Analysis of the rice commodity channel in Romania, focusing on the quality of local and imported rice, and factors governing sales

Mendez Del Villar P., Pons B., Munteanu M.

in

Chataigner J. (ed.).
Research strategies for rice development in transition economies

Montpellier : CIHEAM
Cahiers Options Méditerranéennes; n. 50

2001
pages 45-57

Analysis of the rice commodity channel in Romania

Focusing on the quality of local and imported rice, and factors governing sales

P. Mendez del Villar*, B. Pons*, M. Munteanu**
*CIRAD/CA, Montpellier (France) ; **RICIC, Calarasi (Romania)

Le contexte

Cette étude s'inscrit dans le cadre d'une coopération, sur fonds du Ministère des Affaires Etrangères français, entre l'Institut Roumain des Céréales et des Plantes Industrielles (ICCPT) et le Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD). L'objectif général de cette coopération vise à étudier les conditions d'une relance de la riziculture dans ce pays et, en particulier à travers une étude de la filière axée sur la qualité des riz commercialisés en Roumanie.

L'étude repose sur des enquêtes réalisées auprès de grossistes et de détaillants dans les villes de Bucarest, Braïla, Focsani et Oltenita. Les données collectées indiquent que les importations couvrent l'essentiel de la consommation de riz : plus de 95 %. L'Egypte est le principal fournisseur avec près de 70 % des riz consommés en Roumanie. Les réseaux d'importations, dominés par des importateurs d'origine arabe, semblent bien structurés avec des flux réguliers qui répondent à une demande à la fois faible (5 kg/an/hab) et peu exigeante (des riz à pourcentage de brisures élevé). Face à ces réseaux, le riz roumain semble peu compétitif par rapport aux riz importés. En outre, la riziculture roumaine subit la concurrence des cultures de substitution. Actuellement, celle-ci représente moins de 2.000 ha avec des rendements ne dépassant pas les 3T/ha, alors que 10 ans auparavant les surfaces rizicoles s'élevaient à près de 50.000 ha. Cette situation tient essentiellement aux contraintes directes de l'environnement de la production : problèmes d'accès aux intrants dûs au manque de ressources financières (crédits de campagne), problèmes d'entretiens des infrastructures d'irrigation, problèmes de rentabilité par rapport à des cultures plus rémunératrices et moins techniques ou consommatrices en intrants (céréales sèches, oléagineux...). A cela s'ajoute la vétusté du matériel d'usinage peu performant et donc peu compétitif par rapport aux produits concurrents importés.

I – Background

This study was conducted under a cooperation agreement, funded by the French Ministry of Foreign Affairs, between the Romanian Institute for Cereals and Industrial Crops (ICCPT) and the Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD), France. The overall objective of the agreement is to study the conditions for revitalizing rice growing in Romania. The objective of the present study, through an analysis of the commodity channel focusing on the quality of the rice sold in Romania, is to suggest different actions allowing the increase of quality of rice in Romania.

The study was based on surveys of wholesalers and retailers in Bucharest, Braïla, Focsani, Calarasi and Oltenita. The data collected indicated that imports cover the major part Cover 95% Cof rice consumption. Egypt is the leading supplier, with almost 70% of the rice consumed in Romania. The import networks,

which are dominated by importers of Arabian origin, seem to be highly structured, with consistent supplies that satisfy a demand that is both limited (5 kg/year per capita) and relatively unexacting (high proportion of broken kernels). In the face of these networks, Romanian rice seems to have difficulty competing with imported rice. Moreover, it also has to compete with substitute crops, and currently covers under 2 000 ha, with yields of less than 3 t/ha, whereas 10 years ago, rice was grown on almost 50 000 ha. This situation is primarily linked to the direct constraints of the production environment: limited access to inputs due to a lack of financial resources (campaign credit), problems with irrigation system maintenance, low profitability compared to other less labour- and input-intensive crops (cereals, oil crops, etc.). Furthermore, the ageing processing equipment is largely inefficient and further prevents Romanian rice from competing with its imported rivals.
This study has been a short time which reduce quantitative data. Some conclusions are the result of discussions with researchers, operators, and few people.

II – General situation in the romanian rice growing sector

1. Area

Despite Romania=s location, it has a longstanding tradition of rice growing. There are currently 70 000 ha of land suitable for rice growing, with a tertiary irrigation and drainage network in good condition. The cultivation zone is to the North and Northwest of the Danube.

Presentation to the Seminar organised by FAO Rice Network in Bucharest (Romania) on "The research strategy for rice in transition and economic situation", 2-4 September 1999.

Rice occupied an area of 50 000 ha in 1989 (Table 1). By 1994, the area had shrunk to 4 600 ha, and the figure was just 1 700 ha by 1998. Over the period 1989-1998, rice growing slumped due to an increase in seed, pesticide, diesel and water prices and bank interest rates. At the same time, State subsidies were abolished. The 1 700 ha remaining in 1998 were split as follows: 1 000 ha around Oltenita, 100 ha around Fundulea (Southeast) and 600 ha around Braïla (East). At present, only the large State farms inherited from the former regime still grow rice, whereas the private sector completely abandoned the crop in 1992.

