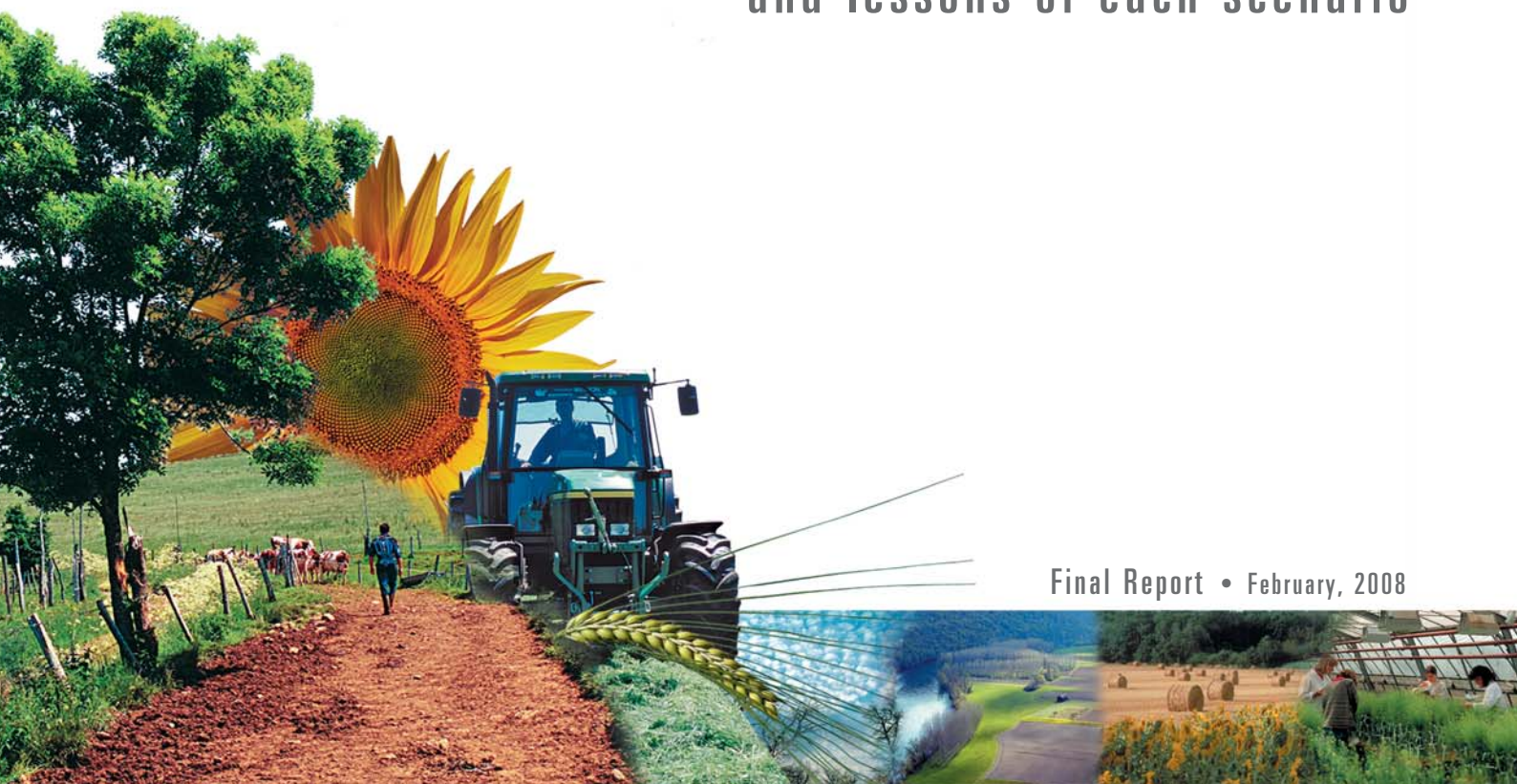




Results of the agriculture 2013 Foresight Study

Principal results
and lessons of each scenario



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FOOD & NUTRITION
AGRICULTURE
ENVIRONMENT



"Agriculture 2013" Foresight Study

Principal results and lessons of each scenario

Hervé Guyomard - INRA (under the direction of) Chantal Le Mouël - INRA (under the direction of) Christine Jez - INRA, Agneta Forslund - INRA and Estelle Fournel - INRA¹

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"Agriculture 2013" Foresight Study

World economic growth, the environment, biofuels, trade negotiations:
European agriculture is subject to numerous and contradictory influences
which constitute the challenges for tomorrow's Common Agriculture Policy

This synthetic report presents the principal results and lessons of the Agriculture 2013 Foresight Study under the terms of the three scenarios studied, which have been given the simple titles of "walk", "trot" and "gallop".

Agriculture 2013 was a joint initiative by the Crédit Agricole, Groupama and INRA. Its prime objective was to analyse the problems and margins for manoeuvre for the Common Agriculture Policy (CAP) in a context marked by major trends and uncertainties. These uncertainties mainly concern particular motors for the evolution of the French and EU agricultural and agrifood industries at a time horizon of 2015, and more specifically: (i) world economic growth, (ii) environmental and energy concerns, (iii) international trade regulations, and (iv) the future of the CAP. In this context, the committee of foresight experts defined several scenarios which took the form of combinations of hypotheses concerning evolutions to the four driving forces identified above. The consequences of these scenarios were then examined on the basis of quantitative simulations performed using models, and qualitative analyses carried out by specialist panels.

