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Animal produce emission in the mid Szigetköz (Island fluve) villages (1990–2006)

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SUMMARY

In my research I have analysed the agricultural co-operative animal breeding and animal produce characteristics of four Mid Szigetköz villages (Ásványráró, Hédervár, Darnózseli and Püski) from 1990 to 2006. I began my search with agricultural research, by examining the documents and notes pertaining to the agricultural history of the villages. According to the results of my search the Mid Szigetköz, – just like the entire Szigetköz region – had an exceptionally rich, valuable animal breeding culture, which was also rich in tradition. In the next analytical parts of my search I have analysed the indicators and natural data which characterised and determined the productivity structure of co-operatives, their animal breeding and their way of manufacturing animal produce (1990–2006). I concluded that the changes which affected the whole country the animal stock of the researched co-operatives had decreased drastically, and the range of animal produce has narrowed strongly, the result being that animal farming and breeding has become much less significant.

My search has further determined that cycles and a medium-term fluctuation can be seen in the animal stock and the animal produce, which show a differing movement from the general tendencies and the changes which occurred nationwide. The results prove that besides the general economic effects, other special problems and effects specific to this unique region have prevailed as well. Therefore the analysis of the facts which effect and influence the animal breeding in the villages of the Mid Szigetköz region is particularly important.

Keywords: Szigetköz, animal breeding, animal produce, agriculture co-operatives, cycle effect.

Introduction

My agricultural history search pertaining to this topic unambigously proves that "in the Mid Szigetköz region animal farming, animal breeding and fishery constituted the main source of income in the past" (*Timaffy* 1970). According to the notes and my own perceptions the role and significance of these activities has reduced significantly nowadays, as *Buday-Sántha* (2001) too writes, the one and a half decade long agricultural crisis has affected animal breeding even more severely than it has affected plant and vegetable growing, and this had lead to a significant reduction in animal stock. The main reason for the reduction was the low income that animal breeding provided, but the windup of large farms and the financial crisis these farms found themselves in also played a part. In order to retain their solvency these farms have wound up and sold their stock. This affected particularly the bovine animal stock, because the cowsheds could be used for other purposes (storage, workshop) as opposed to poultry coops and pig sties. The above mentioned changes have characterized the animal breeding in the examined Mid Szigetköz villages too, and the most grave difficulties showed in the poultry farming and pig breeding areas. In 1998 the coops in Darnózseli and Püski have liquidated their geese stock at present it only operates a dairy farm. The coop in Ásványráró has ceased its pig breeding activities in 2000, and is only involved in plant and vegetable farming and its related activities these days. The coop at Hédervár has ceased its turkey breeding activities this year.

The researches conducted by *Tenk* (1993) in 1992 prove that the "change in animal density (continuous decrease) is a nationwide phenomenon, and even if the amount of decrease in Szigetköz is less than it is nationally, the tendency unambigously follows the nationwide trend". The author discusses that taking the year 1988 as a benchmark milk production will have fallen by 30% and pork produce by more than 40% by 1993, then he sums up by concluding that "the problems faced by the farmers in the Szigetköz region are the same as those farmers face nationwide, topped off by those ecological changes which were caused by the diversion of the Danube in the past years." *Rechnitzer* (1993) also makes similar assertions, he says that "the agricultural role of the Szigetköz region is likely to decrease in the future, but due to its favourable endowments in terms of results it will continue to exceed the county average." In his opinion "the changes which took place in the natural-environmental habitat cannot prevent the socio-economic halt in the region's milieu. The signs of insecurity are starting to show, and their accumulation and spiralling towards further factors and participants can question the future of the microregion, and influence the lives of the inhabitants towards an unfavourable direction as well, at the same time." Thus, when examining animal breeding in the villages of the Mid Szigetköz region, special importance must be given to the fact which is phrased by *Veszeli* (1991) as follows: "the quality level, effectiveness and efficiency of each regional farm is in essence determined and shaped by the endowments of the regional area, the farmers themselves, and the economic organizations the farmer gets in touch with. The economic forms thus are bound to the environmental, material, intellectual values and in particular the agricultural traditions of these villages. Furthermore, the farmer inhabitants of the rural environments

