with regard to income security. However, the termination of subsidies realized a long standing goal of tobacco control advocates as it ended the incoherency of supporting a health-damaging crop while promoting smoking cessation. In order to achieve a smooth transition away from tobacco, the Commission opted for a gradual phasing-out of subsidies beginning in 2006 until 2013 and, moreover, a cushioning of the reform by strengthening rural development measures. At the end of this process the EU tobacco market will be fully liberalized.

In the short-term, the cultivation of less-profitable tobacco varieties in the EU was expected to cease. Furthermore, the transfer of the current tobacco premium into the single farm payment would undoubtedly encourage producers, who are not currently covering their variable production costs or who could shift production to crops generating higher income per hectare, to reconvert to another land use in the short-term.

It was anticipated that the resulting lack in EU tobacco production would be taken up by larger and more professionalized demand- and/or quality-driven tobacco holdings, at an EU price, which would align with world levels prices, according to the varieties produced.

Acting together with the gradual introduction of the single farm payment amongst tobacco growers, the restructuring envelope would promote further the shift in production to more rationally structured holdings, improving the rate of income transfer to holdings producing tobacco during the reference period and encouraging a re-conversion within the local labour market in tobacco-growing areas.

**Table 1:** Decoupling of the Tobacco production according to the CAP reform of Tobacco [11]

| Country | Decoupling | Article 69 application |
|---|---|---|
| Austria | 100% | none |
| Belgium | 100% | none |
| Germany | 40% | none |
| Greece | 100% | = 2% of the ceiling for the tobacco sector |
| France | 40% | none |
| Italy | 40%<br>For the region of Puglia, the decoupling coefficient for tobacco is 100% | none |
| Portugal | 50% | none |
| Spain | 40% | = 5% of the ceiling for the tobacco sector |

**Source:** DG AGRI (11)

For the new member states cultivating tobacco the reform

**a) Poland** plans to apply following complementary national direct payments from 2007:

- coupled payments – 60 percent of EU-15 payment for April 30, 2004;
- decoupled payments (on the farm) - rest of complementary payments in accordance with Treaty of Accession (10 percent in 2007, 20 percent in 2008 and 30percent in 2009).

**b) Hungary** applies the following national direct payments from 2007:

- coupled payments 50 percent from
- decoupled payments (on the farm) - rest of complementary payments in accordance with Treaty of Accession (10 percent in 2007, 20 percent in 2008 and 30percent in 2009).

**c) Romania:** The Romanian Government has decided to grant agricultural tobacco producers production premiums for 2006. The purpose of this Government decision is to stimulate tobacco producers to reach the tobacco quota negotiated with the EU (12.314 tones), improving tobacco quality, associating producers and obtaining a competitive price.

**d) Bulgaria:** In the first three years of EU membership the Tobacco farmers will receive state subsidies which are refunded by the EU

## 2.4. The role of the Community Tobacco Funds

Council Regulation (EEC) No. 2075/92 of June 30, 1992 on the Common Market Organisation of the Market of Raw Tobacco was setting in forces the Tobacco Fund. In Article 13 of the mentioned EC regulation the following objectives are set:

"Article 13.1: A Community fund for tobacco research and information shall be set up. It shall be financed from the proceeds of a deduction not exceeding 1 percent from the premium at the time of payment.

[11] Commission of the European Communities: Overview of the implementation of direct payments under the CAP in Member States, Version February 2007.

Article 13.2: The fund shall finance and coordinate programmes of research and information to promote greater knowledge of the harmful effects of tobacco and the appropriate preventive and curative measures relevant to such effects and to orientate Community tobacco production towards the least harmful varieties and qualities."

By further improvements through Regulation (EC) No 1636/98 on the financing of the Tobacco funds the deduction of the premium payment has been increased to 2 percent.

A total of three calls have been executed by DG AGRI between 1994 and 2001 (see table 2). However, only two calls (1994 and 1996) have been open for projects related with research on Tobacco. Three calls (1994, 1996 and 2001) have been open for projects informing about the harmful effects of tobacco.

A total amount of **105.576.677 €** have been available from 1993 to 2003 by the deduction of the premium payment to the Tobacco farmers. However, the only grants that have been given were with a total requested EU contribution of **43.883.511 €** (see table 2). And even this grant has not been spent entirely to the projects (see table 3).

**Table 2:** Projects granted by the Common Tobacco Funds[12]

| | 1994<br>1st call | 1996<br>2nd call | 2001<br>3rd call | Total |
|---|---|---|---|---|
| **Total number of approved Projects** | 14 | 13 | 1 | 28 |
| - Research Projects | 3 | 6 | 0 | 9 |
| - Information Projects | 11 | 7 | 1 | 19 |
| **Total EU Contribution (€)** | **11.457.024** | **14.426.487** | **18.000.000** | **43.883.511** |
| - Research Projects | 5.912.812 | 6.528.408 | 0 | 12.441.220 |
| - Information Projects | 5.544.212 | 7.898.079 | 18.000.000 | 31.442.291 |
| **Average EU Contribution per Project** | 818.359 | 1.109.730 | 18.000.000 | |
| - Research Projects | 1.970.037 | 1.088.068 | 0 | |
| - Information Projects | 504.019 | 1.128.297 | 18.000.000 | |

**Source:** DG AGRI according to (12)

Additional funds at an amount of 9.500.000 € for reconversion activities have been spent in 2006. However, a total amount of 68.193.857,97 € have left unused. The Special Report 7/2004 of the Court of Auditors explained how the Tobacco Funds was managed[13]: "The amounts withheld are not allocated to a 'Fund'. In the preparation of the budget, the amount withheld for the financing of the 'Fund' is deducted from the calculated premium appropriations, whereby the final appropriation in the budget is only the net amount. Consequently, future expenditure from the 'unused amounts' must be covered by a future revenue i.e. it represents 'a burden of the past'."

12 COGEA (2003) Evaluation de l'organisation Commune de Marché dans secteur du tabac brut.

13 Court of Auditors: SPECIAL REPORT No 7/2004 on the common organisation of the market in raw tobacco, together with the Commission's replies.

**Table 3:** Retained funds and Tobacco Funds use

| Year | Retained Funds | Information Projects | Research Projects | Unused Funds |
|---|---|---|---|---|
| 1994 | 289.744,00 | 0 | 0 | 289.744,00 |
| 1995 | 4.839.200,00 | 0 | 0 | 4.839.200,00 |
| 1996 | 8.390.773,00 | 0 | 1.017.647,00 | 7.373.126,00 |
| 1997 | 9.454.679,00 | 0 | 1.570.638,00 | 7.884.021,00 |
| 1998 | 9.371.382,00 | 1.393.467,15 | 915.468,00 | 7.062.446,85 |
| 1999 | 7.951.889,00 | 128.309,78 | 145.857,00 | 7.679.723,22 |
| 2000 | 8.498.972,00 | 1.108.067,10 | 1.301.843,00 | 6.089.061,90 |
| 2001 | 19.167.708,00 | 6.231.341,00 | 544.461,00 | 12.302.150,00 |
| 2002 | 18.867.746,00 | 6.933.341,00 | 3.759.836,00 | 8.174.169,00 |
| 2003 | 18.744.984,00 | (1) 2.519.660,00 | 225.108,00 | 6.500.216,00 |
| **Totals Spent (€)** | 105.576.677,00 | 18.403.941,03 | 9.478.878,00 | (2) 68.193.857,97 |
| **Total granted EU Contribution (€)** | 43.883.511,00 | 31.442.291,00 | 12.441.220,00 | |
| **Payments to granted EU contribution** | | 19,6% | 76,2% | |

**Source:** Court of Auditors (13)
**Remarks:** (1) Status May 23, 2004
(2) In 2003 additional 9.500.000 € have been spent for reconversion according to OJ L 164, 2.7.2003.

Under EC-Regulation 2075/92[14] the Commission spent money for nine agricultural research projects under the terms of two calls for tender of the Tobacco Fund in 1994 and 1996, total value 12.441.220 EUR:

1. Project No. 94/T/12: Optimal cultural practices for flue-cured varieties with early maturity and low nicotine and tar potential (from 1.3.1996 to 29.2.2000).
2. Project No. 94/T/19–24: Lowering of nitrogen and nitrate content in burley tobacco – Search of adapted techniques for lighter burley tobacco's production: Adaptation of cultural techniques to new varieties (from 1.3.1996 to 28.2.2001).
3. Project No. 94/T/22: Cultural techniques compatible with environment protection: reduction of phytosanitary products, and their residues, use in tobacco (from 1.3.1996 to 28.2.2001).
4. Project No. 96/T/18: Management of insect pests and viruses using ecologically compatible technologies (from 1.6.1997 to 10.3.2002).
5. Project No. 96/T/24: Soil seed bank identification to reduce herbicide application (from 1.1.1998 to 31.12.2002).

[14] Council Regulation (EEC) No 2075/92 of 30 June 1992 on the common organization of the market in raw tobacco.

6. Project No. 96/T/35: Monitoring and minimizing of heavy metal contents in tobacco (from 1.1.1998 to 31.12.2002).
7. Project No. 96/T/55: Effects of salinity on growth, physiology, yield and quality of tobacco (from 1.1.1998 to 28.2.2003).
8. Project No. 96/T/66: Reduction of pesticide residues in tobacco with the «Float-system» (from 2.9.1997 to 28.2.2002).
9. Project No. 96/T/67: Reduction of undesirable compounds in tobacco by using tools to manage nitrogen fertilization (from 4.6.1997 to 28.2.2002).

As far as the information projects are concerned, three calls for projects (based on a 25% co-financing contribution) were published in 1994, 1996 and 2001. Following those calls, the Commission decided to finance 11 projects in 1996, for a total amount of 5.544.212 € and 7 projects in 1997, for a total amount of 7.898.078 €. In 2001 a third call granted an EU contribution for only one single project with a total budget of 18 Mio. €. Some of the projects, running for a maximum period of five years, have been delayed at various stages of implementation and are therefore still ongoing.

The Commission Regulation (EC) No 2182/2002 of 6 December 2002 was laying down detailed rules for the application of Council Regulation (EEC) No 2075/92 with regard to the Community Tobacco Fund. In 2002, the research strand was replaced by action to help leaf tobacco producers convert to other activities, and the information strand was expanded. The research element has now been transferred to the EU's Frame Work research programme from 2003. However, no research projects have been granted so far.

Table 4 shows the financial efforts by the Tobacco Fund for research in alternatives to Tobacco production[15]. In total 1278 projects have been founded with an expense of 51,2 Mio. €. 95% of the projects have been individual projects of Tobacco farmers according to article 13 of Commission Regulation (EC) No 2182/2002**.** Only 72 projects have been financed according to article 14 of the above mention EC regulation.

**Table 4:** Expenses of research in alternatives of Tobacco 2003 -2006

| Member State | Budget 2003-2006 | in % | Number of individual projects | Number of "general" projects |
|---|---|---|---|---|
| Italy | 26.154.191 | 51% | 890 | 10 |
| Greece | 18.647.887 | 36% | 270 | 32 |
| Spain | 2.332.969 | 5% | 17 | 4 |
| Portugal | 1.298.222 | 3% | 6 | 9 |
| France | 1.428.045 | 3% | 0 | 6 |
| Germany | 628.679 | 1,2% | 0 | 9 |
| Belgium | 607.396 | 1,2% | 17 | 2 |
| Austria | 139.818 | 0,3% | 6 | 0 |
| **TOTAL** | **51.237.207** | **100%** | 1206 | 72 |

**Source:** DG AGRI (15)

[15] DG AGRI: Tobacco reform and support for tobacco producers diversification; Presentation at DIVTOB seminar held on January 29, 2008 in Brussels.

Until now only little has been published about the projects of "General projects" according to article 14 of the Commission Regulation (EC) No. 2182/2002. During the DIVTOB project it was not possible to get further information by the Ministries of Agriculture of the concerned member states.

One important aspect of the Commission Regulation (EC) No 2182/2002 is **that the Commission lost a tool to finance projects of general interests which may have a European Added Value.** By the transmission of the Tobacco funds budget to the mandatory power of the national governments, only national research entities have been accepted for selected projects and no entities from other EU member states got a project proposal approved.

With the Council Regulation (EC) No. 1234/2007 of October 22, 2007 the Commission foresee that "article 13 of the Regulation (EEC) No. 2075/92 should nevertheless be maintained to serve as a legal basis for the multi-annual programmes that may be financed by the Community Tobacco funds".

This report demonstrates that the diversification alternatives are the same for all countries concerned and there are no regional differences, beside some very specific alternatives which may not have a great impact on the solution of the whole diversification problem.

Further, percentages of 3, 4 and 5% in the years 2005, 2006 and 2007 respectively were reduced from the total payments to the Tobacco farmers in order to finance the Community Tobacco Fund. After the envisaged termination of the Fund in 2008, a certain percentage of total aid should be modulated, meaning that it should flow into a financial envelop located in the second pillar of the CAP for restructuring tobacco-producing areas (10, pp. 27-28). However, as already mentioned above, the Council recently decided to continue the financing of the Fund in the years 2008 and 2009[16] (p. 4) and the European Parliament has adopted a resolution demanding its prolongation until 2013 along with an extension of tobacco aid in the same time frame[17].

## 2.5. The CAP from 2005 and its impact on Tobacco cultivated area, Tobacco production, Tobacco varieties and employment

Tobacco was cultivated in eight from fifteen Member States until 2004. After the enlargement of the European Union in 2004 a total of twelve from twenty-five Member States cultivated Tobacco. The further enlargement in 2007 raised the number of Member States with Tobacco cultivation to fourteen from twenty-seven member states. However, due to the first effects of the CAP reform Tobacco cultivation was stopped entirely in three Member States (Austria, Belgium and Cyprus). In 2008 Tobacco was still cultivated in eleven Member States (Bulgaria, France, Germany, Greece, Hungary, Italy, Poland, Portugal, Romania, Spain and Slovakia.

[16] Council Regulation (EC) No 470/2008 of 26 May 2008 amending Regulation (EC) No 1782/2003 as regards the transfer of tobacco aid to the Community Tobacco Fund for the years 2008 and 2009 and Regulation (EC) No 1234/2007 with regard to financing of the Community Tobacco Fund.

[17] The full amended EP report is available at: http://www.europarl.europa.eu/oeil/file.jsp?id=5593232.

**Table 5:** EU Tobacco cultivation and production key figures for 2007

| EU Member State | Total number of farmers producing tobacco | Total area covered by contracts (ha) | Total production (tons) |
|---|---|---|---|
| BULGARIA | 36.718 | 27.981 | 32.595 |
| GERMANY | 359 | 3.277 | 7.700 |
| GREECE | 14.701 | 14.438 | 24.000 |
| FRANCE | 2.751 | 7.514 | 15.528 |
| HUNGARY | 1.268 | 5.848 | 7.509 |
| ITALY | 7.360 | 26.114 | 91.285 |
| POLAND | 14.377 | 17.583 | 39.452 |
| PORTUGAL | 192 | 548 | 1.950 |
| ROMANIA | 381 | 1.015 | 2165 (?) |
| SLOVAKIA | 61 | 681 | ? |
| SPAIN | 3.341 | 9.438 | 29.354 |
| **Total EU-27** | **81.509** | **114.436** | **249.588** |
| **Total EU-25** | **44.410** | **85.440** | **214.828** |
| **Total EU-15** | **28.704** | **61.328** | **167.867** |

**Source:** UNITAB (18)

Due to the Tobacco reform from 2004 the number of Tobacco farms, cultivated area and Raw Tobacco productions decreased dramatically. However, the two enlargements in 2004 and 2007 increased again all key figures for Tobacco cultivation in the EU.

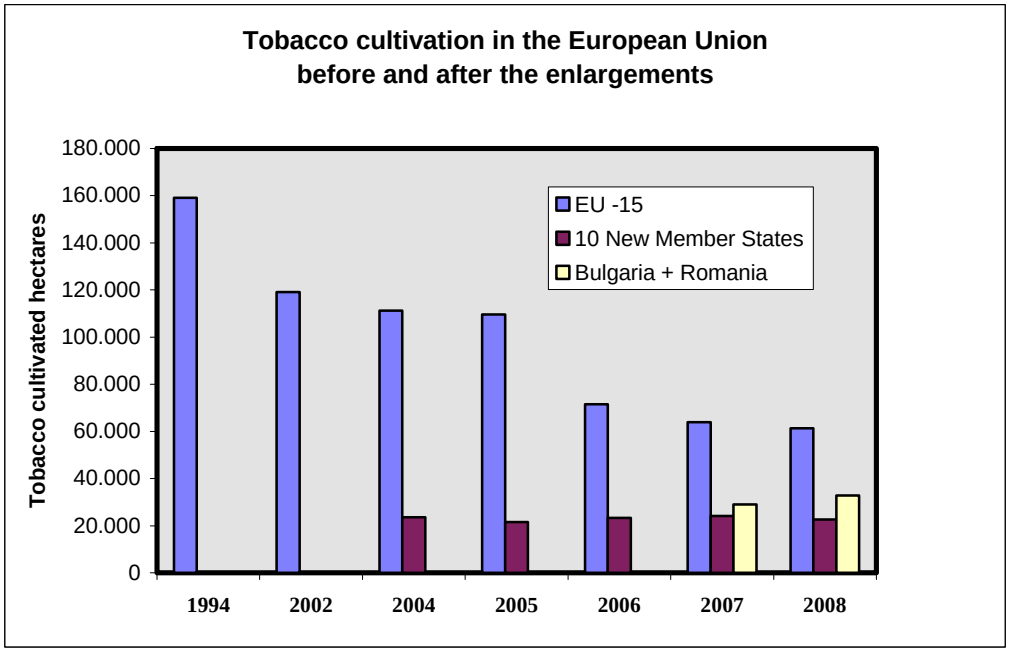
The following chapters explain and evaluate the figures obtained by Advisory Group for Tobacco at their meeting of May 23, 2008 (2), the inter-branch statistics from UNITAB[18] and a report from COGEA (12). In 2008 the total number of Tobacco farms decreased again to a total of 80.186 Tobacco farms.

### 2.5.1. The CAP from 2005 and its impact on Tobacco cultivated area

Figure 3 below shows the development of the Tobacco cultivation of the European Union from 1994 to 2007 (2). From 1994 the Tobacco cultivated area went down from 159.135 hectares to estimated 61.328 hectares in 2007. This is a loss in Tobacco cultivated area of 61.5 percent in the EU-15 Member States. The Tobacco cultivated area increased by 23.561 hectares with the enlargement and through the entrance of Tobacco cultivating countries (Cyprus, Hungary, Poland and Slovakia) into the European Union. An increase of the Tobacco cultivated area by 28.996 hectares was the result of the entrance of Bulgaria and Romania into the European Union. The total Tobacco cultivated area was about 116.936 hectares in 2007 and in 2008 116.741 hectares. This is still a decrease of 12,8 percent compared with the Tobacco cultivated area of 131.198 hectares (EU-15) in 2005 when the CAP reform for Tobacco started.

[18] Union Internationale des Producteurs de Tabac (UNITAB): Statistical Data from Harvests 2002, 2005, 2007; published for the UNITAB Congresses.

**Figure 3:** Tobacco cultivation in the European Union before and after the enlargements

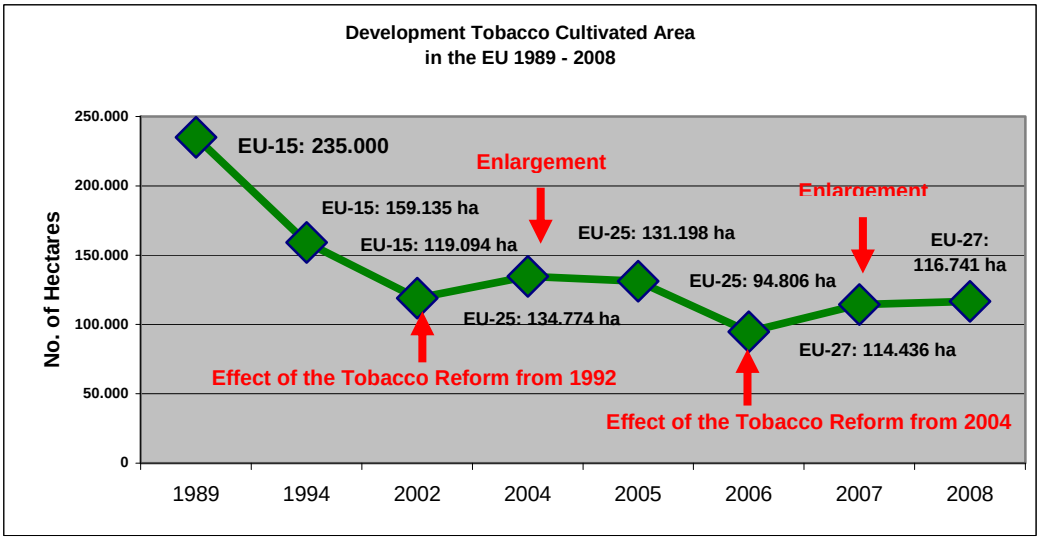



**Source:** Advisory Group (2)

In figure 4 the effects of the Tobacco reforms of 1992 and 2004 and the two enlargements on EU Tobacco cultivation can be seen. The Tobacco reform from 1992 reduced the Tobacco cultivated area from 1989 until 2002 by 116.000 hectares. The Enlargement in 2004 increased the total cultivated area by again 15.680 hectares. The Tobacco reform of 2004 brought a first effect in 2006 where the Tobacco cultivated area was again reduced by 39.968 hectares. Whereas the enlargement of the EU in 2007 with Bulgaria and Romania increased again the Tobacco cultivated area by 19.630 hectares. These two countries are also responsible for the further increase in 2008.

In general, it can be assumed that the reforms of the Common Agricultural Market for Raw Tobacco in 1992 and 2004 brought clear effects in the reduction of Tobacco cultivated area and decreased therefore the production of such Tobacco qualities which had no market.

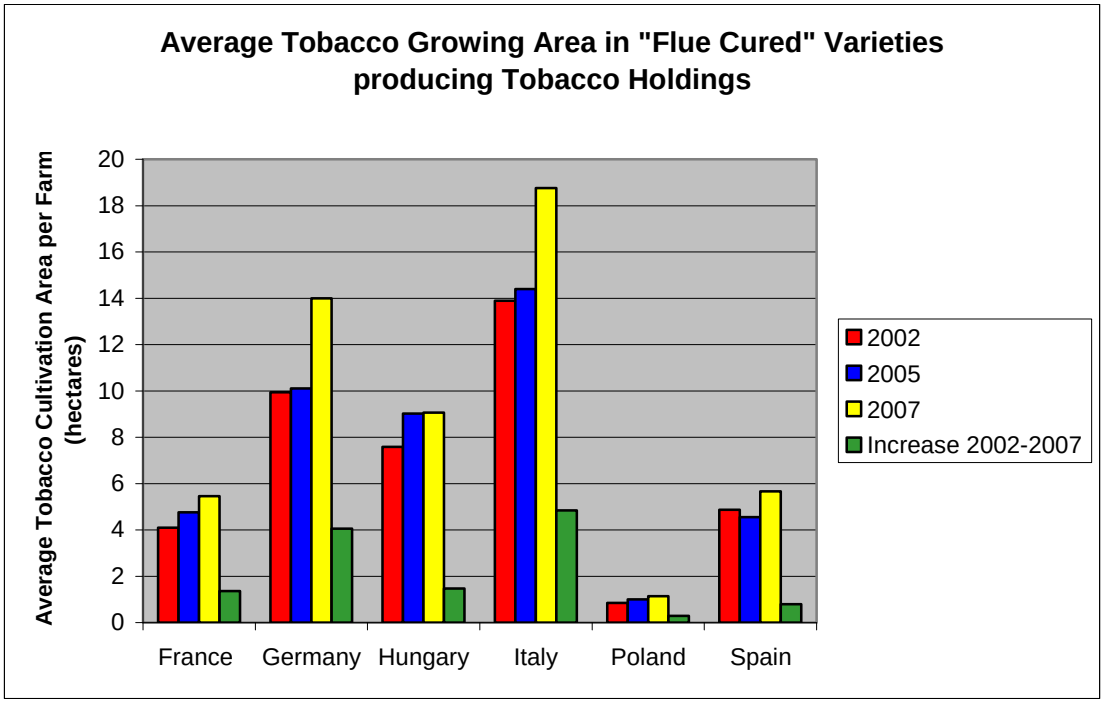
**Figure 4:** Development of Tobacco Cultivated Area in the EU from 1994 to 2008




**Sources:** (2, 12 and 18)

The impact of the new Tobacco CAP can also be registered on a farm level. A strong increase in Tobacco cultivated area per farm was observed for “Flue cured” varieties and also for lower increase for “Light Air Cured” varieties. The developments are shown in figure 5 and 6.

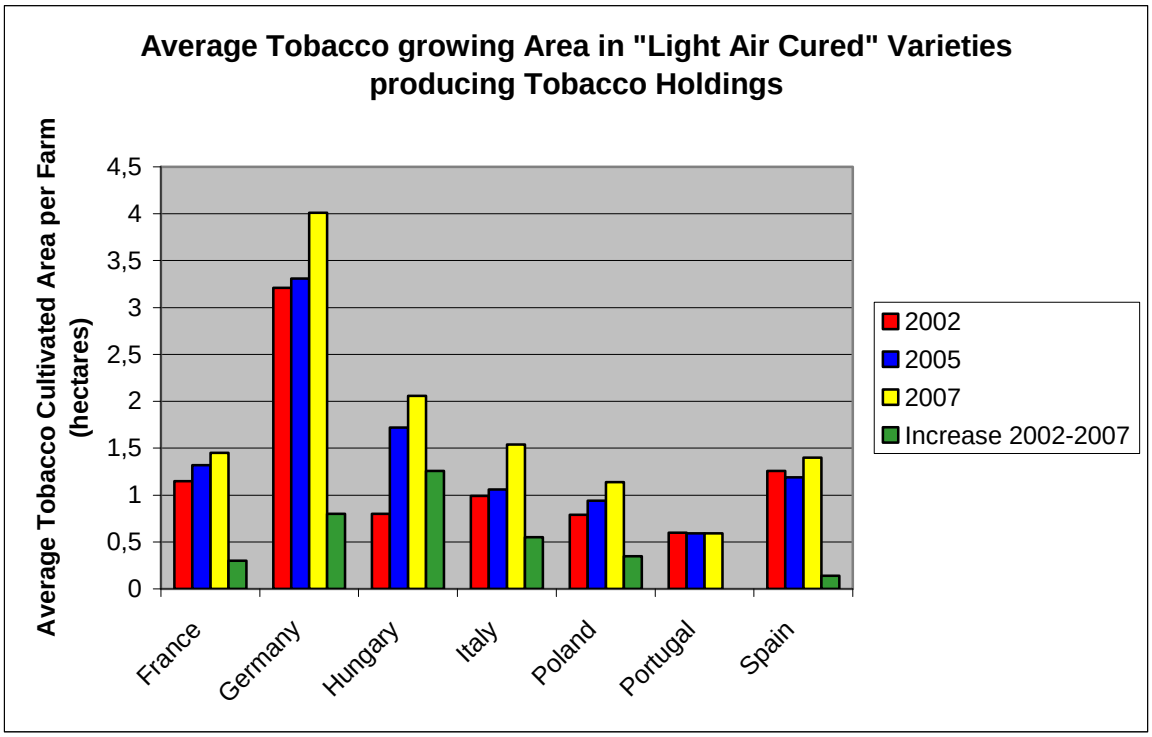
**Figure 5:** Increase of cultivated area per farm of “Flue cured” varieties in different EU member states




**Source:** UNITAB (18)

The figures show a further specialisation of the farms growing “Flue cured” varieties (Virginia Tobacco) due to increased hectares per farm. This development is possible due to the mechanisation especially in the harvest. The farms prepare themselves to produce under full market conditions in the future. Only in Poland, where the Tobacco farms are small, no mechanisation is possible. The tendency to a further specialisation in the cultivation of “Light Air Cured” varieties (Burley Tobacco) can be noticed France, Germany, Hungary, Italy and Poland. Portugal and Spain show no further specialisation in Burley cultivation. Especially in Portugal the average farm area is so small that a diversification to alternative high-added value crops is more feasible in future than Tobacco cultivation. The same situation refers also to Granada and “Valle del Alagón” (both in Spain). In Oriental Tobacco no impact was noticed.

**Figure 6:** Average Tobacco growing area in farms producing Burley



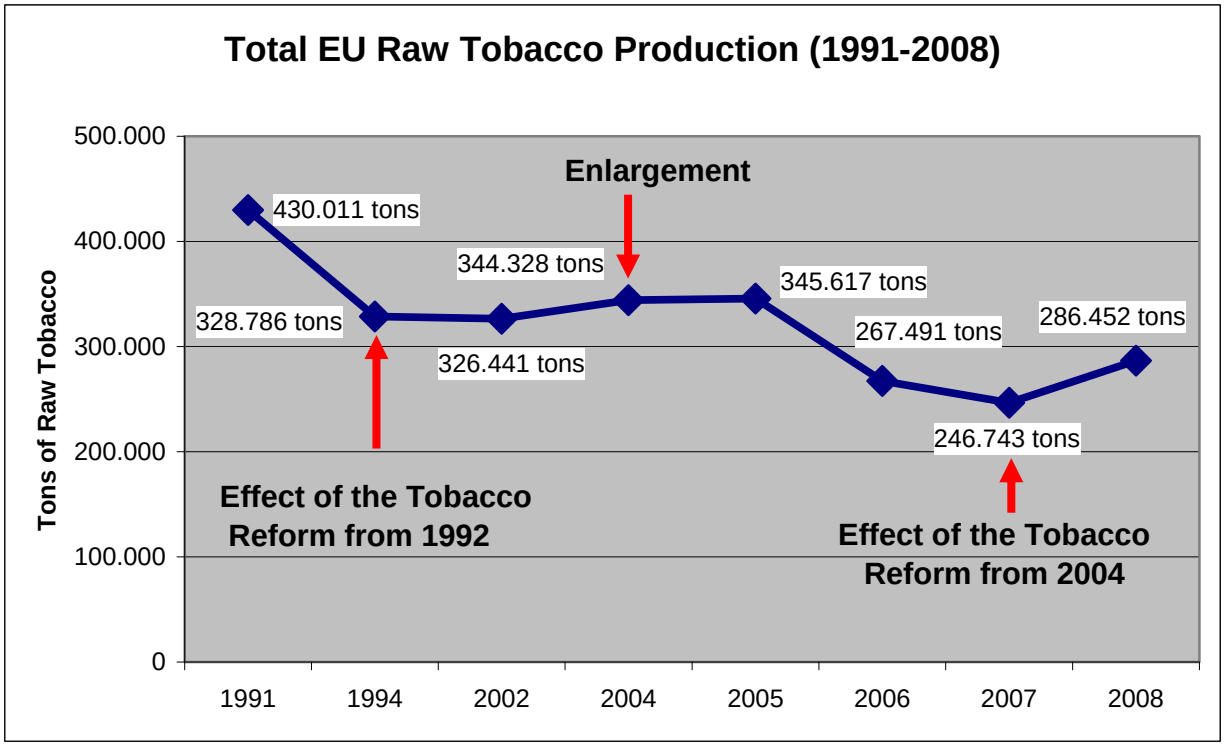

**Source:** UNITAB Tobacco (18)

### 2.5.2. The CAP from 2005 and its impact on Tobacco production

A similar effect can be seen on the EU Raw Tobacco production. The absolute production height of EU Raw Tobacco production was noted in 1991 with a total of 430.000 tons. The Tobacco reform limited the yearly production to about 329.000 in 1994. The EU Raw Tobacco production remained stable until 2002. The EU enlargement increased the Raw Tobacco production again to about 345.000 tons in 2004. The Tobacco reform from 2004 decreased again the EU Raw Tobacco production to about 250.000 tons (status 2007). The EU enlargement in 2007 added an overall allocation of national guarantee thresholds of 47 137 t for Bulgaria and of 12 312 tons for Romania to the EU production. However, without the two member states the production of Raw Tobacco would have been about 168.000 tons (EU-15) and 215.000 tons (EU-25). The two Tobacco reforms of 1992 and 2004 have been indeed very effective in the reduction of the EU Raw Tobacco production. From 1989 to 2007 the Tobacco production of EU-15 was decreased by 61%. These data show again that a great proportion of the EU Raw Tobacco production had no market and the production went in stock or have been exported with very low prices to Third Countries outside EU. However, in 2008 the EU Tobacco production increased (+14,7 percent) again. This is an effect to be seen in all Tobacco cultivating countries which is due to changing conditions on the world Tobacco market and increasing price levels paid by Tobacco industry. It is likely that the EU Tobacco production may reach again production levels as in 1994 quite soon.