Before presenting the important lessons generated by these scenarios, it is first of all necessary to define the basis for comparison used to characterise the consequences of the different scenarios.²

² The results and lessons generated by theme (driving force) are presented in the synthetic document: INRA, Guyomard H. (under the direction of) Le Mouël C. (under the direction of) Jez C., Forslund A., Fournel E., 2007, Agriculture 2013 Foresight Study, Results and important lessons by theme.

I- The basis for comparison

The lessons generated by the Agriculture 2013 scenarios and presented below can be interpreted by comparison with a situation corresponding to projections at the time horizon of 2015, in the contexts of trend world economic growth, and the world, European and French agriculture and agrifood industries. This projection is made by supposing that environmental concerns stabilise at the levels of 2005; that the consumption and production of biofuels remain constant at the levels of 2005 (i.e. in the European Union (EU) with 15 Member States (EU-15), the equivalent of an uptake of biofuels of about 1% in the total of fossil fuels used for road transport); that agricultural policies – notably the CAP – are unchanged and that no new multilateral or bilateral trade agreements are signed.

The projected image in 2015 of the world and EU agricultural and food markets

According to this projection, global food demands at the time horizon of 2015 are sustained. They are particularly dynamic in emerging countries. The world supply of agricultural and food products also increases, but at a slightly lower rate. World prices of agricultural and food products are thus rising. Within the EU-15 (with the exception of domestic sugar prices which fall following Common Market Organisation (CMO) reform on sugar in 2006), the prices of agricultural products have changed little: they have risen slightly for different types of meat, but fallen slightly for other products. The EU-15 is a net exporter of wheat (exports are not subject to refunds) and a net importer of maize (imports are restricted by Border Protection Measures). The EU-15 imports low levels of rapeseed, slightly higher levels of sunflower seed and even higher levels of soybean. Palm oil imports are markedly higher than rapeseed and soybean oil exports, so that overall, the EU-15 is a net importer of vegetable oils. It is also a net importer of high-protein oilcake, and more specifically soybean oilcake. Despite a marked drop in domestic production, the EU-15 remains a net exporter of sugar (exports still benefit from refunds). Milk production remains constant at the level of the quota. European butter prices are still higher than world prices, and the EU-15 has recourse to export subsidies to balance the internal butter market. Although it imports large quantities of beef, the EU-15 is a net exporter of white meats (more pork than poultry meat).

Major evolutionary trends affecting the European and French agricultural and agrifood complex

The projection for world, European Union and French markets, summarised above, forms part of a context of major trends that can be outlined as follows, attention being focused on the trends affecting the EU-15, and particularly France.

Linked to agricultural demography, the number of farms decreases. Concomitantly, the size of production units increases, as does their specialisation. There is an even greater concentration of agricultural production. The demand for land for non-farming uses is strong, which causes an increase in land prices. The model of a family farm which occupies the household on a full-time basis is disappearing: farming households broaden their combinations of activities by working more off the farm (multiple activities mainly involve partners) and introducing supplementary activities on the farm (direct sale, farm tourism, etc.). In parallel, farming companies develop, and the share of salaried employees in overall agricultural employment increases.

Although the number of farms decreases, the demand for services from farmers increases and diversifies. Such services become a commodity, and competition grows between actors in development who broaden the range of services offered in order to win market share.

Agricultural practices become more simplified, notably in terms of crop rotations and tillage. This simplification is a direct consequence of increases in plot and farm sizes and reductions in working time per unit area. These evolutions are little favourable to protecting biodiversity; the tendency towards an erosion of the genetic diversity of species and farmed animals is sustained.

In parallel, pressure from society for agriculture that is more respectful of the environment and natural resources remains strong; in particular, this generates debate on firstly, the use of chemical agents in agriculture, and secondly the management of water resources and irrigation.

Moves towards restructuring of the agrifood industry continue: activities become more concentrated in a smaller number of larger companies. Industrial brands face increasing competition from distributor brands. Health concerns lead to a reinforcement of hygiene regulations and the development of traceability systems. The consumption of fresh products continues to decline, to the benefit of more processed goods.

The growth in trade increases the risks of propagation of infectious diseases. The development of trade in agricultural products, as well as the movement of people, increase health risks in general.

The effects of climate change, although very minor at the time horizon of 2015, induce certain potential trends, including a greater frequency of extreme climatic events, modifications to the distribution of wild species and the appearance of new pests and weeds. In this context, there is an increased risk of lost production as a result of climatic events and/or the development of disease; this leads farmers to modify their practices, notably regarding sowing dates, the length of production cycles, weed management, and the use of irrigation because of more frequent periods of severe drought, etc.

II- "Walk" scenarios

Development of biofuels and maintenance of the Common Agriculture Policy under a regime of slowed world economic growth

II-1 The hypotheses of the "walk" scenarios

Under the influence of an unstable geopolitical environment, world economic growth is markedly slowed, including in emerging countries. Effective demand for agricultural and agrifood products is depressed, and competition is particularly fierce in international markets. In this difficult context, environmental concerns do not progress. Because of the need to diversify and conserve energy supplies, the uptake of first-generation biofuels in the EU-15 reaches 5.75% of fossil fuels used for road transport. The CAP is maintained unchanged (while nonetheless integrating the CMO reform on sugar). There is strong pressure from countries in favour of a greater opening of agricultural markets and fewer agricultural support policies, and strong resistance by the EU and USA to this pressure. It is not possible to discount from this opposition the results of World Trade Organisation (WTO) multilateral negotiations under the Doha Round. Three alternatives are thus considered. The first supposes that the Doha Round concludes with an agreement which conforms with the European proposal of October 2005. This proposal notably included the abolition of export subsidies and a reduction in import tariffs according to a formula using staged tariff bands (to achieve a mean reduction of -39%, the higher the initial tariffs, the greater the reduction), with the possibility of classifying 8% of tariff lines as sensitive products (the reduction in tariffs being halved for goods deemed of a sensitive nature). The second alternative supposes a failure of the Doha Round which is not compensated by the signature of regional trade agreements. By contrast, the third alternative considers that countries seek to compensate for failure of the Doha Round by developing regional trade agreements (in the case of the EU, with Mercosur, Mediterranean rim and African countries).