fundamentally influence and differentiate the agricultural forms of the given region by relying on their tradition based experiences and lifestyle."
In a different literary source *Veszeli* (2001) has said the following about the future of agricultural co-operatives: "in the future the production integrating, servicing and social policy aiding activities and policies of the co-operatives and the state owned farms can no longer be relied on in their old forms, not even if they continue to operate as co-operatives after they have been restructured. Farmers will have to take into account the economic rationalization in accordance with the bounds of market economy." This is further supported by the opinion of *Szabó* (2002). In his opinion "it is important to retain our existing multi-purpose co-operatives in order to maintain efficiency, because these fit our economical and social conditions the most. Of course, they can only be retained after necessary restructuring was made, and they have been transformed into operable co-operatives." Today we can see that the 1991 Compensation Act, the 1992 Co-operative Act and the 1993 Land Release Act have all contributed the co-operative which attends to trade and service function besides production has become a reality, however their efficiency and operability is questionable. The examined co-operatives have fulfilled and continue to fulfill trading and servicing functions besides production, but the thus established co-operative model does not fit seamlessly with into their economic environment. In the future, the new types of co-operatives comprising of the cooperation between farmers, tradesmen and the processing industry may play a determining role in making the vertical and the horizontal integration within food processing a reality said *Szeremley* (2003). He shares this opinion, he stresses that "the market which comes with the EU membership is a global sized market, where farmers can only remain pertinent with concentrated supply against concentrated demand." "As a result, trade relations may be established between villages and small villages, which may be beneficial to these villages and villages" according to *Marticsek et al.* (2002). In his opinion, "through this rural economic units could be established which would result not only in the development of animal breeding and animal produce processing, but would also strengthen other agricultural activities and services because of the development of one part of rural integration". *Horváth's* (2006) opinion is, that this type of solution would have a positive effect on the entire agriculture of the Mid Szigetköz region.

Material and method

My archives research, the documents of the researched agricultural villages as well as the classified results and of my expressly conducted personal interviews have constituted the basis for my research. My series of research and my database of previous research has made it possible to show trends and mid-term cycles (15–25 years or Kuznets cycle) in the animal stock and animal produce emission in the Mid Szigetköz co-operatives. So from as a further research method I will use the (irregular) cycle effect method when conducting statistical and macro economic research (I have calculated the cycles with three member moving average calculation in the case of the Hédervár co-operative, while with the others

I have used the five member moving average calculation method. During the cycle effect examination I have used the lineal second and third degree polynomial trendset calculation method to analyse the changes. I have used *Sipos* (2006) essay on long-term agricultural cycles as a guideline when applying this examination method.

RESULTS

I have carried out my research at four Mid-Island Fluve co-operatives which all had a very renowned past in animal breeding and animal produce processing and have influenced and shaped the economy of the region significantly. The main farming features of the examined co-operatives are summarised in *Table 1.*

Table 1. The more important features of the examined agricultural co-operatives in the Mid Szigetköz villages

	Ásványráró	**Hédervár**	**Darnózseli**	**Püski**
	A	**B**	**C**	**D**
Location	Mid Szigetköz	Mid Szigetköz	Mid Szigetköz	Mid Szigetköz
Established in	1959	1959	1959	1959
Name	”Szigetköz” Production Trade and Services Co-operative	”Rózsa Ferenc” Production Trade and Services Co-operative	Darnózseli Agricultural Joint venture	”Búzakalász” Agricultural Co-operative
Large scale production	In 1976 the agricultural co-operatives of seven Szigetköz stratas (Ásványráró, Hédervár, Darnózseli, Püski, Kisbodak, Dunaremete) were unified which operated under the name ”Szigetköz Hungarian–Czechoslovakian Friendship joint venture” until 1990.			
Animal breeding division before 1990	Pig breeding	Bovine breeding, dairy farm	Bovine breeding, dairy farm, geese chicken, hen and (breeding) egg farm	Bovine breeding, dairy farm, geese chicken, hen and (breeding) egg farm
Animal produce emission before 1990	Porker	Dairy Mart	Cow’s milk, Mart Chicken Geese Geese and Hen eggs	Cow’s milk, Mart Chicken Geese Geese and Hen eggs
Animal breeding division after 1990	Pig breeding until 2000	Dairy (until 1993) Feeder cattle (until 1998) Feeder turkey (2006)	Bovine breeding, Dairy farm Geese breeding (breeding) egg farm chicken and poultry farm (until 1998)	Bovine breeding Dairy farm Geese breeding (breeding) egg farm chicken and poultry farm (until 1998)
Animal produce emission after 1990	Fatstock pork (until 2000)	Dairy (until 1993) Feeder cattle (until 1998) Feeder turkey (until 2006)	Feeder chicken Feeder geese Goose and hen egg (until 1998) Dairy Feeder cattle	Feeder chicken Feeder geese Goose and hen egg (until 1998) Dairy Feeder cattle

