THE INTERNATIONAL COMPETITIVENESS OF HUNGARIAN AGRICULTURE

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1. Introduction

In collaboration with the Hungarian Ministry of Agriculture and the Institute for agricultural economics of the ETH Zürich the international competitiveness of Hungarian agriculture and its structural development with different possible measures in agricultural policy are examined. On the occasion of this seminary a short survey of the project could be of interest, since the University of Prague and the Institute for agricultural economics of the ETH Zürich are preparing a similar project in connection with Czech agriculture.

As a first step in this presentation the problems to be examined are presented in the form of scenarios. Secodly, a survey of the applied method is given. At the end follows a presentation of some available results.

2. Scenarios

The whole complex of questions is structured in four scenarios. In the first two scenarios the international competitiveness of Hungarian agriculture with varying international price levels for agricultural products is examined. In the last two scenarios the changes of the agricultural structure with an interventionist and a deregulated orientation of the Hungarian agricultural policy are described. The examined quantities are: the labour requirements, the use of cultivated area, the structure of farming systems etc. In this contribution we concentrate on the first two scenarios.

At first economic situation on the international agricultural markets is described. The diagram on the left in diagram 1 shows the course of supply and demand of the agricultural exporters (e.g.USA). The diagram on the right shows the market situation of agricultural importers (e.g. the EC under free trade conditions). On the world market (middle diagram) market balance (point of intersection between Aw and Nw) between the exporter and the importer builds up at world market price pw. Under these conditions the exporter exports the quantity (m4-m1) and the importer imports the same quantity (m10-m7). Under the setting of an interventionist agricultural policy the import country wants to guarantee his farmers the target price pz. This makes the internal offer rise from m7 to m9. At the same time, because of the price increase, the

demand falls from m10-m8. At pz a surplus offer results, which has to be exported. Therefore, the EC by taking price supporting measures has developped into an exporter. The consequences of the interventions for the world market are the following: because of the additional export quantity of the interventionist the world market offer moves towards the right side (Aw'). The world market demand, however, due to the increase international production of the former importer moves towards the left (Nw'). Thus, the new price balance has fallen onto the distorted level of pw'. Under these conditions the competitive exporter exports a diminished quantity of (m3-m2). The EC has subsidise its exports by the amount of A1 in order to sell it on the international markets.

Therefore, interventionistic measures are influencing the international markets in two ways. Firstly the demand on the world market is reduced and the offer increased and secondaly as a consequence of it the prices fall. Table 1 shows a survey of various international and national prices on a producer price basis.

Table 1. European prices outside of the EC in $ without export subsidies

Product 100 kg	International prices	cif-North Sea prices
Wheat	15.2[1]	16.7
Maize	10.5[2]	12
Sunflower Seeds	ca.28[3]	28
Sugar Beets	20.3[5]	21.8
Eggs	76.9[6]	111.9
Fryers (lw)	69.1[6]	87.1
Pork (lw)	85.2[7]	122.4
Beef (lw)	82	101.3
Mutton (lw)	c.104[9]	120

[1]:Durum, fob Gulf; [2]:fob Gulf; [3]:cif Rotterdam;

[4]:cif Rotterdam; [5]:Raw sugar, fob, Carribean;

[6]:Producer price USA; [7]:wholesale trade USA; [8]:Producer

price Buenos Aires; [9]: Producer price New Zealand;

The CIF North Sea prices correspond to parity prices of internationally competitive agricultures. This price level would appear within a short time on the European markets, once export subsidies, would be dropped. The CIF North Sea prices therefore approximately correspond to pw from diagram 1. They are calculated outgoing from the price levels of internationally competitive agricultures (USA, Argentina and New Zealand). By addition of the freight fees to

Europe (North Sea) the CIF North Sea parity prices result. As a comparison in table 2 EC producer prices are quoted. Also apparent are the import duties, which are imposed by the EC on products from outside the community. The difference between the EC producer prices and the imposed duties makes the price (Import EC) for which products from outside the EC have to be offered, if they should be imported into the EC. A comparison between the two price levels in table 1 (CIF North Sea) and table 2 (Import EC) shows the big difference in price levels between pw and pw' out of diagram 1.

In the first scenario of the study the competitiveness of Hungarian agriculture is examined on the baisis of the price level in table 1 (CIF North Sea). In the second scenario the price level is determined on the basis of table 2 (Import EC).