The central "walk" scenario thus supposes slowed world economic growth and the development of first-generation biofuels. It enables examination of the combined impacts on the French and European agricultural and agrifood complex of a driving force that is in principal unfavourable (the slowing of economic growth) and one which is in principal favourable, at least for arable crops (the development of biofuels). *The variants* enable analysis of the additional effects of a new multilateral WTO agreement (Doha round agreement variant) or regional agreements reached by the EU (regional agreements variant).

II-2 Important lessons

In general

The slowing of world economic growth penalises the French and European agricultural and agrifood industries. In this context, the opening of markets implied by the signature of a new multilateral agreement and/or ambitious bilateral agreements has particularly negative effects on the agricultural and agrifood sectors in France and the EU. The dairy and red meat (beef and lamb) sectors are particularly severely hit, the first because of the abolition of export subsidies, and the second because of competition from imports which intensifies following the reduction of import tariffs. The arable (cereals and oilseeds) and sugar sectors are also penalised by a slowing in economic growth and the opening of European markets. Nevertheless, the positive consequences of the development of biofuels are in this case sufficient to compensate for these negative effects. Under the "walk" scenarios, the future of the French and EU animal product sectors is strongly dependent on the level of European preference which could be maintained. The future of the cereals, oilseed and sugar sectors is closely linked to changes in European policy (and its translation by different Member States) in terms of promoting first-generation biofuels. In an unfavourable economic context, farm incomes as a rule become increasingly dependent on direct aids. The desire to sustain the dynamism and attractiveness of rural areas leads to debate on the implementation of instruments to stabilise agricultural prices and incomes.

Figure 1. Synthetic presentation of “Walk” scenario results

Reading grid: the slowdown in global economic growth has a doubly negative impact on production, prices and income for grains and oilseeds in the European Union, while the development of first generation’s biofuels has a very positive impact for these products. In total, the cumulative impact of a slowdown in global economic growth and the development of biofuels has a doubly positive impact on production, prices and incomes in grain and oleaginous productions.

Panel a.

		Slowed growth	biofuels	SG + biof.
	Production	2-	4+	2+
	Price	2-	4+	2+
	Income	2-	4+	2+
	Production	2-	0	2-
	Price	2-	0	2-
	Income	2-	0	2-

Panel b.

		SG + biof.	WTO	SG + biof. + WTO
	Production	2+	1-	1+
	Price	2+	1-	1+
	Income	2+	1-	1+
	Production	2-	2-	4-
	Price	2-	2-	4-
	Income	2-	2-	4-

In more detail

At a global level

The slowing of world economic growth has a negative impact on world food demand and on international prices for agricultural and agrifood products. This negative impact is more marked in developing and emerging countries where a larger share of household expenditure is spent on food.

The negative impact of a slowing in world economic growth on the demand for agricultural and agrifood goods is more marked with respect to animal products, meat and dairy products when compared with plant products. A potential for growth in the demand for animal products is mainly observed in developing and emerging countries. Indeed, the dietary transition processes ongoing in these countries implies a change to eating habits which is in favour of animal products but to the detriment of cereals (including rice) as household living standards rise: this process is hampered by the downturn in world economic growth.

Cereals and vegetable oils benefit from the development of biofuels in the EU and the USA. The slowing in world economic growth has a negative impact on cereal consumption for human food and animal feed. This negative impact is compensated by the growth in the energy market generated by the development of bioethanol. Overall, world cereal prices remain stable. In the case of vegetable oils, and the oilseeds from which they are obtained, the growth in energy uses is sufficient to compensate for the downturn in food uses: international prices for vegetable oils and oilseeds rise.

At the level of Europe and France

Production

The development of biofuels has a positive impact on EU production (i.e. the volume available) of cereals (wheat) and oilseeds (rapeseed).

Faced with depressed world demand and international prices, EU production and prices of all meats adjust downwards. This reduction is nonetheless limited because the European market remains protected from outside because no new and restrictive WTO and/or regional agreements have been signed.

Products subject to production quotas (milk and sugar) and intervention dairy products (butter and skimmed milk powder) escape from this downward trend affecting production and internal prices for as long as a recourse to export subsidies (refunds) remains possible to balance European markets. In the case of milk and dairy products, the fall in domestic prices for goods that do not benefit from the intervention mechanism (government purchases at guaranteed prices) gives rise to a transfer of the quantities of milk available to the two intervention goods which benefit from direct price support, i.e. butter and skimmed milk powder: European production and exports of these two goods increase as the EU can still use the refund mechanism to dispose of any surplus in other countries. Overall, growth in the butter and powdered milk markets allows the EU to limit any drop in farm gate milk prices. These prices fall nevertheless, but without exceeding the quota level so that European milk production remains stable in this respect. Similarly, despite a reduction in domestic and external demand, EU prices for sugar beet remain stable because they are subsidised; EU sugar production remains unchanged and exports are almost constant (thanks to the application of higher export subsidies because the world sugar price falls).