The decrease in the EU Raw Tobacco production was so strong in the EU-15 member states that it easily compensated the increase of EU production by the two enlargements of 2004 and 2007.

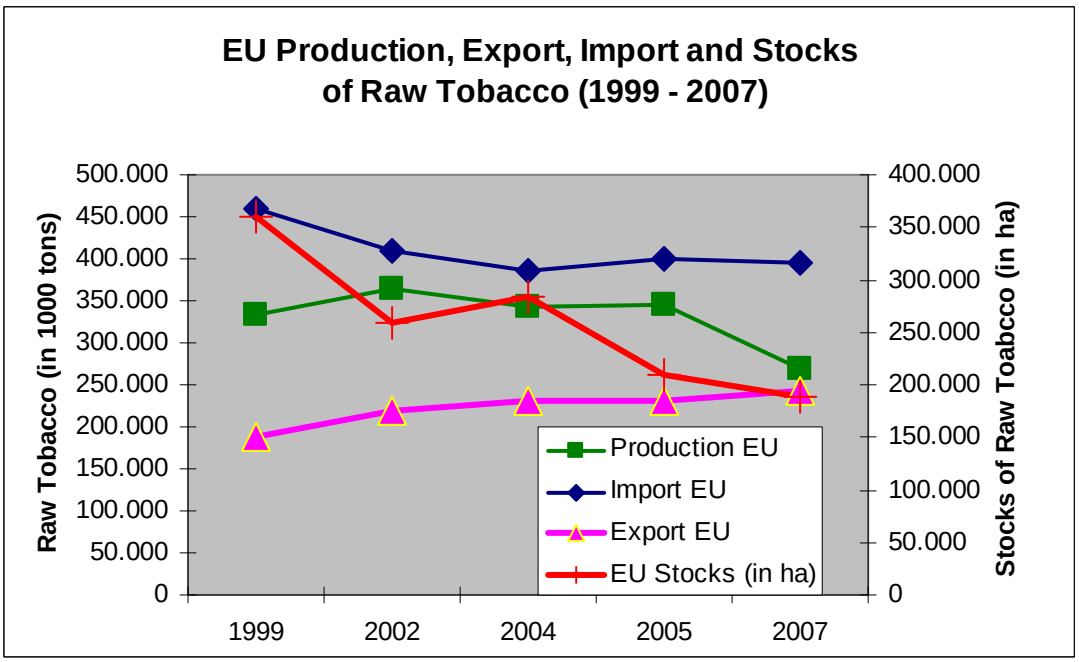
**Figure 7:** Development of the EU Raw Tobacco Production




**Sources:** (2, 12 and 18)

A simultaneous process (see figure 8) can be observed since 1999 which shows a general decrease in Raw Tobacco imports in EU, a decrease in EU production and increase in exports of Raw Tobacco from EU into Third Countries and a decrease in EU stocks for Raw Tobacco.

**Figure 8:** EU Production of Raw Tobacco, Export, Import and Stocks




**Source:** DG AGRI (15)

The production in EU of Raw Tobacco decreased in real figures from 334.000 tons in 1999 to 268.000 tons in 2007 which is a reduction of 22 percent. The import decreased by 14 percent from 460.000 tons in 1999 to 395.000 tons in 2007. The export increased by 30 percent from 150.000 tons in 1999 to 195.000 tons in 2007.

Table 6 comprises all key indicators of the development of the EU Raw Tobacco Market.

**Table 6:** Development of EU Raw Tobacco Market

| EU Raw Tobacco | 1999 | 2002 | 2004 | 2005 | 2007 | 2008* |
|---|---|---|---|---|---|---|
| **Production EU (tons)** | 334.000 | 364.000 | 344.000 | 345.000 | 268.000 | 286.452 |
| **Import EU (tons)** | 460.000 | 410.000 | 385.000 | 400.000 | 395.000 | 353.110 |
| **Export EU (tons)** | 150.000 | 175.000 | 185.000 | 185.000 | 195.000 | 174.190 |
| **EU Stocks (in ha)** | 360.000 | 260.000 | 284.000 | 210.000 | 188.000 | no info |

**Sources:** COGEA (12), DG AGRI (15) and * = forecasts from Advisory Group (2) and from 30.4.2009

The EU stocks of Raw Tobacco decreased from the production equivalent of 360.000 hectares in 1999 to 188.000 hectares in 2007, which is a reduction by 47, 8 percent. In the last two years world stocks came down dramatically which may be due to the effect that EU stocks are “zero” until 2010/2011. The strong decrease in the EU stocks and the simultaneous increase of EU Raw Tobacco exports show an increasing demand for Raw Tobacco in the world market. More specific the stock situation is for the following:

**Flue-Cured Tobacco:** EU stocks in 2008 are down 15 million kilograms, due primarily to the reduction in Greece, where stocks decreased from 12 million kilograms to zero over the past year as a result of the recent halt in Greek flue-cured production (15).

**Burley Tobacco:** The actual level of EU stocks is not known.

**Oriental Tobacco:** Stocks held in Bulgaria decreased 72.2 percent in 2008. Italian oriental production fell to zero beginning with the 2006 crop. The demand for Greek oriental tobacco continues to follow the supply potential of the country by adjusting itself to the available volume (new crop plus stocks). Some existing stocks remain, but stock levels are expected to decrease in the marketing of the 2007 and 2008 crops as they are used to offset the reduced, 100 percent decoupled crop sizes that began in 2006 (15).

### 5.5.3. The CAP from 2005 and its impact on the cultivation of Tobacco varieties

The Tobacco Reform of 1992 the Common Market for Raw Tobacco limited the production of certain varieties. Table 7 shows the eight Tobacco variety groups and their principle characteristics.

**Table 7:** Variety Groups according to EU Common Market Regulations for Raw Tobacco

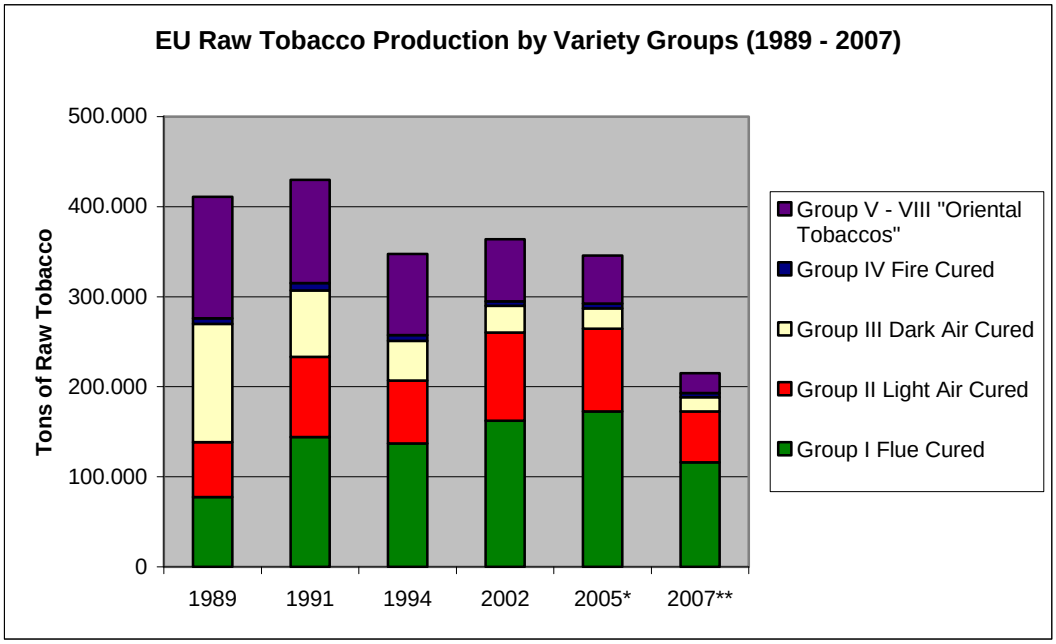
| Variety Groups | | Principal Varieties | Technical Characteristics |
|---|---|---|---|
| **Group I** | Flue Cured | Virginia, Bright | By controlled temperature and air humidity a fast Tobacco drying is achieved and the Tobacco leaves get a yellow colour |
| **Group II** | Light Air Cured | Burley, Badischer Burly, Mariland | The Tobacco is dried by ambient temperature |
| **Group III** | Dark Air Cured | Paraguay, Havanna, Fermented Burley, Badischer Geudertsheimer, Dragon vert, Beneventano | The Tobacco is naturally fermented by a slow going drying process using ambient temperature and humidity |
| **Group IV** | Fire Cured | Kentucky, Salento | The Tobacco is dried over open fire |
| **Group V** | Sun Cured | Xanti-Yaká, Perustutza, Erzegovina, Tsebeljia, Mavra | Tobacco varieties which are sun dried |
| **Group VI** | Basmas | Basmas | Greek Type oriental Tobaccos which are dried by sun |
| **Group VII** | Katerini | Katerini | |
| **Group VIII** | Kaba Koulac.etc | Elassona, Zichnomyorodata, Myrodata Agrinion | |

**Source:** COGEA (12)

The development of the EU Raw Tobacco Market is also shown in the shift of Tobacco variety cultivation. The shift of the cultivation from one Tobacco variety to another reflects the effects of the Common Market for Raw Tobacco and the efforts in order to adapt the EU Raw Tobacco production to market requirements. Figure 7 shows the development between 1989 and 2007. Before the Tobacco reform of 1992 adaptations to market requirements was already in progress by a strong shrinking of the production of Group III “Dark Air Cured” Tobacco Varieties and in a strong increase in the production of Group I “Flue Cured” and Group II “Light Air Cured” Tobacco varieties. The Tobacco reform from 1992 limited the total EU Raw Tobacco production to 350.000 tons where the premium payment was applicable. A further reduction of the Group III varieties was then observed until 2007. The production of Group III varieties was reduced by 88 percent between 1989 and 2007. All groups of the different Oriental Tobacco varieties (Group V-VIII) showed a reduced production since 1989 which resulted in a decrease of 84 percent (EU-25).

The production of Group I “Flue Cured” Tobacco varieties and Group II “Light Air Cured” Tobacco varieties decreased by 32,8 percent and 42,2 percent respectively due to the Tobacco reform of 2004. The only Tobacco variety which maintained more or less its production level was Group IV “Fire cured”, which is used for the manufacturing of cigars and cigarillos. However, Group IV represents only 2,2% of the total EU Raw Tobacco Production and can be considered as a niche market. All data of EU Tobacco Variety Production are shown in table 8 and visualized in figure 9.

**Figure 9:** Changes in the EU Tobacco Variety cultivation




**Sources:** (2, 12 and 18)
**Remarks:** * = without Tobacco production from Austria; ** = without Tobacco production from Bulgaria and Romania as not data from 2007 have been available

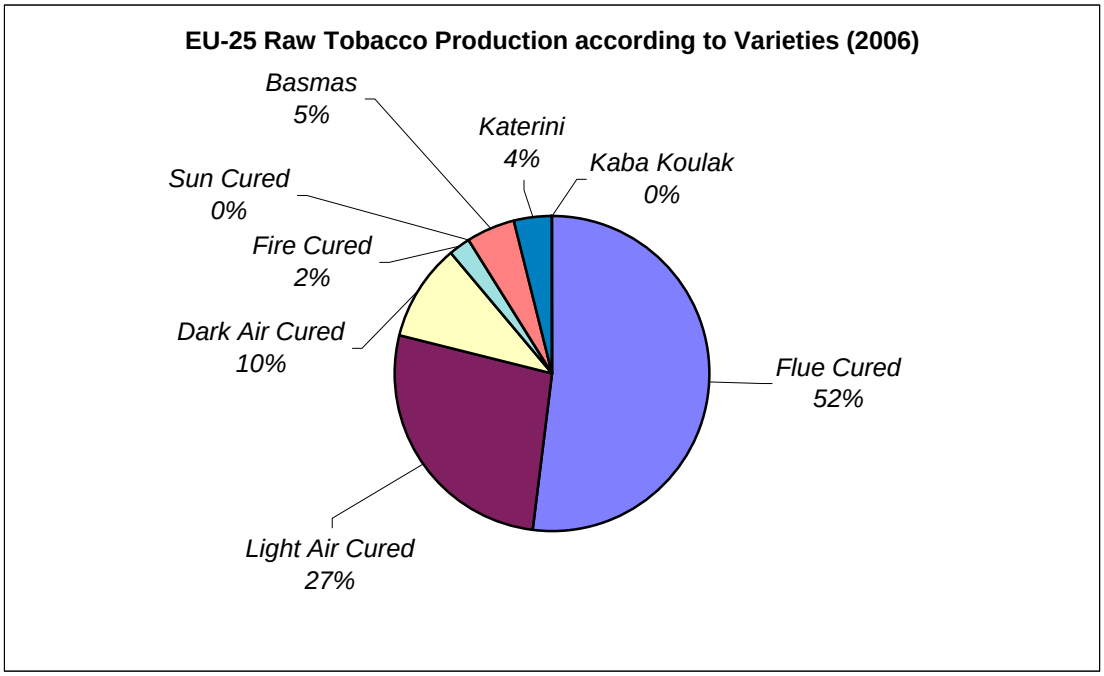
**Table 8:** EU Raw Tobacco Production according to Variety Groups

| Tobacco Variety Groups Production (in tons) | 1989 | 1991 | 1994 | 2002 | 2005* | 2007** |
|---|---|---|---|---|---|---|
| Group I Flue cured | 77.636 | 144.100 | 137.040 | 162.263 | 172.813 | 116.049 |
| Group II Light Air Cured | 60.735 | 89.212 | 70.000 | 98.187 | 91.689 | 56.843 |
| Group III Dark Air Cured | 131.627 | 73.840 | 43.886 | 29.322 | 22.623 | 15.418 |
| Group IV Fire Cured | 5.883 | 8.197 | 6.513 | 4.925 | 5.316 | 4.877 |
| Group V - VIII | 134.969 | 114.662 | 90.231 | 69.256 | 53.265 | 21.744 |
| **Total** | **410.850** | **430.011** | **347.670** | **363.953** | **345.706** | **214.931** |

**Source:** UNITAB (18)
**Remarks:** * = without Tobacco production from Austria; ** = without Tobacco production from Bulgaria and Romania as not data from 2007 have been available

The relative shares of the different groups of Tobacco varieties of the EU Raw Tobacco production is shown in figure 10. More specific, the varieties of Group V “Sun Cured” and Group VIII “Kaba Koulak etc.” are no longer produced in the EU. About 79 percent of the EU Raw Tobacco Production in 2006 was represented by the two Tobacco variety groups Group I “Flue cured” and Group II “Light Air Cured”.

**Figure 10:** EU-25 Raw Tobacco Production in 2006 broken down by different groups of varieties




**Source:** DG AGRI (15)

### 5.5.4. The CAP from 2005 and its impact on the Tobacco farm sector

The effects of the Tobacco reforms on market adaptation was shown in the recent figures 3 to 10 and tables 6 and 8 in respect to cultivation area, production quantities and shift in Tobacco variety growing. However, the decrease of Tobacco production in EU member states did not have the effect to maintain the Tobacco farms in general. Most of the farms have not been directed to new production sectors. In contrast, the reforms from 1992 and 2004 have had and will have the effect to the complete loss of any full time farm activities for most of the concerned farms due to the specific structural conditions of EU Tobacco farms.

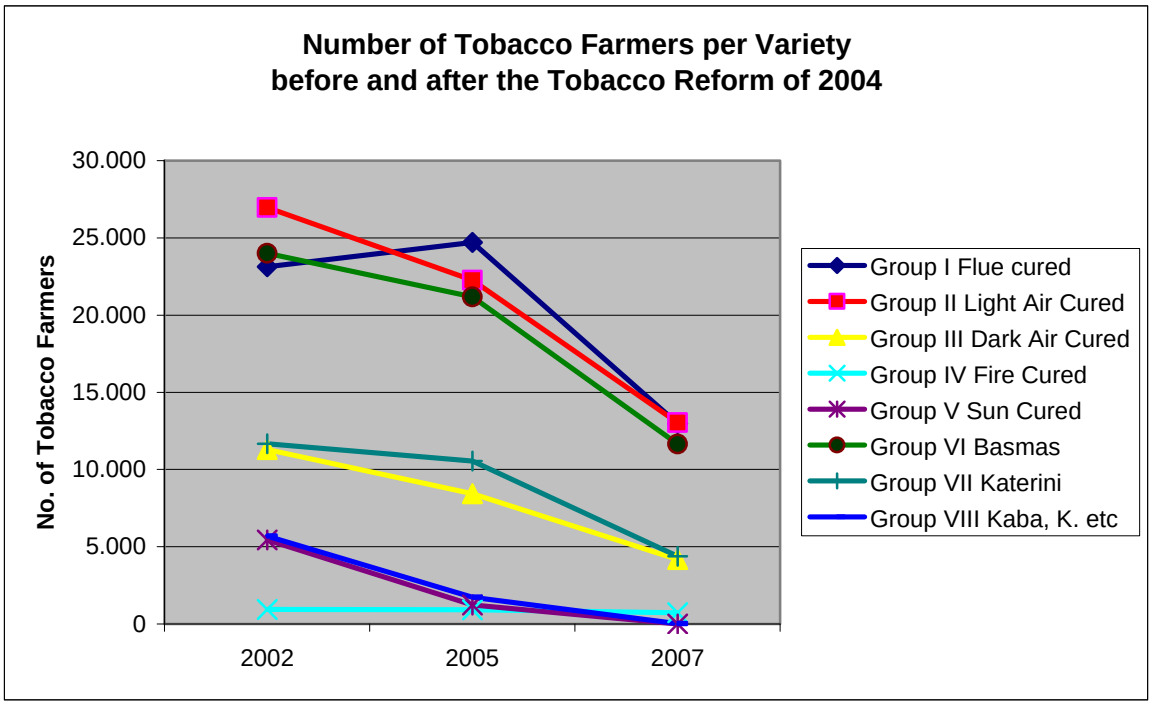
The Tobacco reform of 2004 showed especially the effect of decrease of Tobacco farmers in relation to the Tobacco variety produced. The farmers specialised on the cultivation of the varieties of Group V “Sun cured” and of Group VIII “Kaba Koulak” and other minor varieties” stopped by 100% their production. A total of 48% of all Tobacco farmers in Belgium, France, Germany, Greece, Hungry, Italy, Poland and Portugal stopped the Tobacco production due to the Tobacco reform which is shown in table 9 and figure 11. The total number of Tobacco Farmers decreased from 109.128 in 2002 to only 46.988 in 2007 (EU-25).

**Table 9:** Number of Tobacco Farmers per Tobacco Variety (15)

| | 2002 | 2005 | 2007 | %2007/2005 |
|---|---|---|---|---|
| Group I Flue cured | 23.138 | 24.710 | 12.981 | -47,50% |
| Group II Light Air Cured | 26.975 | 22.255 | 13.044 | -41,40% |
| Group III Dark Air Cured | 11.291 | 8.429 | 4.179 | -50,40% |
| Group IV Fire Cured | 938 | 914 | 731 | -20,00% |
| Group V Sun Cured | 5.433 | 1.219 | 0 | -100% |
| Group VI Basmas | 23.995 | 21.184 | 11.651 | -45,00% |
| Group VII Katerini | 11.674 | 10.553 | 4.386 | -58,40% |
| Group VIII Kaba Koulak. etc | 5.684 | 1.731 | 16 | -99,10% |
| **Total** | **109.128** | **90.995** | **46.988** | **-48,35%** |

**Source:** UNITAB (18)

**Figure 11:** Development of Number of Tobacco farms for each variety




**Source:** UNITAB (18)

### 5.5.5. The CAP from 2005 and its impact on employment in EU Tobacco farms

In order to estimate the effects on labour and employment a very conservative approach is chosen in this study. According to the EUSTAT report from 2001[19] the demand for workers in tobacco is quite different within the main tobacco cultivation regions.

[19] EUSTAT: Twenty years of agriculture in Europe: The tobacco industry and employment in less- favoured regions; 15/2001 Catalogue number KS-NN-01-015-EN-I.

**Table 10:** Profile of farms producing Tobacco

| | Regions | Extremadura | | | Northern Greece | | | Campania | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Type of Farm Holdings** | No Tobacco (1)<br>With Tobacco (2)<br>Specialised Tobacco Farm (3) | **1** | **2** | **3** | **1** | **2** | **3** | **1** | **2** | **3** |
| **No. of holdings** | 1000 | 65,4 | 2,99 | 1,82 | 255,3 | 48,3 | 30,3 | 184,7 | 16,6 | 6,2 |
| **Total agricultural area** | 10.000 ha | 282,2 | 6,33 | 3 | 139,2 | 23,2 | 8,4 | 55,3 | 7,94 | 1,68 |
| **Tobacco** | 100 ha | 0,0 | 15,8 | 12,3 | 0,0 | 53,9 | 35,2 | 0,0 | 19,2 | 9,7 |
| **% Tobacco** | %ha | 0,0 | 25,0 | 40,9 | 0,0 | 23,2 | 41,9 | 0,0 | 24,2 | 58,0 |
| **Labour Force** | **Type of holdings** | **nT** | **wT** | **FT** | **nT** | **wT** | **FT** | **nT** | **wT** | **FT** |
| Total Family | AWU/100 UAA | 1,2 | 5,2 | 6,5 | 10,7 | 26,7 | 42,5 | 24,5 | 30,7 | 48,5 |
| Non regular non-Family | AWU/100 UAA | 0,4 | 5,7 | 6,2 | 1,7 | 3,1 | 4,4 | 3,6 | 2,4 | 5,1 |
| Total | 1000 AWU | 50,5 | 7,5 | 4,2 | 176,4 | 69,7 | 39,5 | 156,5 | 26,3 | 9,0 |

**Source:** EUSTAT (19)

The table above is based on data from 1997 from a EUSTAT evaluation of the agricultural Tobacco sector and its impact on employment in less-favoured regions. In an initial approach the data from the table shall be explained and in a second approach the achieved data shall be translated to the current situation.

The EUSTAT report was evaluating three regions on NUTS1 level (Extremadura, Voreia Ellada which is all Northern Greece and Campania):

**a) Extremadura (Spain):** In Extremadura a total of 65.400 farms existed in 1997 with **no** Tobacco (no Tabacco = **nT**) cultivation. A total of 2.990 farms cultivated tobacco (with Tobacco = **wT**) on 15.800 hectares. A subgroup is statistical defined as FT1441 which are specialised Tobacco farms (**FT**). In 1997 in Extremadura existed a total of 1.820 specialised Tobacco farms (according to the EUSTAT Farm branch definition FT1441) with 12.300 hectares of tobacco crop. All farms with Tobacco cultivation have had a total employment of 7.500 AWU (EUSTAT definition: Annual work unit = defined as full-time employment with 1.800 hours annually). The total employment is broken down in 3.292 AWU of family labour force, 3.608 AWU of non-regular non-family labour force and 600 AWU of regular non-family labour force. The sub-group of specialised Tobacco farms (FT1441) have had a total employment of 4.200 AWU which is broken down in 1.950 AWU of family labour force, 1.860 AWU of non-regular non-family labour force and 390 AWU of regular non-family labour force.

**b) Northern Greece:** In Northern Greece a total of 255.300 farms existed in 1997 with **no** Tobacco (no Tabacco = **nT**) cultivation. A total of 48.300 farms cultivated tobacco (with Tobacco = **wT**) on 53.900 hectares. Specialised Tobacco farms (**FT**) existed in Northern Greece in 1997 at a total number of 30.300 with 35.200 hectares of tobacco crop. All farms with Tobacco cultivation have had a total employment of 69.700 AWU. The total employment is broken down in 61.944 AWU of family labour force, 7.192 AWU of non-regular non-family labour force and 564 AWU of regular non-family labour force. The sub-group of specialised Tobacco farms (FT1441) have had a total employment of 39.500 AWU which is broken down in 35.700 AWU of family labour force, 3.696 AWU of non-regular non-family labour force and 104 AWU of regular non-family labour force.

**c) Campania (Italy):** In Campania a total of 184.700 farms existed in 1997 with **no** Tobacco (no Tabacco = **nT**) cultivation. A total of 16.600 farms cultivated tobacco (with Tobacco = **wT**) on 19.200 hectares. Specialised Tobacco farms (**FT**) existed in Campania in 1997 at a total number of 6.200 with 9.700 hectares of tobacco crop. All farms with Tobacco cultivation have had a total employment of 26.300 AWU. The total employment is broken down in 24.376 AWU of family labour force, 1.906 AWU of non-regular non-family labour force and only 18 AWU of regular non-family labour force. The sub-group of specialised Tobacco farms (FT1441) have had a total employment of 9.000 AWU which is broken down in 8.148 AWU of family labour force, 852 AWU of non-regular non-family labour force. Regular non-family labour force was not recorded.

It is assumed that the agricultural structures in the above three described regions did not change since 1997 neither in the size of farms, general production schedule and Tobacco variety Table 11 shows the working hour demand (Wh/ha) for important EU Tobacco cultivating regions and varieties.

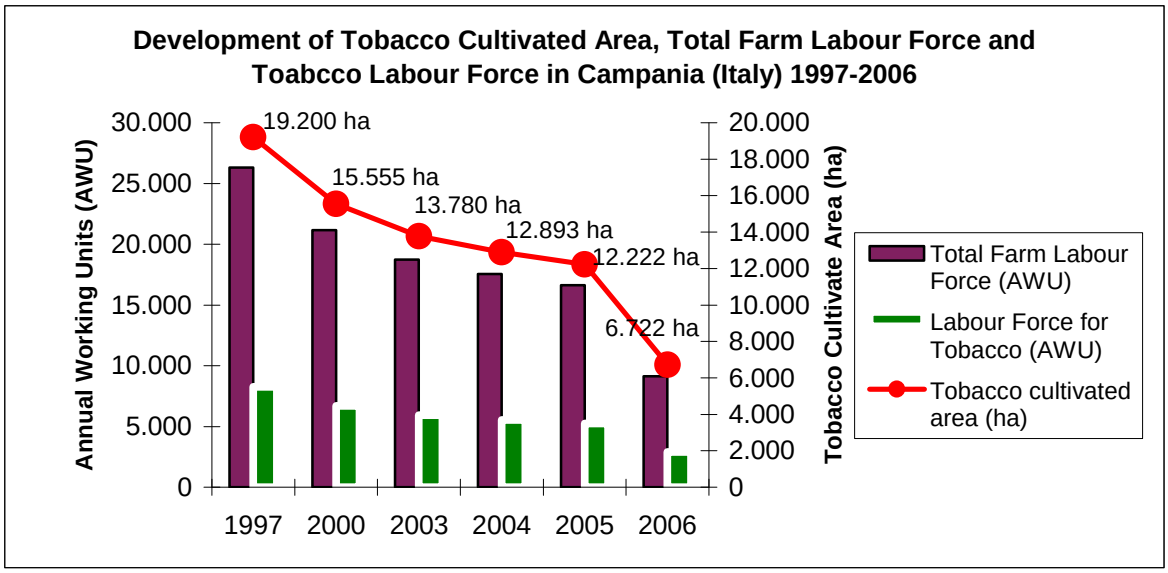
**Table 11:** Specific labour demand for EU Tobacco varieties

| Worker category | Extremadura (Spain) | Verona (Italy) | Campania (Italy) | Bulgaria and Northern Greece |
|---|---|---|---|---|
| Tobacco Variety | Virginia | Virginia | Burley | Oriental Tobacco |
| Total | 738 Wh/ha | 322 Wh/ha | 773 Wh/ha | 1500 Wh/ha |
| Total in AWU | 0,41 | 0,18 | 0,43 | 0,83 |

**Source:** EUSTAT (19) and information from Veneto and Oriental Tobacco growers

In Campania the Tobacco cultivated area was reduced from 16.600 hectares in 1997 to 12.222 hectares in 2005 before the start of the Tobacco reform. Due to the Tobacco reform the Tobacco cultivated area was reduced to 6.722 hectares on 2006. Consequently the required labour force was reduced by 45 percent due to the Tobacco reform from 2004 which is shown in figure 12.

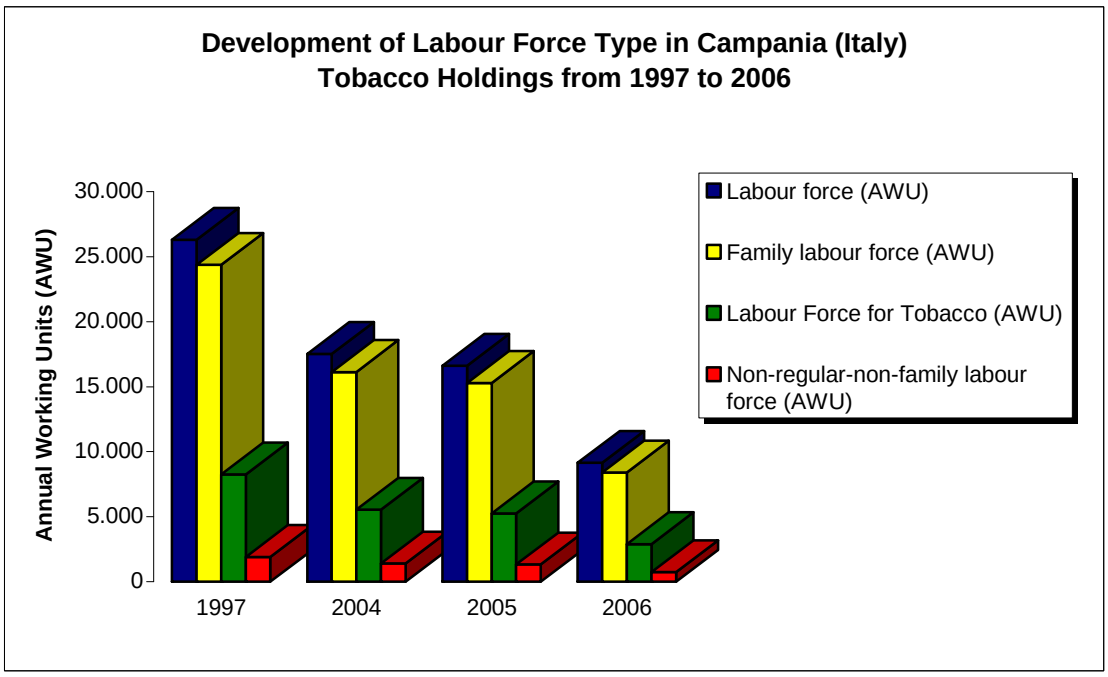
**Figure 12:** Development of Tobacco cultivated area and employment in Campania Tobacco farms




**Sources:** (18, 19 and 21)

The labour force is composed in Campania by mainly Family labour force which was reduced from 24.376 AWU in 1997 to 8.410 AWU in 2006. This is a loss of 65,5 percent. Non family labour force was never an important source of employment in Tobacco cultivation in Campania (less than 10% of the family labour force).

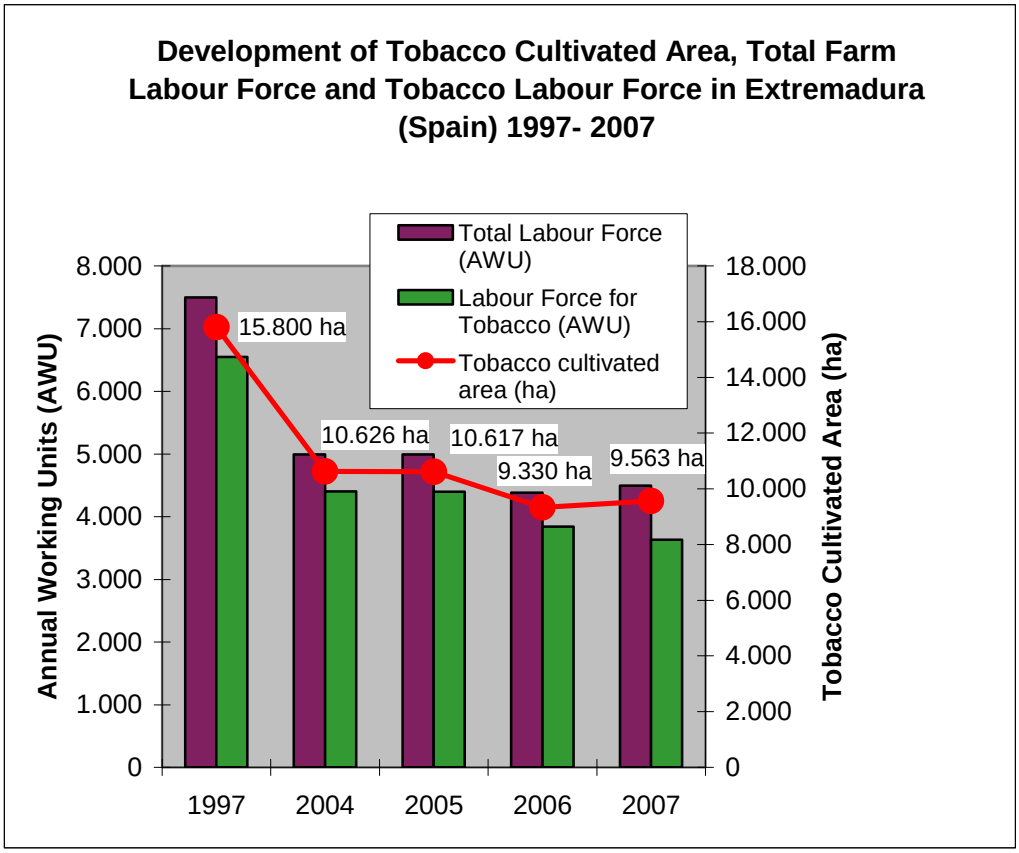
**Figure 13:** Development of labour force in Tobacco holdings in Campania




**Sources:** (18, 19 and 21)

In Extremadura the situation is completely different to the situation in Campania. The Tobacco reform from 2004 did result only in a moderate decrease of Tobacco cultivation (about 10% less)[20]. The strong decrease in Tobacco cultivation happened already after the Tobacco reform of 1992.

