

Impact of Complementary National Direct Payments on Cattle Breeding Sector

H. Řezbová, K. Tomšík

Faculty of Economics and Management, Czech University of Life Science in Prague, Czech Republic

Anotace

Tento příspěvek se zabývá problematikou Národních doplňkových plateb (Top-up) v České republice. Je sledována závislost mezi výší poskytnutých finančních prostředků v Kč a vybranými ukazateli chovu skotu jako jsou: stav (počet) dojných krav, dojivost, bilance mléka, soběstačnost v produkci mléka, stav krav bez tržní produkce mléka.

Hlavním cílem příspěvku je vyhodnocení dopadu národních doplňkových plateb do sektoru chovu skotu v České republice – konkrétně do sektoru dojnic a sektoru krav bez tržní produkce mléka v období let 2007-2012

Základními metodami, užitými v příspěvku, jsou řetězové a bazické indexy.

Příspěvek vznikl jako součást výzkumného záměru MSMT 6046070906 „Ekonomika zdrojů českého zemědělství a jejich efektivní využívání v rámci multifunkčních zemědělskopotravinářských systémů“.

Klíčová slova

Národní doplňkové platby (Top-up), podpora, dojnice, krávy bez tržní produkce mléka, dobytčí jednotka.

Abstract

The article deals with a topic of Complementary National Direct Payments (CNDP) in the Czech Republic. It is focused on a relationship between allocated financial sources (in CZK) and selected indicators of cattle breeding as heads of dairy cows, milk yield, milk balance, self-sufficiency ratio and heads of suckler cows.

Main aim of the article is to evaluate an influence of CNDP on cattle breeding in the Czech Republic, especially on dairy sector and sector of suckler cows in the period 2007 - 2012.

Used methods are chain and base indexes.

Pieces of knowledge introduced in this paper resulted from solution of an institutional research intention MSM 6046070906 „Economics of resources of Czech agriculture and their efficient use in frame of multifunctional agri-food systems“.

Key words

Complementary national direct payments (CNDP), support, dairy cows, suckler cows, support, livestock unit.

Introduction

One of the original objectives of the Common Agricultural Policy of the EU was to stabilise agricultural markets. To fulfil this aim, it was necessary to create such conditions for European farmers which would enable to stabilise their production. During the 50 year existence of the CAP, many financial instruments have been implemented. Nevertheless, the continuous enlargement of the EU

and increase of heterogeneity of the EU-agrarian sector has not resulted in finding optimal measures suitable for all European farmers. Many reform steps have been done and many analyses have been provided to contribute to an improvement of farmers' situation and maintaining agricultural activities across the EU. Some works are critically evaluating progress in the current situation. BEARD and SWINBANK (2001) stated already at the time of Agenda 2000 CAP-reform process, that

the policy mechanisms are ill-suited to redress the pockets of poverty that are still to be found in rural areas throughout the EU; they have the potential to intensify the environmental pressures often associated with modern agriculture; and they do not allow European agriculture (or its food industries) to compete without subsidies on world markets.

Certain shortcomings regarding the representation of CAP instruments are summarized by UTHES et al. (2012). The authors compared developed impact assessment tools and explained, why European decision making on agricultural support requires integrated assessment. Nevertheless, market instruments and direct payments are according to the study comparatively well represented.

In any case, it is to be stressed; a general assessment of impact of CAP measures is questionable because of different impact in various regions and various sectors. LOBLEY and BUTLER (2010) providing a regional investigation in South West England concluded that only a minority of farmers seem both well placed and well disposed to exploit opportunities offered by current CAP reform. An investigation provided in Scotland has made evident, the CAP reform policies have not been a success for Scotland's marginal pastoral systems (MORGAN-DAVIES, 2012). Mainly the beef and milk sectors seem to be very sensitive from this perspective.

Importance of financial support has been declared by many investigations. According to BERNUES et al. (2011) significant increase of animals per farm shown and per work unit observed in pasture-based livestock farming systems in the Mediterranean in recent years was likely a result of the process of capital intensification, which was largely determined by the Common Agricultural Policy (CAP) premiums that were paid on a per head basis. Another study dealing with the situation of cattle in the uplands of Wales underlines an importance of cattle support. MATTHEWS et al. (2006) concludes on the example of farms, that fixed costs have been reduced by eliminating, as far as possible, on-farm machinery and contracting machinery- and labour-intensive field operations. Even so, net margins are small and frequently negative.

Stabilization of the heterogenous situation and elimination of the greatest disparities may be ensured by national envelope (complementary national direct payments). Different amounts and different payments per hectare in individual member states analyze ERJAVEC et al. (2011), taking into account the role of national support.

Nevertheless the role of national payments is expecting to slow down. Under developed scenario the national envelope for direct payments increases in only one Member State (Latvia), other Member States would, in 2020, lose on average more than 35% of their support when compared to the Baseline situation.