Unsubsidised margins and farm incomes

The development of first-generation biofuels has a very strong impact on unsubsidised margins for COP producers of cereals and oilseeds. This positive impact largely compensates for the negative effects linked to a slowing of world economic growth. The unsubsidised margins of arable crop producers increase. The two mechanisms also affect the unsubsidised margins of sugar beet producers which, overall, also increase.

In all other agricultural sectors, unsubsidised margins decrease insofar as they do not benefit directly from the development of biofuels but suffer from the slowdown in world economic growth. Overall, the unsubsidised margins of the French and European agricultural sector decrease, as they also do in the agrifood sector.

Labour is less well remunerated, not only in the agricultural and agrifood sectors but also in the industrial and services sectors. Employment in agriculture and the agrifood industry declines (despite the positive effect of biofuel development) but this reduction is relatively limited because there are few other employment opportunities in the rest of the economy.

Additional impacts of a multilateral WTO agreement

A WTO agreement has a globally positive impact on economy of Europe as a whole and of its Member States (rise in Gross Domestic Product – GDP). European and French taxpayers benefit because of a reduction in expenditure on support for agricultural and agrifood markets. By reducing the internal prices of agricultural and agrifood products, the multilateral agreement also benefits domestic consumers, on condition that price reductions are reflected throughout the chain to the final consumer.

A WTO agreement accentuates the negative consequences of a slowing in growth on French and EU agricultural and agrifood production: further shrinkage of domestic production and more pronounced downward adjustments of internal prices.

Products subject to production quotas (milk and sugar) and intervention dairy products (butter and skimmed milk powder) are markedly penalised by the abolition of export subsidies. The EU is no longer able to maintain stable butter and skimmed milk powder prices: internal prices of different dairy products adjust downwards, with that of butter suffering from a drastic reduction of nearly -30%. Farm gate milk prices fall, and dairy quotas are no longer restrictive: European milk production decreases. The EU still exports cheese and whole milk powder; it no longer exports any skimmed milk powder and practically no butter. The trends are identical in the sugar beet and sugar sector: marked reductions in production and internal prices; the EU no longer exports any sugar.

Red meats – notably beef – are severely penalised by competition from imports, generating a fall in production and in internal prices.

Cereals – and more specifically soft wheat – are indirectly penalised by the reduction in import tariffs on European imports of ethanol. Their increased competitiveness now allows them to strongly penetrate the domestic bioethanol market; this contributes to weakening the demand for European wheat to manufacture bioethanol: the volumes and internal prices of wheat fall. The classification of bioethanol on the list of sensitive products would make it possible to limit this contrary effect of the WTO agreement on EU wheat production and prices.

Sugar, butter, beef and lamb are particularly severely penalised by the WTO agreement, despite these products being classified on the list of sensitive products which limits the reduction in import tariffs applicable to them.

The WTO agreement markedly aggravates the negative effects of the slowing in world economic growth on unsubsidised margins, incomes and employment in the French and European agricultural and agrifood sectors. Dairy and beef farmers, and those producing other animal products, see a reduction of more than 10% in their unsubsidised margins. In the cereal and oilseed sector, the negative effects due to the slowdown in growth and the WTO agreement are cancelled out by the positive impact generated by the development of biofuels: unsubsidised margins remain stable.

In a context of slowed world economic growth, the future of many French and European agricultural and agrifood sectors is closely dependent on border measures, i.e. the maintenance of tariff protection and export subsidies. For this reason, the bargaining position of the EU at the WTO is weakened.

Although the objective of the EU is to maintain a certain level of agricultural and agrifood production, and/or a certain level of employment in agriculture and the agrifood industries and/or a certain number of farms spread throughout its territory, it is essential for it to work on implementing effective policies to stabilise prices and farm incomes.

Impact of regional agreements

The conclusion of ambitious regional agreements with Mercosur, Mediterranean rim and African nations could prove to be even more detrimental to agriculture and the agrifood industry in France and the EU than a multilateral agreement under the WTO based on the European proposal of October 2005. The regional agreements considered in the context of this foresight study indeed imply cuts to the levels of agricultural and agrifood production in the EU which, although they only apply to certain sectors, are significantly greater than those which would result from a WTO agreement according to the European proposal of October 2005.

Production structures and agricultural practices

Stagnation of the purchasing power of European households does not favour the demand for high quality, regionally-attached products. Agricultural producers develop other strategies to sustain their incomes: increase in productivity for those who are positioned in mass markets (*agri-managers*), diversification of activities for those whose priority is to target local markets for agricultural goods, services in rural areas and employment (*rural entrepreneurs*). The "walk" scenarios favour the trend towards a separation of powers in French and European agriculture; development policies experience a growing dichotomy between those who welcome advice on market trends on the one hand, and

support for agricultural sectors and farmers who adhere to the development policies and strategies promulgated by regional government authorities, on the other hand.

The unfavourable price situation encourages farmers to restrict their consumption of inputs. Pressure on the environment and natural resources lifts slightly, which allows a gradual reduction in the pollution of surface water due to excessive consumption of fertilisers and crop protection products. However, in intensively farmed areas, biodiversity and landscapes suffer from increased agricultural specialisation and the simplification of rotation systems. The reduction in the number of farms in less favoured areas dominated by grazing-based breeding is harmful to spatial development and the maintenance of biodiversity.