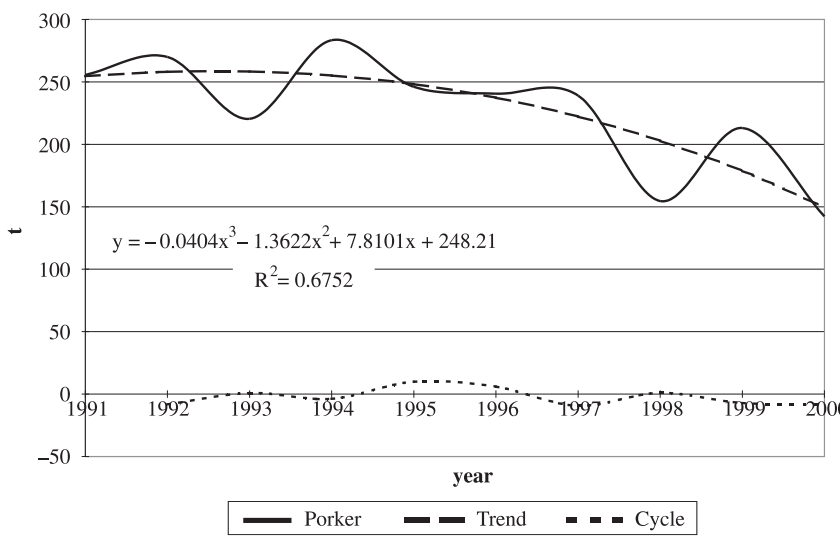
When examining and comparing the animal breeding of the four co-operatives, it can be seen that they all possessed composite and diverse production structure despite their same

environmental and economic endowments. We can see that the wide range of products which the co-operatives have produced can surely be called almost historical today.
When analysing the table we can discover similarities too: the analogy between the structures of co-operatives **C** and **D** is obvious, therefore the comparative analysis of the two highlights the reasons for their differences and their parallels.

The examination of the Ásványráró co-operative

Figure 1. shows for examining the pig breeding of co-operative **A** and within it the natural indicators of the porker production (piece, t) I have used the third degree polynomial trendset (the trendset's relative error is 11.0%, which means a close approach to the data of the original timeline (1991–2000)). There was intensive fluctuation in the quantity of porker emissions. The trend begins with a decreasing stage, the reason for that was among others, that by ending large-scale production the pig stock of the cooperative has decreased to 2/3 between 1991 and 1993. In this period the forage supply of the co-operative was insufficient due to poor forage yield, and this was coupled by piglet caducity, which in turn caused basic product supply difficulties, thus increasing expenses of the division. Furthermore, those effects have prevailed which were caused by unfavourable market conditions, the surplus supply and the decrease in demand have caused. From 1994 onwards the trend shows a slight increase, the amount of porkers produced at the co-operative had stabilised. Between 1996 and 1997 the purchase price of porkers had bettered (by 27% when compared to the previous year) the forage prices have gone down (wheat by 15%, barley by 13% and corn by 16% when compared to the previous year). Despite

Figure 1. The porker emission of the Ásványráró (A) co-operative (1991–2000)