Table 2 EC producer prices, EC import duties, EC import prices and Hungarian producer prices ($)

Product 100 kg	Producer price EC	Import duties	Import price EC (cif)	Producer pricr H
Wheat	22.95[2]	21.8	1.15	8
Maize	23.1[2]	17.5	5.6	8.35
Sunflower seeds	-	-	-	14.7
Sugar beet	-	48.7[4]	-	2.2
Eggs	90.5[3]	16.3	73.7	72.9
Fryers (lw)	100[2]	32[5]	68	86.5
Pork (lw)	123.3[3]	49.3[5]	74	94
Beef (lw)	154.5[2]	100[5]	54.5	77.3
Mutton (lw)	120	88	32	220.8

[2]:Germany; [3]:Netherlands; [4]:Raw Sugar; [5]:Carcass weight converted into live weight

3 Method

As an analytical instrument a sectoral model is used which allows the description of type specific and aggregated offer curves. As an additional element, demand curves may be taken into account in the form of restrictions. As a mathematical basis is used the method of linear programming (lp). The model distinguishes 16 different types of farming. Included are small part-time holdings with 1 ha of agricultural area, family holdings with 50 ha of agricultural area up to big crop enterprises with an agricultural area of 6000 ha. Further, the farms differ in the amount of labour needed for animal and crop management. Additionally, the big farms have bigger machines with higher capacities at their disposal than the medium and small sized farms. Another distinguishing feature consists in the costs for buildings. Existing buildings which were built in the time of the socialist system have lower amortization rates than buildings that have been erected recently. In the model an acreage of 4.3 million ha of land is reproduced. This area is divided into three categhories of qualitz. The soil quality results in different yielda in plant production. The functional mechanism of the model is illustrated in diagram 2.

In diagram 2 the sector is restricted to two farms A and B and to the cropa fodder wheat (FW11 to FW3) and bread wheat (BW1 to BW2) and to animal production. The various activities within the fodder or bread wheat production differ by different yield levels. Within the enterprises the goods are reproduced in product balances. Fooder crops are linked with the animal production. Starting with the farm balances the products are sold and brought together in sectoral balances. If the farm undergoes a deficit of animal feedstuffs, this is convered by purchase from the sectoral level the comprehensive offer is confronted with the demand in the countrry. If the offer is exceeding the demand, the goods are exported onto the international markets. In the opposite case goods are imported.

4. Results

In the following passage starting from the first scenario, two sectors are discussed. In crop production the fallow problem under the condition of changing prices is discussed. In animal husbandry questions of competition are examined. In crop production with given producers prices (CIF Notrh Sea prices) the sunflower is the most competitive crop. Already a slight reduction of the price of sunflower by 10 % results in fallow land on the poorer soil category. This has the following reasons: as a result of the reduction of the price of sunflower seeds a smaller amount of infrastructure for crop production can be financed. Consequently, the production capacity for all crops is reduced, because the same machines are used various crops. The price reduction on sunflower seeds therefore leads to an increase in production costs for all crops. As a consequence, on the poorest soils the production costs for all crops exceed the proceeds. With fodder wheat for example the outcoming loss is 39 $ per ha. With bread wheat it is 32 $, with maize 13 $ and with sunflowers 9 $. The deeper the producer prices are falling, the bigger the losses and the more important will be fallow problem. If we take into account the current producer in Hungary (Table 2), the conclusion can be made, that in the future particularly on the poorer soils in Hungary there will be a considerable amount of fallow land.

In the sector of animal husbandary in the following passage an analysis of marginal costs for the most important branches is presented. With given price-cost relations a product is only competitive, as long as its marginal costs do not exceed producer prices. Table 3 shows a survey of the calculated marginal costs and the corresponding producer prices.

Table 3

Current producer prices, parity prices and marginal costs in the first scenario ($)

Production branch	Parity prices CIF Noth sea	Producer prices (1992)	Marginal costs		
100 kg live weight			large estate	family farm	part-time farm
Fryers	87.1	84.1	54.7 - 59	-	-
Eggs (1000p.)	111.9	72.9	105 - 112	-	-
Milk		23	27.6-34.5	40	-
Pork	122.4	94	100.7-118.4	130.3	94.7
Beef	101.3	77.3	100 - 150	102-172	-

The range of the calculated marginal costs wthin a farm category may vary depending on wether the farm has been built anew or wether the buildings have been existing before. With the buildings already existing the marginal costs are lower because of the lower costs for buildings. Compared to the parity price, fryer pork and egg production are competitive. The production of fryers having the highest potential of profit. If current producer prices are taken as a basis of comparison, only the fryer production has marginal costs laying below the level of producer prices. All the other branches of production show losses of various extent. But it has to be considered, that the prices of feedstuffs in this scenario are based on parity prices (CIF North Sea). The current feedstuff prices, especially wheat and maize, are lower, which results in a lowering of marginal costs for animal production. But this point can be precised by an analysis of the second scenario, where the Hungarian price level is oriented towards the current distorted world market price level (pw' in diagram 1).