III- "Trot" scenarios

Deepening of Common Agriculture Policy reform in a regime of trend world economic growth and the development of biofuels

III-1 The hypotheses of the "trot" scenarios

World economic growth evolves in line with the trends of recent years; it is thus weaker in the EU-15 than in other parts of the world and notably in Asiatic countries (with the exception of Japan). Growing environmental concerns demand agricultural practices that are more respectful of natural resources and are imposed by more stringent regulations. Energy concerns lead to the development of first-generation biofuels which, in 2015 in the EU, account for 5.75% of the fossil fuels used for road transport. The CAP review process leads to its in-depth reform. All direct aid supporting farm incomes is decoupled: it is thus paid independently of product choices and quality, with no constraints other than the maintenance of agricultural land in good agricultural and environmental condition (cross-compliance mechanism). Aids are granted in the form of fixed payments per hectare in the context of budgets defined at a regional scale (allocation of income support according to the regionalised model). These so-called first pillar direct aids are reduced by -35%; furthermore, 20% of aids are reallocated to so-called second pillar measures, i.e. to fund rural development (agri-environmental measures) and the adoption of environmentally friendly production techniques and/or specific support for less favoured areas (modulation mechanism). Sugar and milk quotas are abolished, as is the compulsory set-aside of land used for arable crops, cereals and oilseeds. Under one variant, acknowledgement of the regional role of cattle and sheep breeders nevertheless leads to maintaining milk quotas and some livestock premiums granted on a headage basis. Multilateral negotiations under the Doha round conclude with either no agreement or with a moderate agreement in line with the European proposal of October 2005: these two options make it possible to examine the sensitivity of the consequences of further CAP reform at the conclusion (agreement versus no new agreement) of Doha round negotiations.

The central "trot" scenario thus supposes trend world economic growth, the development of first-generation biofuels, in-depth reform of the CAP and no multilateral agreement in the context of Doha round negotiations. The *variants* suppose – with respect to the "CAP change" driving force – the maintenance of milk quotas and per capita livestock premiums (regulation of herbivorous production variant) and – with respect to the "issue of Doha round negotiations" variant – the signature of a multilateral agreement (Doha round agreement variant). These two variants can be implemented separately or simultaneously.

III-2 Important lessons





In general

Because of biofuel development, the "trot" scenarios have a positive impact on the volumes and prices of cereals and oilseeds produced in the EU. This double positive effect is nonetheless insufficient to compensate for the negative consequences on the income of cereal and oilseed producers of modifications to the levels and rules for granting direct aids (regionalisation, non-compensated reduction of -35%, and modulation at 20% with the reallocation of the result of this operation to agri-environmental measures and/or support for less favoured areas). Livestock producers are little affected by biofuel development alone (in terms of feed costs, compensation for the rise in cereal costs by a drop in the prices of oilseed cake and other by-products). CAP reforms have a negative effect on the production of red meat in Europe, this effect being enhanced in the event of a simultaneous WTO agreement because of the increase in imports permitted by the reduction in import tariffs. The "trot" scenarios also have a negative impact on farm gate milk prices and consequently on the unsubsidised margins of dairy farmers. Maintaining the regulatory tools governing European markets for red meat and dairy products only makes it possible to attenuate these contrary effects, the efficiency of these tools becoming weaker as European markets become more open.





Figure 2. Synthetic presentation of "Trot" scenario results

Reading grid: cf. figure 1 ; the margin associated with each products does not include direct payments that are integrated in the income indicator. For animal productions, intensive farms are distinguished from extended farms that are more based on grass feedingstuffs.

Panel a.

		Biofuels	CAP	biof. + CAP
	Production	4+	0	4+
	Prices	4+	0	4+
	Margin	4+	0	4+
	Income	4+	6-	2-
	Production	3+	2-	1+
	Price	3+	2-	1+
	Margin	3+	2-	1+
	Income	3+	7-	4-
	Production	0	0	0
	Price	0	2-	2-
	Margin	0	2-	2-
	int. income	0	7-	7-
	ext. income	0	4-	4-
	Production	0	1-	1-
	Price	0	1+	1+
	Margin	0	0	0
	int. income	0	5-	5-
	ext. income	0	2-	2-

Panel b.

		biof. + CAP	WTO	biof. + CAP + WTO
	Production	4+	1-	3+
	Prices	4+	1-	3+
	Margin	4+	1-	3+
	Income	2-	1-	3-
	Production	1+	1-	0
	Price	1+	1-	0
	Margin	1+	1-	0
	Income	4-	1-	5-
	Production	0	2-	2-
	Price	2-	2-	4-
	Margin	2-	2-	4-
	int. income	7-	2-	9-
	ext. income	4-	2-	6-
	Production	1-	2-	3-
	Price	1+	2-	1-
	Margin	0	2-	2-
	int. income	5-	2-	7-
	ext. income	2-	2-	4-

In more detail

Production

Although a deepening of the CAP reform process has very few effects on European cereal and oilseed production, the development of biofuels has a highly positive impact on these crops (principally wheat and rapeseed).

European demand for bioethanol also exerts a positive impact on the domestic production of sugar beet, but this positive effect is cancelled out by the deregulation of EU sugar policies. Although domestic prices for cereals and oilseeds rise, those of sugar beet fall.

European production of monogastric animals is very little affected. This is not the case for the production of beef cattle, sheep and goats, which diminishes but to a relatively moderate extent because the domestic market remains protected by the absence of any new WTO agreement. The elimination of tools to regulate the European market for milk and dairy products has a very negative effect on farm gate milk prices because of the drop in internal butter prices required to align them with world levels (it is no longer possible to use intervention or refunds to equilibrate the European butter market). Despite this drop in milk prices, dairy production remains unchanged.