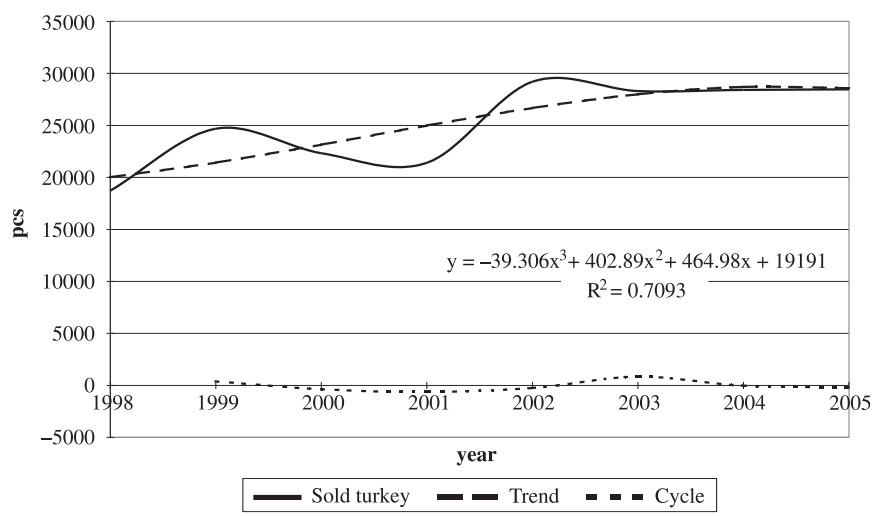


this the pig breeding division's circumstances in the co-operative had not improved, the emission volume in porker produce had gradually went in a decreasing direction from this year onwards, because the sow stock has contionuously decreased too (300 sows in 1993, 140 in 1999) the piglet breed indicator had worsened (in 1993 17.3 pieces of piglets were yeaned per one yean in 1999 8.27 pieces) this in turn has increased the expenses of the pig breeding division and ultimately it lead to the division's liquidation in 2000.

The examination of the Hédervár co-operative

Figure 2. shows in the case of co-operative **B** I carried out the cycle effect examination on the timeline of the natural indicators (pcs, t) on the fat stock turkey and feeder turkey produce. The co-operative dealt with fat stock turkey in an integrated form from 1998. The integrator provided the basic material, the forage and the transport and the whole vertical of processing. They have applied the intensive menagerie form they have fattened up the egg layers to 8 or 8.5 kg and the roosters to 11–15 kg. I have used the third degree polynomial trendset for the analysis (its relative error is 7.89%). We can notice two turning points in the years 2001 and 2004 namely. In their first year the co-operative had deployed 20,000 turkeys, from which 18,723 pcs were sold. We can see a similar ratio for the next years, only in 2001 was there a decline then the total number of turkeys was 33,400 pcs and only 21,400 were sold. The cycle has then turned in a positive direction and stagnated at that level until the end of 2005. Next year the economic effects caused by bird flu (the region was placed under bird flu watch in the spring of 2006 and that has stamped itself on the poultry produce processed here) and the co-operative has liquidated its turkey fat stock due to the termination of contract between the integrator and the co-operative.

Figure 2. The cycle effect examination of the feeder turkey emission of the Hédervár (B) co-operative (1998–2006)



The examination of the Darnózseli co-operative

Examining the changes which took place in the bovine stock of the **C** co-operative from the economic year 1990, I have ascertained that the changes which affected the country nationwide were also present here. After the political system changed, beginning with the year 1990 the animal stock of the country began to lessen as well as the number of breeders, and the ratio of animal breeding and plant growing has changed. The previous balance of grain and meat vertical had tipped over, and the product course of agricultural products had broken to pieces.