UTHES et. al. (2011) have analyzed impact of eventual abolishment of direct payments. An investigation provided in four EU-countries leads to a conclusion, that regions with less favourable conditions for agriculture, insufficient marketing, processing and sales structures, and a high dependence on direct payments would be hit most severely by a possible abolishment of direct payments. In contrast, regions with moderate dependence on direct payments, and either a relatively competitive agricultural sector or a highly diversified sector with agro-tourism opportunities and good marketing and sales structures, would be less hard-hit by such a change, although impacts could be felt as well.

On the other hand, the extension of co-financing to Pillar I of the CAP could also help mitigate against the negative impacts of comprehensive CAP reforms at the level of individual commodities such as beef. However, BUREAU and MAHÉ (2008) see the sustainability of maintaining individual commodities at existing production levels through the provision of budgetary support is questionable from long term perspective. If seemingly marginal agricultural activities are associated with significant non-commodity outputs, such as the maintenance of rural landscapes or prevention of land abandonment, such agricultural activities should be supported by measurable and directly targeted measures.

Another argument that higher support levels result in prices changes can not be confirmed. Experience from the US shows an interesting relationship between farmers' support and prices for food. MILLER and COBLE (2007) have found, direct payments did not significantly affect the affordability of food, either in the aggregate or across specific food groups.

The main aim of this paper is an evaluation of the Complementary National Direct Payments (CNDP) impact on cattle breeding sector – especially on the dairy sector and sector of suckler cows. The impact of this national support is evaluated according to following indicators: heads of dairy cows, milk yield, milk balance, self-sufficiency ratio and heads of suckler cows.

Material and methods

Data used in this paper comes from the following sources: State Agricultural Intervention Fund (SAIF) annual reports 2007-2012, Czech Statistical Office (CZSO) database 2007-2012 Agriculture-time series-livestock, Statistical Yearbook of the Czech Republic 2011, Annual report of the cattle breeding in the Czech Republic 2011, internal materials-Ministry of Agriculture of the Czech Republic 2011-2012.

The used statistical methods are the Fixed Base Index Numbers and Chain Base Index Numbers. For Fixed Base Index Numbers (usually just called Index Numbers), the Base is given the value 100 and everything after that is given relative to the Base, going above 100 for higher values or below 100 for values which drop below the original. For Chain Base Index Numbers, each value is given an Index based on the previous value being used as the Base.

To analyse such subsidies paid on per hectare basis, there is necessary to determine theoretically exploiting of pastures. Analytical studies and professional publications of Institute of Animal Science (KVAPILÍK and KOHOUTEK, 2009) determine the maximum exploitation of pastures - permanent grasslands, MAX nSC.

$$\text{MAX nSC} = (\text{nH} * \text{YDM}) / (0,04 * \text{LWC} * \text{GT})$$

Where:

nSC = Number of suckler cows

nH = Number of hectares

YDM = Yield of dry matter (grass), (kg/ha)

LWC = Live weight/Cow, (kg)

GT= Grazing time (days)

Results and discussion

1. Basic overview

The Livestock production in the Czech Republic provides more than half of the total agriculture income. In 2011, cattle breeding reached 58.5 % of the animal production and 24.1 % of the agricultural production.

The increase of the milk yield per cow and year, the high quality and increasing domestic consumption of milk and milk products, high share of dairy cows in milk recording, suitable structure of cattle and dairy farms, good results of suckler cows herds, increase in labour productivity and implementation

of arrangements within the CAP are the main positive figures of the last three-year period (KVAPILÍK et. al, 2011).

Less favourable (during the same period) were the economic results of beef production, reproduction results, decrease of the total cattle population and share of dairy cows, decrease of exports of certain products and beef consumption per capita etc.

The total costs per 1 litre of Czech milk producers are on the European average level with high production efficiency. The problem is only in the utilisation of basic production factors, especially land and labour (MACH and ŘEZBOVÁ, 2009).

On the basis of the above mentioned strong and weak points of the present situation in cattle breeding, the next development of the cattle sector should be focused on the tasks related to the Czech Republic's membership in the EU.

Under the EU conditions, it is extremely necessary to achieve a certain stabilisation in breeding of all categories of cattle within EU quotas, to increase domestic consumption of milk and beef, to improve production (especially reproduction) and economic results and to continue to improve the quality of bovine products.

Direct payments (applied in the form of SAPS in the Czech Republic) as well as Complementary National Direct Payments belong to important instruments which help to stabilize and improve situation in the whole cattle breeding sector in the Czech Republic.