**Figure 14:** Development of Tobacco cultivated area and labour force in Extremadura

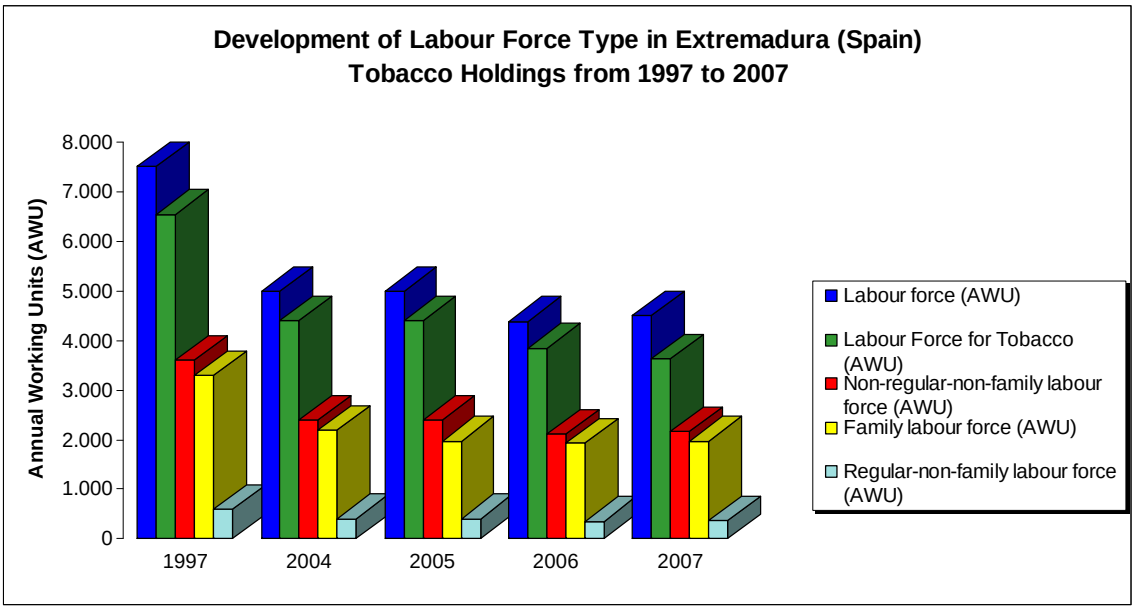



**Sources:** (18, 19 and 30)

The non-regular-non-family labour force is an important source of employment in the Tobacco growing areas. Also the regular non-family labour force is of a significant importance. About 20 percent of the Tobacco farms have constant employees all over the year which shows the complete different agriculture structure of the Tobacco farms in Extremadura.

[20] Data received from Extremadura Regional Government.

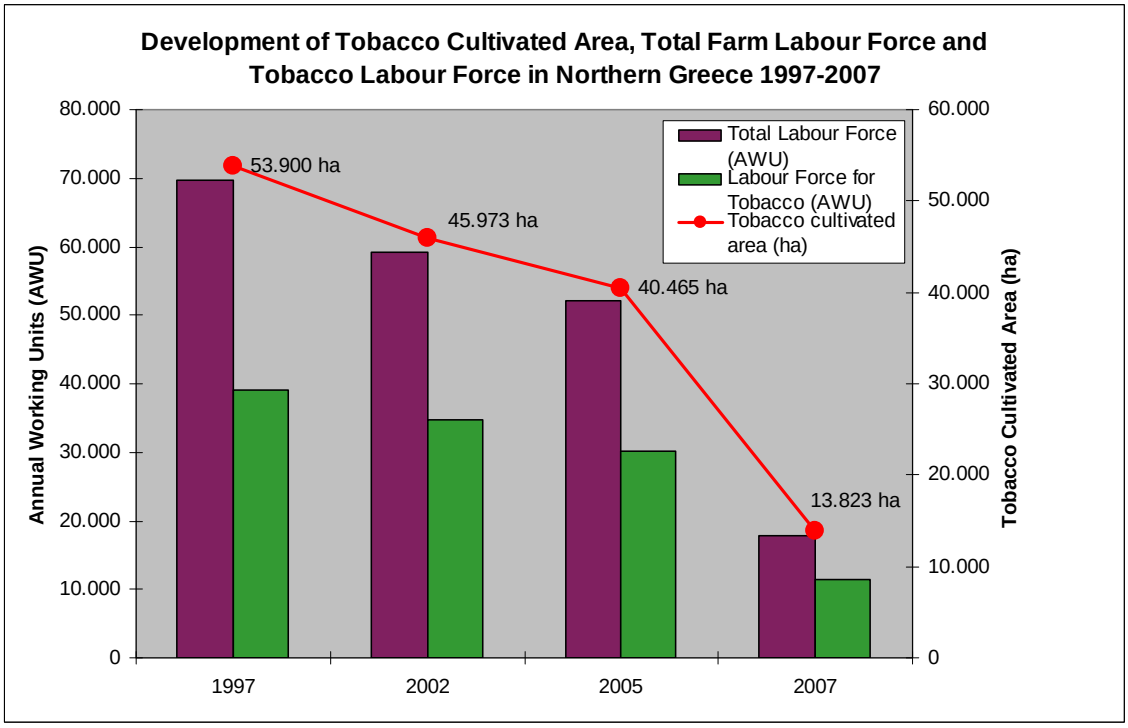
**Figure 15:** Development of labour force in Tobacco holdings in Extremadura




**Sources:** (18, 19 and 30)

A great difference is noticed between the situation in Extremadura and Campania compared with the situation in Northern Greece. The Tobacco reform from 2004 resulted in a 65 percent decrease of Tobacco cultivated area due to the decoupling of 100% and therefore the payments for all Tobacco farmers are secured until end of 2009.

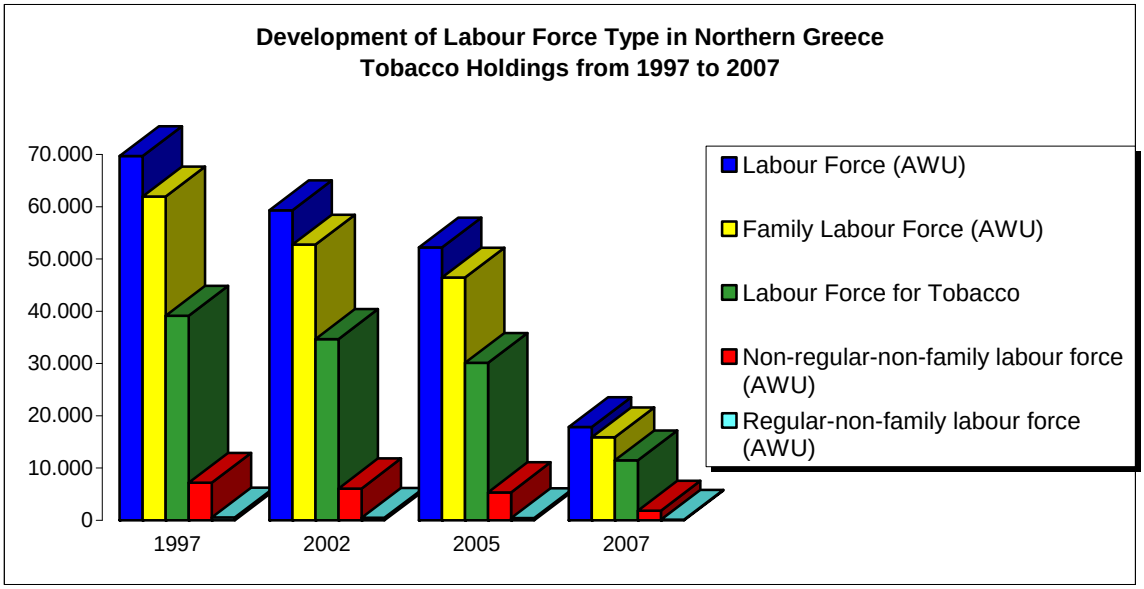
**Figure 16:** Development of Tobacco cultivated area and labour force in Northern Greece




**Sources:** (18 and 19)

Only Oriental Tobacco varieties are still in cultivation. All other varieties have had obviously no market and the production has been stopped.

**Figure 17:** Development of labour force in Tobacco holdings in Northern Greece




**Sources:** (15, 19)

A typical Tobacco holding in Northern Greece is very small (about 5 hectares). Therefore by decoupled payments the farm can be maintained until end of 2009. However, in 2010 the Tobacco Farm sector of Greece will experience a total collapse if no change will be done on the Tobacco reform. This collapse may result in a complete loss of farms and in consequence the total labour force on the level of the year 2005 will be affected.

The EU Tobacco cultivated regions can be grouped according to the relationship of employment between Non-familiar labour force (contracted persons with a salary) and family labour force.

**Table 12:** Regional employment characteristics of EU Tobacco regions[21]

| Regions/Countries with mainly family labour | Regions/Countries with mainly Non-family labour |
|---|---|
| Apulia (Italy) | Toscana (Italy) |
| Campania (Italy) | Umbria (Italy) |
| Beira Litoral (Portugal) | Verona (Italy) |
| Granada (Spain) | Beira Interior |
| Bulgaria | (Portugal) |
| Greece | Extremadura (Spain) |
| Romania | France |
| Poland | Germany |
| | Hungary |

[21] DIVTOB: Results of the evaluation of the questionnaires from the Tobacco Cooperatives.

It is very difficult to calculate from AWU units the real number of employed persons. An estimation will be given below which was calculated on received or published information. Sardone[22] studied the situation for Italy which may provide the most actual and accurate figures. In table 13 the data are shown from specific Italian regions. Derived from other data provided by Sardone it can be calculated that every hectare of Tobacco requires 0,025 persons that are working in agricultural sectors not related to the farm work. For the first processing of Tobacco about one person is required for 12,3 hectares.

**Table 13:** Estimation of annual employees in Italian Tobacco farms (2006/2007)

| | Campania | Veneto | Umbria | Toscana |
|---|---|---|---|---|
| No. of Farms | 6.722 | 484 | 560 | 287 |
| Tobacco cultivated hectares | 9.609 | 7.584 | 6.872 | 2.188 |
| Family Labour Force | 19.965 | 1.170 | 1.062 | 3.046 |
| Permanent Workers | No information | No information | 258 | 85 |
| Temporary Non-Family Labour Force | 1.975 | 4.530 | 3.650 | 4.372 |
| **Total** | **21.940** | **5.700** | **7.934** | **7.503** |

**Source: DIVTOB** (21, 22)
**Remark:** The shown data are employed persons, but not full-employed beside the permanent workers and the farm holders!

The differences between the main four Italian Tobacco cultivating regions are due to the variety, the mechanisation level and the farm size. In Toscana tobacco for cigar production is mainly cultivated. This requires high quality tobacco which forces hand labour. That explains the high number of family labour and non-temporary workers. In Campania the most farms are very small and no mechanisation is applicable. The farms are run as a family business with only few additional temporary workers where the farm size is appropriate. In Umbria and Veneto the farm size is much bigger and mechanisation is applicable. This explains the high number of temporary workers and only a small number of family workers. In Italy it is estimated that about 40.000 persons are working in tobacco cultivation.

In Tobacco growing regions where no mechanisation is applied (or impossible to apply) it can be calculated that about 2,4 to 3 persons/hectare are needed to do the work on the Tobacco fields in due time. The whole number of persons working in the Tobacco fields from Bulgaria, Greece, France, Hungary, Poland, Portugal, Romania and Slovakia are about 181.000 to 226.000 persons (75.608 ha x 2,4 to 3 Persons/ha) in a very rough calculation.

In Germany it is estimated that the 359 Tobacco farms employ about 900 persons from the family including the farm holder and additionally 7000 temporary non-family workers. This is a total of about 7.900 persons running 3.277 ha of Tobacco. This is about 2,4 persons/ha. In Spain about 16.500 persons are working on the tobacco fields. This is due to full mechanisation in some Spanish regions and mainly hand labour in other regions.

[22] Sardone R. et al.: Il Comparto del Tabacco in Italia alla Luce della nuova OCM; INEA, 2008; ISBN 978-88-495-1580-0, Project was financed by Commission Regulation (EC) No 2182/2002.

### The social dimension of the Tobacco reform:

In total EU-27 it is estimated that 245.000 – 290.000 persons are working annually in the Tobacco fields. About 1/3 are full time jobs (81.500) and 2/3 are temporary jobs. About 50.000 jobs of the temporary jobs are mainly occupied by immigrants. The remaining temporary jobs (130.000 – 175.000) are occupied by family workers which are in majority female relatives (50-80%) who can not get easily a job elsewhere. It is ironic where the employment of females is encouraged by governments and society that a political measure will destroy in its vast majority jobs for female workers in economically disfavoured regions.

The Tobacco reform from 2004 lacks clearly any measure for the employees – permanent or temporally. Those employees which will loose the job due to the Tobacco reform will have in most of the concerned regions strong difficulties to find a new job. Also in regions with relatively wealth like Verona, Italy, it is unlikely that under the conditions of the actual economic crisis new job opportunities can be created so easily. It would be the best measure to hold the jobs in the agricultural Tobacco sector by a new deal for financing the support mechanisms than to add new jobless people without the change for a new opportunity.

The Tobacco reform from 2004 must be adjusted to a social context which is experienced actually and the employment can not be destroyed without feasible alternatives.

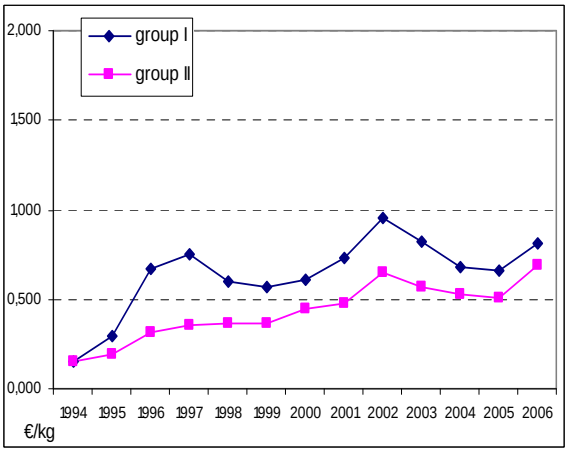
### 5.5.6. The development for commercial prices for Raw Tobacco

Figure 18 gives an overview of the development of the prices for Raw Tobacco variety groups since 1994 (15). The given prices are an average of all EU countries producing Tobacco.

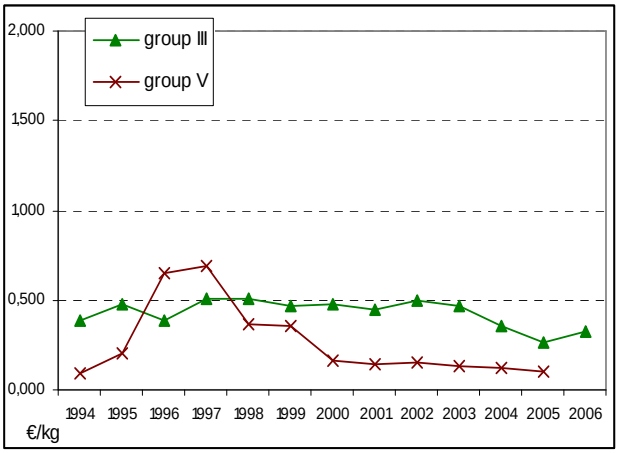
The figures show that not all varieties have a trend for price increase. Group III “Dark Air Cured” Varieties, Group V “Sun Cured” Varieties and Group VIII “Kaba Koulak” Varieties have had already a decrease of the commercial price before the Tobacco reform from 2004, which is the reason that those varieties dropped dramatically in production.

**Figure 18:** Development of Prices for Raw Tobacco in the EU

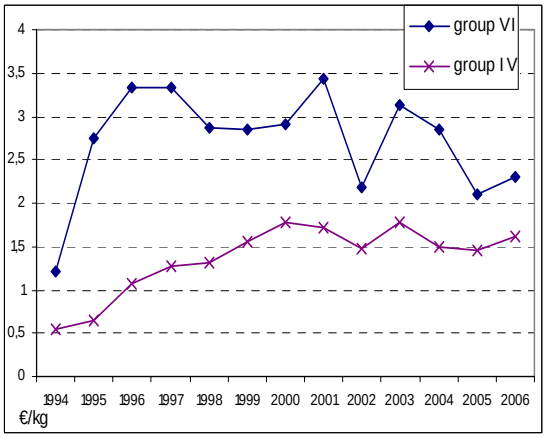
Price Development for “Flue Cured–Group I” and “Light Air Cured–Group II” Varieties



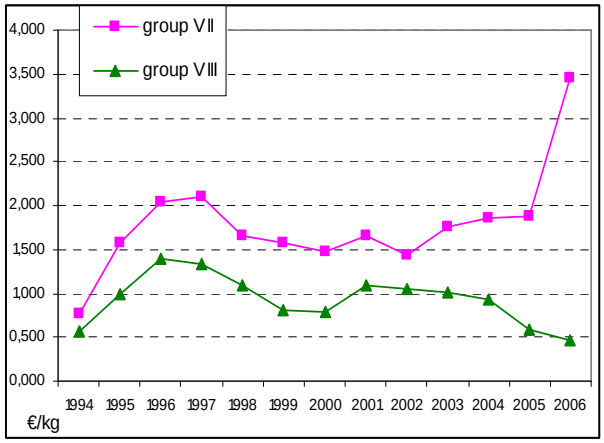

Price Development for “Dark Air Cured- Group III” and “Sun Cured-Group V” Varieties



Price Development for "Fire Cured – Group IV" and "Basmas – Group VI" Varieties



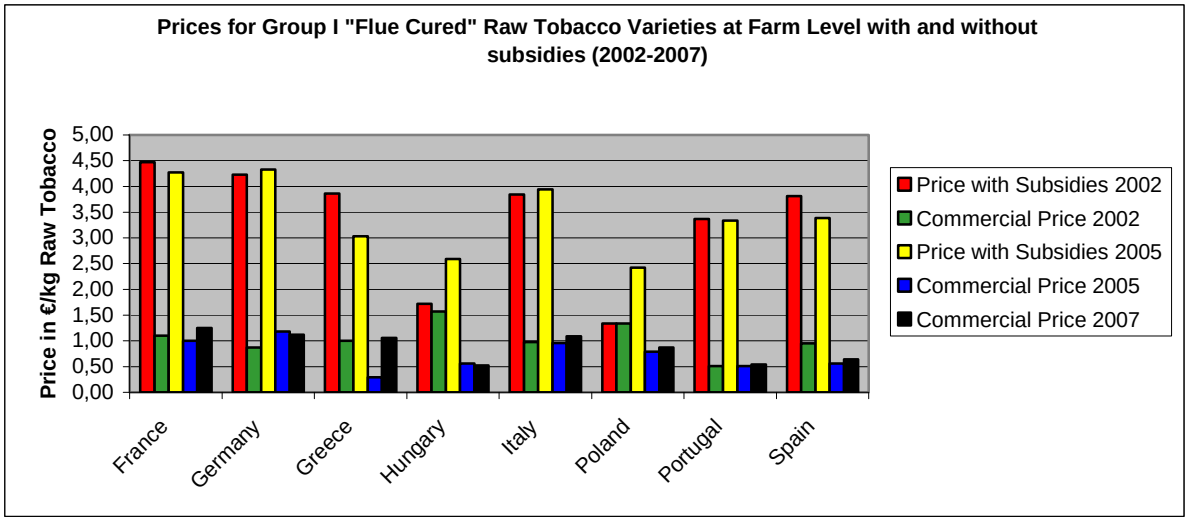

Price Development for "Katerini- Group VII" and "Kaba Koulak – Group VIII" Varieties




**Source:** DG AGRI (15)

The price development differs not only within the Tobacco varieties, but also within the Tobacco cultivating EU member states. This shall be explained/demonstrated with two variety groups "Flue Cured" Group I varieties and "Light Air Cured" Group II Varieties which covers 79% of the EU Raw Tobacco production. Figure 17 shows the commercial prices paid from the first processors to the Tobacco farmers for the "Flue cured" varieties. Prices are shown with and without subsidies for the years 2002 and 2005. For the year 2007 only commercial prices (without subsidies) have been available. The commercial prices increased in France, Germany, Greece, Italy and Portugal after the Tobacco reform compared to the situation in the year 2002. The price where decreased in Hungary and Poland due to their entrance in EU. These two examples show that private first processing companies will only pay such part of the prices which are not covered by the subsidies. The prices decreased also in Spain due to the monopolistic situation of the first processor market.

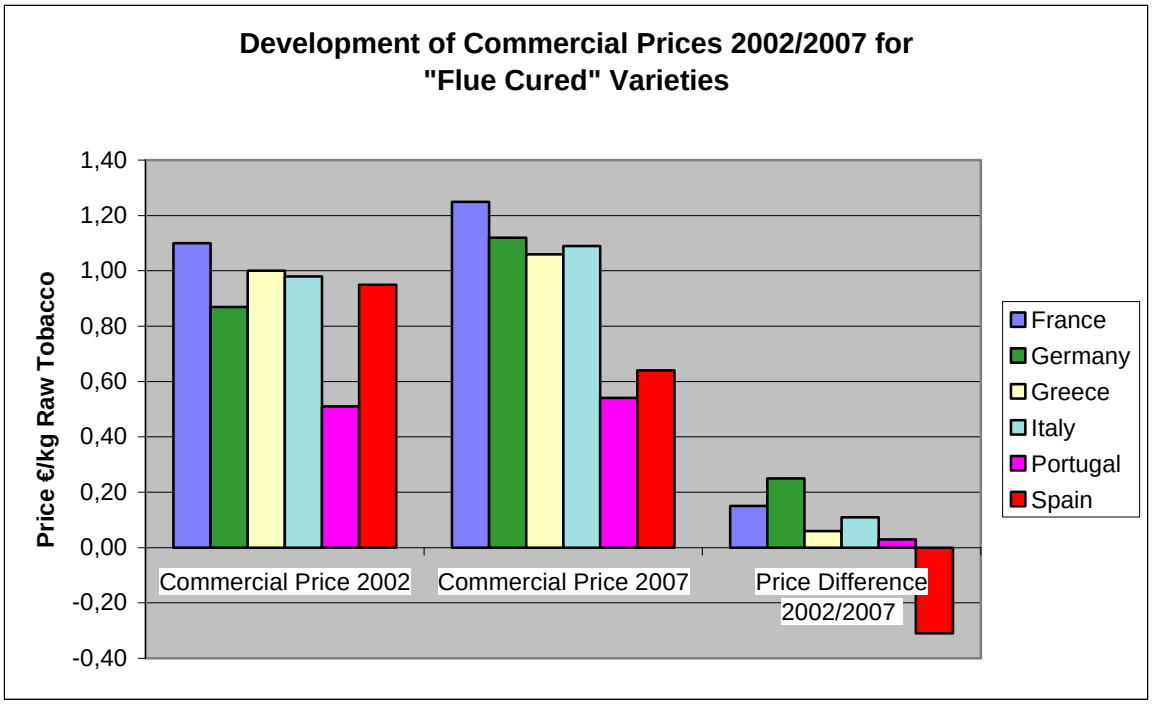
**Figure 19:** Commercial prices of "Flue cured" Tobacco within EU member states




**Source:** UNITAB (18)

The increase of commercial prices for “Flue Cured” Varieties in France, Germany and Italy is considerable, compared in the years from 2002 to 2007. In Greece and Portugal the increase is neglectable and in Spain a strong decrease was experienced.

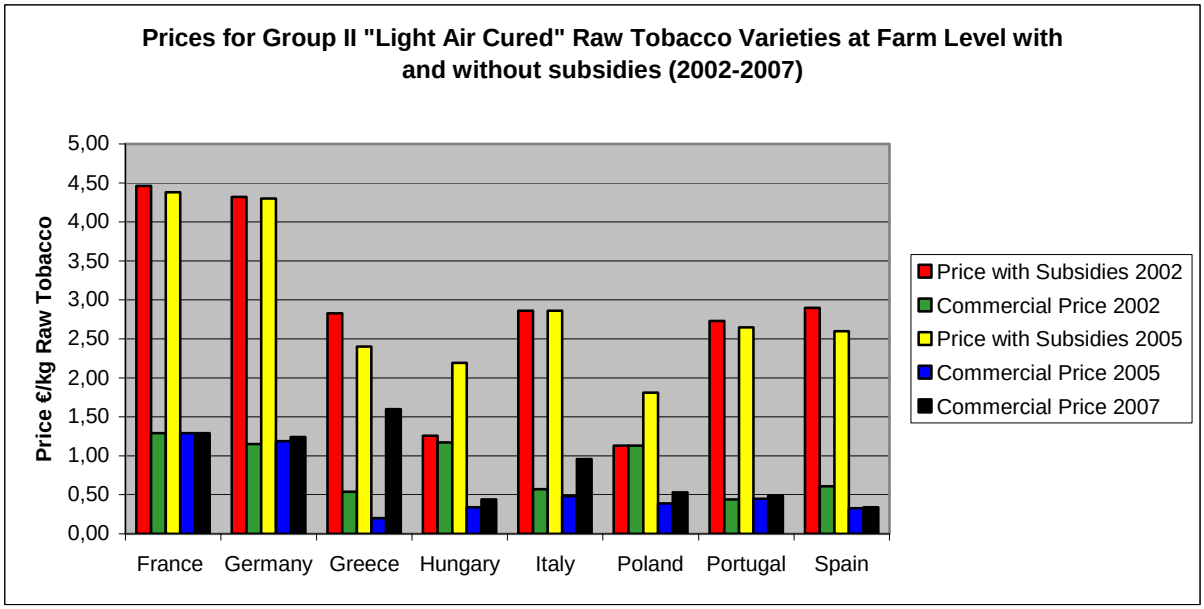
**Figure 20:** Comparison of commercial prices for “Flue Cured” varieties 2002/2007




**Source:** UNITAB (18)

The prices for “Light Air Cured“ varieties show a similar development as already described before. The price level is quite different between the member states reflecting qualities and economic income levels in the different countries. France and Germany have had Tobacco prices at farm level of about 4,50 €/kg Raw Tobacco in 2002 and 2005 including the subsidies payment. Italy, Portugal and Spain about 2,80 €/kg. However, the commercial price decreased in Hungary, Poland and Spain compared the year 2002 with the year 2007. The reasons are the same as described above.

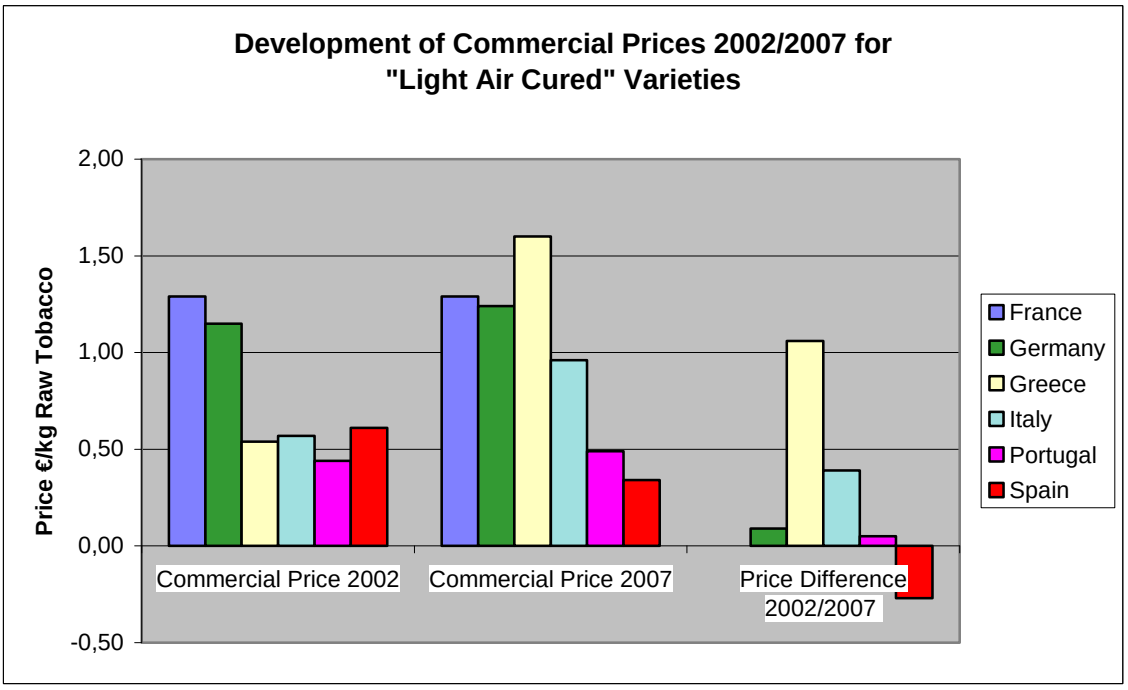
**Figure 21:** Commercial prices of "Light Air Cured" Tobacco within EU member states




**Source:** UNITAB (18)

The increase of commercial prices for "Light Air Cured" Varieties in Greece and Italy is considerable, compared in the years from 2002 to 2007, in France, Germany and Portugal the increase is insignificant and in Spain a strong decrease was experienced which is shown in figure 22.

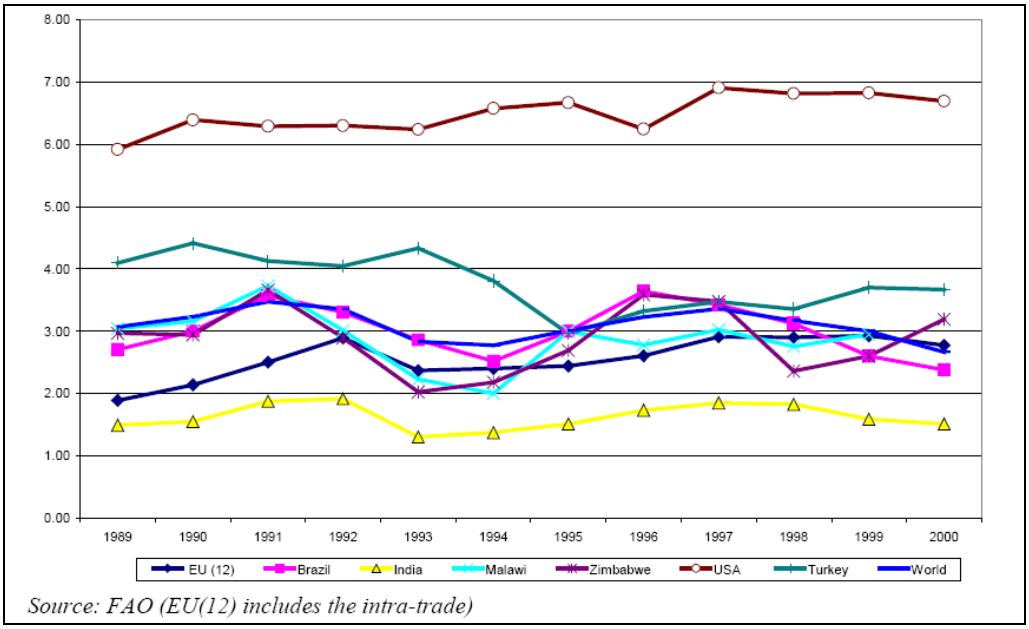
**Figure 22:** Comparison of commercial prices for "Light Air Cured" varieties 2002/2007




**Source:** UNITAB (18)

On the world market a big difference of commercial prices between United States and EU Tobacco is noted. Figure 23 was taken from the Commissions Report on Raw Tobacco[23]. Where export prices for US Tobacco fluctuated between 6 to 7 US-$/kg between 1989 and 2000, the prices for EU Tobacco was only between 2 and 3 US-$/kg. This situation resulted that the EU-tax payers have had to pay the bill and the final beneficiaries have been and are the Cigarette Manufactures.