Unsubsidised margins and farm incomes

The development of first-generation biofuels has a highly positive impact on the unsubsidised margins of cereal and oilseed producers. By contrast, the regionalisation of decoupled direct aid under the first pillar, its non-compensated reduction of -35% and modulation at 20%, exert negative effects on the incomes (all subsidies included) of these producers. Overall, the negative effects outweigh the positive effect: more specifically, biofuel development neutralises the negative impact on the farm incomes of cereal and oilseed producers of a non-compensated -35% drop in first pillar direct aids; it does not neutralise such a drop if this is accompanied by a redistribution of first pillar direct aids to regionalisation and/or modulation. Naturally, this middle analysis masks major disparities in the ability of farms to resist, which in particular is dependent on their economic size. Furthermore, in this case, the capacity for resistance is measured relative to very modest levels of reduction: for example, a pre-tax profit (PTP) of less than €22,000 on average during the years 2001 to 2005 for professional French arable farms.

The drop in farm gate milk prices causes a marked reduction in the income of dairy farmers, who also suffer from less financial support and from modulation. Nevertheless, the product of modulation reallocated to agri-environmental and rural development measures and/or compensation for natural handicaps, profit grazing-based dairy systems to the detriment of livestock farms using large quantities of maize silage.

The unsubsidised margins of other livestock farmers (beef cattle, sheep, goats, pigs and poultry) are generally little affected; any negative impact on income from other animal products mainly results from the non-compensated -35% drop in first pillar direct aids.

Production structures and agricultural practices

Biofuel development has a positive impact on agricultural employment in the EU. This positive effect is nonetheless insufficient to reverse the downward trend in the number of farms, and the concomitant increase in their size.

The diversification of farm household activities develops. It accelerates on herbivore livestock farms, where in particular it takes the form of increasing diversification towards the direct sale of products, farm tourism, etc. New opportunities appear to satisfy demands from consumers and citizens oriented towards products with a strong regional image and produced using methods which are very respectful of natural resources and the environment.

Increasing environmental concerns oblige farmers to adopt cultivation practices that are more economical in terms of chemical inputs, the development of integrated protection and production methods, the prolongation of rotations, greater extensification of husbandry techniques, etc. In this context, farmers call increasingly on independent and certified organisations for information, advice and environmental services.

Additional impacts of a WTO agreement

The impact of a WTO agreement (European proposal of October 2005) is positive throughout the economy of Europe and its different Member States, to the detriment of their agricultural and agrifood sectors. In particular, the multilateral agreement worsens the negative consequences of CAP reforms on the EU production of different meats, and most particularly of red meats (despite them being classified as sensitive products). The impact on wheat production and prices in the EU is also

negative, because of a major rise in EU imports of bioethanol which have become competitive thanks to the reduced import tariffs affecting this product.

Maintenance of tools regulating herbivore production markets

The maintenance of regulatory tools governing the European markets for red meat, milk and dairy products makes it possible to limit contrary trends in the herbivore rearing sector. The efficiency of these tools (measured in terms of the volumes produced, prices received and unsubsidised margins) is markedly better under the central scenario without a WTO agreement, thanks to the lower penetration of imports. More generally, the question is raised concerning specific tools applied to herbivore production and more particularly grazing-based systems, in view of their environmental – and particularly regional – importance.

Agriculture and the environment

The simultaneous increase in energy and environmental concerns engenders a potential contradiction relative to the problem of the sustainable development of first-generation biofuels. Energy concerns could lead to ambitious development of the uses of biofuels, with a growth in the land used for cereals and oilseeds to the detriment of protein crops and grassland, the cultivation of marginal land, the simplification of rotations, the shortening of rotations and the intensification of practices, etc. These trends run contrary to enhanced environmental objectives in terms of preserving soil and water quality and maintaining biodiversity, etc. They would be in contradiction (at least potentially) with more stringent environmental regulations which, in response to increased environmental concerns, would try precisely to restrict the contrary effects of farming activities on natural environments and resources.

Set-aside land provides a favourable refuge for the preservation of biodiversity in major arable farming regions. Its abolition (or use for energy purposes) must be accompanied by compensatory measures aimed at limiting the pressure on the environment induced by cultivating set-aside land: use of integrated production techniques, implementation of grass and wildflower strips, etc.

Too great a reduction in grazing-based herbivore rearing in mountain regions, and more generally in less favoured areas, will have negative consequences on the preservation of biodiversity, the quality of landscapes and an increase in the risk of fires, etc. The environmental and territorial attributes of grazing-based livestock production must be exploited to enhance the value of this type of husbandry and its products in niche markets so as to sustain production; this will only be possible if the infrastructures for first-stage processing are maintained in these areas with a low production density.

CAP reform and the WTO agreement have few effects on European pig and poultry production; in practice, these are mainly penalised by more stringent environmental regulations, notably regarding animal emissions. In addition, under a regime of the highly ambitious development of biofuels in the EU and elsewhere in the world, these two types of production may also be penalised by the rise induced in cereal prices which will not be sufficiently compensated by the drop in prices of protein oilcake and other by-products of the processing of plant raw materials into biofuels: the cost of animal feed increases, penalising all types of animal production, and particularly that of monogastric animals.