Figure 3. Cycle effect examination in the bovine stock of the Darnózseli (C) co-operative (1991–2008)

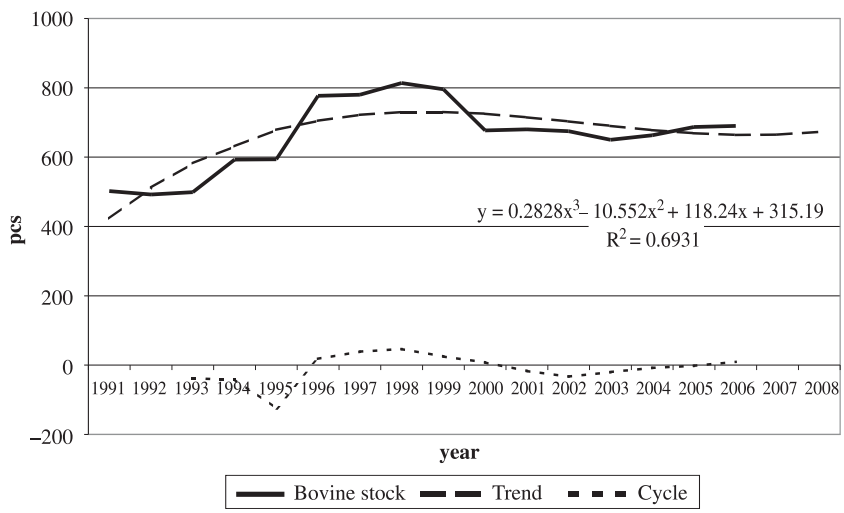


Figure 3. shows the changes in the bovine stock of co-operative **C** from 1990 onwards and shows its expected development until 2008. The parabolistic style trend can be observed in the diagram, the trendset is a third degree polynomial (the relative error of the parabolistic trendset is 7.97%). The cycle begins with a decreasing stage which hit rock bottom 5 years after the co-operative exited the "Szigetköz Hungarian–Czechoslovakian Friendship Co-operative". The reason for this was the low income from animal breeding (due to unfavourable market environment) as a result of which development resources have narrowed, loans came with high repayment obligations, thus developments under such conditions would have resulted in the insolvency of the co-operative. Due to the lack of financial resources the co-operative had sold off part of the stock, and used the freed-up buildings for other purposes. The favourable prices for heifer in the economic year 1995 have prompted the co-operative to sell off more stock. The decrease had become less from 1996, and a slight increase can be seen in the number of bovine stock. The increase in stock was greatly helped by the fact that the conditions for bovine farming have improved

in the county (in Győr-Moson-Sopron county the price of feeder cattle was higher by 4% the price of milk by 26% when compared to the previous year) (*KSH* 1997–2004a,b, 1998). The co-operative had wound up its geese stock, and ceased to breed geese in 1998, thus the income of the animal breeding division came from its dairy farm. My own analysis pertaining to the county's animal stock also confirms that the decrease in bovine stock stopped in 1998 (the total number of bovines in the county in 1997 was 67,500 pcs, and 67,800 pcs in 1998). (The increased growth was stronger with private farmers, the weakening of the co-operative sector had continued further.) From the year 2000 a decrease can again be seen in the bovine stock of the co-operative – similarly to that of the county's – which were largely caused by the cancelled developments and the unfavourable market processes. The stock number has remained at a relatively constant level to this day (2006) which is largely due to the modern, state of the art breed identifying, pace counting computer system installed at the co-operative, as well as the moderately renovated buildings and increased investments and developments. The bovine stock of the co-operative had changed differently from the county's as the county's stock has decreased by 3.3% in 2005 when compared to the year 2004.

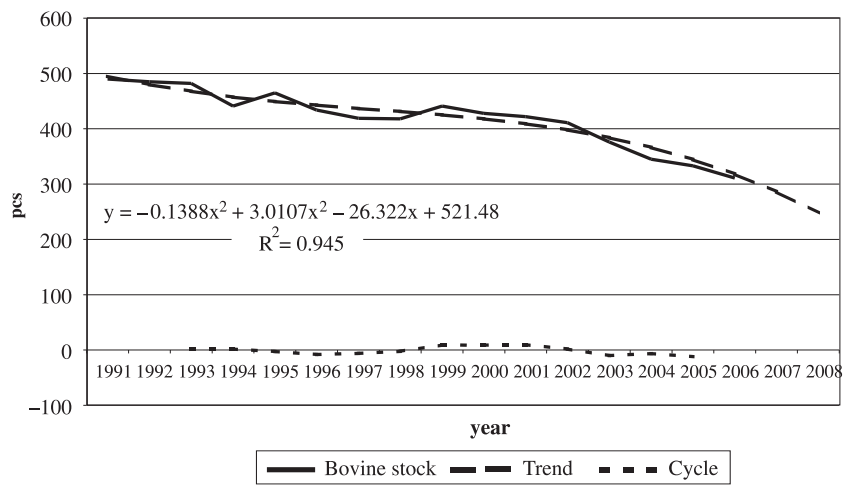
The examination of the Püski co-operative