2. Analysis of Dairy Cows Support

The total amount CZK 7,150,687 thousand has been allocated into the sector dairy cows in the Czech Republic in the period 2007 -2012 (including 2012 expected support) from subsidy titles Complementary National Direct Payments and "Ruminants". Based on the State Agricultural Intervention Fund (SAIF)¹ reports, a proportional amount of the subsidy title "Ruminants" has been calculated and incorporated into the monitored category dairy cows. There is a continual decrease in annual amounts intended for dairy cows within the CNDP since 2007. In 2007, more than CZK 2 billion (2.16 billion) were allocated into the sector of dairy cows; this figure fell to almost half (CZK 1,125 billion) in 2010, which is 52% of the amount of 2007. In 2012, the CNDP are scheduled to CZK

¹ The State Agricultural Intervention Fund is an accredited paying agency - an administrator of financial subsidies both from the European Union and from the national financial funds.

	2007	2008	2009	2010	2011	2012
Dairy cows	2 158 684	1 413 832	1 242 251	1 125 756	784 995	425 167
Chain index	x	-34.50%	-12.14%	-9.38%	-30.27%	-45.84%
Base index (2007= 100)	x	65.50	57.55	52.15	36.36	19.70

Source: Ministry of Agriculture of the Czech Republic, SAIF, own calculations

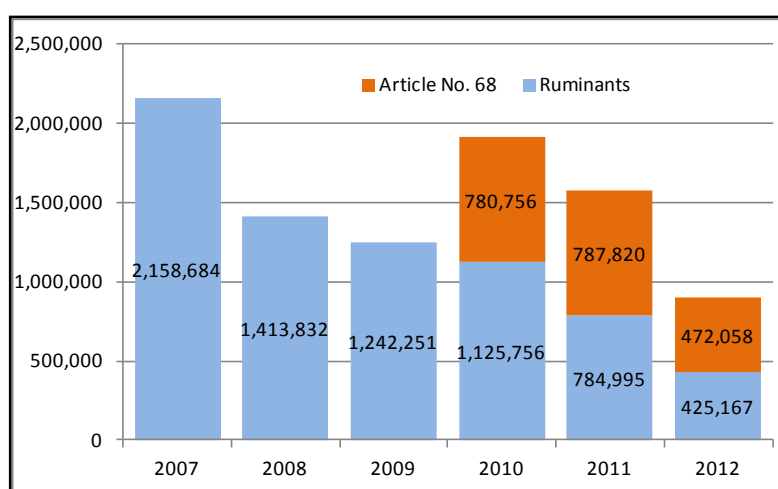
Table 1: Subsidies within Top-ups, title Ruminants, proportional amount for dairy cows, in thousand CZK.

	2007	2008	2009	2010	2011	2012
Dairy cows	0	0	0	780 756	787 820	*472 058
Chain index	x	x	x	x	0.90%	-40.08%

Remark: for 2012, there is another amount based on Art. 68 +221,429 million CZK determined for suckler cows.

Source: Ministry of Agriculture of the Czech Republic

Table 2: Subsidies based on Article No.68, Council regulation 73/2009, in thousand CZK.



Source: Tables 1 a 2, Ministry of Agriculture of the Czech Republic, SAIF, own calculation

Graph 1: Complementary National Direct Payments : Article No. 68 and title Ruminants, in thousand CZK

0.425 billion, which is only 19.7% of the amount comparing to the situation in 2007. The table 1 shows the allocation of subsidies in the time series 2007 – 2012.

In the years 2010 and 2011 (2012 is scheduled as well), the Czech Republic used the possibility of applying the Article No. 68 of the Council Regulation 73/2009 and supported extra so-called „sensitive sector“ of dairy cows. The level of additional subsidies granted by the Article No. 68 CZK is presented in the table 2.

Both above presented tables are summarized in the Graph 1. There is evident, a maximum of subsidies for the sector of dairy cows in the Czech Republic was reached in 2007, another peak (the second highest subsidy level) can be found in 2010 due to

application of the Article No. 68 in the sector. A use of the article has increased essentially an inflow of subsidies into the sector. For 2012, there is scheduled an allocation of CZK 897,225 thousand which represents 47 % of the amount allocated in 2010 (CZK 1.91 billion). Nevertheless, an essential part of dairy cows financing is nowadays based on the Article No. 68 in the Czech Republic.

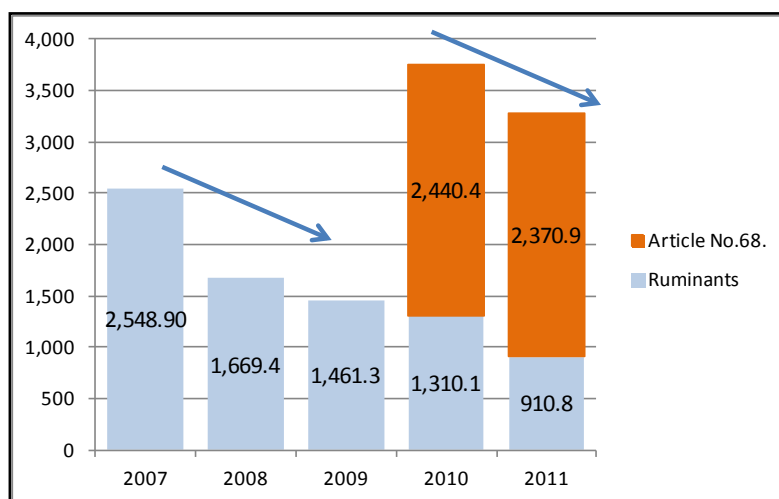
The table 3 presents Complementary National Direct Payments within the Article No.68 related to livestock unit (LU) as they were made within the State Agricultural Intervention Fund.

