

**THESIS OF DOCTORAL (PhD)
DISSERTATION**

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**MOSONMAGYARÓVÁR
2008.**

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**IMPROVEMENT POSSIBILITIES OF
COMPETITIVENESS OF THE WINTER WHEAT
SECTOR IN THE WEST-TRANSDANUBIAN REGION**

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1. INTRODUCTION, OBJECTIVES AND HYPOTHESES OF THE DISSERTATION

Due to the change in the political system which occurred in the 1990's the role of our agriculture within the national economy has decreased. Before the system transformation plant production and animal farming were present in both the traditional small-scale and the large-scale production systems. They were in harmony with each other and built on each other.

Today the previous (farming structure and economic) balance of plant production and animal farming has disintegrated, and as a result plant production has become dominant in the agricultural production. Within plant production the production of grains has been given an outstanding role, thus in the last few years wheat and corn were produced on 70-80% of our sowing fields. The effectiveness or the failure of the grain sector may significantly influence the success and competitiveness of our plant production in the future, too.

The examination of the competitiveness ability of a particular product is a complex task in itself due to the various definitions of competitiveness and due to the several research methods of its contents, but this is especially true in regards to agricultural products. The aim of this dissertation is to analyze the competitiveness of the wheat sector. The actuality of the theme was provided by the fact that Hungary's accession to the EU was such a significant event which resulted in a

fundamentally new competitiveness situation for the participants of the national agricultural market, because:

a) Hungary became a member of the EU's nearly 400 million interior market, where trade policy conditions, price relations etc. were significantly different from our previous systems and

b) the comparative advantage of certain products (animal products) have ceased, while the competitiveness conditions of other products (grain types) have significantly improved.

Based on the above the objectives of the dissertation are as follows:

1. The matter of fact introduction of the role, situation and future prospects of the wheat sector through the use of national and international professional literature.
2. The definition of the concept of competitiveness, the short introduction of its measurement and research methods.
3. The international comparison of the competitiveness of the Hungarian grain sector, the definition and analysis of the factors that influence the competitiveness of the wheat sector.
4. The introduction of the role of the West-Transdanubian region in national agriculture.

5. Based on the results of the questionnaire research the analysis of the grain producing farms of the West-Transdanubian region.

6. With the objective of research-development the author of the dissertation wishes to make proposals for the improvement of the production level of wheat production in the West-Transdanubian region, thus to increase its competitiveness.

Research is based on two hypotheses which are the following:

1. The Hungarian grain /and within it the wheat/ sector possesses favourable indicators of competitiveness when compared internationally.

2. According to special literature resources the results which the farmers of the West-Transdanubian region have achieved in wheat production and the competitiveness indicators are behind the results achieved by farmers in the other regions in Hungary.

2. MATERIAL AND METHOD

The research work which constitutes the basis for this scientific dissertation was carried out at the University of West-Hungary Faculty of Agriculture and Food Sciences, at its Institute of Management and Social Sciences and Economic Sciences between 2005 and 2008. The own research within the framework of the scientific work can be divided into two main parts.

During the course of *secondary research* the comparative analysis of competitiveness of the grain branch took place. The author has primarily relied on the indices further developed by Vollrath (RTA, In RXA, RC), the Sector Specialization Index, the estimated producer and consumer indicators and the price-competitiveness indicators, when judging the international competitiveness.

A significant part of the secondary research is made up of the economic analysis of the wheat sector of the West-Transdanubian region. With the help of the database of the Central Bureau of Statistics nation-wide and regional comparative analyses were conducted respectively. The major part of the regional research comprises of the analyses of the cost and income situation of the wheat sector, the database of these stems from The Agro-Economic Research Institute.

The evaluation of the information obtained through *the primary questionnaire data collection* supplements the

comparative analysis of the data of The Bureau of Statistics. The author has chosen the companies participating in the survey randomly. From the 150 sent out questionnaires 78 were returned, out of which 73 turned out to be evaluable. Regarding the structure of the questionnaire, the *first part* expressed interest in the major data (economic form, employment data, and sector data etc. of the company) and the ideas of the producer in regards to competitiveness.