Figure 4. shows the changes which occurred in the bovine stock of co-operative **D**. When compared to the set which charts the change of the bovine stock of co-operative **C** the huge sameness of the structure of the two co-operatives, and the sameness of the economic changes which affected them both, the intensity of the change is significantly different. In the case of co-operative **D** the decrease in stock is more drastic, the flow of the trendset is more flat, almost lineal (I have used third degree polynomial trendset once again when making this estimate, the relative error of the parabolistic trendset is 3%) decreasing. When analysing the cycle the effects listed with co-operative **C** have caused the changes in the bovine stock of co-operative **D** and similar deductions can be made. The cycle in this case begins with a decrease too, and hits rock bottom in 1996. This co-operative too, had ceased its geese farming activities, the animal breeding division consisted of bovine breeding and the dairy farm. From the economic year 1998 we can show a similar increase in bovine stock as we could see in the case of the previous co-operative. The bovine stock had virtually remained at the same value until 2003. However, from that year onwards the shaping of the market conditions, the cancellation of investments and developments, the worsening and out datedness of the tangible holdings mean that the stock continues to decrease to this day (2006).

When examining the timeline pertaining to the milk average produced by one cow a greater parallel can be deduced. I have depicted the data pertaining to both co-operatives with second degree polynomial trendset and I have divided it into two parts, so that the fluctuations would produce a more exact picture (in case of co-operative **D** the fluctuation in the cycle was bigger, the relative error of the parabolistic trendset in the first examination period is 13.5%, 2.1% in the second stage, in the case of co-operative **C** the relative error

was 4.4 and 3.3%). First I have examined the period from 1990–1997 then the period of 1998–2005. In the case of both co-operatives the cycle starts with a decreasing tendency (in co-operative **C** the average milk produced by one cow was 7365 litre in 1991, and 5998 litre in 1997, in the case of co-operative **D** this was 5970 litre and 5578 litre) which reached rock-bottom in 1997. The effects of the changes in stock have lead to the decrease in the volume of production, which have lead to the worsening of the bovine breeding indicators in the examined co-operatives. In the second stage of my examination the average milk production per one cow started to increase intensely, the set shows an increase tendency (in 1998 6585 litres, in 2005 8204 litres, in the case of co-operative **D** this was 5958 litres and 7285 litres). Based on the estimates of this set the average milk production per one cow is likely to remain at the same level in the case of both co-operatives in the future.

Figure 4. Cyclic effect examination in the bovine stock of the agricultural co-operative of Püski (D) (1991–2008)



In *Figures 5.* and *6.* I show the examination and the estimated expected shaping of feeder cattle emission of the two co-operatives.

When comparing the two sets we can see the intensive cyclic fluctuations with both co-operatives, and the decreasing tendency which can be seen more strongly in the case of co-operative **D**. In the case of the changes in feeder cattle emission (pcs) I have calculated and depicted the parameters of the lineal trendset which shows the decrease of the stock adequately.

The cycle starts with a decreasing stage, the sale price of feeder cattle was shaped by the factors described around the shaping of the bovine stock. Further decrease resulted from the fact that the feeder cattle went to private farmers from the co-operatives. From 1997 the stock shows an increased tendency, from this year the conditions for cattle farming have improved (in the county the sale price of feeder cattle was higher by 4%, the sale price of

corn decreased by 16% the sale price of forage hay by 6% when compared to the price of the previous year (*KSH* 1997–2004a,b, 1998)). Due to the relatively favourable conditions the feeder cattle emission could remain at this level at co-operative **C** until 2003, but based on the estimate of the set it will decrease along with the decrease in the total number of bovine stock. In the case of co-operative **D** a drop could already be seen before the year 2003, and based on the estimate of the trendset this will continue in the future.

