

Economic impacts of the CAP reform on dairy farms in Austria

Ökonomische Auswirkungen der GAP-Reform auf Milchkuhbetriebe
in Österreich

Leopold KIRNER

Zusammenfassung

Am 26. Juni 2003 beschlossen die EU-Landwirtschaftsminister die Reform der Gemeinsamen Agrarpolitik (GAP). Der vorliegende Beitrag versucht die ökonomischen Auswirkungen dieser Reform auf österreichische Milchkuhbetriebe abzuschätzen. Anhand von fünf Modellbetrieben wird mittels linearer Planungsrechnung der Gesamtdeckungsbeitrag für verschiedene Politikscenarien ermittelt und gegenübergestellt. Ohne spezielle Anpassungsmaßnahmen ergibt sich in allen Betriebstypen ein etwas geringerer Gesamtdeckungsbeitrag nach Umsetzung der GAP-Reform, auch die Wirtschaftlichkeit der Produktionsausweitung sinkt. Der größte Teil der Einbußen kann durch verschiedene Maßnahmen der Betriebsführung wettgemacht werden, wenn sich Bauern und Bäuerinnen rasch an die geänderten Rahmenbedingungen anpassen.

Schlagnworte: GAP-Reform, Milchkuhbetriebe, Gesamtdeckungsbeitrag, Modellrechnungen.

Summary

On June 26th, 2003 EU farm ministers adopted a fundamental reform of the Common Agricultural Policy (CAP). The study presented deduced the economic impacts of the new farm policy on dairy farms in Austria. Five model farms were calculated by using the linear programming method to compare the total gross margin between the policy scenarios. Without major adaptations, the model came up with slightly reduced gross margins for all five farms after CAP reform. Also farm growth becomes less economical. Most of the losses of income due to CAP re-

form could be compensated, if farmers adjust to new conditions quickly.

Keywords: CAP reform, dairy farms, total gross margin, model calculations.

1. Introduction

On 26th June, 2003 EU farm ministers adopted a fundamental reform of the Common Agricultural Policy (CAP). The key elements of the CAP Reform were the introduction of a single payment scheme for EU farmers (decoupling), a reduction of direct payments (modulation) and a corresponding increase in the budget for rural development policies, and the linkage of payments to compliance with environmental, food safety and animal welfare standards (cross-compliance). Additionally, traditional price support policy will play a less prominent role. For the dairy sector, the institutional prices for butter and skimmed milk powder will decrease significantly, whereas direct income payments for dairy farms will be introduced.

Many studies analysed the possible effects of different policy measures in the frame of the CAP reform to the agricultural sector (e.g. BINFELD et al. 2003; EUROPEAN COMMISSION 2003; KLEINHANSS et al. 2003; KREINS et al. 2003; SINABELL and SCHMID 2003). The present study focusses on farm enterprises and analyses the possible impacts of the new farm policy on dairy farms in Austria. Furthermore, it examines the suitability of different szenarios of farm adjustment under the new conditions.

2. Overview on CAP Reform 2003

This chapter presents the most important regulations of the dairy sector. Detailed information about the CAP reform can be downloaded from: http://europa.eu.int/comm/agriculture/mtr/index_en.htm

2.1 Dairy reform

The Council has decided to prolong the dairy quota system until 2014/15. Decoupling in the sector has also been postponed until reforms are complete in 2008. Intervention price for butter will be cut by 7 % per year in 2004, 2005 and 2006, and by only 4 % in 2007. This overall price cut of 25 % goes ten percentage points further than the

Agenda 2000 reform. The ceiling on butter intervention will also decrease. The intervention price for skimmed milk powder will decrease by 5 % a year in three consecutive years from 2004 to 2006 which means the same price drop as due to Agenda 2000. For the price cut, farmers will get a compensation payment (so called milk premia). The compensation per ton is fixed by 11.81 € in 2004, 23,65 € in 2005 and 35,50 € from 2006 onwards. The additional quota increase will be 1,5 % on a national level, the same as set in Berlin 1999. Table 1 informs about the most important measures of the dairy reform.

Table 1: Measures of the dairy reform from 2004 to 2013

	before reform	2004	2005	2006	2007	2008	2009-2013
Milk premia (€/t)		11,81	23,65	35,50	35,50	35,50	35,50
Additional quota increase (%)				+0,5	+0,5	+0,5	
Interventionprice for butter (€/t)	328,2	-7 %	-7 %	-7 %	-4 %		
Interventionprice for SMP (€/t)	205,5	-5 %	-5 %	-5 %			

SMP : skimmed milk powder

2.1 Horizontal regulations

The bulk of direct payments for area and animals will be *decoupled* from production. However, a certain amount of payments in the livestock sector will be still linked to production. Member states can elect to maintain either:

- 100 % of the suckler cow premium and 40 % of the slaughter premium at current levels, or
- 100 % of the slaughter premium, or
- 75 % of the current special male premium paid on bulls.