Payment on a livestock unit was calculated within the CNDP as a proportion of total expenditure, divided by the number of livestock units. The total amount of subsidies (used as numerator) was

	2007	2008	2009	2010	2011
Article 68	0	0	0	2 440.40	2 370.90
Ruminants	2 548.90	1 669.40	1 461.30	1 310.10	910.8
Total	2 548.90	1 669.40	1 461.30	3 750.50	3 281.70
Chain index	x	-34.51%	-12.47%	156.66%	-12.50%
Base index (2007=100)	x	65.49	57.33	147.14	128.75

Source: State Agricultural Intervention Fund

Table 3: Payments per livestock unit, in CZK/LU.



Source: State Agricultural Intervention Fund and Table 3

Graph 2: Payments per livestock unit, in CZK/LU

declining in the period 2007 – 2009, simultaneously the number of livestock units (used as denominator) dropped as well. Final payment per LU is presented in the table 3, graphical expression is illustrated in the graph 2.

Milk yield and the total amount of milk produced can be found as indicators of the „impact“ of subsidies to the dairy sector. Increasing milk yield as one of the intensification factor compensates continuously declining number of dairy cows in the Czech Republic and ensures sufficient milk production needed to supply domestic demand. Development of heads of dairy cows is presented in the graph 3.

As can be deduced from Graph 3 and Table 4, a significant decline in numbers of dairy cows occurred between 2009/2010 and 2010/2011. This decline was a response to the reduced purchase prices of milk because dairy sector experienced a significant restructuring characteristic by an increase in the average yield and subjects reaching low profitability left the industry. Current situation is much more stabilized. According to the inventory

of animals made by the Czech Statistical Office (at the date April 1st, 2012), the number of heads recorded between 2011 and 2012f fell only by 0.19%.

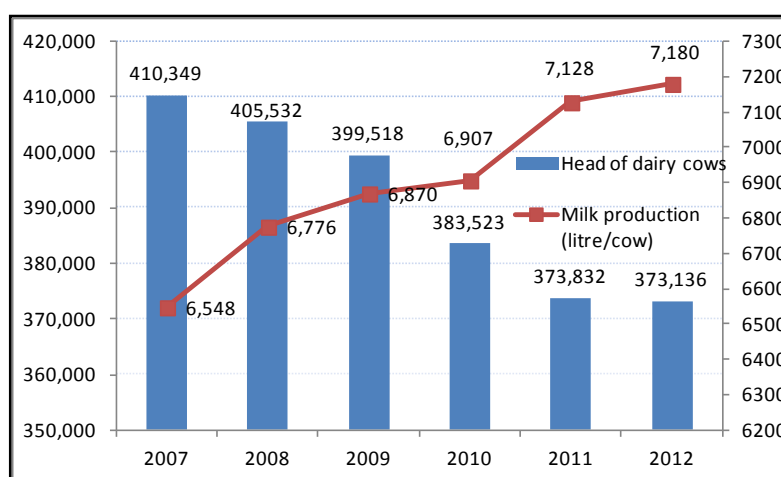
As evident from the Table 5, milk production is continuously declining in the Czech Republic and the self-sufficiency is getting worse. In the years 2009 and 2010, it fell nearly to the level of 100 %.

Cattle breeding sector is supported not only through livestock units, but also through the area of payments (effects of SAPS and LFA payments). The calculations are discussed in the next part.

3. Analysis of Suckler Cows Support

Suckler cows have been supported in the period 2007 -2012 (including estimated support for 2012) through a special title within the national envelope by an amount of CZK 1,674,896 thousand. Nevertheless since 2009, annually allocated amounts are rapidly declining.

Totally CZK 240.5 million were allocated for suckler cows in 2011 which represents 47 % of the financial support cleared off in 2009. A significant



Source: Czech Statistical Office (CZSO), own calculations, 2012 – estimation

Graph 3: Head of dairy cows and average milk production (litre/cow), 2007-2012

	2007/06	2008/07	2009/08	2010/09	2011/10	2012/11
Decline of heads	-3.22 %	-1.17 %	-1.48 %	-4.00 %	-2.53 %	-0.19 %
Yield increase	2.8 %	3.5 %	1.4 %	0.5 %	3.2 %	0.7 %

Source: Czech Statistical Office (CZSO), own calculations, 2012 – estimation

Table 4: Decline of heads of dairy cows and increase of milk yield – Chain index.