Figure 5. The examination of the cyclic effect
of the Darnózseli (C) agricultural co-operative's feeder cattle emission (1991–2008)

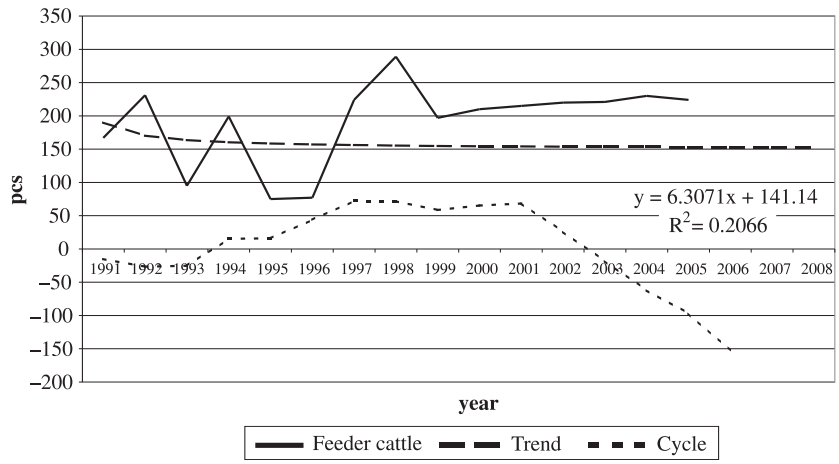
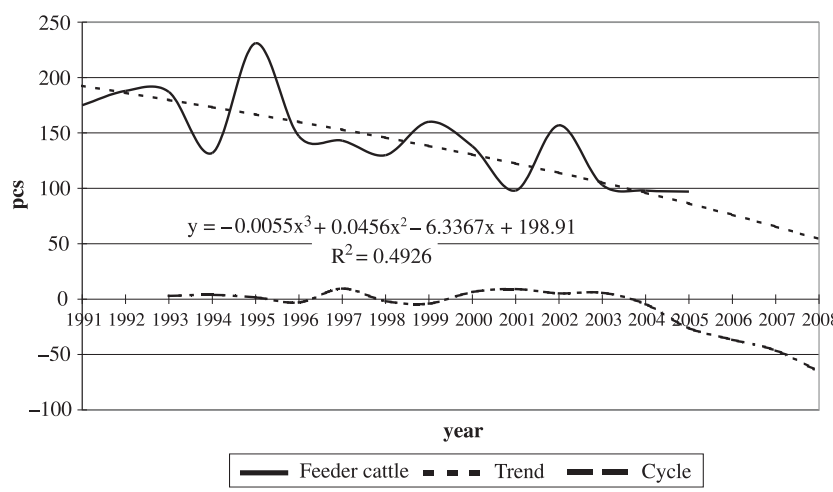


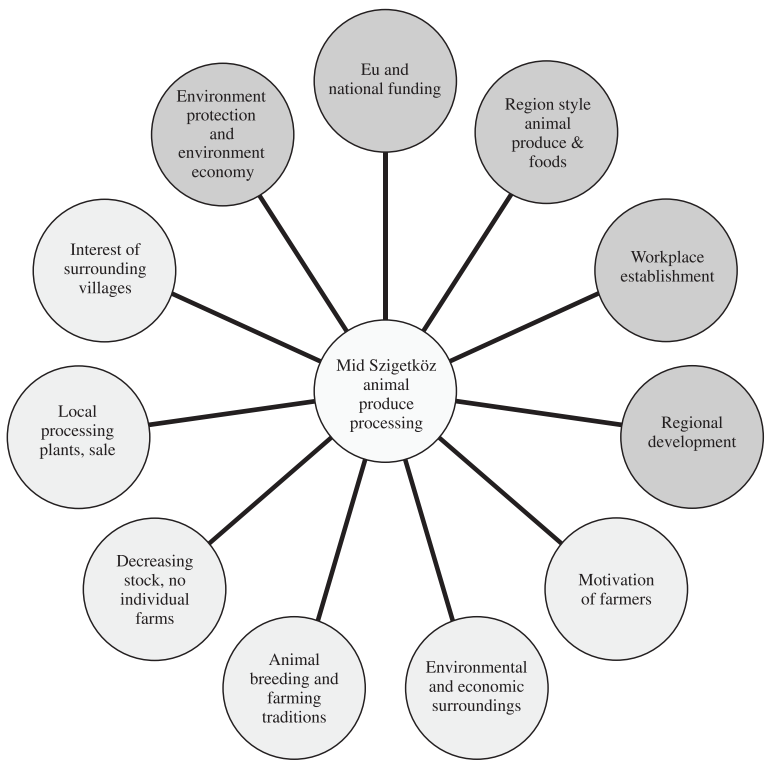
Figure 6. The examination of the cyclic effect
of the Püski (D) agricultural co-operatives feeder cattle emission (1991–2008)