Meanwhile, the Austrian suckler cow premium has been increased by 50.000 animals. The diversion of direct payments to boost rural development budget (Pillar II) will start with 2005 (*modulation*). From 2007 onwards, the transfer will see 5 % of direct payments being diverted to Pillar II. Subsidies below the level of 5.000 € will be not cut down. About 80 % of the modulated savings will be used within member states. In order to receive the full entitlement of the single farm pay-

ment, farmers will have to comply with a list of 18 items of environmental and animal welfare prescription (*cross-compliance*). EU money available for *rural development* will be significantly increased and the scope of EU rural development support will be widened by introducing new measures. These changes will come into force in 2005.

3. Method

3.1 Calculation

Linear programming method will be used to estimate the economic impacts of the CAP reform on dairy farms in Austria. The focus lies on the comparison of the situation before reform and that after implementation of all measures of the CAP reform. In addition, an Agenda 2000 scenario will be calculated to compare the reform impacts of 1999 and 2003. The model calculates revenues, variable costs and special fix costs for farm development measures. The *total gross margin* will be used in the economic comparison between the different policies. The *marginal gross margin* will be used for measure the economic viability of farm growth before and after CAP reform.

3.2 Farm types

The economic impacts of the CAP reform are depending on the farm type. The farm types used in the model calculation should comprise the most important farm sizes and production systems in Austria. Five farm types were selected for this investigation:

- D-8: Dairy farm with 8 cows,
- D-18+B: Dairy farm with 18 cows and bull fattening,
- D-21: Dairy farm with 21 cows,
- D-25-eco: Dairy farm with 25 cows and ecological production,
- D-35: Dairy farm with 35 cows.

These dairy farms participate in different measures of the Austrian environmental Programme (ÖPUL): renunciation of the use of yield-increasing inputs on grassland (D-8), reduction of the use of yield-increasing inputs on grassland and arable land (D-18+B), organic farming (D-25-eco) and other measures like basis subsidy or greening of arable areas in autumn and winter (D-21 and D-35). The dairy farms

with 8, 21 and 25 cows are mountain farms with 180, 50 and 125 MFC¹ points. Table 2 gives an overview on selected data of these farms.

Table 2: Characteristics of the selected farm types

Characteristics	D-8	D-18 +B	D-21	D-25- eco	D-35
Arable land (ha)	-	10,0	8,0	-	10,0
Grassland (ha)	12,0	10,0	13,0	30,0	25,0
Milk cows (head)	8	18	21	25	35
Milk quota per farm (t)	35,0	80,0	136,0	136,0	248,0
Milk supply per farm (t)	35,9	86,3	141,0	136,8	250,0
Milk yield per cow (t)	5,0	5,5	6,8	6,0	7,35
Concentrate per cow (t)	0,43	0,81	1,77	1,24	2,15
Pasture management	yes	no	yes	yes	no
Mountain grazing	yes	no	no	no	no

Abbr.: D-8: Dairy farm with 8 cows, D-18+B: Dairy farm with 18 cows and bull fattening, D-21: Dairy farm with 21 cows, D-25-eco: Dairy farm with 25 cows and ecological production, D-35: Dairy farm with 35 cows.

The average milk quota per farm in Austria amounts to 48 tonnes. The dairy farm with 8 cows represents a small-scale farm; all other farms represent more or less relatively large-scale farms in Austria.

3.3 Policies and Assumptions

3.3.1 Policies

The current farm policy (as at 2003) will be the reference scenario and will be designated *before reform*. The *Agenda 2000* policy includes all measures fixed in Berlin 1999. The CAP reform scenarios (I and II) include the full implementation of all measures of the CAP reform. Two milk price scenarios were chosen because of the difficulty to forecast price developments. *CAP reform I* marks a price cut of 19,4 % (average

¹ Mountain Farm Cadastre (the higher the amount of points, the higher the natural disadvantages).

decrease of the intervention price for butter and skimmed milk powder), *CAP reform II* a price cut of 16 % (more positive price szenario).

3.3.1 Assumptions

The most important assumptions for prices and direct payments according to the policies are listet in table 3. At the current situation (before reform) the producer milk price is on the level of 32 € per 100 kg.