The *second part* questions the plant production of the agricultural unit putting an emphasis on the grain production data. The *third part* – the most detailed in its questioning – asks about the wheat production of the enterprise and the cost and earnings situation of the enterprise. The *last (fourth) part* of the questionnaire enquires about the future plans of the enterprise, whether it is well-informed about the intervention system of the Union, and also asks about its opinion on precision farming.

At the end of the regional research, with the help of a SWOT analysis as if synthesizing the other research results the author evaluates the competitiveness of the grain producing farms of the West-Transdanubian region.

3. RESEARCH RESULTS AND THEIR EVALUATION

3. 1. Comparison of international competitiveness calculations

The aim during the preparation of the research extending to the international competitiveness of the national grain sector was to introduce an as objective picture as possible about the competitiveness of Hungarian grain types, with the help of various methods of approach.

Summing up and evaluating the calculated results the main conclusions are as follows:

1. Based on the results of the *Sectoral Specialization Indicator* the foreign trade competitiveness of Hungarian food industrial raw materials and products – among them the particular types of grains and the products made from them – are good, and even a gradual improvement tendency is forecasted. In the research period the foreign trade competitiveness of rye and corn exceeded the competitiveness of wheat, barley and oat.
2. According to the calculations of the author, Hungary had *a revealed comparative advantage* in wheat and corn trade against the other member states of the EU, while in

the case of barley the obtained results showed *a revealed comparative disadvantage*. When compared with the regional competitors the calculated indices show a varied picture. At one time (in the case of wheat) Hungary had an apparent comparative advantage, at other times (in the case of barley) Hungary had a disadvantage.

3. Analyzing the *subsidy estimate indicators* on the whole, it can be stated that Hungary – compared to the OECD countries – has shown *lower PSE and CSE values*. It means that concerning cereals, Hungary has shown a competitive and market oriented agricultural production.
4. The national grain *producer prices* still continue to remain the lowest among the EU member states – despite the continuous price increase of the last year.

3. 2. The competitiveness of the wheat sector of the West-Transdanubian region

The area of the West-Transdanubian region constitutes about 12.5 % of the area of Hungary. According to the 2005 year data of the Central Bureau of Statistics, the farm-bordered area of the West-Transdanubian region is 1 123 thousand acres, of which 84.2 % is cultivated land and 15.8 % is land excluded

from cultivation. Nearly 70 % of the cultivated land (649 thousand hectares) is used by agriculture. According to cultivation branches the division of the cultivated land is as follows: its biggest fraction (54 %) is arable land, the measured share of the garden, fruit garden, vineyard and fishpond and reed is around 1-1 %. One-third of the cultivated land is covered by a forest in the region, which is 7.3 % higher than the national average.

In 2005 cereals were produced on 71.4 % of the arable land in the West-Transdanubian region, on 352 thousand hectares. In Győr-Moson-Sopron and Vas counties the rate is somewhat lower, and in Zala county the rate was somewhat higher (75.5 %). When compared nationally, this rate can be said to be high, because in 2005 on the cultivated arable land the rate of cereals constituted a total of 66 % (2 million 933 thousand hectares) in Hungary.

Regarding the harvested area of the winter wheat the West-Transdanubian region it ranks only 6th among the country's regions with its area of 117-127 thousand hectares, with only 11 % of the total harvested area in the country. The largest wheat arable lands can be found on the Southern Plains (245-288 thousand hectares) and the Northern Plains regions (192-252 hectares) in our country. In the research period the harvested wheat area constituted 42-43 percent of the national territory.

Considering yields in the investigation period, the West-Transdanubian region occupied fourth place in the national rankings behind the Southern-Transdanubian, Middle-Transdanubian and Southern Plains regions.

By summing up the regional calculations based on the database of the Central Bureau of Statistics, the following conclusion can be made: *although the West-Transdanubian region does not belong to the traditional cereal growing regions of our country, based on yields and produce volumes obtained in the research period the potentials of cereal production cannot be ignored.*

3. 3. The analysis of the competitiveness of the winter wheat sector based on cost and income situation

With the help of economical calculations information can be obtained about both the cost and the sector result indicators. The primary objective of the discussion in the chapter was the examination of the cost and the profitability trends of wheat production covering the years 2005 to 2006.

Analyzing the development of the costs of wheat production on the whole it can be said that in the research period all costs have shown increase. When analyzing the cost structure it can be stated that the greatest fraction of the production cost were made up of the material costs (26-34 %), the wage costs (9-13 %) and the land rent costs (11-13 %).