Conclusions and suggestions

The examination unambigously traces the decrease that has occurred in the quantity and range of stock, the quantity and range of products and the quantity and range of emitted produce in the examined agricultural co-operatives of the Mid Szigetköz region. As a result, animal farming and breeding has become less significant. However fluctuations, cycles-increasing stages can be observed in the decrease of produce. To examine and expose the cause of the cycles the organisation and analysis of the factors wich influence animal produce processing in the Mid Szigetköz region is of particular importance. The model of the particular factors which affect the Mid Szigetköz region is depicted on *Figure 7.*

Figure 7. Factors which influence Mid Szigetköz animal produce processing



To sum up we must strive to:

– lessen the decrease of the animal stock of the Szigetköz region,
– strengthen and expand the farming and animal produce processing systems in the region,
– reach a consensus between the interests and stakes of the surrounding villages.

As well a way has to be found to:
- make use of the possibilities available through the EU membership on an adequate level,
- unite ”the back to our roots” traditions of farming and breeding of the Szigetköz region with the demands of new farming and processing technologies and put them in practice too.

Közép-szigetközi települések állati termék kibocsátása (1990–2006)

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Vezetés- és Társadalomtudományi Intézet
Vezetés és Szervezetfejlesztési Tanszék
Mosonmagyaróvár

Összefoglalás

Vizsgálataim során négy közép-szigetközi település (Ásványráró, Hédervár, Darnózseli, Püski) mezőgazdasági szövetkezeti állattenyésztését és az állatitermék-előállításra vonatkozó jellemzőit elemeztem az 1990. évtől a 2006. évig. A vizsgálatokat agrártörténeti kutatásokkal kezdtem, amelyekben áttanulmányoztam a települések mezőgazdálkodásának történelmét bemutató dokumentumokat és feljegyzéseket. Kutatási eredményeim szerint a Közép-Szigetköz, úgy ahogy az egész Szigetköz rendkívül gazdag, értékes, nagy hagyományokkal bíró állattenyésztési kultúrával rendelkezett. A vizsgálataim további, elemző részében a szövetkezetek termelési szerkezetére utaló, az állattenyésztésüket és állatitermék-előállításukat jellemző, és az azt meghatározó naturális adatokat, mutatókat elemeztem (1990–2006). Megállapítottam, hogy az egész országot érintő változások következtében a vizsgált szövetkezetek állatállománya drasztikusan lecsökkent, az előállított állati termékek köre erőteljesen leszűkült, melynek hatására az állattartás és állattenyésztés nagymértékben veszített jelentőségéből.
Vizsgálataim további megállapítása, hogy az állatállomány és az előállított állati termékek csökkenésében ciklusok, középtávú hullámzások figyelhetők meg, melyek az országos szinten bekövetkezett változásoktól, az általános tendenciáktól eltérő mozgást is mutatnak. Az eredmények bizonyítják, hogy az ország ezen sajátos tájkörzetében, az általános gazdasági hatások mellett speciális, a térséget érintő problémák és hatások is érvényesültek. Ezért kiemelkedő fontosságú a közép-szigetközi települések állattenyésztését befolyásoló általános és sajátos tényezők, tényezőrendszerek elemzése, az állattenyésztésben bekövetkezett változások hatásának vizsgálata.
Kulcsszavak: Szigetköz, állattenyésztés, állati termék, szövetkezetek, ciklushatás.

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