Table 3: Assumptions for prices and direct payments according to the policy szenarios

	Unit	Before reform	Agenda 2000	CAP reform I	CAP reform II
Milk price	€/100 kg	32,0	27,2	25,8	26,9
Milk price (ecological production)	€/100 kg	34,5	29,7	28,3	29,4
Costs for milk quota*	€/100 kg	13,5	11,5	10,9	11,4
Milk premia	€/100 kg	-	2,50	3,55	3,55
Milk quota increase	%	-	1,5	1,5	1,5

* per year

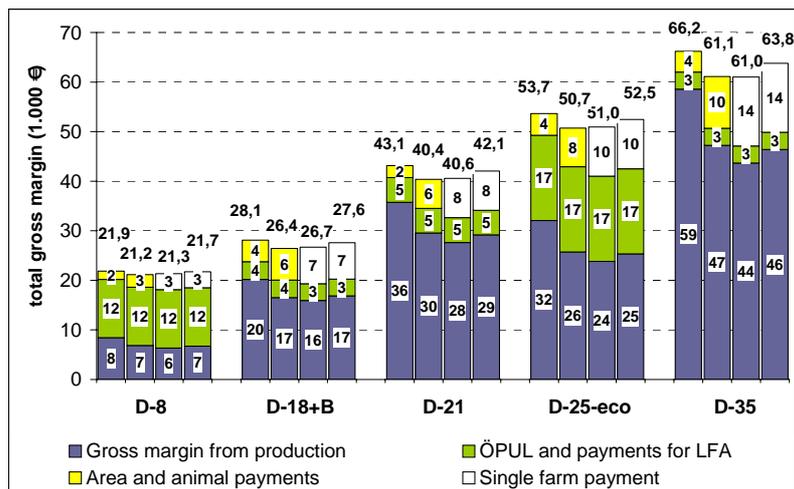
The direct payments for suckler cows will be fully (100 %), the slaughter premiums only partially (up to 40 %) linked to production. All other beef premiums are decoupled from production (e.g., special male premium). The suckler cow premium for heifers will increase from about 100 € to 195 € per head. This assumption can be explained by the additional suckler cow quota for Austria. Before modulation, the single farm payment (sum of decoupled and coupled payments) will be cut by 1 % (hardship payments). Then premiums above 5.000 € will be cut by 5 % (diversion of direct payments to boost rural development measures).

The model does not calculate additional costs for compliance with environmental, food safety and animal welfare standards. The payments of the ÖPUL and for less favoured areas and the beef prices as well are calculated for all policies on the same level.

4. Results

4.1 Total gross margin per farm

Without major adaptations, the total gross margin for all five farms will decrease slightly after implementation of the CAP-Reform, mainly due to the reduction of the milk price. The drop in total gross margin corresponds with the reduction of the farm income, because fix costs remain on the same level due to the policy. The changed farm policy influences not only the amount of the total gross margin but also its composition: the gross margin from production decreases, while the direct payments will increase (figure 1).

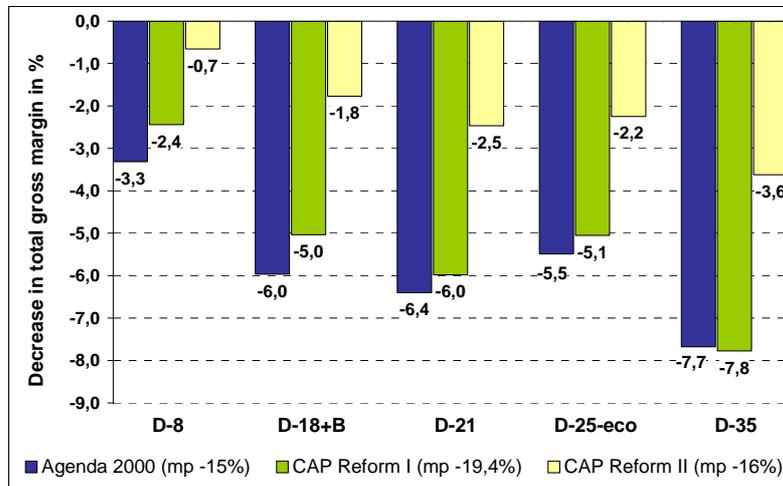


Explanations to farm types see table 2

Figure 1: Total gross margin according to different farm policies and farm types

On the dairy farm with 8 cows the total gross margin in the CAP scenarios decreases by 143 € (milk price -16 %) or 534 € (milk price -19,4 %) respectively. The revenues from milk sales decrease by 1.700 € or 2.100 € respectively. Payments for the ÖPUL and for less favoured areas remain on the same level. The single farm payment (coupled and decoupled premiums) amounts to 3.200 € and lies under the limit of 5.000 € for the modulation scheme. The dairy farm with 18 cows loses