Within the material costs the costs of artificial fertilizer have represented the highest ratio (45-55 %), that is, the farmers have spent significant sums on increasing fertilizer usage.

The average sale price of the wheat in the West-Transdanubian region was around 19 706 – 26 173 HUF /ton, the average national prices were around or above (20 608 – 25 766 HUF/ton) in the research period.

By analyzing the income content of the average prices we can conclude that based on the negative values in the research period, wheat sales prices have not covered costs. 400-500 HUF/ton was lacking to make the sector operate at break even. From this, the conclusion can be drawn that the subsidies played not only a cost but also a cost supplementing role in the research period.

Regarding the wheat branch results in 2006, the West-Transdanubian region has exceeded the national average with 39 780 HUF/hectare (that's 123%), which has put it among the bests in our country.

Analyzing the development of the yield-cost-income relations on the whole we can conclude that the results of the wheat sector in the West-Transdanubian region have shown a value which is more favourable than the national average results, and as a result, they will ensure competitive wheat production for the farmers in the region.

3. 4. The evaluation of the questionnaire survey

In order to have reliable replies, the questionnaire survey was filled in anonymously. The author does not regard the results of the survey as representative, and does not wish to draw long term conclusions from it due to the low sample numbers. Below, the author merely wishes to state his own impressions.

57 % of the responders to the survey conducts agricultural activity in Győr-Moson-Sopron county, 32 % in Vas and only 11 % farm in Zala county. 54 % of the responders are economic organisations, 26 % are cooperatives, 11 % are private entrepreneurs, 5 % are primary producers, and 4 % belong to other category.

Regarding the size of the farmland area *eight* among the responders farm on 1–30 acres of land, *fifteen* on 30–300 acres, *eighteen* on 500–1000 acres, *nine* on between 3000–5000 acres, and *two* farm on an area above 5000 hectares. The size of the farmland reflects well that the largest fraction of the people who responded to the survey were from the circle who were farming on land above 1000 acres. This is also supported by the fact that 80 % of the questioned farms were economic organisations or cooperatives. The responses to the question: "According to your opinion how can Hungarian agriculture be competitive in the EU?" the answers have shown well that farmers in the region are aware of the shortcomings of Hungarian agriculture, what's

more, they do have their own ideas about how the competitiveness of Hungarian agriculture could be improved. Several very interesting statements from the responders are below:

- a) *„ with farming unit concentration, and higher subsidies”*
- b) *„by producing good quality products which conform to Hungarian peculiarities”*
- c) *„equal conditions, quality, trade policy”*
- d) *„tighter, trust-based cooperation between producers-traders-processors”*

When evaluating the received responses it is obvious that the farmers in the region see the improvement of competitiveness in quality production, the closer cooperation between the participants of the product path and in cost effective production processes.

The second part of the questionnaire focused on wheat production and within it the data of wheat production covering the period between 2003 to 2006.

Summing up the statements after the evaluation of the questionnaires: the situation of the farmers in the region can be considered to be favourable - yet at the same time, there are hidden opportunities (eg: incentives for quality production, foreign trade, the extension of storage capacity, co-operation) and other areas by the exploitation of which the competitiveness of the Region's wheat sector can further be increased.

4. NEW AND NOVEL SCIENTIFIC RESULTS

1. Proposal for competitiveness as definition: *"in the agribusiness an enterprise that is able to keep or increase its profitability in a competitive environment whilst also meeting the food product safety and environment protection requirements can said to be competitive."*
2. *Based on our calculations* (Sectoral Specialization Index, Revealed Comparative Advantages, Estimate-indicators of OECD subsidy, price-competitiveness), *the international competitiveness of Hungarian wheat compared to the major international competitors forecasts a favourable, gradually improving tendency.*
3. *The West-Transdanubian region does not belong traditionally to the wheat producing regions in Hungary, however based on yields and produce qualities achieved in the researched period, the potentials of the region in wheat production must not be overlooked.* The reason is that the global lack of foods and the bio fuel production which is questionable in both value and future, puts the situation of the entire Hungarian cereal sector into a new light.