**Figure 23:** World evolution of average export prices for tobacco (in US $/kg)




**Source:** DG AGRI (37)

Figure 23 shows also that the export prices for EU Tobacco were within the general export price level for developing countries (Brazil, Malawi and Zimbawe). EU Raw Tobacco can never be produced at a price level in developing countries due to the different socio-economic conditions.

### 5.5.7. World trends for Raw Tobacco production, Demand and its Impact on Diversification needs of the EU Tobacco farm sector after 2010

The development of actual demand in the world market for Raw Tobacco is mainly steered by three factors:

a) World Raw Tobacco production and production fluctuations in main producer countries
b) Raw Tobacco in Stock
c) Development of demand for Raw Tobacco

#### a) World Raw Tobacco production

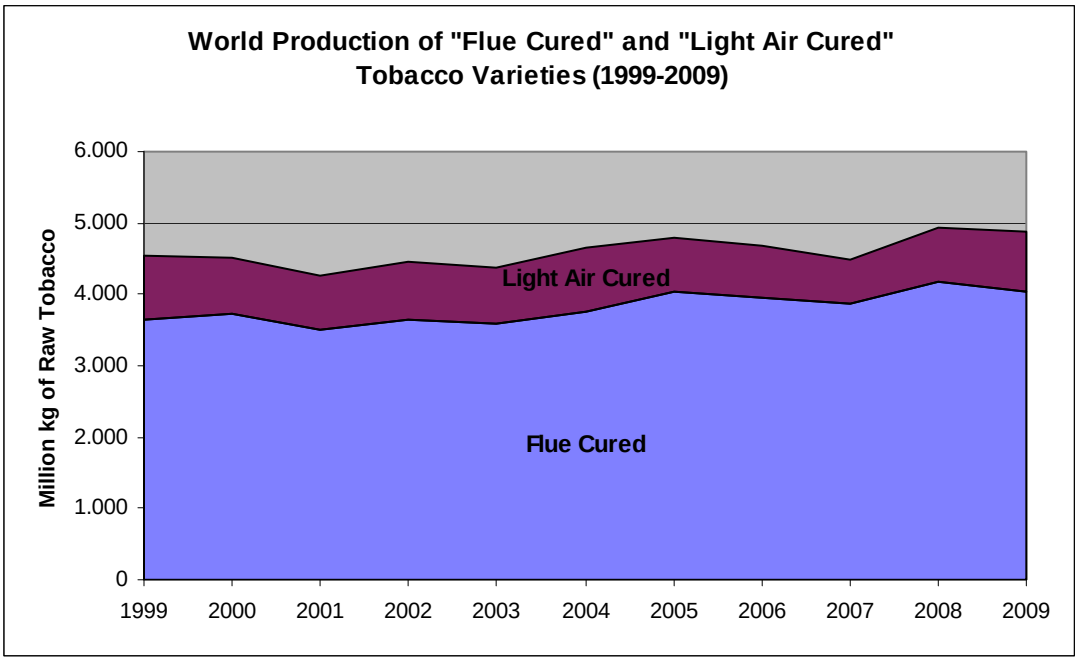
The total world production of Raw Tobacco is concentrated on three variety groups which compose 96,5 percent of total production volume:

[23] Commission of the European Union (2003): Raw Tobacco Markets, CMO http://ec.europa.eu/agriculture/markets/tobacco/reports/rep_en.pdf.

- Group I - "Flue Cured" Varieties (79,7 percent)
- Group II – "Light Air Cured" Varieties (14,2 percent)
- Group VI – VIII - "Oriental Varieties" (4,5 percent)

Figure 24 shows that World Raw Tobacco production of the two main variety groups fluctuates between 4,5 and 5,0 Million tons in the last 10 years[24] which means that the impact of the Tobacco reform of 2004 on World Raw Tobacco production is insignificant.

**Figure 24:** World Raw Tobacco Production Trend 1999 – 2008




**Source:** Universal Leaf Company (24)

The level of the annual production of Raw Tobacco is mainly related to the annual production in only a few countries. The annual production level of the "Flue Cured" varieties in China has fluctuation of 300.000 tons in the last 10 years and also between the years. The effects of Brazil and India are less, but reached 200.000 tons. The main fluctuation for "Light Air Cured" varieties is influenced by the annual production levels of Brazil and Malawi. In "Oriental Tobacco" varieties the main influence of the annual world production fluctuation comes from Turkey.

It can be noticed that on a world level the production of "Flue Cured" varieties" has the tendency to increase slightly over the last 10 years. The annual world production of "Light Air Cured" varieties remains stable over the last 10 years with 0,782 Mio tons (+/- 0,1 Mio tons).

The situation of Oriental Tobacco varieties is different to the other two Tobacco varieties groups. The world production is constantly decreasing since the year 2000. The annual production level in 2008 reached only 43 percent of the production level in the year 2000.

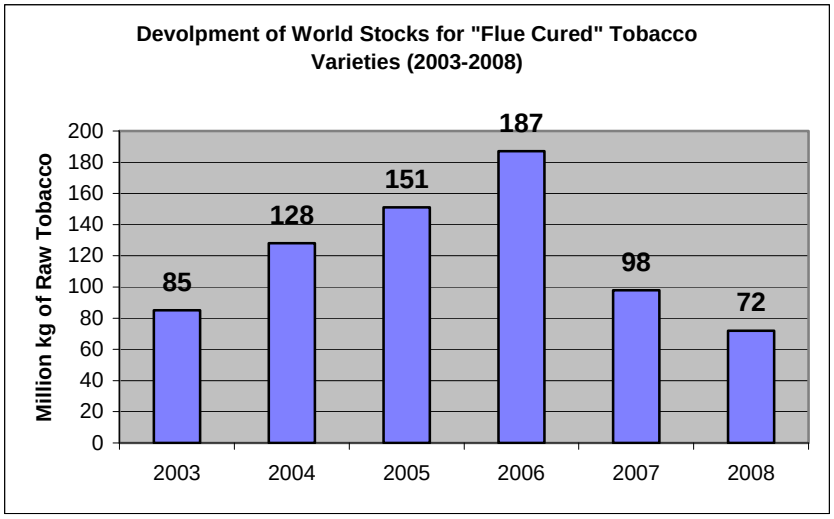
[24] Universal Leaf Tobacco Comp Inc: 2008 Supply & Demand, September 2008 Annual Report; available at http://www.universalcorp.com

### b) Raw Tobacco in stock

The development of stocks is an important key factor on future price development. A recent report (24) of Universal Leaf Tobacco Company describes the actual situation. The Cigarette Industry distinguishes between two stock definitions. The phrase “committed stock” is defined as a Raw Tobacco in stock where a contract is already concluded between the supplier (usually first manufacturer) and cigarette manufacturers. This “committed stock” is usually not known and no figures or estimations are available. The “uncommitted stock” is defined as Raw Tobacco in stock usually at first processors locations. No supply contract is already concluded and the stock is therefore free for sale. High turnovers of uncommitted stock are usually market reactions on actual or future problems on the supply side, e.g. unusual climatic conditions in main producer countries.

**Stocks of Flue Cured Tobacco:** World uncommitted flue-cured stocks declined by about 26 million kilograms, or 26.2 percent, from the level of a year ago. Stocks are now at the lowest level since 1991. The decline in 2008 followed a significant decline in 2007, when stocks decreased by 89 million kilograms, or 47 percent. EU stocks are down 15 million kilograms, due primarily to the reduction in Greece, where stocks decreased from 12 million kilograms to zero over the past year as a result of the recent termination in Greek flue-cured production. As a result of the steep decline in stocks over the past two years, the world flue-cured supply and demand situation has moved away from the slight oversupply of a year ago, to a balanced position currently. Demand is firm, stocks are relatively low, and grower prices in general are much higher. Stock levels are forecast to decline further over the coming 1 ½ years, but this is highly dependent on final 2008 and 2009 crop sizes. The development of uncommitted stocks is shown in figure 25.

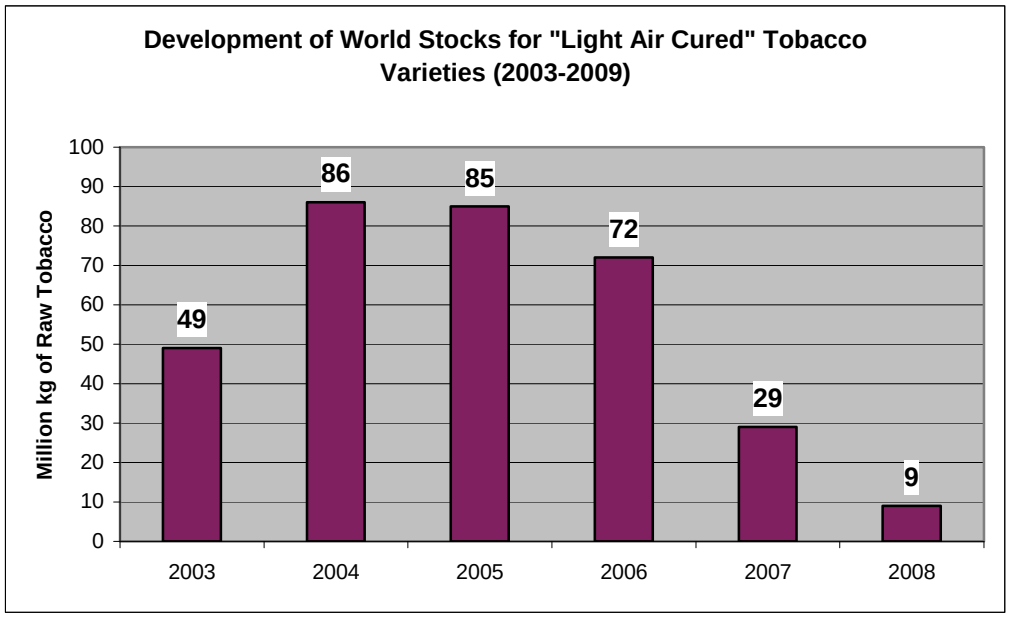
**Figure 25:** World uncommitted “Flue-cured” stocks as of June 30, 2008




**Source:** Universal Leaf Company (24)

**Stocks of Burley Tobacco:** Estimated world uncommitted burley stocks in 2008 have decreased dramatically for the second consecutive year, with stocks of only 9 million kilograms, which is by far the lowest level since 1986. Although world burley stocks are currently very low, the significantly higher 2008 crop leaf production has eased the short/undersupplied conditions, moving the current market closer to, but still somewhat short of, a balanced position. The development is shown in figure 26.

**Figure 26:** World uncommitted Burley stocks as of June 30, 2008




**Source:** Universal Leaf Company (24)

**Stocks of Oriental Tobacco:** Total oriental and semi-oriental uncommitted stocks decreased to 144 million dry weight kilograms as of June 30, 2008, down about 157 million kilograms, or 52.2 percent, from the June 30, 2007, level (to the lowest level of unsold stocks on June 30 since Universal Leaf began compiling comparable oriental market unsold stock statistics in 1999). Stocks held in Bulgaria decreased 72.2 percent. Italian oriental production fell to zero beginning with the 2006 crop. Overall stock levels are forecast to decline sharply at the end of the 2007 crop marketing period, compared to current levels, with decreases primarily in Turkey and Greece.

### c) World Demand

The third key factor for Tobacco cultivation is the development of the demand for cigarette production (22). World cigarette production increased in 2007 by about 127 billion sticks, or 2,1 percent. As in the past several years, the increase was mostly due to the People Republic of China, which increased cigarette production by about 120 billion sticks, or 5.9 percent. World cigarette production grew by 1.6 percent between 2002 and 2007. Longer term world cigarette production growth has been lower, annual growth rate of 0.8 percent over the period 1997–2007. World production, excluding the figures of the Peoples Republic of China, increased by only about 8 billion sticks, or 0.2 percent, in 2007. For the period 2002–2007, cigarette production, grew at an annual rate of 0.3 percent, with an annual growth rate of 0.1 percent for the period 1997–2007. Overall E.U. production increased in 2007 due to the inclusion in the 2007 figures of Bulgaria and Romania, which joined the European Union on January 1, 2007. If production in these two countries is removed, EU production would have declined again in 2007, by about 17 billion sticks.

### d) Impact of the Tobacco reform on world trends and conclusions

The Tobacco reform from 2004 seems to have an important influence on stocks. Decreasing stocks from EU Raw Tobacco production seems to have an important influence on world tobacco prices paid to Tobacco farmers. According to the above figures for the Universal

Leaf Tobacco Company report the trend in decreasing stocks will continue further 1 ½ year. Depending on the world stock situation at end of 2010 it will be possible to estimate whether the prices of the EU Raw Tobacco production will reach a price level to grow Tobacco without subsidies on a longer term in EU.

So far, the initial attempt and estimations of DG AGRI have been correct, in that the Tobacco reform from 2004 may reach commercial prices for EU Tobacco farmers to grow Tobacco without subsidies. However, it seems that the time period to reach that situation is longer than initially estimated. A commercial price level which allows a Tobacco growing in EU without subsidies may be reached between 2010 and 2013. It is unlikely that such a commercial price level will be achieved already at the end of 2009.

The current schedule of the Tobacco reform starts in 2010 the second phase which will transfer 50 percent of the actual paid subsidies into the Rural Development Plans. This will probably force most of EU Tobacco farmers to cut down dramatically Raw Tobacco production as the production is still not economically feasible without subsidies.

As given above in the Universal Leaf Tobacco Company Report (24) a sudden stop of EU Burley Production (65 Million Kilogram harvest 2008) in 2010 will result in a dramatic increase of the price all over the world as actual stocks are only 9 Million kilogram (see figure 25). The supposed price increase will benefit the Tobacco farmers all over the world. However, as a consequence of the Tobacco reform about 22.555 EU Tobacco farms producing Burley in 2005 will be lost for ever as those farms are usually very small. That would bring an enormous social problem especially for regions with a low development level: All regions in Greece where Burley Tobacco have been produced, all Tobacco farms of Campania, all farms in Spain and Portugal where Burley Tobacco are produced.

Exactly a similar situation will occur for Tobacco farms with “Flue cured” varieties production. Uncommitted world stocks are estimated to be 72 Million kilogram in 2008. EU production was in 2006 about 131,4 Million kilogram. A sudden stop of EU cultivation in 2010 in strong price increases without benefiting the EU Tobacco farmers. About 24.710 EU Tobacco farms producing “Flue cured” varieties will be ceased off.

A prolongation of the actual payment scheme for Tobacco farms until 2013 will probably bring a situation that Tobacco can be produced in EU without subsidies due to a rise in the level of commercial prices.

Such a procedure will have three effects:

- The aim of the Tobacco reform to introduce a market based approach in EU Raw Tobacco sector will be a full success
- Currently 81.509 EU Tobacco farms will be saved including most of the non-familiar employment
- The need to diversify into alternatives agricultural products for Tobacco farmers is limited only to certain groups of the Tobacco farmers with a maximum total number of 11.895 Tobacco farms.

The following chapter shall inform about alternative models of crop production for Tobacco farmers in order to take up new economic opportunities.

# 3. Alternative models of Crop Production

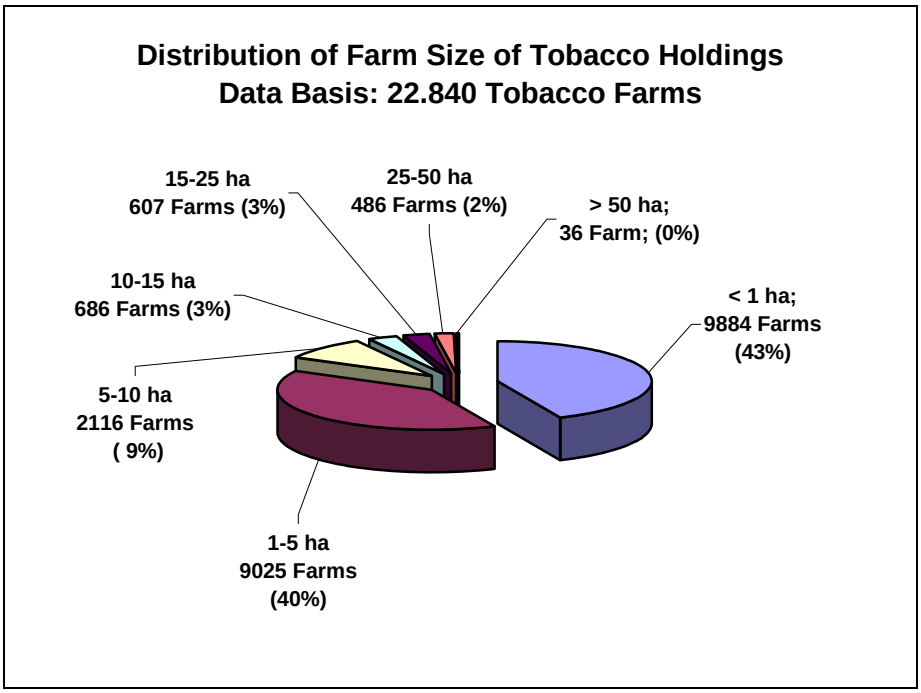
When considering alternative models for EU tobacco holdings, their economic frame under which the holdings exist must be taken into consideration. This chapter shall evaluate different diversification alternatives and shall concentrate on such alternatives which can be adopted by farms with a small size in order to maintain the Tobacco farms, which are in 95 percent family farms. The possibility to continue to grow tobacco in Regions with good market quality shall also be discussed.

## 3.1. The Socio-Economic Frame of the Tobacco Farms

The economic frame of the Tobacco farms is mostly determined by their farm size which is the availability of usable land either owned or rented. During the DIVTOB Project (21), the economic situation of Tobacco farmers in Greece, Italy, Portugal and Spain have been evaluated and the most important data shall be presented here.

Figure 27 shows the distribution of farm size within the DIVTOB sample where 95 percent of the Tobacco farms consulted have a farm size less (21.075 farms) or equal to 15 hectares (about 686 farms).

**Figure 27:** Distribution of farm size of Tobacco holdings in Greece, Italy, Portugal and Spain




**Source:** DIVTOB (21)

83 percent of the Tobacco farms in the DIVTOB sample have a size of 5 ha and below. This is a much higher percentage than the average in all four countries (e.g. Greece 71 percent, Italy 67 percent, Portugal 65 percent and Spain 49 percent; Data from EUSTAT 2005; 27-29). Only 5 percent of the consulted farms (1129 farms) have a bigger or equal farm size as the average farm size of the EU-15 member states (including Greece, Italy, Portugal and Spain) which was 18,7 ha in 2001.

The farm size of the Tobacco farms is the most hampering aspect for Tobacco Diversification.

Depending on tobacco variety, production region and paid subsidies an estimation of farm income is shown in table 14. Typical tobacco farms have a gross margin of 11.500 to 44.000 € depending on farm size and the share of land use by tobacco[25].

**Table 14:** Estimated farm income according to farm size and tobacco cultivation

| Type of Farm | Gross Margin |
|---|---|
| Farm of 15 ha with 3 ha of Tobacco (20% tobacco in crop rotation) | ~ 44.000 € |
| Farm of 4 ha with 3 ha of Tobacco (75% tobacco in crop rotation) | ~ 41.000 € |
| Farm of 4 ha with 1 ha of Tobacco (25% tobacco in crop rotation) | ~ 11.500 € |
| Farm of 1 ha with 1 ha of Tobacco (100% Tobacco every year) | ~ 12.500 € |

**Source:** DIVTOB (25)

A diversification of the tobacco farms by switching to other crops or economic activities shall ensure a fair standard of living, in particular by increasing the individual earnings" for the Tobacco farmers. These words are an excerpt of article 33 the EC treaty which can be interpreted in such a way that a diversification of the Tobacco farms shall allow an income from future activities which is not so far away from their income from Tobacco production. A diversification shall also ensure a rational development of their agricultural production, which means nothing else that the Tobacco farmers are able to develop their farms by earnings which shall allow future investments.

Table 15 compares data from the Farm Accountancy Data Network (FADN) from 2004 Italian survey[26] with the farm size situation of the tobacco farms in the DIVTOB target countries (Greece, Italy, Portugal and Spain). The outcome of table 15 shows:

a) Under the farm size frame of the Tobacco farms permanent tree crops and arable crops can not ensure an income in the range of Tobacco production: Permanent tree crops 66 percent loss and arable crops 75 percent loss compared to the Tobacco farm income in table 2.
b) Only 2,3 percent of the Tobacco farms of the DIVTOB sample can chose the Farm type of "Herbivorous livestock" which may cut farm income up to 50 percent compared to Tobacco production.
c) The farm type of "Granivorous livestock" can be an alternative for about 1.815 farms of the DIVTOB sample (7,9 percent) which may increase also the farm income.
d) For most of the Tobacco farms (82,7 percent) the only feasible farm type is "Horticultural" which cultivates vegetables or related/similar crop categories. This farm type allows an average farm income which is 19 percent lower compared to the Tobacco farm income in table 14.

[25] DIVTOB: Exploitation Plan.
[26] National Institute of Agricultural Economics: Italian Agriculture in figures 2007: FADN 2004.

The farm size distribution of the Tobacco farms limits the possible alternatives to choose for the most of the Tobacco farmers. The following chapter shall evaluate different diversification alternatives and shall concentrate on such alternatives which can be chosen by farms with a small size in order to maintain the Tobacco farms, which are in 95 percent of the DIVTOB sample family farms.

**Table 15:** Economic results of typical farm types in Italy and their relevance for Tobacco farm size distribution

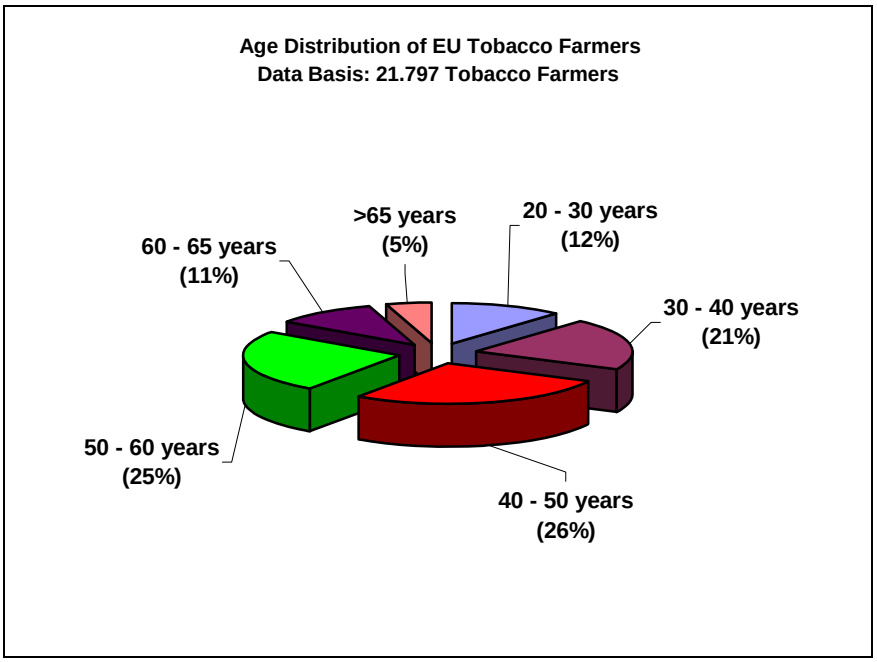
| | FADN Results 2004 for Italy | | | Tobacco Farm Size Class | Number of Tobacco Farms according to Farm Type Size * | | | | Total |
|---|---|---|---|---|---|---|---|---|---|
| **Farm Type** | Average Size (ha) | Income € (2004) | Farm Workforce** | | Italy | Greece | Spain | Portugal | |
| **Horticulture** | 3,5 ha | 33.244 € | 2,40 AWU | 0 – 5 ha | 2.884 | 13.990 | 1.531 | 504 | 18.909 |
| **Permanent tree crops** | 7,3 ha | 14.941 € | 1,27 AWU | 5 – 10 ha | 257 | 981 | 797 | 81 | 2.116 |
| **Granivorous livestock** | 14,9 ha | 140.112 € | 2,46 AWU | 10 – 15 ha | 153 | 391 | 118 | 24 | 686 |
| **Arable crops** | 18,7 ha | 11.003 € | 1,04 AWU | 15 – 25 ha | 105 | 343 | 138 | 21 | 607 |
| **Herbivorous livestock** | 31,1 ha | 43.000 € | 1,81 AWU | > 25 ha | 77 | 377 | 59 | 9 | 522 |
| **Total** | | | | | 3.476 | 16.082 | 2.643 | 639 | 22.840 |

**Sources:** a) National Institute of Agricultural Economics: Italian Agriculture in figures 2007: FADN 2004 (26)
* b) DIVTOB Sample (25)
** = Annual Working Unit

### 3.1.1. Age distribution of Tobacco farmers in the EU

Another specific difference between the Tobacco farm sector and the average in the target countries is the age distribution of the Tobacco farmers. In Greece 55 percent of the farmers are older than 55 years and 8 percent younger than 35 years[27]. In Italy 65 percent are older than 55 years and 4 percent younger than 35 years[28]. In Portugal 68 percent of the farmers are older than 55 years and only 3 percent younger than 35 years[29]. In Spain 58 percent of the farmers are older than 55 years and 6 percent younger than 35 years[30]. The Tobacco farmers in the four countries show a different age pattern. A maximum of 43 percent is older than 55 years and a minimum of 12 percent are younger than 35 years. That is shown in figure 28.

**Figure 28:** Age distribution of Tobacco farmers

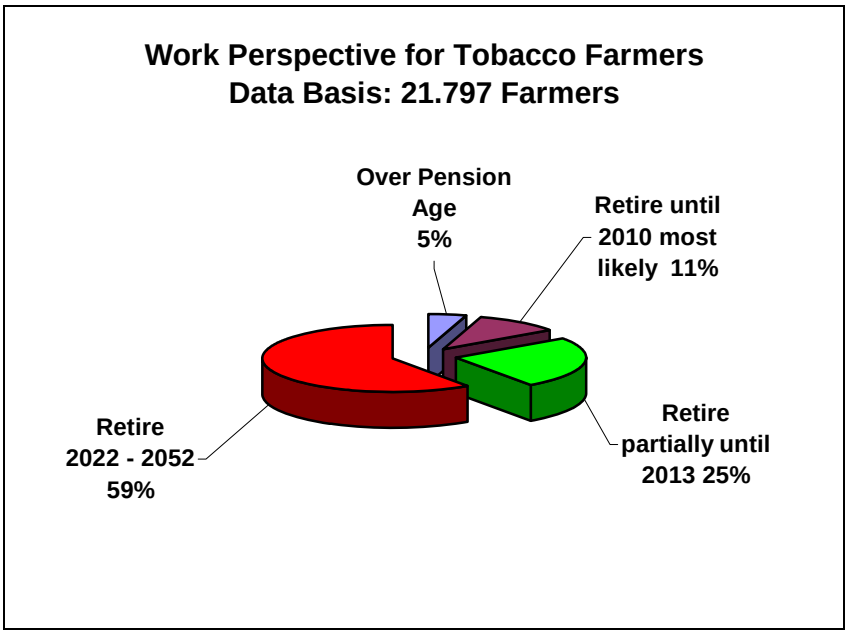



**Source:** DIVTOB (21)

The life work perspective for Tobacco farmers is shown in figure 29. A total of 16% of the Tobacco farmers in Greece, Italy, Portugal and Spain will retire until 2013. At least 38 percent of the farm holders have a successor. A total of 59 percent of the EU Tobacco farmers must proceed in work, either on their farms or elsewhere.

[27] EUSTAT: Farm structure in Greece – 2005, issue 59/2007; Catalogue number KS-SF-07-059.
[28] EUSTAT: Farm structure in Italy – 2005, issue 22/2007; Catalogue number KS-SF-07-022.
[29] EUSTAT: Farm structure in Portugal – 2005, issue 24/2006; Catalogue number KS-NN-06-024.
[30] EUSTAT: Farm structure in Spain – 2005, issue 24/2007; Catalogue number KS-SF-07-024.

**Figure 29:** Work perspective of EU Tobacco farmers

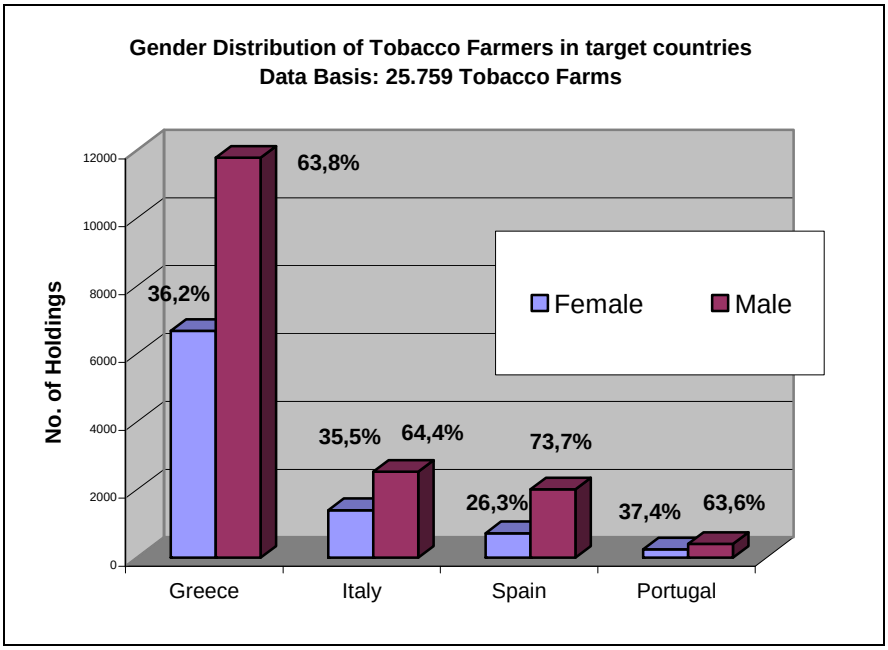



**Source:** DIVTOB (21)

### 3.1.2. The gender dimension of Tobacco farming in the EU

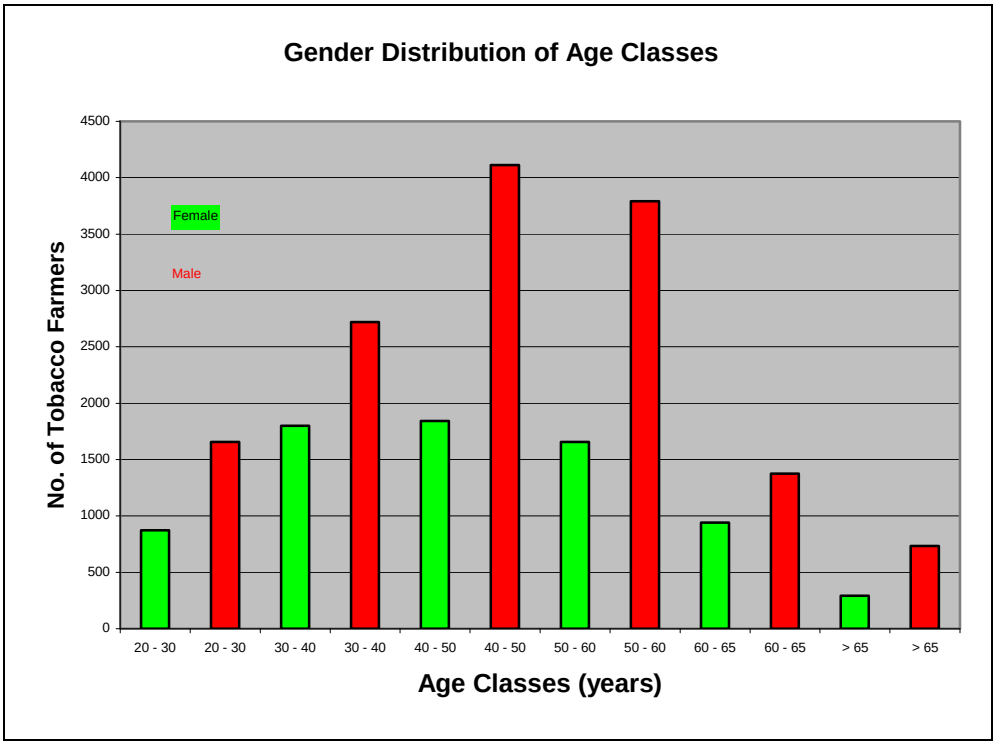
Females Farmers (27 – 30) as Farm Holders have within the Tobacco farmers a significant higher share in Greece (average 28 percent), Italy (average 30 percent) and Portugal (average 25 percent). For Spain the share of female farmers is below to the countries average (28 percent). It could be considered that the Tobacco crop growth is attractive choice for women farmers as Tobacco crop management allows a good combination of economic activity and family life.