497 € or 1.416 € respectively in total gross margin after implementation of the CAP reform. Payments from the ÖPUL and from less favoured areas go down slightly because of changed land allocation: the land for cereals decreases by 1,4 ha in favour of grass ley (calculated by the model). About 2.500 € are will be touched from the modulation scheme. The total gross margin for the *dairy farm with 21 cows* will decline by 1.063 € or 2.580 € respectively after implementing the CAP reform. Payments from the second pillar (ÖPUL, LFA) do not change. About 3.100 € of the single farm payment are cut by 5 % (modulation). The ecologically producing *dairy farm with 25 cows* loses 1.205 € or 2.711 € respectively of the total gross margin in the CAP scenarios. The single farm payment amounts to more than 10.000 €, that's why about 5.000 € are modulated for additional rural development measures. For the *dairy farm with 35 cows* the model comes up with a reduction of the total gross margin by 2.397 € or 5.146 € respectively after implementation of the CAP reform. For the diversion of direct payments to increase the rural development budget a sum of about 9.400 € will cut by 5 %.



Explanations to farm types see table 2

Figure 2: Percentage decrease in total gross margin according to different farm policies and farm types

Figure 2 shows the percentage of the decrease in total gross margin per farm according to farm policy measures in comparison to the situation before the reform. In the CAP scenarios, the decrease ranges from 0,7 % to 3,6 % (milk price -16 %) and from 2,4 % and 7,8 % (milk price -19,4 %) according to the farm types. Milk price reduction impacts large-scale and higher specialised farms more than small-scale farms with less specialisation. This figure shows also clearly, that Agenda 2000 worsening the total gross margin slightly more than the CAP reform.

4.2 Measures to compensate the drop in total gross margin

The results presented so far didn't assume adaptations in production output and production technique. However, farmers will react due to changed farm policies. There are several ways, to compensate farm income losses. One of the opportunities is the intensification of milk production. For this study it has been asked, how many additional cows would the analysed farms need to compensate the decrease in total gross margin completely. Additionally, the milk yield and the energie concentration in the basic fodder ration varied. Table 4 delivers the results of the respective calculation.

Table 4: Additional cows to compensate the decrease of the total gross margin in the CAP scenarios due to farm type, milk price and production technique

Farm type	Milk price -19,4 %		Milk price -16 %	
	a	b	a	b
D-8	0,4	0,2	0,1	-
D-18+B	2,7	1,2	0,9	-
D-21	3,2	1,5	1,2	-
D-25-eco	2,7	2,0	1,2	0,5
D-35	8,0	4,0	3,5	0,7

Explanations to farm types see table 2

a: unchanged production technique

b: milk yield per cow +10 %, energy concentration +0,10 MJ NEL per kg dry matter

Following tendencies can be derived from the calculations: higher milk supply per farm, higher reduction of the milk price and unchanged

production technique need more additional cows. Higher milk yield and energy concentration in the basic fodder ration lower the number of additional cows significantly. In the case of a higher milk price assumption, smaller farms can even overcompensate their decrease of the total gross margin.

4.3 Economics of farm growth before and after CAP reform

The next question will be: how does the CAP reform affect the rentability of farm growth? To answer this question, the marginal gross margin per unit (one additional cow) was calculated as well before reform and after implementation of the CAP reform. Additional costs for milk quota were calculated. Figure 3 depicts the amounts of the marginal costs according to farm policies and farm types.

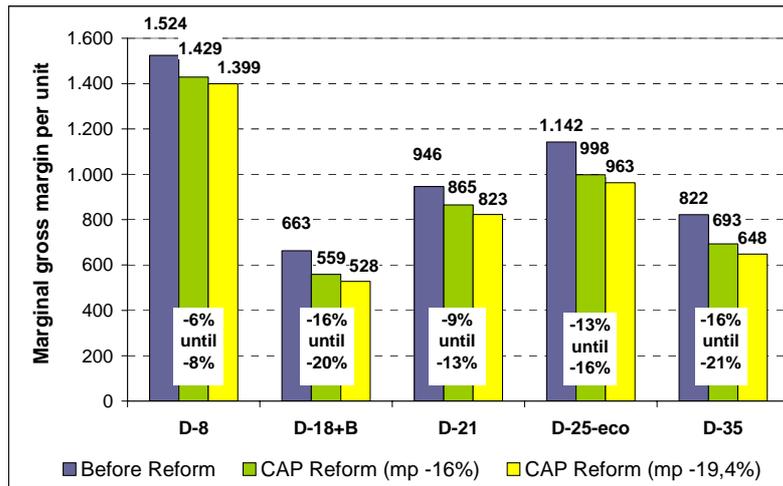


Figure 3: Marginal gross margin according to the farm types before and after implementation of the CAP reform