IV- "Gallop" scenarios

Liberalisation of European Union domestic and trade policies under a regime of accelerated world economic growth and the development of biofuels

IV-1 The hypotheses of the "gallop" scenarios

World economic growth is accelerated, testimony to the dynamism of emerging countries spreading throughout the planet, including in the EU-15. International demand for agricultural and agrifood products is sustained, borne by an increase in food uses and then by the development of non-food uses. There is strong pressure on the prices of agricultural raw materials. Environmental concerns, particularly with respect to global warming, remain; they are nevertheless relatively secondary to food supply objectives. In this context of tension affecting the prices of all raw materials, efforts to secure energy supplies lead to a 5.75% uptake of first-generation biofuels in the EU-15 in the fuels used for road transport. Revision of the CAP leads to its in-depth reform, with the abolition (central scenario) or maintenance (regulation of herbivore production variant) of regulatory instruments affecting the markets for herbivore products. Doha Round multilateral negotiations are concluded by a moderate agreement in line with the European proposal of October 2005.

The results of the "gallop" scenarios mainly make it possible to appreciate the extent to which accelerated world economic growth and unchanged environmental regulations may, or not, compensate for the globally negative impacts on French and European agriculture of a CAP reform accompanied by a WTO agreement. The response varies, depending on the production sector concerned.

The central "gallop" scenario thus supposes accelerated world economic growth, the development of first-generation biofuels, in-depth reform of the CAP and the signature of a multilateral agreement in the context of Doha Round negotiations. The *variant* supposes the maintenance of milk quotas and per capita livestock premiums (regulation of herbivorous production variant).





IV-2 Important lessons

In general

The strengthening of world economic growth is favourable to the French and European economies as a whole, including their agricultural and agrifood sectors. As for arable farmers producing cereals and oilseeds, this boost enhances the very positive effects linked to the development of biofuels, while the market effects (i.e. on the volumes supplied and prices obtained) of the CAP reform and the WTO agreement are certainly negative, but only slightly; in terms of income, the dual positive impact of growth and biofuel development compensates for the negative impact of more open markets, the non-compensated reduction in first pillar direct aids and modifications to the granting of budgetary support via regionalisation and modulation mechanisms. Breeders of monogastric livestock, little affected by CAP reform, suffer slightly more from the opening of markets, but also profit from the satisfactory economic climate. The situation is more critical for cattle and sheep producers who are doubly penalised by CAP reform and the WTO agreement: as a general rule, the positive consequences of increased economic growth do not suffice to compensate for the negative effects on the farm incomes of ruminant livestock breeders of CAP reform and the WTO agreement. Even under a regime of increased world economic growth, the question is raised regarding a differentiation between annual plant crops and animal production under any CAP reform scenario, and particularly the issue of support for grazing-based herbivorous farmers because of their environmental and territorial effects.

Figure 3. Synthetic presentation of "Gallop" scenario results

Reading grid: cf. figure 1.

		biof. + CAP + WTO	accelerated growth	biof. + CAP + WTO + accelerated growth
	Production	3+	2+	5+
	Prices	3+	2+	5+
	Margin	3+	2+	5+
	Income	3-	2+	5+
	Production	0	2+	2+
	Price	0	2+	2+
	Margin	0	2+	2+
	Income	5-	2+	3-
	Production	2-	2+	0
	Price	4-	2+	2-
	Margin	4-	2+	2-
	int. income	9-	2+	7-
	ext. income	6-	2+	4-
	Production	3-	2+	1-
	Price	1-	2+	1+
	Margin	2-	2+	0
	int. income	7-	2+	5-
	ext. income	4-	2+	2-

In more detail

At a global level

The acceleration in world economic growth has a positive impact on world demand for food, and on international prices for agricultural and agrifood products. This impact is more marked in developing and emerging countries, and is also more important for animal products when compared to plant products.

The strengthening of world economic growth and the development of first-generation biofuels combine to generate a very high global demand for cereals and vegetable oils; their international prices thus experience a very substantial rise.

At the level of Europe and France

The "gallop" scenarios include three driving forces that are identical to those in the "trot" scenarios (more specifically, the "trot" scenario variants including a WTO agreement), i.e. (i) the development of biofuels, (ii) in-depth reform of the CAP, and thus (iii) a WTO agreement. These three driving forces have analogous effects under the "trot" and "gallop" scenarios; as a result, we only detail below the additional effects linked to the strengthening of world economic growth.

Production

The acceleration of world economic growth constitutes a boost for the French and European agriculture and agrifood industries as a whole; it has a specific positive effect on the production and domestic prices of all agricultural and agrifood products.

Cereal and oilseed crops benefit considerably from this boost, added to the positive effect generated by the development of first-generation biofuels; the production and internal prices of cereals and oilseeds increase in a very substantial fashion.

Some areas of European agricultural production fare less well: internal production and prices fall, despite the favourable economic climate. This is the case for sugar and beef: these two sectors are

indeed severely penalised by CAP reform and the WTO agreement which exert a negative effect on supply and prices; this dual negative impact is not sufficiently compensated by the positive impact generated by the strengthening of world economic growth.

Milk is an intermediate case: internal prices fall, but the volumes available increase (slightly). The fall in European farm gate milk prices is caused by the reduction in internal butter prices made necessary to ensure their alignment with world prices, because it is no longer possible to have recourse to public purchasing/subsidies to ensure equilibrium of the European butter market; this drop in internal butter prices causes a reduction in the local production of butter which in turn affects the internal production of skimmed milk powder. Because milk production has slightly risen, the volumes of whole milk powder and cheese increase.

Unsubsidised margins and farm incomes

The unsubsidised margins of cereal and oilseed arable farmers increase while those of milk and red meat producers remain oriented downwards, despite the healthy economic climate.