**Figure 30:** Gender distribution of the Tobacco farmers; Source: DIVTOB (21)



The gender distribution of the age of Tobacco farmers is shown in figure 31. It reveals that in the younger age classes (<40 years) a high number of female farm holders exist. Also at an age > 60 years the number of female farm holders is relatively high. This may be the result of an economic need to proceed with Tobacco cultivation due to very low pensions for farmers in EU member states.

**Figure 30:** Gender distribution of age classes




**Source:** DIVTOB (21)

## 3.2. List of alternative diversification activities and general evaluations

The intense search for alternatives for Tobacco cultivation started in the EU in 1992 when a pilot project[31] for the Commission started to evaluate alternatives for "Sun cured" Tobacco varieties in Greece. The final report from 1995 concluded that various alternative crops could be grown with good results[32] . However, this report was not available for the tender study.

In 2003 a study for the Commission about the organisation of the Common Market for Raw Tobacco was presented by COGEA (12). In table 16 the following alternatives with regional preferences are shown.

[31] Entscheidung der Kommission C(92) 3126 vom 3. Dezember 1992 für ein Pilot- und Demonstrationsverfahren gemäß Artikel 8 der Verordnung (EWG) Nr. 4256/88 des Rates (ABl. L 374 vom 31.12.1988, S. 25), Projekt Nr. 92.EL.06002.

[32] Helmico S.A. (1995): Final report for project No. 92 EL.06002.

**Table 16:** Regional preferences for diversification alternatives

| Regional Industries | France | Germany | Greece | Italy | Portugal | Spain |
|---|---|---|---|---|---|---|
| **Beef meat** | All regions | Baden-Württemberg<br>Bayern | Macedonia | Veneto<br>Umbria | Beira Interior | |
| **Field crops for oil** | | | | Umbria | | |
| **Rice production** | | | | Veneto | | |
| **Milk production** | Nord, Loire, Alsace | Bayern | | Apulia<br>Campania<br>Veneto | Beira Interior | |
| **Cereales** | Rhone-Alpes | Rhenania-Palatina,<br>Baden-Württemberg | | | | |
| **Fruit and Vegetable Production** | All regions | | Macedonia | Campania,<br>Toscana,<br>Veneto | | Extremadura,<br>Granada |

**Source:** COGEA (12)

Further alternatives have been mentioned in this report: Sugar beet cultivation, wine production, cotton cultivation, olive oil production. However, the CAP reform of these sectors makes a diversification for Tobacco farmers impossible.

It should also be noted that since 2003, Member States have set up reconversion programmes under the Community Tobacco Fund. Actions to convert producers to other crops or economic activities as well as studies on the possibilities of such conversion or actions of general interest are financed by the Community Tobacco Fund. A total of 1260 individual reconversion projects and 72 studies or actions of common interest were launched between 2003 and 2006. As an outcome to all projects on Tobacco diversification the following conclusions can be drawn:

- No universally valid solution for all Tobacco farmers
- Decision criteria for the Tobacco farmers:
- Environmental requirements
- Economic situation
- Investments
- Labour demand
- Risks
- Individual decisions by farmers and cooperatives

The need of a scientific support in the search for sustainable alternatives for tobacco growers was addressed by the Commission and has been taken up in the 6th Framework programme in a specific call in the Area 8.1 Policy related research, under 1.2 Tools and assessment methods for sustainable agriculture and forestry management (Task 3). Due to that project call the Commission funded a project (SSPE-CT-2006-022739 DIVTOB) with the title “Diversification for Tobacco Growing Regions in the Southern European Union”. During the DIVTOB project execution (May 1, 2006 to January 31, 2008) the socio-economic situation of the Tobacco farm sector in the DIVTOB target countries (Greece, Italy, Portugal and Spain) was evaluated. The data acquisition was done via the Tobacco Cooperatives. The basis for the evaluation was data from 2006 with a total participation of 30.511 Tobacco farms (21). The DIVTOB project started with the following working hypothesis for searching for alternatives:

- (Additional) economic activities off farm?
- Aromatic and Medical Plants?
- Energy plants and Renewable Energy?
- Rural Tourism?
- Aquaculture?
- Horticulture and Fruit Production?
- New crops?
- Or to continue to grow Tobacco in Regions with good market quality?

Off-Farm Activities are mostly not available in most of the Tobacco growing regions. Energy crops give neither sufficient income for small farms nor can maintain the jobs. Aromatic and Medical plants can be a solution in some very specific regions to a limited number if farms. The plant Artemisia can be a possible alternative in Campania for about 2000 hectares. However, the whole region of Campania has 10.541 Farms with 13.029 hectares. This means Artemisia can be a solution for about 15% of the Campania Tobacco cultivation area. Other examples in table 17 will result as a solution for a much lower number of farmers. Aquaculture has the possibility to increase a lot the farm income and probably also the number of jobs. But it is an alternative too far away from the experience of the vast number of Tobacco farmers. Rural Tourism will be a very individual solution as it is in most of the concerned regions already exploited.

**Table 17:** Less appropriate diversification alternatives;

| Diversification Aspects | Observations | Concerned Regions or Farm Type |
|---|---|---|
| **Activities off-Farm** | • Most of the Tobacco Regions have a high Long-Term Unemployment Rate within the active population | Examples:<br>• Makedonia up to 12%<br>• Campania 9% |
| **Energy Crops** | • High loss of farm income<br>• Complete loss of employment | • Only Farms > 100 ha<br>• 5 Farms in the DIVTOB Sample |
| **Aromatic and Medical Plants** | • The market analysis by the DIVTOB Project shows no market potential in general<br>• Only local importance | • Examples that might work:<br>• Arthemsia in Campania<br>• Thyme, Basil, Greek Mountain Tee in Elassona |
| **Aquaculture** | • Too far away from the experience of the Tobacco farmers<br>• Only as individual solution | • Appropriate also for small farms < 5 ha<br>• Can create new jobs in on-farm processing |
| **Permanent Tree Crops** | Only as an additional activity | • Loss in income<br>• Temporal employment lost |
| **Rural Tourism** | No alternative at all | In most regions already exploited |

**Source:** DIVTOB (25)

For some regions traditional animal products may be a good solution e.g. in Campania the famous Mozarella from buffalo, or live stock farming of some special meat races (e.g. like in Chieti or Umbria). Also sheep and goat farming can be a solution for some Greek regions with on-farm meat processing or cheese making.

Granivorous livestock farming may give high farm incomes. However, the huge number of farms which may choose this diversification alternative can result in a severe market imbalance affecting all farms in that sector. According to the DIVTOB sample there are in Greece, Italy, Portugal and Spain a total of 686 farms which may choose that alternative. Sector analysis, if required, should be done on a national level. Arable crops are the “ultima ratio” for the big farms. They survive at much lower farm income than Tobacco cultivation. The temporal employment is completely lost.

The vast majority of small Tobacco farmers must choose an alternative which gives high income per agriculture area. There are only few alternatives available where some have high investment costs, e.g. Green house production with hydroponics or aquaculture.

In a general view the recommendation to what tobacco alternatives farmers should cultivate must be: Stevia rebaudiana, cereals (organic and conventional), corn and fruit trees. Suitable are also vegetables in rich irrigated fields. This is concluded by the DIVTOB results applying for the regions evaluated.

**Table 18:** Better suited alternatives for Tobacco cultivation

| Diversification Aspects | Constraints | Effect on Income and Employment |
|---|---|---|
| Small Tabacco Farms < 15 ha | • Need high added value crops (e.g. Stevia)<br>• Production systems with high investment costs (Hydroponics, Green house production, aquaculture)<br>• Organic field vegetable production | • Will maintain or even improve farm income<br>• Temporal employment may maintained<br>• Could create new jobs in manipulating, packing or processing at Producer organisation level |
| Granivorous livestock farming | • Needs a sector analysis whether new producers will not provoke heavy market disorders<br>• High investment costs | • Could result in a strong increase in farm income<br>• Employment level highly reduced. |
| Arable crops | "Ultima ratio" for the Tobacco farms > 25 ha | • Heavy loss in income<br>• Temporal employment lost |
| Herbivourous livestock farming (where appropriate) | • Could promote traditional products (e.g. Mozzarella from Buffalo) or special ruminant meat races (e.g in Chieti)<br>• Sheep and goat meat and cheese in some Greek regions | • Could maintain income<br>• Temporal employment lost<br>• Could create new jobs by on-farm processing (e.g. Cheese making, meat processing) |
| Tobacco farms > 25 ha | • May implement all possible diversification alternatives<br>• To avoid income losses high investments are necessary | • May maintain income due to strong investments in the farms<br>• Effect on employment depends on implemented alternative |

**Source:** DIVTOB (25)

Based on the above results a list of diversification possibilities (Table 18) was compiled by asking agricultural specialists and by doing research in literature. The preliminary list covered a wide range of different crops with respect to climatic requirements, usage and market opportunities. The most promising alternatives were selected in discussion with the project partners and are presented in the inventory of identified alternatives. The inventory comprises 55 alternatives which are specified by their scientific, their English, Spanish and Italian name[33].

[33] DIVTOB: Inventory of identified and characterised diversification alternatives.

They can be classified as follows:

- Field crops
- Medicinal and aromatic plants
- Miscellaneous special crops (Horticultural crops, small berries, mushrooms)
- (Fruit) Trees
- Shrubs
- Renewable energy resources
- Alternatives in animal production

The identified alternatives vary widely with respect to their environmental requirements, the level of possible income, the required investments and input of labour and the necessary knowledge. Some of the alternatives are already spread, common crops. Production and cultivation methods of these alternatives are widely known and easily available. It is also assumed that information on animal production systems is easily available. On the other hand, the list also contains a range of specialty crops which are hardly known but also could present interesting alternatives. In accordance with our project partners those alternatives were selected which deserve closer attention. These alternatives were characterised in detail.

In order to get comparable information on the addressed alternatives, a standardised information sheet was developed. This standard information sheet (SIS) gives comparable information on the different identified alternatives. Information on environmental requirements, crop husbandry, products and processing technologies is given. Furthermore, information on market opportunities and economic impacts of the alternative is provided. The standard information sheets are available in English. The information sheets which were most relevant for the respective partners/countries were translated into their languages.

**Table 18:** Identified diversification alternatives for tobacco farmers

| Scientific name | English name | Spanish name | Italian name | SIS |
|---|---|---|---|---|
| **Medicinal and aromatic plants** | | | | |
| *Chamomilla recutita* | Chamomile | Manzanilla común | Camomilla comune | |
| *Equinacea Purpurea* | Echinacea | Echinacea | Echinacea | |
| *Hypericum Perforatum* | Hypericum, St. John's wort | Hipericon, hierba de San Juan | Iperico, pilatro | ✓ |
| *Lavandula sp.* | Lavender | Espliego, lavándula | Lavanda | ✓ |
| *Melilotus officinalis* | Yellow sweet clover, ribbed melilot | Meliloto, trébol dulce | Meliloto | ✓ |
| *Melissa officinalis* | Lemon balm | Melisa | Melissa | |
| *Mentha piperita* | Peppermint | Menta negra | Menta pepe | |
| *Ocimum basilicum* | Sweet basil | Albahaca | Basilico | ✓ |
| *Origanum vulgare* | Wild marjoram | Orégano | Origano | ✓ |
| *Rosmarinus officinalis* | Rosemary | Romero | Rosmarino | ✓ |
| *Salvia spp* | Sage | Salvia | Salvia | |
| *Sideritis syriaca* | Greek mountain tea | | | |
| *Thymus vulgaris* | Common thyme | Tomillo común | Timo | ✓ |
| **Field crops** | | | | |
| *Amaranthus sp.* | Amaranth | Amaranto | Amaranto | ✓ |
| *Cannabis sativa* | Hemp | Cañamo | Canapa | ✓ |
| *Chenopodium quinoa* | Quinoa | Quinua, arroz del Peru | Quinoa | ✓ |
| *Fagopyrum esculentum* | Buckwheat | Trigo saraceno | Fagopiro, grano saraceno | ✓ |
| *Sorghum ssp., Panicum ssp.* | Millet | Mijo | Miglio | |
| *Triticum sp* | Emmer, spelt, durum | Trigo duro, espelta, escaña | Farro, spelta, grano duro | ✓ |

| Miscellaneous special crops (vegetables, mushrooms, ...) | | | | |
|---|---|---|---|---|
| *Cynara cardunculus var. scolymus* | Globe artichoke | Alcachofa | Carciofo | ✓ |
| *Physalis peruviana* | Cape gooseberry, ground cherry | Alquequenje capulé | Alchechengio del Perù | ✓ |
| *Stevia rebaudiana* | Stevia | Stevia | Stevia | ✓ |
| *Tuber melanosporum* | Truffle | Trufa | Tartufo | |
| *Lentinus edodes* | Shiitake | Shiitake | Shiitake | ✓ |
| Tobacco processing: i.e. cigars | Tobacco processing: i.e. cigars | cigarro | sigaro | |
| Organic vegetables | Organic vegetables | Vegetales ecológicos | Ortaggi biologici | ✓ |
| Small Berries | Small Berries | Pequena baya | Piccoli frutti | ✓ |
| **Shrubs** | **English name** | **Spanish name** | **Italian name** | |
| *Actinidia deliciosa, Act. chinensis* | Kiwifruit | Kiwi | Kiwi | |
| *Ribes nigrum* | Black currant | Grossellero negro | Cassis, ribes nero | ✓ |
| *Rosa canina, Rosa rugosa* | Hip | Escaramujo | Cinorrodo | ✓ |
| *Rubus fructicosus* | Blackberry | Zarzamora arto | Rovo, more di macchia | |
| *Rubus idaeus ssp. idaeus* | Raspberry | Frambuesa | Lampone | |
| *Sambucus nigra* | Elder | Sabuco | Sambuco | ✓ |
| *Vaccinium corymbosum* | High bush blueberry | Arandano, mirtillo | Mirtillo | |
| *Vaccinium myrtillus* | Blueberry | Arándano | Mirtillo | |
| *Vaccinium vitis-idaea* | Cowberry, mountain cranberry | Arándano encarnado, arándano rojo | Mortella punteggiata | |
| *Vitis vinifera* | Raisin | Pasa | Uvetta | |
| *Vitis vinifera* | Grape wine | Vid | Vino | |

| **(Fruit) Trees** | | | | |
|---|---|---|---|---|
| *Laurus nobilis* | Bay laurel | Laurel | Lauro | |
| *Olea europaea* | Olive tree | Olivo | Olivo | |
| *Prunus armenica* | Apricot | Albericoque | Albicocca | |
| *Prunus cerasus, Prunus avium* | Sour cherry, sweet cherry | Cereza | Vistola, ciliegia | |
| *Prunus domestica* | Plum | Ciruela | Susina | |
| *Prunus dulcis* | Almond tree | Almendro | Mandorla | |
| *Punica granatum* | Pomegranate | Granado | Melograno | ✓ |
| **Renewable energy ressources** | | | | |
| *Miscanthus x giganteus* | Miscanthus | Miscanthus | Miscanthus | ✓ |
| Energy crops in general | Energy crops in general | Planta para energías renovables | Coltura energetica | ✓ |
| Biogas and Bio diesel production | Biogas and Bio diesel production | Biogas, biodiesel | Biogas, biodisel | |
| **Alternatives in animal production** | | | | |
| Cattle | Cattle | Vacuno | Bovino | |
| Sheep/ meat | Sheep/ meat | Ovino para matadero | Ovino da carne | |
| Sheep/ cheese | Sheep/ cheese | Oveja lechera (queso) | Pecora da latte (formaggio) | |
| Pork | Pork | Explotación porcina, carne porcina | Suinicoltura, carne suina | |
| Organic meat | Organic meat | Carne biológica | Carne biologica | |
| Aquaculture | Aquaculture | Piscicultura | Piscicoltura | |
| Snail breeding | Snail breeding | Cría de caracol | Chiocciola | |

**Source:** DIVTOB (33)

The most feasible alternatives will be applied by a high number of Tobacco farmers. The table below shows such alternatives which can be executed by the family farms with less than 15 hectares of farm land. The following scenario has been calculated:

a) 10.000 Farmers each substitution of 1 ha Tobacco
b) The Tobacco farmers are members of a Producer Organisation (PO)
c) Investments are necessary on farm level where appropriate and on PO level

**Table 19:** Cost and total gross margin estimations for most feasible Tobacco alternatives

| **Alternative** 1 ha Tobacco substituted by: | **Investment on Farm Level** | **Investment on Producer Organisation (PO) Level** | **Total initial Investment** | **Estimated Total Gross Margin** |
|---|---|---|---|---|
| 0,5 ha Green House Production | 400.000 €* for 0,5 ha Green House (e.g. Hydroponics) | Manipulation and Packing 1 Mio. € for 250 hectares | 4 Billion € on Farm Level 40 Mio. € on PO level | 450 Mio. € |
| 0,5 ha Green House Production | 50.000 €** for 1 ha of Macro tunnels system | Manipulation and Packing 1 Mio. € for 250 hectares | 500 Mio. € on Farm Level 40 Mio. € on PO level | 450 Mio. € |
| Aquaculture One In door plant | 325.000 € for 3 Farmers together | none | ~ 1,1 Billion € | 500 Mio. € |
| 1,0 ha Field Vegetable Production | 10.000 € for Farm Equipment | Manipulation and Packing 500.000 € for 500 hectares | 100 Mio. € on Farm level 30 Mio. € on PO level | 115 Mio. € with e.g. Table Tomato production |
| 1,0 ha Stevia | Tobacco Equipment can be used | 1 Mio. € per 500 hectares for production facility | 10 Mio. € Investment on PO level + 16 Mio. € for approvals and applications | 74 Mio. € |

**Source:** DIVTOB (25)

* = Calculation Basis: 200.000 € per Work place for sophisticated green houses
** = Calculation Basis 50.000 €/ha for a macro Tunnels system like strawberry production in the province of Huelva, Spain.

The best income alternative for small Tobacco farmers would be the vegetable production by green house technology or aquaculture. However, the corresponding investments are expensive and the know-how is completely different and difficult to be learned by middle-age tobacco farmers who are the biggest age group. Therefore, these alternatives are really limited to only a few specific cases of tobacco farmers and can not be applied by the vast majority (99%). Additionally, in some regions poor soils are used for Tobacco cultivation. Therefore it will be difficult to cultivate such vegetables which need a rich soil. Table 20 shows an overview about the estimated time schedule for the most appropriate alternatives[34].

The Tobacco production for 10.000 hectares require about 76 Mio € of subsidies each year. The most costs effective alternatives for Tobacco diversification will be either 1,0 ha field vegetable production (either organic or conventional) or Stevia rebaudiana each 1,0 hectares. For 10.000 farmers with 1 hectares **(= 10.000 hectares)** of diversification needed the estimated total costs will be for field vegetable production: about 100 Mio € on farm level and 60 Mio € at PO. An annual turnover of about 115 Mio € can be estimated. In the case of Stevia rebaudiana investments of about 10 Mio € are necessary on PO level which allows an annual turnover of 74 Mio €.

[34] Kienle, Udo: Is there a real chance to overcome the impact of the Tobacco Reform? Considerations, Conclusions and Proposals; Presentation at DIVTOB seminar held on January 29, 2008 in Brussels.

**Table 20:** Estimated Time schedule to implement the three most feasible alternatives for the small Tobacco farms of all DIVTOB target regions

| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|
| **Organic Fruit and Vegetables** | | | | | | | | | |
| Proposals for Financing and Contracts | | | | | | | | | |
| Sector Analysis | | | | | | | | | |
| Development of Regional Plans upon the Sector Analysis | | | | | | | | | |
| Conversion Time to Organic Vegetable and Fruit Production | | | | | | | | | |
| Certification Procedures and Training of the Farmers | | | | | | | | | |
| Start up Phase | | | | | | | | | |
| Full Production | | | | | | | | | |
| **Conventional Vegetable Production** | | | | | | | | | |
| Proposals for Financing and Contracts | | | | | | | | | |
| Sector Analysis | | | | | | | | | |
| Development of Regional Plans upon the Sector Analysis | | | | | | | | | |
| Training of the Farmers | | | | | | | | | |
| Start up Phase | | | | | | | | | |
| Full Production | | | | | | | | | |
| **Stevia Rebaudiana with necessary approvals** | | | | | | | | | |
| Proposals for Financing and Contracts | | | | | | | | | |
| Execution for Test for Approvals | | | | | | | | | |
| Training of the Farmers | | | | | | | | | |
| Start up Phase | | | | | | | | | |
| Full Production | | | | | | | | | |

**Source:** DIVTOB (25)

Minimum Time Requirement

Maximum Time Requirement

The start up of the diversification of a greater number of Tobacco farmers is as early as 2012/1013 provided that the necessary and proposed studies have been executed.

**Vegetable Production in general:** The EU-MED AGPOL Project (SSPE-CT-2004-502457)[35] evaluated the Impacts of agricultural trade liberalization between the EU and Mediterranean countries beyond 2015. There are a lot of constraints especially also for the Tobacco growing regions. Therefore it is urgently recommended to study further the possibilities for a diversification for fruit and vegetable production a "Sector Analysis and Forward Market Study: beyond 2015 for Fruits and Vegetables either organic or conventional produced" This study shall be executed to evaluate in detail the opportunities for the Tobacco growing regions.

**Organic vegetable production:** The conversion to organic production requires a stop of pesticide and mineral fertilizer use prior to the start of certification. Only Tobacco farms benefiting from 100% decoupling may use that opportunity. Tobacco farms with coupled Tobacco production can not start with the reconversion on that economic opportunity, since they must cultivate Tobacco to receive the subsidies. This seems to be a regulatory mistake in the Tobacco reform from 2004.

**The case of Stevia rebaudiana as a diversification alternative for Tobacco:** This economic opportunity shall be explained more in detail as the Stevia plant is new for the EU agriculture.

Stevia rebaudiana is a shrub rich of leaves, belonging to the Compositae family. Its leaves produce a natural high intense low calorie sweetener. In the EU until now only artificial sweeteners are allowed. Stevia rebaudiana gives the opportunity to introduce a natural low calorie sweetener into EU markets and replace the artificial sweeteners. In the EU actually 18.000 to 20.000 tons of artificial sweeteners are consumed. A 100 percent replacement of the artificial sweeteners by Stevia will result in a demand of about 40.000 hectares Stevia cultivation.

**The European Added Value of Stevia rebaudiana – the Fight against human obesity**

It is estimated in the Green Paper[36] of the Commission "Promoting healthy diets and physical activity: a European dimension for the prevention of overweight, obesity and chronic diseases" that in 2025 about 10% of the population of the European Union will suffer diabetes. In humans, sweet taste exerts a profound influence on behaviour[37]. Generally spoken, the more intense the sweet taste, the greater the pleasure response[38]. The pleasure response to sweetness is assumed to serve a physiological need[39]. A hungry organism is reputed to find sweetness attractive, while a satiated organism does not. A hungry organism may also select foods that provide a maximum number of calories per unit weight. Energy density of the diet is often perceived through the sensation of taste. Sweetness, the traditional sensory indicator of both nutrients and calories, adds to the sensory appeal of a given food[40]. According to recent reports, under ad libitum conditions

[35] Project EU-MED AGPOL (SSPE-CT-2004-502457) Impacts of agricultural trade liberalization between the EU and Mediterranean countries: La vulnérabilité des régions européennes productrices de fruits et légumes frais dans un contexte de libéralisation internationale; D8/D9 May 2005.
[36] http://europa.eu/scadplus/leg/en/cha/c11542b.htm.
[37] Dobbing, J.: Sweetness, Berlin, 1987.
[38] Blass E.M.: Opioids, sweets and a mechanism for positive effect, in Dobbings, page 115-126).
[39] Cabanac, M.: Physiological role of pleasure; Sciene 173 (1971) page 1103-1107.
[40] Drewnowski, A.: Taste preferences and food intake; Ann Rev Nutr 17 (1997) page 237-253.

people tend to consume a fixed weight or volume of food[41],[42]. When foods or diets differ in energy density, so do also daily energy intakes. But as a fact, as energy density for foods goes down, so does also palatability. However, only few consumers are willing to sacrifice palatability in the persuit of an energy dilute diet. The development of a Stevia Novel Food as a pure natural sweetener represents a deliberate – and low-cost – strategy to separate the palatability from energy density in foods. Intense sweeteners cleanly separate sweet taste and calories[43], however the Stevia Novel Food will satisfy the consumer desire for natural ingredients in their daily food. Therefore, the development of a natural sweet Novel Food based on Stevia rebaudiana supports the fight of the European Commission against obesity and also the goals of the ETP "Food for life" and the "European Platform on Diet, Physical Activity and Health".

**Agronomic and eco-environmental characterisation of Stevia rebaudiana**

The natural origin of Stevia rebaudiana is a subtropical hilly region known as the Cordillera of Amambay which is located in Northeast Paraguay. Stevia is belonging to grassland-societies growing on sour sand-clay soils which are almost unfertile. The climate is semi-humid-subtropical. Vegetation period starts when an average temperature of 13°C is reached. Strong vegetative growth appears at average temperatures more than 20°C. Also temperatures more than 40°C are no problem for Stevia with a sufficient water supply. Stevia rebaudiana is a sun lover. The plants grows and branches to a height of about 90 cm. Stevia rebaudiana is belonging to the so called "short day" plants. That means flowering will occur when the day-length is lower than 13,5 hours. When flowering starts the formation of steviol glycosides is stopped. The root is perennial and survives many years in regions with soils free of frost. In spring with rising of the temperatures the root is producing again new shoots. For cultivation also shallow soils can be used because the roots only penetrate about 25 cm into the soil. Under the conditions of South Europe a green yield of about 30 tons per hectare can be expected.

A quite important experience during the first trial in Seville (1987-1992) was that Stevia rebaudiana can be harvested up to three times a year and the first harvest can be done about three months after planting in the field by planting at the beginning of the vegetation period[44].

By its climatic and agronomic characteristics Stevia can be cultivated in tobacco areas. The economic feasibility was studied under the FAIR-3751 project: "Optimized production and harvesting technique of the alternative crop Stevia rebaudiana Bertoni (1998-2002)" where the competitiveness of the Stevia crop was examined. It was also shown a full European production chain is competitive to suppliers from China and South America in a significant way. During project FAIR-3751 (1998-2002) the full mechanisation of the Stevia crop under the conditions of European family farms was developed[45]. Project F 200/481/50264 of the EU-Tobacco funds confirmed the suitability of Stevia rebaudiana as a diversification alternative for Greek Tobacco growing regions. Further trials test have been done in Granada (Spain) and Veneto (Italy), both with economically feasible results.

Figure 32 shows a comparison between Virginia Tobacco cultivation and Stevia rebaudiana (cost situation 2001/2002). Two mechanisation levels have been compared: Only manual labour and full mechanisation. In both variants Stevia rebaudiana provides more income

41 Rolle, B. et al: Intake of fat and carbohydrate: Role of energy density; Eur J Clin Nutr 53 (1999) page 166-173 Supplement.

42 Poppitt, S.D.: Energy density of diets and obesity; Int. J Obes 19 (1995) page 20-26, Supplement).

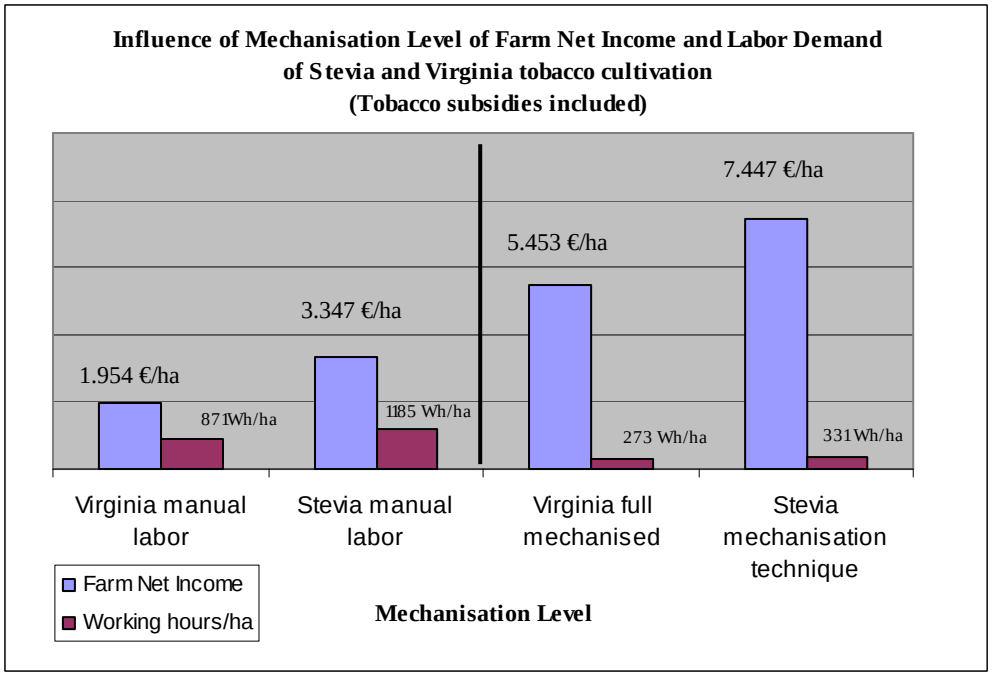
43 Rogers, P. et al.: Uncoupling sweet taste and calories: Comparison of the effects of glucose and three intense sweeteners on hunger and food intake; Physiol Behav 43 (1988) page 547-552.

44 Kienle, U.: Einfluss von Bewässerung und Schnittfolge auf den Ertrag von Stevia rebaudiana in Südspanien; Göttinger Beiträge zur Land- und Forstwirtschaft in den Tropen und Subtropen, Diss. Heft 84 (1993).

45 FAIR-3751: Final Report Evaluation of the economic feasibility of Stevia crop in the EU; Stuttgart, 2002.

and more labour than Virginia Tobacco despite the fact that the cultivation of Virginia tobacco received subsidies and the cultivation of Stevia was calculated without subsidies.

**Figure 32:** Comparison in farm income and labour between Virginia Tobacco and Stevia rebaudiana cultivation




**Source:** FAIR-3751 (35)

**Features of Stevia (list of scientific literature is available at the FAIR Coordinator Universität Hohenheim):**

- Natural high intense low calorie sweetener (Food Additive EEC89/107)
- Aroma enhancing activities
- Novel Food (EC97/258)
- High anti-oxidative potential, improves also the anti-oxidative potential in fruits and vegetables (Plant Strengthener: EEC91/414)
- Anti-inflammatory action in human body
- Anti-mutagenic
- Pre-biotic in animals (fish, pork, chicken, ruminants): Feed Additive: EC1831/2003
- Reduce hypertension and improve insulin resistance in human body (depends on specification)

**Agricultural Developments in EU:**

- FAIR5-3751: Mechanisation of the crop
- Tobacco Funds project in Greece 2006/200:7 yield 2.8 – 4,0 tons/ha of dried leaves
- Trials in Veneto and Granada: yield 3,2 – 5 tons / ha of dried leaves
- Overall results: Stevia can be grown in Mediterranean EU Tobacco Cultivation Regions
- The added value for this new crop and its green chemicals could be about 50.000 Euro/ha.

**Market possibilities:**

- In the EU about 18.000–20.000 tons of artificial sweetener is consumed per year (2005) which can be substituted by 36.000-40.000 ha of Stevia
- By using its aroma enhancing properties low sugar soft drinks (3,5%) can be produced as very tasty, full aroma alternatives to "Light-Products"
- 2% of the 55,5 Billion Liters EU-Soft Drink Market will require a production of 10.000 ha of Stevia
- China is the big player in the Stevia business outperforming Argentina, Brazil, Corea, Japan, Malaysia and Paraguay,
- The United States approved Stevia as a GRAS substance on December 17, 2008. The Coca-Cola Company and Cargill have published 25 patents for all food categories and asked already for approval in the EU. The question is what market consequences will have this approach for European Food Industry when no own production in the EU is available.