Balance	2003	2007	2008	2009	2010	2011
Original stores 1)	132.6	55.7	71.1	97.7	59.9	60.7
Supply to processing	2 530.9	2 381.2	2 368.6	2 291.7	2 251.4	2 303.9
Import	281.4	836.0	810.2	853.7	848.8	853.0
Total supply	2 944.9	3 272.9	3 249.9	3 243.1	3 160.1	3 217.6
Domestic demand	2 080.5	2 244.0	2 214.6	2 233.2	2 197.0	2 138.5
Export 1)	772.3	957.8	937.6	909.7	902.4	1 010.4
Final stores 1)	92.1	71.1	97.7	59.9	60.7	68.7
Share of import/consumption	13.5%	37.3%	36.6%	38.2%	38.6%	39.9%
Share of export/supply to processing	30.5%	40.2%	39.6%	39.7%	40.1%	43.9%
Self sufficiency rate (%)	121.6%	106.1%	107.0%	102.6%	102.5%	107.7%

Notes: ¹⁾ Milk Equivalent conversion

Source: Czech Statistical Office (CZSO), own calculations

Table 5: Milk balance and Self-sufficiency (million liters).

reduction of suckler cows' support is evident. On the other hand, it must be stated, sector of suckler cows was additionally supported by national envelope, represented by a payment for ruminants. A proportional amount of the payment for ruminants has been calculated within this analyse and re-allocated into the sector of suckler cows.

As evident from the table 7, the title "Suckler Cows" has been supported by continuously lowering level of financial sources. An allocation in 2011

reached the level 55 % of payments done in 2009. The Graph 4 summarizes above presented tables 6 and 7. It illustrates, the total subsidies for suckler cows used in the Czech Republic reached their maximum in 2009, the total amount exceeded CZK 700 million. Since that time, the subsidy level is continuously declining. Expected support for 2012 which consists of CZK 130.6 million plus CZK 75 million (as seen in above presented tables), totally CZK 205.6 million, represents only 27.17 % of the

	2007	2008	2009	2010	2011	2012
Suckler Cows	0	445 346	511 274	347 065	240 597	130 614
Chain index	x	x	14.80%	-32.12%	-30.68%	-45.71%
Base index (2008= 100)	x	x	114.80	77.93	54.02	29.33

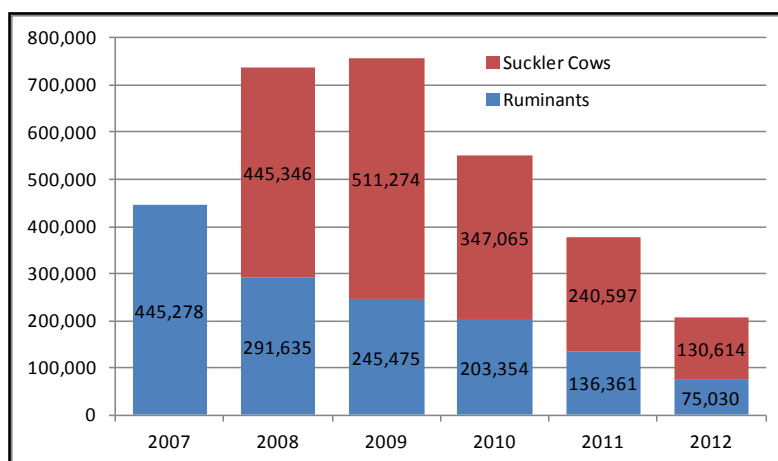
Source: Ministry of Agriculture of the Czech Republic

Table 6: Subsidies within Top-ups (CNDPs), title Sucler Cows , in thousand CZK.

	2007	2008	2009	2010	2011	2012
Suckler Cows/Ruminants	445 278	291 635	245 475	203 354	136 361	75 030
Chain index	x	-34.50%	-15.83%	-17.16%	-32.94%	-44.98%
Base index (2007= 100)	x	65.50	55.13	45.67	30.62	16.85

Source: Ministry of Agriculture of the Czech Republic, State Agricultural Intervention Fund, own calculation

Table 7: Subsidies within Top-ups (CNDPs), title Ruminants, proportional part for suckler cows, in thousand CZK.



Source: Ministry of Agriculture of the Czech Republic, State Agricultural Intervention Fund, own calculation

Graph 4: Subsidies within Top-ups (CNDPs), title Sucler Cows and title Ruminants, proportional part for suckler cows, Czech Republic, in thousand CZK.