The model calculates lowered marginal gross margins in the CAP scenarios for all farm types. For example for the dairy farm with 21 cows from 946 € to 865 € or 823 € respectively due to the milk price reduction. The decrease for all farm types ranges from 6 % to 21 %. The decline can be explained by lower milk prices and (partially) decoupling

of direct payments. Decoupled premiums for bulls e.g. are responsible for the above average shown drop of the marginal gross margin in the dairy and bull fattening farm.

4.4 Farm development under new conditions

The impacts of the new farm policy on farm development measures were also calculated. The conversion to suckler cow production remains an economic alternative for small-scale and less intensive dairy farms. The calculation for the dairy farm with 8 cows came up with nearly the same results before and after CAP reform. The coupled premiums for suckler cows are mainly responsible for. Dairy farms with bull fattening husbandry can increase their farm income by abandoning from bulls and specialization in milk production. Special animal male premiums will be paid also without keeping bulls (decoupling). The calculation for the dairy farm with 18 cows came up with an increase in farm income of about 3.400 €, if 12 cows instead of the bulls were kept in addition (investment costs are included). Higher production levels lead to a higher farm income for the dairy farm with 21 cows: between 7.000 € and 9.000 € due to the reduction of the milk price in the CAP scenarios.

5. Discussion and conclusion

The model calculations presented try to estimate the impacts of the CAP reform on dairy farms in Austria. It seems very likely that the impacts of the new farm policy can not be predicted exactly. Not all details of the CAP reform are well known currently and perhaps not all assumptions of the calculation will come true. However, the study gives an insight in this new subject on farm level and delivers a basis for further discussion.

Without major adaptations, dairy farmers earn less money in the future, if the milk price will be reduced by more than 15 %. The model comes up with slightly reduced gross margins for all five calculated farms (from 0,7 % to 7,8 %). Also farm growth becomes less economical. However, there are opportunities to compensate partly or completely the losses in farm income. Further more, the new system of direct payments implemented by CAP reform provides new opportunities for farm development. In order to achieve sustainability, farmers must

adapt to the new conditions quickly and increasingly focus on market developments, consumer demands and environmental- and animal-friendly husbandry.

References

- BINFELD, J.; DONNELLAN, T.; HAWRAHAN, K.; WESTHOFF, P. (2003): The MTR and the EU Commission Proposals for the WTO: An analysis of their effect on the EU and Irish agricultural sector. FAPRI-IRELAND. <http://tnet.teagasc.ie/fapri/pubandrep2003.htm>.
- EUROPEAN COMMISSION - DG AGRI (2003): Impact analysis of the CAP reform proposals. Brussels, 25.03.2003. http://europa.eu.int/comm/agriculture/mtr/docs/index_de.htm.
- KLEINHANSS, W.; BERTELSMEIER, M.; MANEGOLD, D.; OFFERMANN, F.; OSTERBURG, B.; SALAMON, P. (2003): Folgenabschätzung der Legislativvorschläge zur Halbzeitbewertung der Agenda 2000. Arbeitsbericht 02/2003 des Instituts für Betriebswirtschaft, Agrarstruktur und ländliche Räume der FAL-Braunschweig. <http://www.fal.de/index.htm?page=/de/publikationen/default.htm>.
- KREINS, P.; GÖMANN, H.; HENRICHSMEYER, W. (2003): Auswirkungen der Vorschläge der EU-Kommission im Rahmen der Agenda 2000 Halbzeitbewertung auf Produktion, Faktoreinsatz und Einkommen der deutschen Landwirtschaft. Agra-Europe 31/02 vom 29. Juli 2002. Sonderbeilage.
- SINABELL, F.; SCHMID, E. (2003): The Reform of the Common Agricultural Policy. Consequences for the Austrian Agricultural Sector. WIFO-Studie, Wien. <http://www.wifo.ac.at/publ/quarterly>.

Affiliation

Dr. Leopold Kirner
Federal Institute of Agricultural Economics
A-1030 Vienna, Marxergasse 2
Tel.: +43 1 8773651-7487
eMail: leopold.kirner@awi.bmlfuw.gv.at