**Legal Status in EU:**

- Stevia is approved in EU as aroma component in animal feed
- Stevia is not approved as Novel Food (EC97/258) or as Food Additive (EEC89/107) in EU
- No approval so far as Feed Additive (EC1831/2003) and Plant Strengthener (EEC91/414)

The major constraint for Stevia is that actually no approval in the EU exists (Opinion CS NF/STEV/3 17/6/99). However, this situation may benefit the European Tobacco Farmers as they can build up a new economic opportunity with a very high added value product (see figure 31). Additionally the whole manufacturing process can be located in the Tobacco growing regions by the Producer Groups themselves which allows the creation of jobs in the industry field in economically disfavoured regions. Other synergistic effects are possible by the application of the Stevia Sweetener in local food production. **It is likely that the French Government will give a temporary approval for steviolglycosides in September 2009. This action will open EU markets for imports from China! Until now the EU has no own production and therefore can not compete in the world market which is a big gap for EU.** The approval for each above given category requires adequate testing according to the corresponding EU regulations. **Only tested products** will offer to the Tobacco cooperatives an adequate market share in the low calorie sweetener market and for the full Stevia production chain. The whole costs are estimated to be about 16 Mio. €, which is only about 1.600 € per hectare! Taken into account the proven economic opportunity of Stevia rebaudiana (FAIR-3751, Source 45) **then** it is the most cost effective diversification alternative for Tobacco growing regions in Greece, Italy Portugal and Spain. If required, more detailed proposals and scientific background can be delivered by the FIAR-3751 coordinator Universität Hohenheim.

**Contribution to standards by Stevia rebaudiana**

In the EU actual 322 food additives are approved for use in foods and beverages where are for sweetening purpose **bulk sweetening agents** (7 approved, mainly produced by biotechnological processes) and **high intense sweeteners** (8 approved, only thaumatin is natural, but used only as a flavour enhancer rather than a sweetener). **But the real gap** in European Food Law is the approval of a natural sweet Novel Food that fits with consumer demand and for the increasing organic food industry sector. The alternative crop Stevia rebaudiana is addressing this gap and provides a sound solution in this respect.

**The implementation of Stevia rebaudiana as an alternative crop for Tobacco production in EU will transfer the tobacco farmers growing unhealthy plants to a new stage – the protection of human health.**

## 3.3. Actual situation on diversification efforts

The following chapter gives an overview of the magnitude of diversification needs in the main Tobacco growing regions in the DIVTOB target countries[46].

### Regions with a diversification concept

The only region identified with a complete diversification concept is Beira Interior Sul. Studies on the feasibility have been executed and the following diversification alternatives have been recommended: Energy crops, cattle and sheep meet, dairy cows and cheese production, Olive Oil, Fresh and Processed Vegetables, Fruit crops (Pears, Apricot), Wine production.

**Table 21:** Situation for Beira Interior Sul

| NUTS3 Code | Name of Region | No. Farmers | Area (ha) |
|---|---|---|---|
| PT168 | Beira Interior Sul | 80 | 1.520 |

**Source:** DIVTOB (46)

### Regions with established fruits and vegetable production infrastructure

The Tobacco growing regions of Caserta, Napoli, Salerno (all Campania) and Lecce (Puglia) are embedded in two of the biggest vegetable producing regions of the EU where > 40% of the regional agricultural production is fruits and vegetables. There was also no vulnerability detected in respect of the future trade liberalisation for Mediterranean countries (40) for fruits in Campania and for vegetables in Campania and Puglia.

**Table 22: Situation for Campania and Apulia**

| NUTS3 Code | Name of Region | No. Farmers | Area(ha) |
|---|---|---|---|
| ITF31 | Caserta | 4377 | 4.327 |
| ITF33 | Napoli | 422 | 974 |
| ITF35 | Salerno | 544 | 252 |
| ITF45 | Lecce | 1902 | 1097 |
| | Total | 7.245 | 6.650 |

**Source:** DIVTOB (46)

However, only fruit tree production and vegetable production was taken into account for Puglia as result of the CoAlTa projects. For the Campania Tobacco growing regions neither fruit nor vegetable production was recommended. The most important vegetable production areas in Italy are Campania, Emilia-Romania, Lazio, Liguria, Puglia, Sicilia, Toscana, Veneto with 23.439 holdings producing vegetables with a total turnover of 1.6 Billion €. A market

[46] DIVTOB: Assessment of the estimated magnitude on the social and economical impact of the tobacco reform on LAU1/LAU2 and NUTS3 level.

balance study shall give the answer whether an additional market entrance of up to 5.343 farms to the vegetable producing sector especially in Campania and Puglia will disturb the market balance.

### Regions where Tobacco cultivation has a high socio-economic impact on LAU level

The Tobacco cultivation in France is found all over the country by 2.714 Tobacco farmers. Therefore an impact will be present in some villages. In Germany the Tobacco cultivation is mostly located on specific regions and there on some villages. However, the total number of 359 Tobacco farmers is so small that a statistical relevant impact will not be noticed. For Romania and Poland no specific data have been found and therefore no conclusions can be drawn.

The following Tobacco growing regions are characterised by the fact that only few villages in the concerned regions are production centres for Tobacco. The termination of the Tobacco growing in some regions will affect mainly local economy and may delete agricultural production as an economic opportunity for more than 90 percent of the Tobacco farmers e.g. in Grevena (Greece), Baixo Mondego (Portugal), Granada (Spain), Kavala (Greece) and Fthiotida (Greece).

**Table 23:** Regions where the Tobacco reform will have a high impact on LAU level

| NUTS3 Code | Name of Region | No. Farmers | Area (ha) |
|---|---|---|---|
| GR115 | Kavala | 1.154 | 1.261 |
| GR123 | Kilkis | 186 | 1.533 |
| GR126 | Serres | 1.300 | 2.000 |
| GR131 | Grevena | 1.600 | 1.600 |
| GR142 | Larissa | 752 | 2.131 |
| GR244 | Fthiotida | 1.465 | 907 |
| ITE14 | Chieti | 699 | 270 |
| ITD36 | Padova | 246 | 834 |
| PT162 | Baixo Mondego | 59 | 124 |
| ES614 | Granada | 1.090 | 712 |
| BG241 | Plodiv | 36.718 | 27.981 |
| HU323 | Szabolcs-Szatmar-Bereg | 906 | 4.179 |
| | **Total** | **46.175** | **43.532** |

**Source:** DIVTOB (46)

There are some constraints in future diversification of the Tobacco growing regions. A negative recommendation is given for (35):

- **Fruit production:** Macedonia (Kavala, Kilkis, Serres and Grevena), Thessalia (Larissa)
- **Vegetable production:** Baixo Mondego (Portugal), Granada (Spain), Fthiotida (Greece).

No constraints are reported for Chieti (Italy) and Padova (Italy). A weak vulnerability for fruit and vegetable production is reported for the Veneto region where Padavo is belonging to.

In some of the above mentioned regions cultivation trials with Stevia rebaudiana have been executed (Kilkis, Grevena and Granada) showing promising results justifying further research.

### Regions where the Tobacco reform will have an impact on the agriculture production and on socio-economic indicators on NUTS3 level

The following regions on NUTS3 have indicators which show on what scale the agricultural production will be affected by the Tobacco reform.

**Table 24:** Regions where the Tobacco reform affects deeply agricultural production and regional economy

| Code | Name of Region | No. Farmers | Area (ha) | Remarks |
|---|---|---|---|---|
| GR112 | Xanthi | 4.280 | 2.935 | 45% of the Farms affected |
| GR125 | Piera | 5.952 | 17.479 | 51% of the Farms affected and tobacco occupies 73% of the irrigated arable land |
| GR231 | Aitolokarnania | 5.960 | 2.825 | 16.5% of the Farms affected |
| ITD31 | Verona | 842 | 5.931 | Tobacco occupies 13% of the irrigated arable land |
| ITE18 | Arrezo | 496 | 1.887 | Tobacco occupies 40% of the irrigated arable land |
| ITE21 | Perugia | 799 | 7.711 | Tobacco occupies 38% of the irrigated arable land |
| ITF32 | Benevento | 4.716 | 5.264 | 22% of the Farms affected |
| ITF34 | Avellino | 2.384 | 2.212 | Tobacco occupies 8,5% of the irrigated arable land |
| ES432 | Caceres | 3.373 | 9.294 | Tobacco occupies 10% of the irrigated arable land |
| | **Total** | **28.802** | **55.538** | |

**Source:** DIVTOB (46)

From the figures of the above given table it is very clear that the Tobacco reform will result in major changes in concerned regions since either a large number of farms are affected or a large part of the irrigated arable land must switch to a new profitable production.

Combining together all results for Tobacco diversification economic opportunities which are known so far, it is not likely that a diversification can be executed with success from 2011 to 2013.

The only possibility is to invest in the remaining period 2008 – 2010 considerable resources to establish feasible alternatives and in a schedule of how to reach each of the most prominent alternatives.

In some of the above mentioned regions cultivation trials with Stevia rebaudiana have been executed (Aitolokarnania, Verona and Xanthi) showing promising results justifying further research.

## 3.4. Maintaining the Tobacco cultivation in the EU without subsidies

The following general conclusions can be drawn from the description of the actual situation:

- Cigarette Industry, which is composed by mainly international operating global players, does in general not need the EU Raw Tobacco production to cover their raw stuff needs. However, a lot of countries start up for the search of alternatives for Tobacco cultivation.
- Commercial prices paid actually for the EU Raw Tobacco varieties do not cover production costs at farm level, beside probably for Oriental Tobacco varieties.
- EU stocks for Raw Tobacco are decreasing and actually an increase in demand of Tobacco leafs can be noticed. This situation resulted actually in an increase of Raw Tobacco prices.
- Due to price rises in Tobacco cultivation (e.g. fertilizers and energy) and still too low price paid by Tobacco industry to the farmers it is likely that Tobacco production will not be any more feasible from 2010 on. Therefore the search for sustainable alternatives must become a priority.

Due to some developments in the global Tobacco market it may be possible that Tobacco production in Europe will reach the break-even price within two to three years without any subsidies. Tobacco may develop into a commodity short in the market. An important issue will be the attitude of the Tobacco manufacturing Industry whether they are willing and able to buy in Europe from European Tobacco growers for prices making the Tobacco cultivation feasible or their only intention is to buy Tobacco in the EU because of the subsidies for Tobacco growers.

To be able to grow Tobacco in Europe without subsidies there are three possible solutions (22):

- The price rise up to 3,50 – 4,50 €/kg under the current cost structure and yields
- The yield of the Tobacco crop can be increased by breeding from current actual 3000 kg/ha to 8000 kg/ha under current cost structure and actual prices
- The cost structure must be changed and must decrease from actual 8.100 €/ha to about 5.500 €/ha under actual prices and yields

The most likely scenario is a further increase in price and a reduction in the total costs and a change in the costs structure by investments in mechanisation. Therefore it is likely that until 2013 the break-even can be reached with a price of 2,00 - 2,50 €/kg in Northern Italy (Verona) and probably the northern part of Caceres (Extremadura, Spain) and some lower for Bulgaria, Hungary, Poland and Romania. In Greece, Group VI “Basmas” and Group VII “Katerini” have already reached a price level where a further cultivation without subsidies may be already feasible. However, France, Germany and all other regions of Tobacco cultivation in the EU-15 member states will have a break-even under actual economic conditions only at a price level of 3,50 – 4,50 €/kg.

Tobacco cultivation in the EU has a regional distribution which has a strong relation to the agronomic requirements of the varieties.

As a consequence of the Tobacco reform from 2004 some regions will not have a future prospective for further Tobacco cultivation. Other regions may have a future prospect on Tobacco cultivation if a price level can be reached covering the costs of the production and the income of the Tobacco farmers.

## 3.5. Evaluation of tobacco alternatives in European tobacco regions under the CAP decoupling: A multi -criteria analysis

### 3.5.1. Introduction

In 2003-04, the European Union (EU) introduced direct payments to EU farmers based solely on historical payments. The direct payments, to be implemented in 2005-07 at the discretion of its member states, greatly enhance ongoing reforms of the EU's Common Agricultural Policy (CAP). Such payments, by being up to 100 percent decoupled from current production, allowed farmers to make production decisions based more on market signals than on policy interventions.

In order to study the impacts of tobacco decupling and the different tobacco diversification alternatives on income, employment and environment, a multi-criteria model (MCDM model) was developed[47]. The model utilises the weighted goal programming approach and estimates the farmer's utility function taking in account various conflicting criteria that can explain the farmer's behaviour (e.g. maximisation of farm income, risk minimisation, labour etc.).

The model is used to simulate alternative scenarios and policies and to take alternative farm plans that achieve different levels of income, labour and environmental impacts. The impacts on income are measured by indexes such as the economic balance and economic support; the impacts on employment by farm employment and seasonality; and the impacts on the environment by the water use, nitrogen and energy balance.

The model is further used to evaluate different scenarios of current and future European policy in agriculture; to evaluate the multifunctional impacts on sustainability in the tobacco regions of Europe; to share and disseminate research relating to socio-economic and environmental dimension of tobacco diversification; to contribute to national environmental policies for tobacco diversification.

Different tobacco alternatives have been used for this purpose resulted from field research in the European tobacco regions using a questionnaire. Case studies are referred to Toumba Kilkis, Elassona Larisa in Greece, Granada and Extremadura in Spain (47).

### 3.5.2. Multi-criteria utility function under policy scenarios

Utility functions, are used to estimate the maximization of gross margin in the production of crops that are cultivated in the study region with the help of described model and the following acceptances:

[47] Manos, B et al..: Evaluation of tobacco alternatives in European tobacco regions under the CAP decoupling: A multi-criteria analysis, March 2008, DIVTOB D11 Report.

1. Income includes the decoupled payments for tobacco
2. We introduce alternative crops in the area to be used by farmers as substitutes of tobacco.

We apply the model with 5 alternative scenarios in each one. We have chosen 5 scenarios to be implemented in the model. These are:

3. Decoupling 0% Baseline
4. Decoupling 0% Baseline under alternative crops
5. Decoupling 40% under alternative crops
6. Decoupling 50% under alternative crops
7. Decoupling 100% under alternative crops

Scenario 1 represents the baseline used as reference to asses the impact of decoupling through comparison with the other scenarios. Scenarios 2, 3, 4 and 5 represent the adoption of alternative crops by the farmers under different scales of tobacco decoupling.

### 3.5.3. Model application in Greece

The utilized agricultural area (UAA) in Toumba covers an area of 1,589 ha. ¶Arable crops are the main cultivation for the majority of the agricultural holdings. In arable crops are included cereals, cotton, tobacco, maize, alfalfa, aromatic crops and industrial crops.

Table 25 and Figure 33 present the distribution of utilized agricultural area in Toumba agricultural region. It is covered by arable crops especially Hard Wheat (29.0%), soft wheat (6.2%), cotton (29.8%), maize (2.5%) and tobacco (26.7%). As we can see tobacco has a major part in the existing crop plan.

**Table 25:** Distribution of utilized agricultural area in Toumba

| | TOUMBA | |
|---|---|---|
| **Crop** | **ha** | **%** |
| Soft Wheat | 99.0 | 6.2 |
| Hard Wheat | 461.0 | 29.0 |
| Barley | 8.0 | 0.5 |
| Rye | 7.0 | 0.4 |
| Maize | 40.0 | 2.5 |
| Tobacco | 425.0 | 26.7 |
| Cotton | 474.0 | 29.8 |
| Sunflower | 8.0 | 0.5 |
| ALFALFA | 10.0 | 0.6 |
| SA | 57.0 | 3.6 |
| **TOTAL** | **1,589.0** | **100.0** |

The utilized agricultural area (UAA) in Elassona covers an area of 97,650 ha. ¶Arable crops are the main cultivation for the majority of the agricultural holdings. In arable crops are included cereals, cotton, tobacco, maize alfalfa and industrial crops. As we can see tobacco is not a major crop in the area but it is one of the most important ones.

Table 26 and Figure 34 present the distribution of utilized agricultural in Elassona agricultural area. It is covered by arable crops especially Hard Wheat (38.7%), soft wheat (14.4%), rye (9.1%), maize (12.3%), tobacco (7.6%) and alfalfa (8.3%).

**Figure 33**: Distribution of utilized agricultural area in Toumba

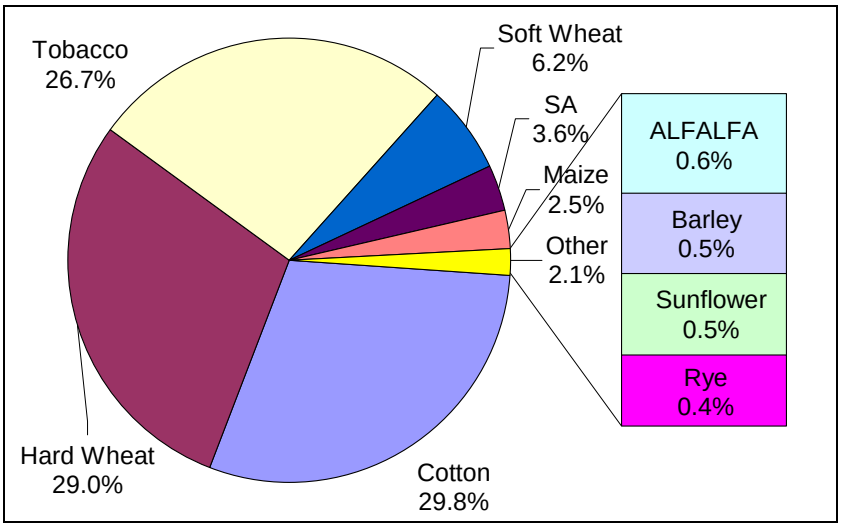
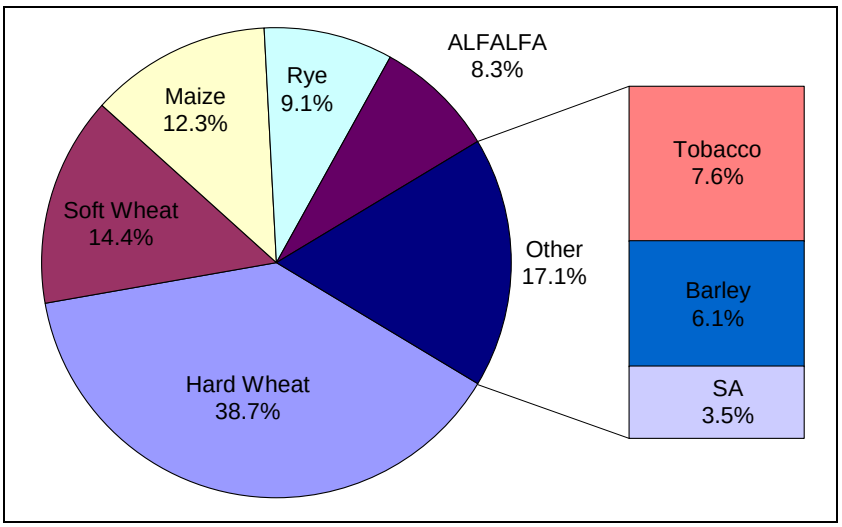



**Table 26:** Distribution of utilized agricultural area in Elassona

| | ELASSONA | |
|---|---|---|
| **Crop** | **ha** | **%** |
| Soft Wheat | 704 | 14.4 |
| Hard Wheat | 1890 | 38.7 |
| Barley | 297 | 6.1 |
| Rye | 445 | 9.1 |
| Maize | 599 | 12.3 |
| Tobacco | 369 | 7.6 |
| ALFALFA | 407 | 8.3 |
| SA | 169 | 3.5 |
| **TOTAL** | **4,880.3** | **100.0** |

**Figure 34:** Distribution of utilized agricultural area in Elassona




In the first case study (Toumba) we applied the model for Stevia crop in 2 different forms (different land constraints). In the first form we have set a constraint for Stevia 5% of the total cultivated area and in the second form we haven't set any constraint for Stevia crop (stevia free). In the second case study (Elassona) we didn't apply the second form because Stevia didn't exceed the limit of 5% of the total cultivated area.

In the first case study we apply our model in Toumba Kilkis tobacco agricultural area. Tobacco has an important role in existing crop plan (26.7%). In the second case study in Elassona tobacco cultivation is one of the major crops but only with 7.6%. We analyze five alternative scenarios concerning the three different levels of tobacco decoupling.

By applying to our MCDM model the five Scenarios we get the following crop plans presented in Table 27 and 28 for Toumba and Table 29 for Elassona case study. Tables 28 and 29 show the comparison between the present situation (Scenario 1) and the predicted situation with the help of the MCDM model, which has as objective function the maximization of utility function under the 4 tobacco decoupling scenarios.

From the results we can summarise that organic crops (organic wheat, hard wheat, maize, alfalfa) aromatic plants (oregano, mint, basil) are adopted by the farmers in order to change their crop plans as tobacco alternatives. We can conclude that the new CAP will impact seriously the production plans. The most interesting results are those related to the tobacco cultivation. As we can see farmers will abandon tobacco when decoupling becomes 100%. At least 3.8 % of the cultivated area in Toumba and 7.86% in Elassona will set aside. As long as the processing phase is continued to 100% decoupling farmers will adopt also fruit trees (cherries, plums, pears and pomegranates) in Toumba and the new Stevia cultivation in both case studies.

In the case study of Toumba region we applied the model considering 2 different land constraints (different forms) for the Stevia crop to investigate how mach cultivated area Stevia can occupy. These are:

- Stevia constrained to 5% of the total cultivated area
- Stevia Free

The results of the first form are these of table 27. The results of the second form are shown in table 28. In the comparison between the 2 different forms of the first case study (Stevia 5% and Stevia free) we can summarise that crop plans in scenario 1 and scenario 2 are exactly the same. In scenario 3 to scenario 5 Stevia crop takes values from 6.1% to 7.6% of the total cultivated area. This means that a) Stevia can occupy up to the 7.6% of the total cultivated area at the most, b) it cannot completely substitute the tobacco cultivation in this area.

**Table 27:** Production Plan under 5 tobacco decoupling scenarios in Toumpa (Stevia 5%)

| Crops | Present | Decoupling | | | |
|---|---|---|---|---|---|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| | 2005 | 0% | 40% | 50% | 100% |
| Soft Wheat | 15.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Hard Wheat | 9.2 | 20.5 | 20.5 | 20.6 | 21.6 |
| Barley | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Rye | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maize | 0.0 | 1.3 | 6.2 | 7.4 | 5.7 |
| Tobacco | 26.8 | 17.5 | 2.7 | 1.6 | 0.0 |
| Cotton | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 |
| Sunflower | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ALFALFA | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| SA | 10.0 | 3.8 | 4.9 | 4.5 | 4.7 |
| Oregano not irrigated | | 1.0 | 1.0 | 1.0 | 1.0 |
| Basil | | 0.5 | 0.5 | 0.5 | 0.5 |
| Mint | | 0.5 | 0.5 | 0.5 | 0.5 |
| Oil seed rape | | 0.0 | 0.0 | 0.0 | 2.0 |
| Anise irrigated | | 0.0 | 0.0 | 0.0 | 0.0 |
| Soft Wheat organic | | 1.5 | 1.5 | 1.5 | 1.5 |
| Hard Wheat organic | | 6.2 | 6.0 | 6.0 | 6.5 |
| Maize organic | | 0.4 | 1.9 | 2.2 | 1.7 |
| Alfalfa irrigated | | 1.2 | 1.2 | 1.2 | 1.2 |
| Vetch seed organic | | 1.0 | 1.0 | 1.0 | 1.0 |
| Cherries | | 0.0 | 1.6 | 1.6 | 1.6 |
| Plums | | 0.0 | 0.3 | 0.3 | 0.3 |
| Pears | | 0.0 | 0.6 | 0.6 | 0.6 |
| Pomegranates | | 1.6 | 1.6 | 1.6 | 1.6 |
| Stevia | | 0.0 | 5.0 | 5.0 | 5.0 |
| | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Table 28:** Production Plan under 5 tobacco decoupling scenarios in Toumpa (Stevia free)

| Crops | Present | Decoupling | | | |
|---|---|---|---|---|---|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| | 2005 | 0% | 40% | 50% | 100% |
| Soft Wheat | 15.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| Hard Wheat | 9.2 | 20.5 | 20.7 | 20.6 | 20.2 |
| Barley | 2.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Rye | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maize | 0.0 | 1.3 | 3.6 | 6.4 | 7.7 |
| Tobacco | 26.8 | 17.5 | 5.4 | 0.5 | 0.0 |
| Cotton | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 |
| Sunflower | 2.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| ALFALFA | 2.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| SA | 10.0 | 3.8 | 4.0 | 4.6 | 4.8 |
| Oregano not irrigated | | 1.0 | 0.4 | 0.4 | 0.4 |
| Basil | | 0.5 | 0.3 | 0.3 | 0.3 |
| Mint | | 0.5 | 0.3 | 0.3 | 0.3 |
| Oil seed rape | | 0.0 | 1.0 | 1.0 | 2.0 |
| Anise irrigated | | 0.0 | 0.0 | 0.1 | 0.2 |
| Soft Wheat organic | | 1.5 | 1.5 | 1.5 | 1.5 |
| Hard Wheat organic | | 6.2 | 6.0 | 6.0 | 5.6 |
| Maize organic | | 0.4 | 1.5 | 2.1 | 2.4 |
| Alfalfa irrigated | | 1.2 | 1.2 | 1.2 | 0.0 |
| Vetch seed organic | | 1.0 | 1.0 | 1.0 | 0.0 |
| Cherries | | 0.0 | 1.6 | 1.6 | 1.6 |
| Plums | | 0.0 | 0.3 | 0.3 | 0.3 |
| Pears | | 0.0 | 0.6 | 0.6 | 0.6 |
| Pomegranates | | 1.6 | 1.6 | 1.6 | 1.6 |
| Stevia | | 0.0 | 6.1 | 7.0 | 7.6 |
| | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Table 29:** Production Plan under 5 tobacco decoupling scenarios in Elassona

| Crops | Present | Decoupling | | | |
|---|---|---|---|---|---|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| | 2005 | 0% | 40% | 50% | 100% |
| Soft Wheat | **17.3** | 11.15 | 11.15 | 11.15 | 11.15 |
| Hard Wheat | **14.5** | 30.00 | 30.00 | 30.00 | 30.00 |
| Barley | **7.3** | 4.62 | 4.62 | 4.62 | 4.62 |
| Rye | **9.0** | 3.50 | 6.55 | 8.00 | 10.00 |
| Maize | **24.5** | 10.38 | 10.38 | 10.38 | 10.38 |
| Tobacco | **7.4** | 4.95 | 1.50 | 0.45 | 0.00 |
| ALFALFA | **10.0** | 6.54 | 6.54 | 5.54 | 4.75 |
| SA | **10.0** | 8.05 | 7.95 | 7.86 | 7.87 |
| Oregon | | 0.30 | 0.30 | 0.30 | 0.00 |
| Tea | | 0.30 | 0.30 | 0.30 | 0.00 |
| Basil | | 0.00 | 0.00 | 0.00 | 0.00 |
| Mint irrigated | | 0.40 | 0.40 | 0.30 | 0.00 |
| Sunflower | | 0.00 | 0.00 | 0.00 | 0.00 |
| Oil seed rape | | 0.00 | 0.00 | 1.00 | 1.00 |
| Glykanisos | | 0.00 | 0.00 | 1.00 | 1.00 |
| Wheat | | 3.35 | 3.35 | 3.35 | 3.35 |
| Hard Wheat | | 9.00 | 9.00 | 9.00 | 9.00 |
| Barley | | 1.38 | 1.38 | 1.38 | 0.00 |
| Maize | | 3.12 | 3.12 | 3.12 | 3.12 |
| Lucerne irrigated | | 1.96 | 1.96 | 0.00 | 0.00 |
| Vetch seed | | 1.00 | 0.00 | 0.00 | 0.00 |
| Stevia | | 0.00 | 1.50 | 2.25 | 3.75 |
| | | 100.00 | 100.00 | 100.00 | 100.00 |

When we solve the system by optimising the utility function, the farmer's income, labour and fertilizers use - shown in the next figures; Figures 35, 36 and 37 show three typical curves one for income one for labour and one for fertilizers use that reflects how the farmer adapts the affects of decoupling.

As tobacco decoupling changes from 0% to 40% to 50% and finally 100%, farmers adapt by changing their crop plans in order to obtain the best results. The different slopes of the demand curves are due to changes in the crop plan, as an adaptation to tobacco decoupling.

Tobacco decoupling has similar effects in the farmer's income in both case studies. In the second scenario we observe that with 0% decoupling we have an increase of farmer's income 0.9% in Toumba and a decrease -1.3% in Elassona.

We can conclude that the producers adopting in their crop plans alternative cultivations such as aromatic, energy or organic crops they can achieve an increase in their income in the first scenario.

On the other hand when tobacco decoupling starts we observe a decrease in farmer's income from 5.2% in Scenario 2 to 6.7% in Scenario 5 for the First Case Study and from 4.7% in Scenario 2 to 5.3% in Scenario 5 in Second one. The difference between the 2 case studies depends on the different participation of the tobacco cultivation in the existing crop plan.