	2007	2008	2009	2010	2011
Suckler Cows	0.00	2 939.70	3 280.40	2 119.60	1 393.80
Ruminants	2 548.90	1 669.40	1 461.30	1 310.10	910.80
Total	2 548.90	4 609.10	4 741.70	3 429.70	2 304.60
Chain index	x	80.83%	2.88%	-27.67%	-32.80%
Base index (2007= 100)	x	180.83	186.03	134.56	90.42

Source: State Agricultural Intervention Fund

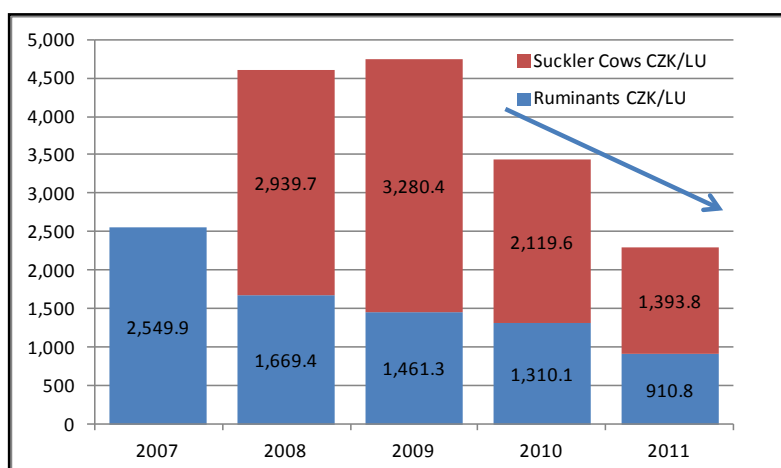
Table 8: Payment per livestock unit, in CZK/LU.

level allocated in 2009.

Table 8 presents levels of national envelope payments (suckler cows and ruminants) on per livestock unit basis, as executed by the State Agricultural Intervention Fund.

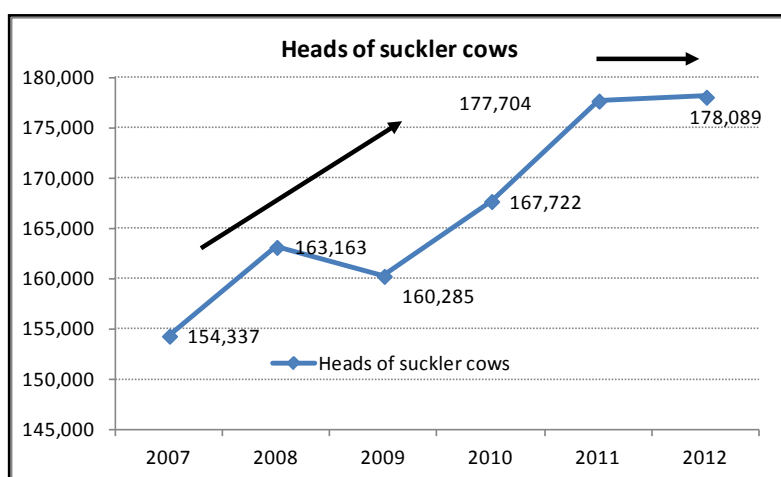
A payment per one livestock unit has been calculated

within the national envelope through dividing the total financial allocation by number of livestock units. In the period 2009 till 2011, the total level of subsidies has been falling down (numerator), whereas number of livestock units has been rising (denominator). In 2008 for example, the SAIF system registered 151,944 LU in the category of



Source: State Agricultural Intervention Fund, Table 8

Graph 5: Payment per livestock unit, in CZK/LU.



Source: Czech statistical office (CZSO), 2012 forecasting

Graph 6: Heads of suckler cows and their development from 2007 till 2012, Czech Republic.

	2007/06	2008/07	2009/08	2010/09	2011/10	2012/11
Growth rate	10.47%	05.72%	-1.76%	4.64%	5.95%	0.22%

Source: Czech statistical office (CZSO), own calculations

Table 9 : Growth rate of heads of suckler cows- Chain index.

suckler cows; in 2011, it was already 172,620 LU. Final payment per livestock unit (LU) from 2007 till 2011 is presented in the Table 8 and illustrated in the Graph 5.

Tables 6 - 8 as well as Graph 5 clearly illustrate that the sector of suckler cows has been supported by declining amounts of finances. An Impact indicator should be constructed on heads of suckler cows and their development from 2007 till 2012 as shown in the Graph 6.

As evident from Graphs 5 and 6, the trends of allocated subsidies and heads of suckler cows are opposite (the items are negatively correlated). Also the subsidies for suckler cows drop (almost 50% reduction from 2009 to 2011), heads of suckler cows are continuously rising (since 2009, an annual increment represents 4.6 – 6 %), nevertheless the growth rate has been reduced and staying at 0.22 % during the period 2011 – 2012.

Decrease of subsidies allocated on suckler cows (on

per LU basis) in the period 2009 – 2011 (Graph 5) has influenced (with a certain delay) development of heads in years 2011 – 2012, which achieved almost zero growth.

There must be added, the sector of suckler cows is able to exploit not only the CNDP paid out directly on LU, but the SAPS payments and their development have influenced an acceleration of the sector as well as LFA payments and payments for agro-environmental measures. Sector of suckler cows is in this way supported not only through livestock units but also through area payments designated to grassland.