4. *The wheat sector of the West-Transdanubian region possesses competitive advantages, which come from low production costs and the favourable profit indicators.*

5. *To define the local opportunities of competitiveness the author has conducted a questionnaire survey amongst the growers of the West-Transdanubian region. Based on the results, the conclusion could be drawn that farmers in the Region consider the improvement of competitiveness of the wheat sector to be in quality production, in closer cooperation among the participants of the product channel, as well as in more cost effective production processes.*

5. LIST OF PUBLICATIONS IN THE THEME OF THE DISSERTATION

1. Scientific paper published in Hungarian language

KARÁCSONY P. (2007): Egy szövetkezet búzatermelésének eredményessége. Gazdálkodás. Gyöngyös. 20. számú külökiadás, 51. évf., 151-154. p.

KOLTAI J. P. – KARÁCSONY P. (2006): Az ökológiai gabonatermelés Magyarországon. Gazdálkodás. Gyöngyös. 16. számú külökiadás, 50. évf., 53-57. p.

KARÁCSONY P. (2006): Az intervenciós gabonátárolás szerepe a Nyugat-Dunántúli régió példáján. Gazdálkodás. Gyöngyös. 16. számú külökiadás, 50. évf., 57-62. p.

2. Scientific paper published in foreign language

KARÁCSONY P. – MÁRKUS R. (2007): The comparative study of wheat growing results in Hungary and Austria. Acta Agronomica Óváriensis, Mosonmagyaróvár, Volume 49., Number 1., 51 – 61 p.,

3. Oral and poster presentations in Hungarian language

KARÁCSONY P. (2006): Az őszi búza terméseredményei a Nyugat-Dunántúli Régióban. XXXI. Óvári Tudományos Nap, Mosonmagyaróvár

KARÁCSONY P. (2005): Az intervenciós gabona tárolásának vizsgálata a minőségmegőrzés tükrében a Nyugat-Dunántúli régióban. I. Gazdálkodás PhD Konferencia, Mosonmagyaróvár

4. Oral and poster presentations in foreign language

KARÁCSONY, P. – ORBÁN, J. (2007): Competitiveness of Hungarian wheat production. The Third International Scientific Conference in Kaunas, Lithuania

KARACSONY P. (2006): The prospective market of cereals in the EU. 31th Scientific day in Óvár. Mosonmagyaróvár

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KARÁCSONY P. – KOLTAI J. P. (2005): The situation of conventional and organic cereal production in Hungary. I. Conference of Ph.D. Students „Gazdálkodás” Mosonmagyaróvár, 14th October 2005

5. Proceedings in Hungarian and foreign language

KARÁCSONY, P. – ORBÁN, J. (2007): Competitiveness of Hungarian wheat production. The Third International Scientific Conference in Kaunas, Lithuania

KARÁCSONY P. (2006): Az őszi búza terméseredményei a Nyugat-Dunántúli Régióban. XXXI. Óvári Tudományos Nap, Mosonmagyaróvár CD-kiadvány

KARACSONY P. (2006): The prospective market of cereals in the EU. 31th Scientific day in Óvár. Mosonmagyaróvár

6. Abstracts in Hungarian and foreign language

KARÁCSONY P. (2006): Az őszi búza terméseredményei a Nyugat-Dunántúli Régióban. XXXI. Óvári Tudományos Nap Mosonmagyaróvár, Competitor-21 Kiadó, Győr, 151 p.

KARÁCSONY P. (2006): The prospective market of cereals in the EU. 31th Scientific day in Óvár. Mosonmagyaróvár, Competitor-21 Kiadó, Győr, 152 p.

KARÁCSONY P. (2005): Az intervenciós gabona tárolásának vizsgálata a minőségmegőrzés tükrében a Nyugat-Dunántúli régióban. Gazdálkodás 49. évf. Klnsz. 14. 36. old.

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KARÁCSONY P. – MAZÁN M. (2005): A konvencionális és az ökológiai gazdálkodásból származó étkezési búza értékesítésének összehasonlító vizsgálata. Within the European Union II. Nemzetközi konferencia „Verseny élesben”, Mosonmagyaróvár, 2005. május 5-6.

MAZÁN M. – KARÁCSONY P. (2005): A konvencionális és az ökológiai gazdálkodásból származó szemes termények tárolásának összehasonlítása. Within the European Union II. Nemzetközi konferencia „Verseny élesben”, Mosonmagyaróvár, 2005. május 5-6.