**Figure 35:** Economic, Social and Environmental Impact under 5 tobacco decoupling scenarios in Toumba (Stevia 5%)

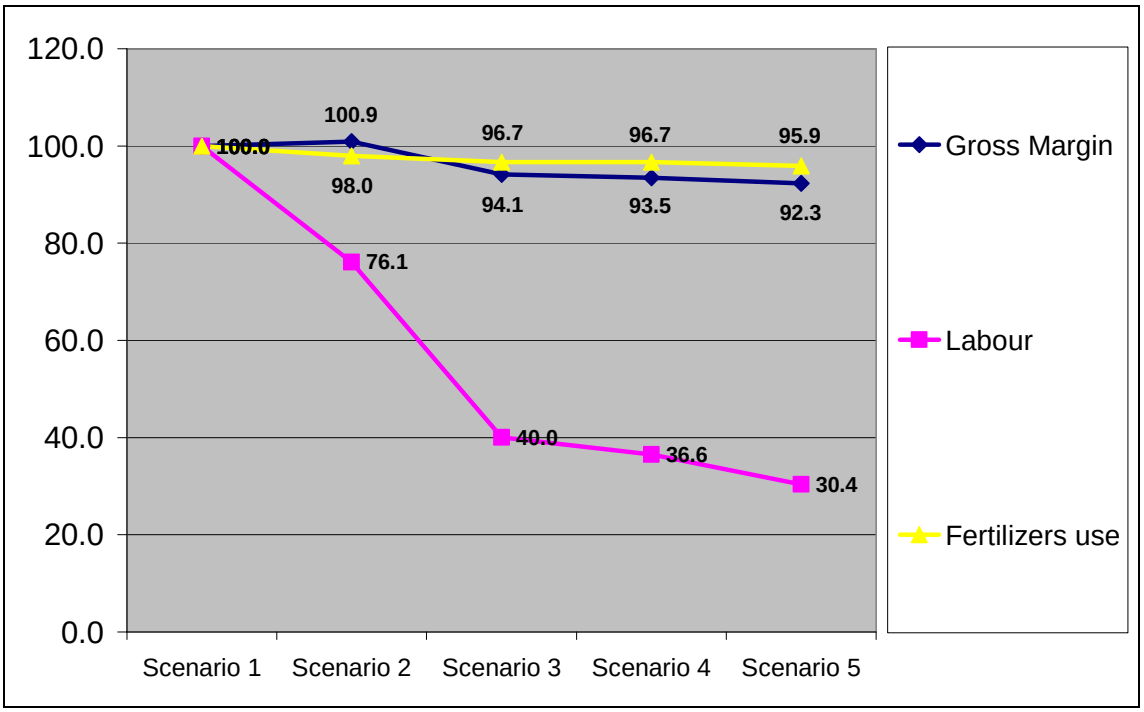
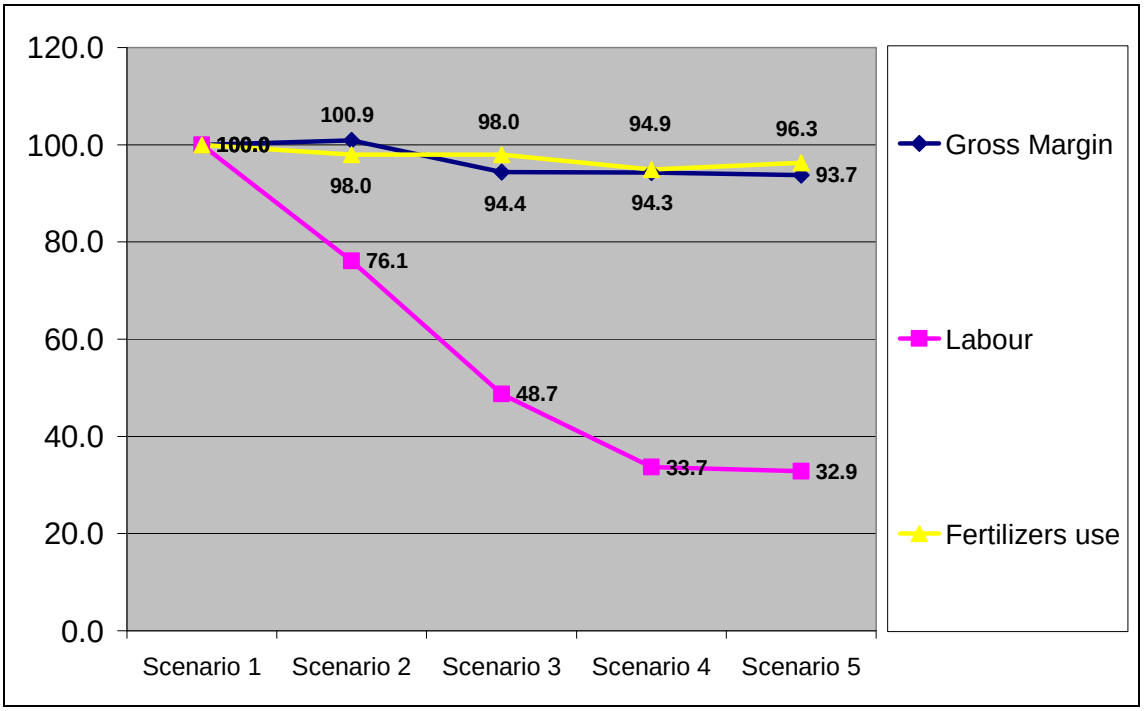
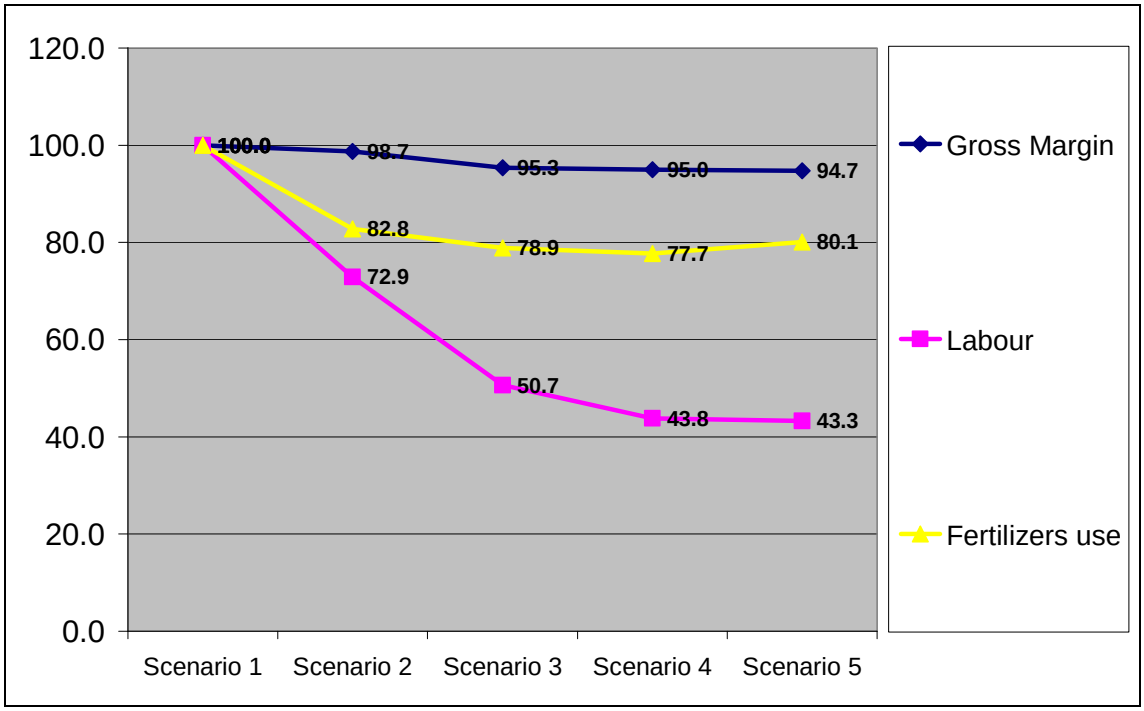


**Figure 36:** Economic, Social and Environmental Impact under 5 tobacco decoupling scenarios in Toumba (Stevia free)




Between the 2 different forms of the Toumba case study (Stevia 5% and Stevia free) we conclude that in the second form (Stevia free, figure 36) farmers can achieve better gross margin from 0.3% (scenario 2) to 1.4% (scenario 5).

**Figure 37:** Economic, Social and Environmental Impact under 5 tobacco decoupling scenarios in Elassona



Tobacco decoupling brings about a severe reduction in farm labour inputs as a result of responses through changes in crop plans, introducing less profitable crops as substitutes for higher-value/higher labour- intensive crops such as tobacco. This implies that intensive crops will be replaced by less demanding and more mechanised crops. This circumstance, in relation to labour, can be observed in figure 34 and 35, where we can see farmers' behaviour when demand is based on multi attribute utility model.

Figures 35, 36 and 37 are showing evidently that a high reduction in the labour demand can be expected.

In first scenario (tobacco decoupling 0%) we can see a decrease in labour in both Case Studies.

Tobacco decoupling 40% has as result farmers abandoning the cultivation of tobacco that is impressed in the figures 35, 36 and 37 as labour reduction 23.9% in Toumba and 27.1% and in Elassona. When the decoupling reaches 100% labour reduction reaches 69.6% in Toumba and 56.7% on Elassona.

We use the demand for fertilisers as an indicator of the environmental impact of agriculture, measured in kilograms of nitrogen added per hectare (N/ha). Tobacco decoupling make farmers to adapt by changing their crop plans in order to obtain the best results. This requirement would make it more profitable for most producers to semi-abandonment tobacco production, which would involve a drastic reduction in input usage (fertilizers, pesticides and irrigation water) and no harvest.

Figures 35, 36 and 37 shows that fertilizers use is decreased already in the first Scenario.

The reduction is bigger both in 4 Scenarios of the second Case Study when farmers cultivate alternative crops friendly to the environment such as aromatic, energy and organic plants. In the first Case Study (Toumba) we have a small reduction of fertilizers use because of the fruit trees cultivation adopted by the farmers.

### 3.5.4. Model application in Spain

We have also applied the MCDM model in two case studies in Spain. The first case study belongs to UCONOR SCL in Extremadura and the second case study belongs to SAT TABACOS GRANADA ASOCIACION and GOUAGA (both Granada, Spain). In table 30 and figure 38 we see the distribution of utilized agricultural area in UCONOR SCL and in table 31 and figure 39 the corresponding in Granada.

In both areas we have applied the same 5 Scenarios as in Greece. As alternative crops we used their traditional crops and Stevia.

**Table 30:** Distribution of utilized agricultural area for UCONOR SCL (Spain)

| | UCONOR | |
|---|---|---|
| **Crop** | **ha** | **%** |
| Corn | 2,475 | 84.7 |
| Pepper piquillo | 36.19 | 1.2 |
| Pepper morron | 16.72 | 0.6 |
| Pepper guindilla | 9.53 | 0.3 |
| Pepper ball | 30.07 | 1.0 |
| Tomatoes | 165 | 5.6 |
| Tobacco Barley | 190.91 | 6.5 |
| TOTAL | **2,923.42** | **100.0** |

**Table 31:** Distribution of utilized agricultural area in Granada (Spain)

| | Granada | |
|---|---|---|
| **Crop** | **ha** | **%** |
| Soft Wheat | 1,923 | 19.1 |
| Tobacco (Barley) | 1,308 | 13.0 |
| Corn | 2,576 | 25.6 |
| Potatoes | 759 | 7.5 |
| Aspargus | 3,500 | 34.8 |
| Soft Wheat | 1,923 | 19.1 |
| Tobacco (Barley) | 1,308 | 13.0 |
| TOTAL | **10,066** | **100.0** |

**Figure 38:** Distribution of utilized agricultural area for UCONOR SCL

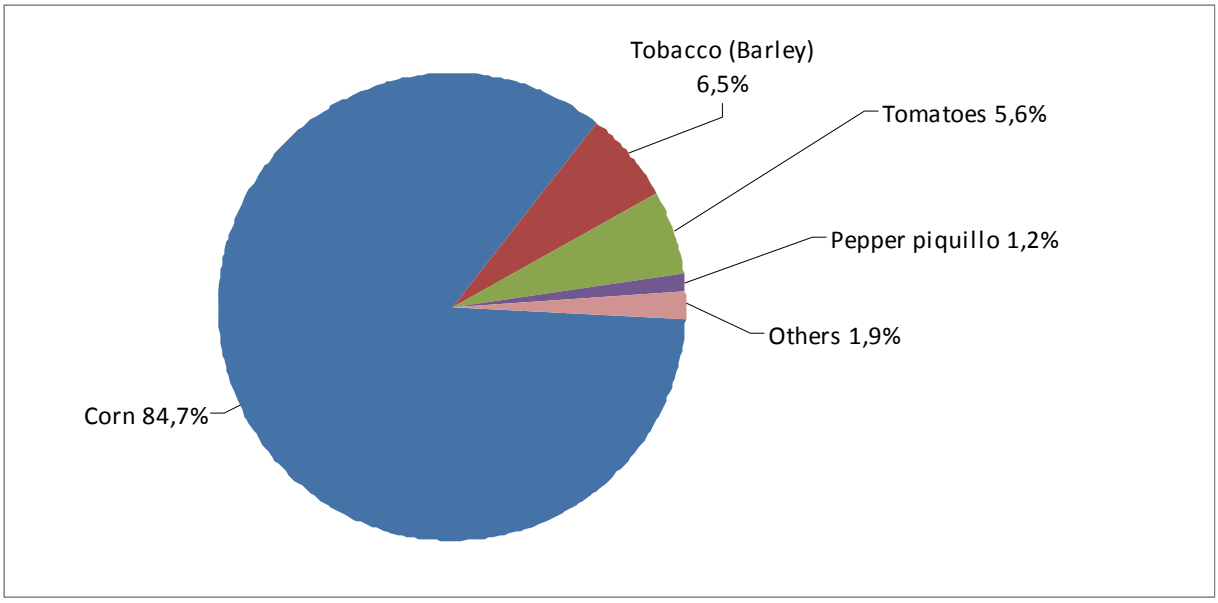
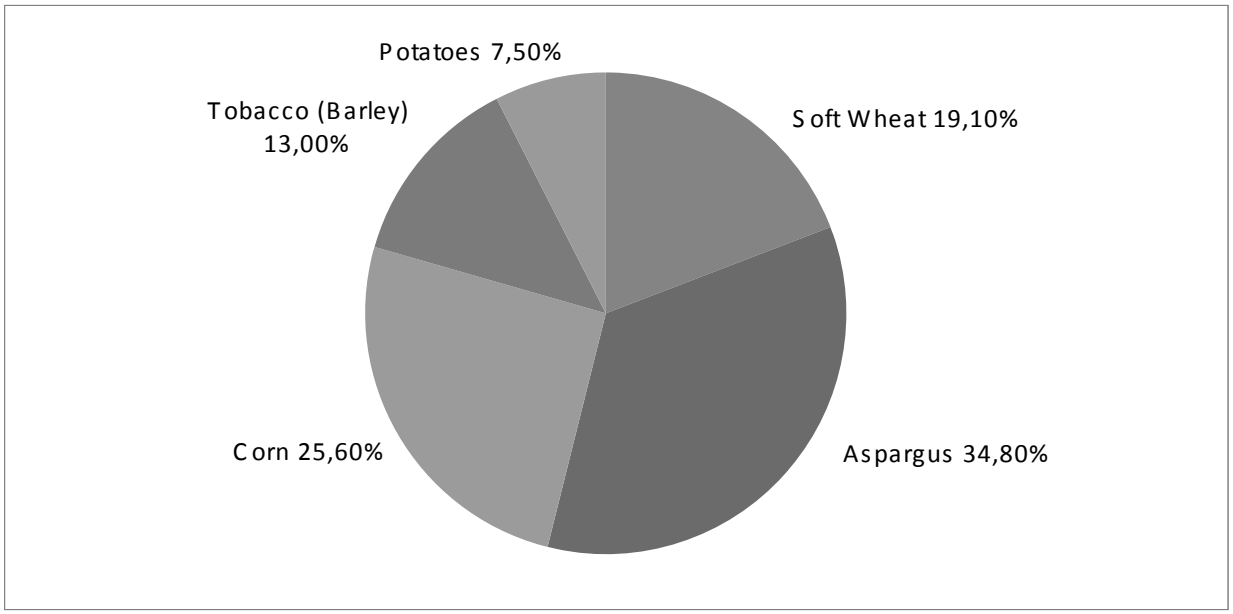



**Figure 39:** Distribution of utilized agricultural area in Granada



In the case of the changes in crop plans under the 5 decoupling scenarios we can summarise from Table 32 and 33 that Scenarios 2, 3 and 4 have the same crop distribution and only when decoupling reaches 100%, farmers abandon the tobacco cultivation.

**Table 32:** Production Plan under 5 tobacco decoupling scenarios in UCONOR SCL

| | Present | Decoupling | | | |
|---|---|---|---|---|---|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| Crops | 2005 | 0% | 40% | 50% | 100% |
| Corn | **83.7** | 78.14 | 78.25 | 78.33 | 81.14 |
| Pepper piquillo | **1.0** | 1.00 | 1.00 | 1.00 | 1.00 |
| Pepper morron | **0.5** | 0.50 | 0.50 | 0.50 | 0.50 |
| Pepper guindilla | **0.6** | 0.60 | 0.60 | 0.60 | 0.60 |
| Pepper pimenton | **1.0** | 0.30 | 0.35 | 0.30 | 0.40 |
| Tomato | **6.1** | 6.10 | 6.10 | 6.10 | 6.10 |
| Tobacco | **7.1** | 3.95 | 3.38 | 3.24 | 0.00 |
| Stevia | | 1.60 | 2.00 | 2.10 | 2.15 |
| SA | | 7.81 | 7.82 | 7.83 | 8.11 |
| | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

**Table 33:** Production Plan under 5 tobacco decoupling scenarios in Granada (Spain)

| | Present | Decoupling | | | |
|---|---|---|---|---|---|
| | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 |
| Crops | 2005 | 0% | 40% | 50% | 100% |
| Wheat soft | **11.4** | 15.2 | 15.2 | 15.2 | 19.13 |
| Tobacco | **9.9** | 5.0 | 5.0 | 5.0 | 0.00 |
| Corn | **28.2** | 28.2 | 28.2 | 28.2 | 28.16 |
| Potatoes | **8.3** | 8.3 | 8.3 | 8.3 | 8.3 |
| Aspargus | **38.3** | 38.3 | 38.3 | 38.3 | 38.3 |
| Stevia | | 1.2 | 1.2 | 1.2 | 1.82 |
| Set Aside | **4.0** | 4.0 | 4.0 | 4.0 | 4.36 |
| | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |

The results for the economic, social and environmental impact are shown in figures 40 and 41. We observe that they are similar as in Greek Case studies.

**Figure 40:** Economic, Social and Environmental Impact under 5 tobacco decoupling scenarios in UCONOR SCL (Spain)

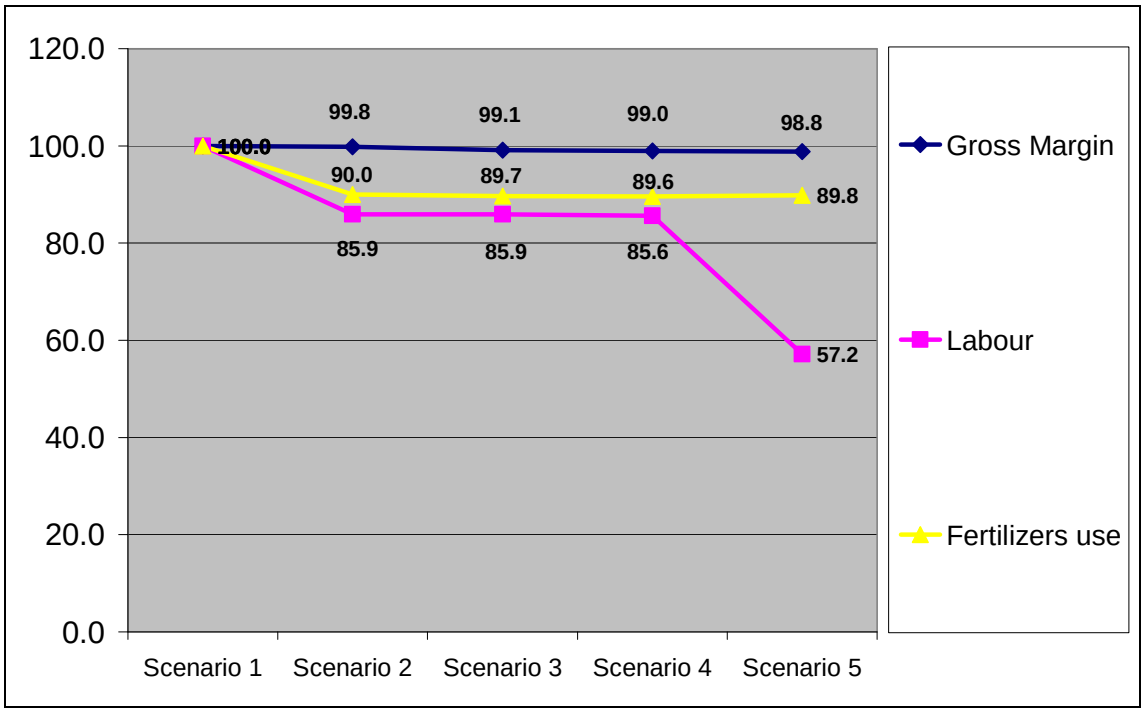
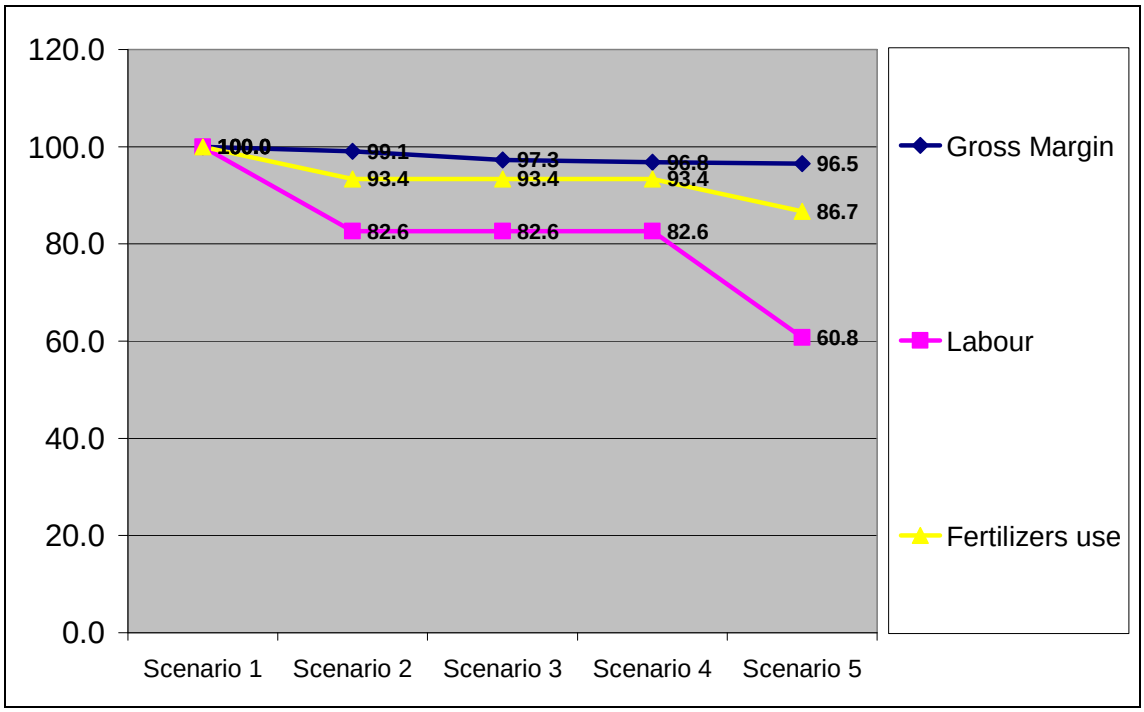



**Figure 41:** Economic, Social and Environmental Impact under 5 tobacco decoupling scenarios in Granada (Spain)



### 3.5.5. Comparison and final remarks

In this section we compare the impacts of tobacco decoupling on the crop plans, the income, the employment and the environment in all case studies in Greece and Spain.

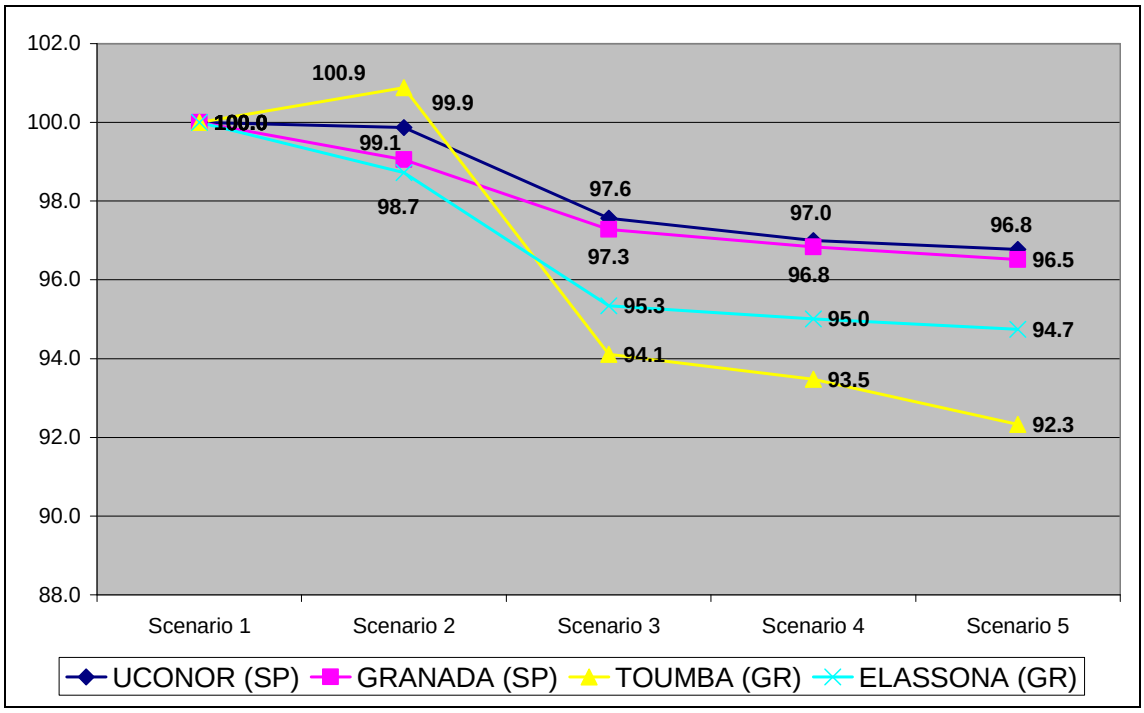
The differences are due to:

1) The status quo crop plans
2) The suggested alternative crops
3) The percentage of tobacco in each area

From tables 27, 29, 32 and 33 we observe that tobacco in all study regions is continuously decreased when we proceed from scenario 1 (that corresponds to the optimum crop plan without tobacco alternatives and without decoupling) to scenario 2 (that corresponds to the optimum plan with alternatives but without decoupling), then to scenario 3 (optimum plan with alternatives and 40% decoupling), then to scenario 4 (optimum plan with alternatives and 50% decoupling) and finally to scenario 5 (optimum plan with alternatives and 100% decoupling). In all study regions the tobacco area in the crop plans becomes zero when tobacco decoupling reaches the 100%. In this process tobacco is substituted by the tobacco alternatives from which Stevia can occupy an important percentage of the crop plan (up to 5% - 7.6% respectively in the two study regions Toumba and Elassona in Greece and 1.82% - 2.15% respectively in the two regions UCONOR and Granada in Spain).

From figure 42 we can conclude that the economic impact of tobacco decoupling varies in all study regions and it is greater in Greece than in Spain. The total gross margin independently of whatever are the tobacco alternatives of crop plans presents a continuous decrease from scenario 1 to scenario 5 in all study regions up to 7.7%. Specifically the gross margin from 100% in scenario 1 becomes 92.3% in scenario 5 in Toumba, 94.7% in Elassona, 96.5% in Granada and 98.8% in UCONOR.

**Figure 42:** Comparison in Economic Impact (gross margin) under 5 tobacco decoupling scenarios in all Case Studies



In the case of Greece, the economic impact of tobacco decoupling is greater in Toumba than in Elassona. This is reasonable because of the different crop plans and of the different percentage of the tobacco in the crop plan (26.7% in Toumba and 7.6% in Elassona). We can also conclude that the negative economic impacts of the tobacco decoupling would be more important if no alternative crops were suggested.

The negative impact of tobacco decoupling is greater on employment in the study regions. From figures 34, 36, 39 and 40 we observe that the labour used is decreased from 38.2% (UCONOR, Spain) up to 69.6% (Toumba, Greece) as the tobacco decoupling varies from 0% to 100%. Specifically from 100% in scenario 1, the labour used falls in scenario 5 to 30.4% in Toumba, 43.3% in Elassona, 57.2% in UCONOR and 60.8% in Granada.

On the contrary, the impact of tobacco decoupling on the environment seems to be positive in all study regions. We observe from figures 34 36, 39 and 40 that tobacco decoupling causes an important decrease to environmental pollution up to 19.9%. From 100% in scenario 1, the fertilisers used falls in scenario 5 to 80.1% in Elassona, 86.7% in Granada, 89.8% in UCONOR and 95.9% in Toumba.

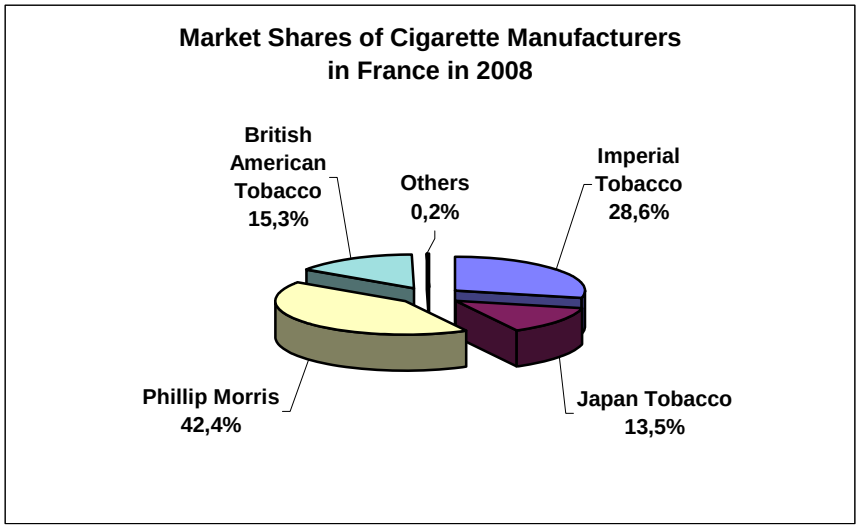
In spite of the positive impact of tobacco decoupling on the environment, the loss in farmer's income and mainly the increase of unemployment in the tobacco regions of Greece and Spain will be very important in short and medium terms as it is obvious that these matters will cause significant problems in the local rural economies. To this end, we suggest a further investigation of tobacco alternatives in all European tobacco regions and the permission of Stevia's cultivation as well as a possible revision of policy for tobacco.

# 4. Conclusions and Proposals

The main effect of the Tobacco reform of 2004 is the shift of the Tobacco farmers from a subsidies based agricultural model to a market driven approach. The farmers will loose a lot of securities which have been well in the past: security of production and security of income. As a matter of fact and this can be seen travelling through the Tobacco growing regions there exists a difference of those villages where Tobacco is (was) grown and those villages, probably the next, where no Tobacco is (was) grown. Tobacco cultivation was a source of income which brought a lot of economic and social benefits to the Tobacco growing regions. The goal of this study is to find such alternatives which shall maintain the quality of life, labour and income for the Tobacco farmer families. Therefore the conclusions out of this study are directed in the first line to help the family farms, which are 96% of the European Tobacco farms and for the employees of the European Tobacco farm sector.

A major factor on the future price levels for Tobacco is also the oligopoly of the Cigarette Manufactures which are acting in EU. The market shares of Cigarette Manufacturers in e.g. France in 2008 are shown in figure 43.

**Figure 43:** Market shares of cigarette Manufactures in France in 2008 (own research)




Under the conditions of limited market forces on the demand sector it is very difficult for the supply sector (Tobacco farmers) to achieve fair prices. Under the actual conditions it may be likely that the EU Tobacco farmers participate in the increased world market prices. However, it remains to see whether one day really a price level can be achieved where the production costs are paid by market prices.

It is very clear that the case of the Tobacco farmers and their employees in the EU is a social problem concentrated on a few small regions. The local or regional impact is therefore drastic. A social problem requires always a political solution.

As a general outcome it can be stated that from a technical point of view exist diversification alternatives for about 18.000 hectares which are able to maintain the actual income level of the farms and also the labour. However, every of those alternatives have

some constraints which can not be overcome so easily in order to be a real and feasible alternative for the Tobacco farmers.
The following conclusions and proposals shall support to overcome the impact of the Tobacco reform from 2004 reaching its goal for an end of Tobacco production in Europe based on subsides paid by all tax-payers and on the other hand to help the farmers to maintain their farms and develop new economic opportunities.

## 4.1. Overall Conclusions

According to the actual developments in the world markets for Raw Tobacco it is likely that in the EU Tobacco will be produced in future as market prices started to rise for all cultivated Tobacco varieties.

The Tobacco reform from 2005 introduced improved market mechanisms which seem to benefit Tobacco farmers all over the world by rising prices. Therefore in general, the initial aims of the Tobacco reform envisaged by the Commission are effective and are useful on a longer term.

The impact of the EU reform on world market of Raw Tobacco is mainly due to increased depleting of EU stocks as the actual world demand is higher than world production. A direct effect of the EU reform was the sudden stop of 39.612 EU Tobacco farmers (EU-15) to produce Tobacco which corresponds to about 131.000 tons of Raw Tobacco production which is only 0,25 percent of the world Raw Tobacco production.

World demand for Cigarettes and other Tobacco products continued to rise by about 0,8 percent per year in the period 2002 to 2007. Taken the demand of the Peoples Republic of China into account the annual increase in demand in the same time period was 1,6 percent.

More than 100 countries grow tobacco, of which about 80 are developing countries. Four countries account for two-thirds of the total production: China is responsible for 42 percent of all tobacco grown, with the United States, India, and Brazil producing about 24 percent between them. The top 20 countries produce more than 90 percent of the total world production. EU production represents 4% of worldwide production in 2008. Italy is the biggest EU producer (36% of the 27 EU member countries' total production), followed by Poland (16%), Bulgaria (12%) and Spain (12%).

Over the past two decades, the share of global production by high-income countries has fallen from 30 to 15 percent, while that by countries in the Middle East and Asia has risen from 40 to 60 percent. Africa's share rose from 4 to 6 percent, and other regions have changed little.

Prediction and market forecast for world tobacco market is very difficult due to the different production situations in more than 100 countries and several submarkets due to Tobacco varieties and quality schemes.

However, it seems that market prices for Raw Tobacco for all varieties and qualities are very sensitive and react on relative small fluctuations of actual world production. It seems that this market mechanism was demonstrated by the EU Tobacco reform. From a market point of view the Tobacco reform demonstrated its effectiveness.

According to the figures for the Universal Leaf Tobacco Company Report (24) the trend in decreasing stocks will continue further 1 ½ year. Depending on the world stock situation at end of 2010 it will be possible to estimate whether the prices of the EU Raw Tobacco production will reach a price level to grow Tobacco without subsidies on a longer term.