To analyse such subsidies paid on per hectare basis, there is necessary to determine theoretically exploiting of pastures. Analytical studies and professional publications of Institute of Animal Science (KVAPILÍK and KOHOUTEK, 2009) determine the maximum exploitation of pastures - permanent grasslands, MAX nSC. An example of calculation is mentioned above.

The theoretical calculations (Formula 1) gives a

picture that one suckler cow requires approximately 1 hectare of permanent grassland.

Above mentioned consideration enables to conclude following statements. In 2011, when the CNDP were zero, an additional payment within SAPS of CZK 4.686 per hectare could be seen as payment dedicated to suckler cows. In addition, LFA payments may be imputed - for example HA (mountain) areas were supported by EUR 157/ha, which is about CZK 3 940 per hectare.

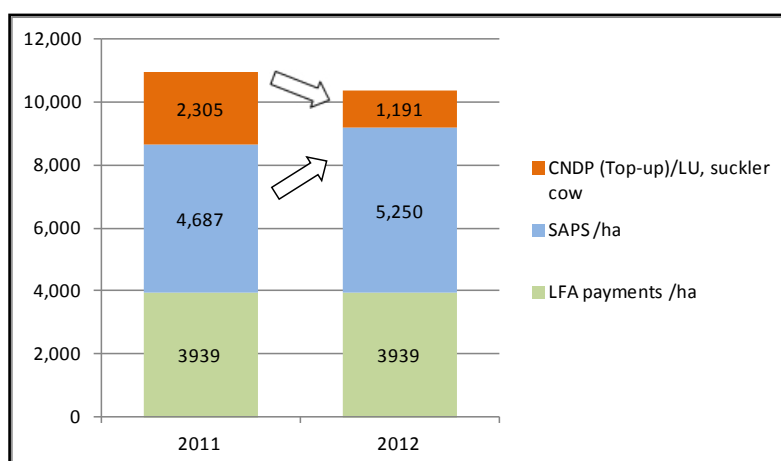
Comparing figures from the Table 8, there is evident that a payment within SAPS (CZK 4,686.5 per hectare) almost doubled the level of CNDP (CZK 2,304.60 per LU) in 2011.

The Graph 7 presents a structure of all subsidies with an exception of ago-environmental payments, which may be paid in connection with suckler cows breeding - assumed extension 1:1, also 1 LU per 1 hectare in mountain area, category HA (mountain). The level of subsidies for the year 2012 is estimated, based on above mentioned methodological approach.

MAX nSC = (nH * YDM) / (0,04* LWC * GT)			
nH	YDM	LWC	GT
Number of hectares	Yield of dry matter (grass)	Live weight/Cow	Grazing time
ha	kg/ha	kg	day
10	4 000	550	153
MAX nSC = (10 * 4 000) / (0,04* 550 * 153) = 11,8 suckler cows			

Source: Kvapilík and Kohoutek, 2009, Certified methodology and own calculation

Formula 1: Theoretical calculations - exploitation of pastures (10 hectares).



Source: Ministry of Agriculture of the Czech Republic, State Agricultural Intervention Fund, own calculation

Graph 7: Structure of all subsidies for suckler cow, with an exception of ago-environmental payments, extension: 1 livestock unit per hectare in mountain area, CZK/LU and CZK/ha.

Conclusion

Investment costs as well as labour costs are relatively high concerning milk production. According to the yearbook of cattle breeding in the Czech Republic for 2010, total estimated cost of a dairy cow reaches CZK 58,400 per year. When deducting the value of calves and manure, the cost of the main product represents CZK 54,850, whereas milk sales reach CZK 50,085. The difference of revenues and costs gives a negative result CZK -4,765.

Such deficit should be eliminated through relevant subsidies. In 2010, a payment per one LU reached the level of CZK 3,750.5 (as presented in the Table 3); one year later, the payment achieved CZK 2,281.7 per LU.

Subsidies per livestock units are not able to cover the negative difference between revenues and expenses; the economy of milk production is indirectly influenced by the SAPS, partially also LFA payments (through dairy cows on grassland). All these facts are to be taken into account when evaluating overall impact of subsidies in the milk sector. Slowdown of the total milk production in the Czech Republic is coming close to the limit level of self-sufficiency. A danger of falling under the self-sufficiency level should justify an appropriate support of the milk sector.

Suckler cows sector requires much more complex approach if evaluating impact of provided subsidies. Not only national payments for suckler cows and ruminants are to be included. There is necessary to include all other relevant payments as SAPS, LFA, agro-environmental payments as well CNDPs per hectare until 2010. An estimation of the total support of suckler cow livestock unit for 2012 counts

with more than CZK 10,000, whereas payment per LU within CNDP represents only about 10 % of the total amount (slightly over CZK 1,0000). The structure of payments may explain that head numbers of suckler cows are still rising, although payments per livestock unit are diminishing since 2009. Support of the sector is given mostly by area payments, which should achieve about 90 % of the total support in mountain areas in 2012.