When compared with the "trot" scenarios, the strengthening of world economic growth nevertheless has a positive effect on the unsubsidised margins of all types of production. However, the gains in unsubsidised margins generated by growth vary considerably between different producers: approximately +14% for cereal and oilseed arable farmers; around +7% for dairy and beef producers but only +2.5% for pig, poultry, sheep and goat farmers.

In the case of cereal and oilseed arable crops, the positive impacts now overwhelm the negative effects: in other words, the positive impacts on arable farm incomes linked to the acceleration in economic growth and the development of biofuels ensures compensation not only for the -35% drop in first pillar direct aids but also their modulation at 20% and the redistribution of the results of this operation to rural development and agri-environmental measures and/or compensation for natural handicaps, measures that as a general rule are little favourable to arable farmers.

Maintenance of tools regulating herbivore production markets

The maintenance of tools regulating European markets for red meats, milk and dairy products makes it possible to limit the contrary trends described above concerning herbivorous livestock sectors. Nevertheless, the efficiency of these mechanisms (measured in terms of the volumes produced, prices obtained and unsubsidised margins) is limited. This decrease is generated first of all by reductions in import tariffs and increases in imports, which penalise beef and lamb; maintenance of per capita livestock premiums cannot restrict these imports of red meats which continue to drag down internal prices for these products, to the benefit of consumers but to the detriment of livestock farmers. In the case of milk, the maintenance of quotas prevents domestic producers from fully participating in the growth of internal and international markets for dairy products.

Agriculture and the environment

In a context of tensions affecting the prices of agricultural and agrifood products, it is extremely tempting to exploit land to a maximum and increase production per unit area: pressure on the environment and on natural resources tends to increase.

V- In conclusion: the principal transversal lessons generated

Because of major uncertainties concerning the rate of world economic growth, the development of biofuels, the outcome of trade negotiations under the Doha round and the future of direct aids under the CAP (both in terms of levels and how they are granted), there seems to be a clear need for European policies to manage the risks pertaining to production and prices; such policies are justified in a context of non-fulfilment of private risk management markets alone, in view of the covariance of numerous risks in agriculture.

The effects of the four driving forces can thus be summarised as follows: positive impact of world economic growth on European agriculture; positive impact of biofuel development on the cereal and oilseed sectors; negative impact of a reform of CAP market instruments on animal production (notably of red meats and milk) and also a negative impact of an agreement under the Doha Round (involving a reduction in import tariffs and the abolition of subsidies) on European agriculture, and notably on animal production.

European cereal and oilseed production is strongly dependent (in terms of volumes supplied, prices obtained and unsubsidised margins) on the development of first-generation biofuels and hence on European policies in this area (and on their effective translation into the national policies of different Member States); by contrast, the impacts of CAP reform and the outcome of Doha Round negotiations are relatively weak. In this context, there is potential for tension between ambitious targets and stringent regulations concerning the environment, because of more intensive practices, a loss of biodiversity (through the cultivation of a maximum number of hectares) and pressure on water resources, etc.

European herbivorous animal production (in terms of volumes supplied, prices obtained and unsubsidised margins) is strongly dependent on the future of the CAP (market instruments) and even more on the outcome of Doha round negotiations.

Farm incomes from most products (except for viticulture, fruits and vegetables and pig and poultry production) are strongly dependent on the future of direct CAP subsidies, and notably first pillar direct aids.

Therefore, the future of the CAP and of multilateral and bilateral trade negotiations cannot be reasoned by considering European and French agriculture as a single entity: as a minimum, a distinction must be made between arable crops, other plant products, herbivore production and other types of animal production.

In this context, and although a major challenge of the Doha Round negotiations on agriculture is clearly tariff protection at import (and more precisely, changes to this protection), the importance of subsidies should not be underestimated insofar as they are essential to equilibrating the European market for certain products (sugar, butter and, more generally, milk and dairy products).

The first sector penalised by in-depth reform of the CAP and a multilateral agreement in the context of the Doha Round is herbivore livestock farming (dairy cattle, beef cattle, sheep and goats); all breeders of ruminants will be penalised, with a risk of too drastic a reduction in the volumes supplied and the number of farms in less favoured areas where husbandry systems are mainly grazing-based and few alternatives are available, and, in parallel, a trend towards a concentration of production in fewer and larger farms that are more intensive in terms of labour by unit area, the number of animals per hectare, the importance of maize silage in rotations and feed rations, etc. In view of the environmental and territorial importance of primarily grazing-based herbivore farms, public intervention is legitimate for these reasons; in this context, a modification to the conditions of granting first and second pillar aids

could be implemented, on condition that this is performed in the right order; i.e. starting by defining environmental and regional objectives and then the instruments that need to be implemented in order to achieve these targets at the lowest cost.

In view of the importance of aids to income regarding numerous products, including cereals and oilseeds, any reform of how such aids are granted so as to better meet targets regarding stability, the environment, regional development and land use, cannot be implemented in a too abrupt fashion: such reforms must be introduced gradually, the main aim being to define the new rules of the game (targets and instruments) as from now, so that those who are farming at present, and even more those who may become farmers in the future, can be offered a regulatory and incentive framework for tomorrow and thereafter.



FRENCH NATIONAL INSTITUTE FOR AGRICULTURAL RESEARCH

147 rue de l'Université • 75338 Paris Cedex 07

Tél : + 33(0)1 42 75 90 00 • Fax : + 33(0)1 47 05 99 66

www.inra.fr