The actual schedule of the Tobacco reform will not allow that the EU Tobacco farmers will benefit from rising market prices in future. Until the end of 2009 the EU Tobacco farmers receive the full amount of the subsidies. From 2010 50% of the subsidies will be shifted to the Rural Development Funds. The farmers receive from 2010 until 2013 only 50% of the subsidies. Under the actual conditions even with rising prices Tobacco cultivation especially in EU-15 member states (France, Germany, Greece, Italy, Portugal and Spain) is not feasible. This will result in a sudden stop of 28.704 farmers in those countries with a loss of about 130.000 annual temporary employments.
When the commercial price rises to levels (1,4 - 1,8 €/kg) before the entrance of Bulgaria, Hungary Poland, Romania and Slovakia into EU, than a total of 52.805 Tobacco farms (status 2007) may remain in Tobacco cultivation. This situation may be reached until end of 2010.

For EU-15 member states (France, Germany, Greece, Italy, Portugal and Spain) a commercial price level of 3,50 €/kg to 4,50 €/kg must be reached to became the cultivation feasible. This seems a lot and not achievable. However, when EU-Commission prepared its study about Raw Tobacco markets in 2003 the commercial price in the United States for Burley Tobacco ex farm was 4,20 €/kg and for “Flue-Cured” Tobacco ex farm was 3,91 €/kg.

Finally, it can be stated:

- A prolongation of the phase I of the Tobacco reform until 2013 gives the chance for EU Tobacco growers to receive fair commercial prices covering the production costs and income needs. This requires a prolongation of the 100% payment of the actual subsidies to the Tobacco farmers in all EU member states.
- It has been shown that 100% decoupling (which was executed in Greece and in Apulia, Italy) was an effective tool in the right moment to support the tendency for higher prices for Raw Tobacco at a world level. Therefore the forecasts of the economists of DG AGRI have been correct from a market point of view as it seems that the world tobacco market is actually very sensitive on even very small fluctuations of commodity supply.
- It should be considered to apply the 100% decoupling in all EU member states producing tobacco to support the actual tendency for higher price.

## 4.2. Conclusions for the EU Tobacco farmers situation

**Oriental Tobacco Farm Sector:** In Greece, where 100% decoupling is due since 2006 about 16.093 Tobacco farmers remained, mainly producing Oriental varieties (96,5%). The commercial price in 2007 for Basmas went up to 4,10 €/kg and for Katerini varieties went up to 3,58 €/kg which gives hope for a feasible cultivation in near future. Those farmers may remain with Tobacco production for a longer term. The production of Oriental Tobacco varieties in Bulgaria will become also feasible if prices increase further which was 1,47 €/kg in 2006. This will help 18.247 Bulgarian Tobacco farmers to remain in Tobacco production.

**Flue-cured Tobacco:** Investments on Tobacco mechanisation for farms with a total farm size of more than 10 hectares have the chance to proceed with Tobacco production in future by further specialisation. This may be the alternative for farms especially in France (all regions), Germany (all regions), Hungary (all regions), Italy (regions of Abruzzo, Toscana, Umbria and Veneto), and Spain (region of Caceres) with a total of 3.535 farms. A return to the commercial price level in Poland before the entrance in EU will result in a feasible production and 9.484 Tobacco farmers may remain in the Tobacco farm sector.

**Burley Tobacco:** A further increase in commercial prices will make the production of Burley Tobacco feasible in France, Germany and Italy. This may help to keep 5.809 Tobacco farmers in Tobacco production. A return to the commercial price level in Hungary and Poland before the entrance in EU will result in a feasible production and 5.860 Tobacco farmers may remain in the Tobacco farm sector.

**Dark Air Cured and Fire Cured Tobacco:** This two Tobacco farm sectors are niche markets for very specific and mostly regional Tobacco products. A price increase can be observed and may reach already in 2009 a level where a production is feasible without subsidies. These Tobacco types are produced in France, Germany, Italy, Poland and Spain. It is likely that those farmers producing these varieties remain in Tobacco production on a longer term which accounts on a total of 4.910 farmers.

However, not all EU Tobacco farmers may have a chance to maintain Tobacco production. As a consequence of the Tobacco reform, those regions where no price increase was noted or stopped completely the Tobacco production have the urgent need to diversify which shows table 34.

**Table 34:** Actual situation of price development in EU Tobacco regions since 2005

| Regions/Countries with relevant price increase since 2005 | Regions with no price increase since 2005 | Regions with stop of tobacco productions since 2005 |
|---|---|---|
| Bulgaria, France, Germany, Hungary, Poland and Romania (all regions and all varieties) | Portugal: Beira Litoral (Burley) | Greece (all regions with Virginia and Burley) which is Macedonia and Sterea Ellada |
| Greece (all regions with Oriental Tobacco) | Portugal: Beira Interior (Virginia) | Greece (about 50% of Oriental Tobacco) |
| Italy: (all regions with Virginia and Burley) | Spain: Valle de Alagon (Virginia and Burley) | Italy: Apulia (Oriental Tobacco) |
| | Spain: Granada (Burley) | |

Under the hypothesis that a prolongation of the current subsidies payment will be possible from a political point of view, the need for diversification alternatives is reduced to a smaller number of Tobacco farmers. This would ease the diversification enormously. The regions which will not further produce Tobacco may act as model regions for a future Tobacco diversification plans: **Greece:** Macedonia and Sterea Ellada; **Italy:** Apulia; **Portugal:** Beira Litoral and Beira Interior; Valle de **Spain:** Granada and Valle del Alagon. All other regions will remain in Tobacco production by a prolongation of the current subsidies payment system.

## 4.3. Conclusions for the EU Tobacco growing regions

Under the hypothesis that a prolongation of the current subsidies payment will be possible from a political point of view, then the following regions may proceed with Tobacco growing[48]:

Bulgaria: all regions with 37.000 Tobacco farms
France: all regions with 2.482 Tobacco farms
Germany: all regions with 328 Tobacco farms
Greece: regions with Oriental Tobacco with 14.909 Tobacco farms
Hungary: all regions with 1.240 Tobacco farms
Poland: all regions with 14.388 Tobacco farms
Romania: all regions with 205 Tobacco farms
Italy: all regions with 6.758 Tobacco farms
Spain: Extremadura only the subregions of Tietar" and “La Vera” with 1.732 Tobacco farms

This means a prolongation of the current subsidies will keep a total of 79.042 Tobacco farms in the agricultural economy and will maintain in total 245.000 - 290.000 jobs.

The regions where a diversification shall take place as fast as possible are:

**For Greece:** A specific region can not be named as all varieties have been produced all over the country. In 2005 a total number of 47.796 Tobacco farmers produced Tobacco. In 2008 14.909 Tobacco farmers remained in production. This means a total of 32.887 Tobacco farmers stopped the Tobacco production due to the Tobacco reform which is about 2/3 of all Greek Tobacco farmers. The situation of the Greek Tobacco Farmers was evaluated during the DIVTOB Project (21). About 35.422 farmers produced Oriental Tobacco and 12.734 farmers “Flue cured” and “Light Air cured” varieties. From the Tobacco farmers producing Oriental Tobacco about 14.800 farmers remained in production and 20.622 farmers stopped production. Those farmers who stopped producing Oriental Tobacco may have stopped the agriculture production entirely and may not return to agriculture due to very small farms (< 1ha). The Tobacco farmers (12.734) who produced “Flue cured” and “Light Air cured” stopped mostly production. Due to a greater farm size it is more likely that they will maintain in agricultural production. About 5 percent of these Greek Tobacco farmers are only partial time farmers (-618 farmers). It is assumed that those farmers will not take part in any further diversification. It was further estimated from the received data that a substantial number of Tobacco farmers (11%) will retire until 2013 (-1.361 Tobacco farmers) and only 38 percent of those Tobacco farms have a successor (+517 farms). Based on these it was calculated that about 10.912 Tobacco farmers need urgently a diversification alternative, because they will not return to Tobacco production even under improved market conditions. **The final conclusion based on the figures from 2008 (2) is:** From 47.796 Tobacco farms in 2005 only about 15.000 Tobacco farms may remain in Oriental Tobacco production. A total of about 22.000 farms have ceased agriculture production entirely (mini-farms with less the 1 ha or due to retirement) and about 11.000 Tobacco farms are in need for a diversification alternative.

**For Italy:** The only region where no Tobacco is cultivated since 2005 is Apulia. The Italian national project CoAlTa 1 and 2 and DiAlTa 1 and 2 have developed a lot of production alternative which are already applied in Apulia.

[48] Number of Tobacco farmers: Meeting of the Advisory Group October 2008.

**For Portugal:** In Portugal a diversification plan is already under execution for the region of Beira Interior. For Beira Litoral a total of 118 farmers which produce still Tobacco are in need of a diversification alternative.

**For Spain:** In Spain it can be expected that the Virginia Tobacco growers may maintain with Tobacco which have been 1.361 Tobacco farmers in 2007. In the region of Extremadura the Burley Tobacco growers of “Tietar" and “La Vera” will remain also with Tobacco production. The Tobacco producers of “Valle del Alagon” must diversify to alternative crops. They account for a total number of 281 Tobacco farmers in 2007. Also the Tobacco growers of province of Granada must diversify which is a total number of 514 farmers. Therefore in Spain a diversification need for 795 Tobacco farms exist.

**General result:** An urgent diversification need exist for about 11.895 Tobacco farmers in seven European Regions and 79.042 Tobacco farms will remain in Tobacco production under the hypothesis of a prolongation of the current subsidies system.

## 4.4. Conclusions for the Employment in EU Tobacco Growing Regions - The Social Dimension of the Tobacco Reform

**The Employment of non-regular and non-familiar labour force** in Tobacco is in its majority work of immigrants who come from inside and outside the EU to work in agriculture in general. The situation is quite different in the EU Member States:

**France:** The non-family labour force is coming mainly from North African countries or Poland. The workers are shifting from one crop to another which is fruit harvesting, grapes harvesting and tobacco harvesting. This may also happen on the same farm.

**Germany:** The non-familiar labour force is coming mainly from Poland with an exactly defined work permission. After Tobacco harvest is finished they must return in their countries.

**Greece:** The non-familiar labour force is coming mainly from Bulgaria or Albania. Their work is not only restricted to Tobacco.

**Italy:** The non-familiar labour force is composed mainly by immigrants from North Africa which are mostly already established since years in the regions with labour permission.

**Spain:** The situation is the same as in Italy or the workers come with a specific permission from Northern Africa countries for a certain time period and return afterwards in their countries.

**Gender dimension of Tobacco employment:** The family labour force on Tobacco farms are mainly females. The family labour force on Tobacco farms is in the most cases composed by about 50 percent of spouses and the other 50 percent by other family members. At least one third of the “Other Family Members” is female relatives and in most cases elderly ones above 45 years. Without the possibility to work on the family farm they will not have the chance to work anywhere else. This is another social dimension of the Tobacco reform from 2004.

In total EU it is estimated that 245.000 – 290.000 persons are working annually in the Tobacco fields. About 1/3 are full time jobs (81.500) and 2/3 are temporary jobs. About 50.000 jobs are temporary and mostly occupied by immigrants. The remaining temporary jobs (130.000 – 175.000) are occupied by family workers which are in its majority female relatives (50-80%) who can not get easily a job elsewhere. It would be an irony where the employment of females is encouraged by governments and society that a political measure will destroy in its vast majority jobs for female workers in economically disfavoured regions.

## 4.5. Conclusions for the diversification alternatives

Only such diversification alternatives will be feasible which allow a high gross margin for the vast majority of the small family farms producing Tobacco in Europe. This can be achieved by production of high added value crops and by investments in production chains.

The investment in production chains will allow for (ex-) Tobacco cooperatives (which are producer groups) to manipulate and process the agricultural crops of the (ex-) Tobacco farmers.

Alternative crops for Tobacco diversification require:

- High profitability on a small land surface
- Stable market perspective
- No negative impact on the environment
- A high level of employment
- Adaptability to relatively poor regions

It is clear that a diversification for Tobacco may need other alternatives in France, Germany, Hungary and Poland, than in the Mediterranean Member States or Bulgaria and Romania.

For e.g. Bulgaria research on alternatives is underway, but no conclusions were achieved, so far. Therefore it is recommended that the Bulgarian farmers (37.000 farmers with 31.359 hectares) remain in Tobacco production. The same conclusion is valid for Poland (14.388 farmers with 16.841 hectares)).

The most costs effective alternatives for Tobacco diversification in Greece, Italy, Portugal and Spain will be a combination of field vegetable production (either organic or conventional) with Stevia rebaudiana. Generally spoken, these alternatives are horticultural crops. A small farm with horticultural crops needs the employment of about 2,4 AWU per year. The employment in those Tobacco regions may even increase where mainly small farms are located and horticultural crops are produced. Especially the jobs for female workers can be maintained or even increased. In some specific region fruit trees are also applicable (e.g. region of Toumba in Greece) and where animal production is already available also the production of corn or cereals (either organic or conventional).

The size of the farms which are very small (3-5 ha) and the Tobacco cultivated area do usually not exceed 1,0 ha per farm in those regions where the diversification is an urgent need. Therefore it can be estimated that the actual urgent diversification need will be for

about 11.895 Tobacco farmers with about 18.000 hectares where Tobacco have been grown.

These 18.000 hectares are distributed within seven European regions which might serve as a model for further Tobacco diversification. It will be possible to have the reconversion of the above mentioned farms and hectares until 2013 if investments in further studies are done.

A conclusion which can be drawn from the DIVTOB project is that the EU Tobacco farmers do not trust on the EU Commission politics and they felt as been dropped off. It is very difficult to implement any diversification alternative, if the sector is not receptive on the measure. Therefore it is recommended to start with diversification with those Tobacco cooperatives (Producer groups) which are willing to switch from Tobacco to alternative crops. In the same time frame a pan-European territorial network shall be set up to create an interchange between the different countries and actors in the rural development together with the stakeholder. By this an important European added value can be created and in the same time to support the initial ideas and aims of the EU Parliament, the Council and the EU Commission in respect to the phasing-out of the Tobacco subsidies.

## 4.6. Conclusions from the evaluation of tobacco alternatives in European tobacco regions under the CAP decoupling by the multi-criteria analysis

The results have shown many differences in the crop plans and the proposed tobacco alternative crops in the four case studies, two in Greece (Toumba and Elassona regions) and two in Spain (UCONOR and Granada regions). So it is difficult to propose common alternative crops for all the tobacco regions in Greece and Spain. The differences in the suggested tobacco alternative crops are due to:

1) The existing crop plans in each study region
2) The percentage of tobacco cultivation in each study region
3) The rate of tobacco decoupling in each country
4) The suggested alternative crops from the farmers in each region
5) The climatic and soil conditions in each region

We observed that tobacco in all study regions is continuously decreased when we proceed from scenario 1 (that corresponds to the optimum crop plan without tobacco alternatives and without decoupling) to scenario 2 (that corresponds to the optimum plan with alternatives but without decoupling), then to scenario 3 (optimum plan with alternatives and 40% decoupling), then to scenario 4 (optimum plan with alternatives and 50% decoupling) and finally to scenario 5 (optimum plan with alternatives and 100% decoupling).

On the other hand there are many common results as regards economic, social and environmental impact due to the tobacco decoupling. In all study regions the tobacco area in the crop plans becomes zero when tobacco decoupling reaches the 100%. In this process tobacco is substituted by the tobacco alternatives from which Stevia can occupy an important percentage of the crop plan. The proposed tobacco alternatives are: cereals (organic and conventional) and fruit trees for Toumba region in Greece, cereals (organic

and conventional) for Elassona region in Greece, and corn for UCONOR region in Spain and soft wheat for Granada region in Spain.

The economic impact of tobacco decoupling varies in all study regions and it is greater in Greece than in Spain. For what regards Greece, the economic impact of tobacco decoupling is greater in Toumba than in Elasssona. This is reasonable because of the different crop plans and of the different percentage of the tobacco in the crop plan (26.7% in Toumba and 7.6% in Elassona). We can also conclude that the negative economic impacts of the tobacco decoupling would be more important if we did not suggest alternative crops. The negative impact of tobacco decoupling is greater on employment in the study regions. On the contrary, the impact of tobacco decoupling on the environment seems to be positive in all study regions.

In spite of the positive impact of tobacco decoupling on the environment, the loss in farmers' income and mainly the increase of unemployment in the tobacco regions of Greece and Spain will be very important in short and medium terms as it is obvious that these matters will cause significant problems in the local rural economies. A further investigation of tobacco alternatives in all European tobacco regions and the permission of Stevia's cultivation in combination with a possible revision of policy for tobacco will bring a solution.

## 4.7. Proposal for further support for Tobacco Farmers until 2013

Tax revenues on tobacco products have in most EU member states an important share on the total revenues for the central governments. Table 35 shows the percentage share in the EU member states in 2005[49].

**Table 35:** Share of tax revenues in the EU Member States

| EU Member States with Tobacco cultivation in 2005 | | EU Member States without Tobacco cultivation in 2005* | |
|---|---|---|---|
| **Member State** | **Share of total tax revenue** | **Member State** | **Share of total tax revenue** |
| Austria | 3,9% | Czech Republik | 5,0% |
| Belgium | 2,5% | Denmark | 3,2% |
| Cyprus | 3,9% | Estonia | 2,8% |
| France | 3,4% | Finland | 2,6% |
| Germany | 3,2% | Ireland | 3,6% |
| Greece | 6,7% | Latavia | 1,6% |
| Hungary | 2,0% | Lithuania | 2,0% |
| Italy | 3,0% | Malta | 3,1% |
| Poland | 7,3% | Netherlands | 2,1% |
| Portugal** | 3,6% | Slovenia** | 4,5% |
| Slovakia | 5,0% | Sweden | 1,5% |
| Spain | 4,8% | UK | 2,2% |

* For Luxemburg no figures available
** Estimation for 2004

[49] Confederation of European Community Cigarette Manufactures, Estimates 2005.

In 2005 the total tax revenues (49) for all EU Member States together for all types of Tobacco products were 84 Billion €.

Smoking causes substantially increased risk of mortality from lung cancer, upper airway and other cancers, heart disease, stroke, chronic respiratory disease and a range of other medical conditions. There are also health risks from passive smoking, and smoking during pregnancy adversely affects foetal development. According to the World Health Report 2002, tobacco smoking is the leading risk factor for premature death due to cancer and cardiovascular diseases in the EU, causing 12,3 per cent of the total disease burden for men and 5.7 per cent for women[50]. Corresponding figures from the 2002 World Health Report for the European region are 17.1 per cent for men and 6.2 per cent for women[51]. Smoking is a significant cause of inequalities in health. Tobacco is responsible for more than half the difference in adult male mortality between those in the highest and the lowest socio-economic groups[52].

The European Parliament, on November 21, 2002, approved a resolution on the Council recommendation on the prevention of smoking and on initiatives to improve tobacco control which was in support of the policy suggested by President Prodi: “Promote economically viable alternatives for tobacco growers, and promote the gradual replacement of tobacco subsidies with alternatives” (5).

The gradual decrease and elimination of subsidies to tobacco production remain as important objectives in the overall spectrum of tobacco control measures. The European tobacco control report[53] describes the tobacco control situation and the status of tobacco control policies in the WHO European Region as at late 2006; reviews progress following the adoption of the European Strategy for Tobacco Control (ESTC) in 2002; and establishes a baseline for monitoring implementation of the WHO Framework Convention on Tobacco Control (FCTC) in the Region.

It is logic that the health facts about Tobacco smoking make a case for the agricultural Tobacco sector very difficult, if not impossible. A general public support from all tax payers may unbalance the efforts of the European Tobacco Control Policy. However, those European citizens who smoke may pay additional taxes on cigarettes or other Tobacco products in order to maintain Tobacco cultivation at EU level. In the EU-25 the cigarette consumption was in 2005 about 34 Billion boxes per year (49). An additional tax of 0,05 € to 0,1 € on every cigarette box will generate about 1,7 to 3,4 Billion € on Community level.

This additional tax amount shall be paid in a specific fund managed by the EU Commission to finance the following measures:

- To maintain those Tobacco farmers who are associated in a Producer Group and are producing Tobacco with contracts for the harvests 2010, 2011, 2012 and 2013.
- Extended support of information campaigns against smoking including the support of new studies of the impact of smoking for health
- All measures against cigarettes smuggling into EU

[50] National Institute of Public Health: Determinants of the burden of disease in the European Union; Report No.: F-Serien Nr 24, 1997, Stockholm, Sweden.

[51] WHO: World Health Report 2002 Reducing Risks, Promoting Healthy Life; World Health Organization; 2002, Geneva, Switzerland.

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[53] The European Tobacco Control Report 2007; WHO January 2007.

- Studies for diversification alternatives to phase out the Tobacco farmers which can not produce Tobacco under market conditions after 2013
- All further help to Producer Groups and Tobacco farmers diversification programs
- All administrative and management burden arising from the above mentioned measures on European and National level

If such a tax can only be implemented on a National level then it is likely that only those EU member states may apply such a tax where Tobacco is cultivated. Based on the cigarette consumption figures from 2005 a model calculation is provided in table 36 to show how much shall be such an extra-tax in order to support Tobacco cultivation on a national level.

**Table 36:** Calculations of Extra-Tax on national level to support Tobacco cultivation

| Member States | Cigarette Consumption in 2005 | Production Forecast 2008 (tons) | Estimated Subsidies (Mio €) | Extra-Tax Revenues (Mio €) | Additional Tax cent/box |
|---|---|---|---|---|---|
| France | 2.74 Billion boxes | 16.900 | 45,4 | 49,6 | 1 |
| Germany | 4.8 Billion boxes | 9.559 | 25,6 | 25,4 | 0,53 |
| Greece | 1.73 Billion boxes | 23.000 | 86,8 | 86,5 | 5 |
| Italy | 4.64 Billion boxes | 90.200 | 245,7 | 255,2 | 5,5 |
| Portugal | 827 Million boxes | 1.749 | 4,9 | 5,0 | 0,6 |
| Spain | 4.96 Billion Boxes | 32.692 | 93,2 | 94,2 | 1,9 |

Such a model is in application in Switzerland since 1995 to support their 330 Tobacco farmers.[54]

[54] Loi fédérale sur l'imposition du tabac, Délai référendaire: 3 juillet 1995.

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# Annex: List of ad-hoc studies and proposals to support the Tobacco reform

## Proposal 1: Allocation of a budget to the Tobacco Funds

It is proposed to set Article 104 Nr. 1b "Tobacco Funds" of Council Regulation 124/2007 of October in execution and publish a call for projects in 2009 to finance multi annual programmes and specific measures to help Tobacco growers to switch to other crops or other economic activities that create employment.

The Special Report 7/2004 of the Court of Auditors explained how the Tobacco Funds was managed: "The amounts withheld are not allocated to a 'Fund'. In the preparation of the budget, the amount withheld for the financing of the 'Fund' is deducted from the calculated premium appropriations, whereby the final appropriation in the budget is only the net amount. Consequently, future expenditure from the 'unused amounts' must be covered by future revenue i.e. it represents 'a burden of the past'." According to the above mentioned Special Report of the Court of Auditors a total sum of **68.193.857,97 €** left unused.

This sum shall be recovered from the EU budget and allocated to the Tobacco funds. To be effective and serve for the Tobacco reform those projects shall have a priority to help the EU Tobacco growers with an urgent need for diversification.

Under the hypothesis that a prolongation of the current subsidies payment will be possible from a political point of view, the regions with an urgent need for diversification are:

- Greece: all regions
- Italy: Apulia
- Portugal: Beira Interior and Beira Litoral
- Spain: Extremadura: "Valle de Alagon" and "La Vega de Granada"

Those projects shall have priority which guarantees a benefit for the Tobacco farmers according to the rules of "Intellectual Property Rights (IPR)" of FP7 projects under the schemes "Research for benefit for SME or Research for the benefit for SME Associations".

Those projects shall have a priority which includes Tobacco cooperatives (Producer Groups) in order to guarantee the dissemination and application of the results.

The first call shall be launched as an urgent measure already in June 2009 which can be done under the FP7 scheme: "Research for the benefit of specific groups". This scheme shall be titled as "Research for the benefit of Tobacco Producer Groups (Tobacco Funds)".

The calls shall be organized in yearly intervals and as far research projects are concerned so called "Collaborative Projects". The maximum duration of the projects shall be 48 months and a maximum budget of 5 Mio. €.

The contribution of the EU Commission to the projects shall be 100% under the duty that the future economical benefits of those project results are the sole property of the Tobacco Producer Groups.

In the first call also such projects shall be included which are already evaluated on EU or National level and which includes Tobacco Producer Groups as partners. By this, the already evaluated project proposals can switch under the financing envelope of the Tobacco Funds by request of the Tobacco Producer Groups partner via the foreseen Coordinator.

## Proposal 2: Ad-hoc tender by DG-AGRI

A tender call shall be published by DG AGRI as fast as possible in spring 2009 especially for Rural Development aspects of the Tobacco reform. It is urgent to execute a pan-European Seminar involving all Rural Development agencies and groups ("Leader groups") from Tobacco growing regions together with the Tobacco Producer groups. The overall aim of this measure shall be the support of the CAP reform for Tobacco for phasing out the subsidies for Raw Tobacco production. The seminar shall organize an exchange on the status of diversification efforts in Tobacco growing regions and to start to establish a long-term cooperation with the creation of a "Territorial Network" according to EU Directive No. 1082/2006. This "Territorial Network for Tobacco Regions Diversification" shall act as platform like the ETPs for the European Research Area (ERA).

A seminar shall be held in July 2009 and probably a further until March 31, 2010.

Universität of Hohenheim is ready to organize these two seminars and is ready to prepare a proposal for that measure.

The travel costs of all participants shall be reimbursed in order to ease the participation. Tobacco cultivation takes place in about 39 regions at NUTS3 level with about 60 Rural Development groups and about 79 Tobacco cooperatives (Producer groups) exist in the 11 EU Member states (Bulgaria, France, Germany, Greece, Hungary, Italy, Romania, Poland, Portugal, Slovakia and Spain). Interpretation may also be required.

Therefore the costs for one seminar will be quite high and is estimated to about 250.000 €.

**Estimated costs of the two seminars including all travel costs for all participants** from 11 EU Member States: 500.000 €
Proposed Project Execution: October 2009 to March 31, 2010
**Beneficiaries:** All regions with Tobacco farms

## Proposal 3: Evaluation of all projects financed under the Tobacco funds Commission regulation (EC) No. 2182/2002

On the studies on Tobacco alternatives with general interest according to Article 14 are published so far:

- CoAlTa 1 and 2 projects executed in Italy
- IDARC Studies in Portugal.

All other studies according to Article 14 are not published so far.

However, it will be of high interest to evaluate also the projects financed under Article 13 "Individual measures" and to have a better insight in the actual economic situation of such farms which made already a reconversion. The results shall be available for the public.

**Estimated costs:** 400.000 €
**Proposed Project Execution:** October 2009 to March 31, 2010
**Beneficiaries:** All regions with Tobacco farms

## Proposal 4: Network Action on Diversification efforts in European Tobacco growing regions

Based on the results of proposal 2 and 3 a pan-European network shall be financed to develop in a common way development plans for the Tobacco growing regions and to prepare the phasing-out where appropriate. The network coordinator shall organize every year one workshops on European level and one workshop in every country and shall send every 6 months a report to DG AGRI for up-dating. The network shall also organize common proposals for projects. Proposal preparations shall be awarded from the network budget. Every research project funded by the Tobacco Funds shall be participant of that network in order to disseminate all results of interest as fast as possible to all Rural Development agencies and groups and all Tobacco producer groups.

**Estimated costs of the study:** 2 Mio. €.
**Proposed Project Execution:** Summer 2010 to End 2013
**Beneficiaries:** All regions with Tobacco farms

## Proposal 5: Improved information and individual farm economic evaluation tool

A great problem seen during the DIVTOB project was the general impression of the Tobacco farmers that they have not sufficient information on how they can diversify their farms and on what impact will have any change on their farm economy.

It is proposed to finance an on-line information tool on the economic impact of the Tobacco diversification alternatives.

The main objective is to develop and implement an agricultural portal in the World Wide Web in order to help the tobacco farmers and policy makers in Tobacco regions in dissemination of already obtained results of Tobacco diversification.

The portal will include online information for all topics related with tobacco decoupling and mainly for tobacco alternative activities in these regions. The information will be given in text, table and graph format.

The portal will also include an online decision support system (DSS) to study the impacts of different tobacco alternatives on income, employment and environment for the tobacco growers and in their local communities. This online DSS will help the decision makers (farmers, policy makers etc.) in taking alternative scenarios and policies and alternative farm plans that achieve different levels of income, labour and environmental impacts.

The DSS will use the methodology developed in the DIVTOB project. The model base of the DSS will utilise the Multi-criteria Mathematical Programming approach and estimate the farmer's utility function taking in account various conflicting criteria that can explain the farmers' behaviour (e.g. maximisation of farm income, minimisation of fertilizers used, labour etc.). The decision maker will take online results, text, tables and graphs such as the existent crop plan, optimum crop plan; tobacco alternatives crop plans, alternative crops and decoupling scenario analysis.

The portal will support multi language (from all Tobacco producing countries) friendly user interface. The portal shall be up-dated frequently with actual market data, data on labour costs etc. and shall maintained until 2013.

The portal will be developed in an XHTMAL platform using Java programming, MySQL, and suitable software for on line Mathematical Programming etc.

**Estimated costs of the study:** 1,5 Mio. €.

**Proposed Project Execution:** Summer 2009 to maintaining and up-dating the platform until end of 2013

**Beneficiaries:** All regions with Tobacco farms

## Proposal 6: Vegetable and fruit structural market analysis and forward market study

By executing the DIVTOB project it was more and more evident that a structural market analysis together with a forward market study must be executed to get a good overview and clear recommendations for the Tobacco farmers on a feasible fruit and vegetable production either organic or conventionally produced beyond 2015 either organic or conventional produced.

It is proposed to finance a structural market analysis together with a forward market study for a feasible fruit and vegetable production beyond 2015 (organic or conventional produced).

The production of vegetables and fruits especially by ecological production may be one of the most important alternatives for Tobacco farmers in many Tobacco growing regions. However, there are some constraints regarding the vulnerability for some important Tobacco growing regions in respect of vegetable and fruit production beyond 2015. A second important issue is that the Tobacco cooperatives resp. their farmers in different regions and countries shall work together to develop a good production programme which attracts the big supermarket chains in Europe to introduce the Tobacco farmers organisation into their supplier list.

The biggest constraint however, is the real market chance for the Tobacco growers to switch to fruit and vegetable production. For some products e.g. Pomegranate or Cherries appear good chances in domestic and EU export markets. For Cherries however, some regions have a good name and a regional protection, like Extremadura. In other regions no Cherry production is known and established for obvious reasons.

For some regions e.g. Campania and Puglia vegetable production appears to be the best choice as no vulnerability was detected in the relevant studies (40) and the regions are well known vegetable producers. For other regions however, vegetable production seems difficult as no competitive advantage can be discovered, e.g. Granada (Spain).

**Estimated costs of the study:** 1,0 Mio. €.
**Proposed Project Execution:** Summer 2009 to End 2010
**Beneficiaries:** All regions with Tobacco farms

## Proposal 7: Awards for Proposal preparation

To prepare high quality proposals which meet the standards of FP7 projects requires an enormous time input. A sound proposal needs about four to six months for preparation. In order to speed up the Tobacco diversification many good ideas and proposals are necessary. Therefore the Tobacco funds shall foresee financing awards for proposal preparation.

It is proposed to finance awards on proposal preparation to be financed by the Tobacco funds.

The awards shall have a grant of about 25.000 € which shall be paid if a project out-line is accepted by evaluators. The outline shall have about 12 pages and inform about impact, technical work, the partnership and the budget.

Further requirements for the project out-line submitting is that at least three Tobacco Producer Groups from three EU Member States or a pan-European Tobacco Producer network (composed by at least by three Tobacco Producer Groups from three EU Member States) must be partner and the final beneficiaries of the proposed project.

To send the proposal out-lines no deadline shall be set. The proposal out-lines shall have the opportunity to be send continuously to the EU Commission.

**Estimated costs:** 1,0 Mio. €; per year 200.000 €
**Proposed Project Execution:** Summer 2009 to End 2013
**Beneficiaries:** All regions with Tobacco farms

EUROPEAN PARLIAMENT

DIRECTORATE-GENERAL FOR INTERNAL POLICIES

# POLICY DEPARTMENT B
## STRUCTURAL AND COHESION POLICIES

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The Policy Departments are research units that provide specialised advice to committees, inter-parliamentary delegations and other parliamentary bodies.

## Policy Areas

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- Culture and Education
- Fisheries
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- Transport and Tourism

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