Taking into account a development of cattle breeding in recent years as well as in 2012, a break of continuous slowdown should be seen as the main goal of this important sector. The goal shall focus as on a reverse of decline of heads as on an increase of milk and beef production. To improve current situation, measures on farm and institutional level may be applied. On a farm level, such measures may be focused on improvement of quality, organization of work as well as reducing costs.

Measures, which may be applied at an upper level, consist in support of business activities, regeneration of heads of cattle, achieving adequate level of farmers' prices and total sales, allocation of subsidies or support of consumption.

These measures require understanding, political support and cooperation of relevant institutions, production, processing and service enterprises as well as the whole society.

Acknowledgements

Pieces of knowledge introduced in this paper resulted from solution of an institutional research intention MSM 6046070906 „Economics of resources of Czech agriculture and their efficient use in frame of multifunctional agri-food systems“.

Corresponding author:

Ing. Helena Řezbová, Ph.D.

Doc. Ing. Karel Tomšík, Ph.D.

Department of Economics, Faculty of Economics and Management,

Czech University of Life Sciences in Prague, Kamýčká 129, 165 21 Prague 6- Suchdol, Czech Republic

Phone: +420 2 2438 2087, +420 2 2438 2297

E-mail: rezbova@pef.czu.cz, tomsik@pef.czu.cz

References

- [1] Baldock, D., et. al. The Single Payment Scheme after 2013: New Approach new Targets. Study. European Parliament, European Parliament's Committee on Agriculture and Rural, Development, Brussels, 2010.
- [2] Beard, N., Swinbank, A. Decoupled payments to facilitate the CAP reform, Food Policy 26, Issue 2, 2001, Elsevier, ISSN: 0306-9192.

- [3] Bernues, A. et al. Sustainability of pasture-based livestock farming systems in the European Mediterranean context: Synergies and trade-offs. *Livestock Science* 139 , 2011, Elsevier, ISSN: 1871-1413.
- [4] Bureau, J. C., Mahé L. P. CAP reform beyond 2013: An idea for a longer view, *Studies and Research*, vol. 64, Notre Europe, Paris, 2008.
- [5] Erjavec, E. et al. Policy assessment of an EU wide flat area CAP payments system, *Economic Modelling*, 28 ,2011, Elsevier, ISSN: 0264-9993.
- [6] Kvapilík, J., Růžička, Z., Bucek. P., Annual report of the cattle breeding in the Czech Republic 2010, 2011, Institute of Animal Science (IAS), Czech Republic 2011, ISBN 978-80-87633-021.
- [7] Kvapilík, J., Kohoutek, A., Ruminants breeding and permanent grasslands – Certified methodology, Institute of Animal Science (IAS), Czech Republic, 2009, ISBN 978-80-7403-039-0.
- [8] Lobley, M. and Butler, A. The impact of CAP reform on farmers' plans for the future: Some evidence from South West England, *Food Policy* 35, 2010, Elsevier, ISSN: 0306-9192.
- [9] Mach, J., Řezbová, H. Comparison of milk production costs among EU members, *Agris on-line Papers in Economics and Informatics* 1, 2009, CULS Prague, ISSN 1804-1930.
- [10] Matthews et al.. Assessing the options for upland livestock systems under CAP reform: Developing and applying a livestock systems model within whole-farm systems analysis. *Agricultural Systems* 90 , 2006, Elsevier, ISSN: 0308-521X.
- [11] Miller, J. C., Coble, K.H. Cheap food policy. Fact or rhetoric? *Food Policy* 32, Issue 1, 2007, Elsevier, ISSN: 0306-9192.
- [12] Morgan-Davies, C., Waterhouse, T., Wilson, R. Characterisation of farmers' responses to policy reforms in Scottish hill farming areas, *Small Ruminant Research* 102, 2012, Elsevier, ISSN: 0921-4488.
- [13] Uthes. S. et al. Policy relevance of three integrated assessment tools - A comparison with specific reference to agricultural policies, *Ecological Modelling*, 221, 2012, Elsevier, ISSN: 0304-3800.
- [14] Uthes, S. et. al. Regional impacts of abolishing direct payments: An integrated analysis in four European regions, *Agricultural Systems* 104, Issue 2, 2011, Elsevier, ISSN: 0308-521X.
- [15] Czech Statistical Office (CZSO) database (2007-2012), Agriculture, Time series, Livestock - Czech Republic, [Online], Available: http://www.czso.cz/eng/redakce.nsf/i/zem_ts [5.5. 2012].
- [16] State Agricultural Intervention Fund (SAIF) annual reports 2007-2012, [Online], Available: <http://www.szif.cz/irj/portal/anonymus/jz> [5.10. 2012].
- [17] Statistical Yearbook of the Czech Republic 2011, [Online], Available: <http://www.czso.cz/csu/2011edicniplan.nsf/engkapitola/0001-11-2010-1300> [20.1. 2012- 15.10. 2012].