Table 1. Areas planted with rice and output (1986-1998)

Year	Area (ha)	Yield (t/ha)	Output (t)
1986	43 200	3.5	152 600
1987	44 700	2.6	115 700
1988	49 000	2.7	131 600
1989	49 300	1.4	70 200
1990	39 900	1.7	66 500
1991	21 600	1.5	31 400
1992	16 400	2.4	38 900
1993	12 009	3.0	36 448
1994	4 638	3.3	15 229
1995	6 166	3.9	24 066
1996	8 532	2.7	23 100
1997	3 986	2.7	10 669
1998	1 726	3.0	5 142

Source: FAOSTAT database, April 1999

2. Production

Paddy rice production is currently around 5 000 t with average yields of 3 t/ha. From 1989 to 1991, average yields per hectare were halved, leading to a drop in overall output. In 1991 and 1994, a reduction in the areas planted led to a significant fall in total output. The fall in production has largely been due to the difficulty in obtaining inputs. As the State has gradually phased out its subsidies, farmers no longer have the means to buy seed, fertilizers and pesticides; this is one of the main obstacles to planting new areas and to efficient rice growing.

3. Consumption

National rice consumption totals almost 125 000 t/year, including around 5 000 t of local and 120 000 t of imported rice, ie based on a total population of 23 millions, a per capita consumption figure of around 5 kg/year. Romania thus depends on imports for over 95% of its rice consumption, whereas it was self-sufficient, and even produced surpluses, up to 1989. The request remains stable: imports compensate the output decrease (Table 2).

Table 2. Domestic rice production and imports in Romania (1986-1998)

Year	Production (t/ha)	Imports (t)
1986	152 600	0
1987	115 700	0
1988	131 600	0
1989	70 200	0
1990	66 500	70 000
1991	31 400	90 000
1992	38 900	100 000
1993	36 448	110 000
1994	15 229	120 000
1995	24 066	120 000
1996	23 100	120 000
1997	10 669	120 000
1998	5 142	120 000

4. Varieties grown

Five rice varieties are currently grown: Oltenita, Polizesti, Chirnogi, Cristal and Braïla.
Oltenita and Braïla account for 70% of the area planted; they are short grain varieties. Chirnogi and Polizesti are also short grain varieties, and account for 25% of the area planted. Only Cristal is a grade A long grain type, and covers 5% of the total area.

5. The local paddy rice processing sector

The major part of the paddy rice produced in Romania is processed by ten plants in three districts: Braïla, Bucharest and Calarasi (Table 3). Six other units with less capacity are located elsewhere in the country, in Djol, Ialomita, Giurgiu and Timisoara. The processing equipment is relatively old and inefficient; locally processed rice includes a high proportion of broken kernels Caround 40% Cand impurities. The processing plants are currently running below capacity. Of the processors we met, some were keen to import cargo rice and bleach it in Romania with a view to obtaining a bigger share of the added value.

Table 3. Current rice processing facilities in Romania

District	Site	Number of processing plants	Origin
Braïla	Baldovinesti	1	Italy
	Gropeni	2	Italy
	Stancuta	2	Italy
Bucharest	Bucharest	1	Italy
	Bucharest	2	East Germany
Calarasi	Oltenita	2	Italy
Dolj	Macesu	1	Italy
Ialomita	Giurgeni	1	Italy
	Valdeni	1	Italy
	Slobozia	1	East Germany
Giurgiu	Giurgiu	1	East Germany
Timisoara	Timisoara	1	East Germany
TOTAL		**16**	

III – Distribution channels

1. Operators

Most rice is marketed through channels involving three main types of operator Cimporters, wholesalers and retailers.
Imported rice accounts for over 95% of rice sales in Romania. This rice is sold through highly structured national channels sometimes involving a large number of middlemen.
Local rice, on the other hand, is primarily sold through local, and sometimes regional, channels.

A. Importers

The imported rice is milled rice. Importers bulk buy rice in 25 or 40-kg sacks. Most of the rice is imported from Egypt (80%), and the remainder from Asia: Pakistan (10%), India (5%), others (5%). Import prices range from US$ 250-450/t depending on quality and origin, and the rice generally arrives by ship at the port of Constanza, around 100 km from the capital. The importers are mainly of Arabian origin (90%).

B. Wholesalers

Wholesalers buy from importers and sometimes directly from processing plants. The rice is mostly packed in 900-g plastic bags with the wholesaler's brand (or simply his name). There are two other types of packaging: 1-kg plastic bags or 500-g to 1-kg cardboard boxes, and 25-kg sacks for loose sales.

The wholesale markets are large halls in or on the edge of towns. Each has 15 to 30 wholesalers.
Their consumers come from every region of the country. However, Bucharest is the main consumption centre (70%), followed by Transylvania (20%) and Moldavia (10%).

C. Retailers

Retailers mainly sell rice in the 900-g bags prepacked by their suppliers, but also loose. The rice is sold on daily outdoor markets and in greengrocery type shops and supermarkets.

2. Distribution channels

There are four main distribution channels: two for imported and two for local rice.

A. Imported rice channels

The first channel is a long national one with numerous middlemen, from the port of arrival Constanza to the consumption centres: Bucharest and the country's other main towns.
Wholesalers play a greater role in the second channel, and are in direct contact with importers. Most of them are based in Bucharest.
In both cases, retailers, shopkeepers and market traders buy from wholesale markets. They buy rice in 900-g bags with the distributor-wholesaler's brand. The 900-g bags are in turn packed in 25 to 50-kg sacks.

Channel 1

Importers
↓
Intermediate wholesalers
↓
Wholesalers
↓
Retailers
(Supermarkets, Shops, Outdoor markets)

Channel 2

Importers
↓
Wholesalers
↓
Retailers
(Supermarkets, Shops, Outdoor markets)

B. Romanian rice channels

Given the small volumes of Romanian rice, the corresponding distribution channels are not national in scale. There are two types of channel:

A regional, long channel involving several types of operator: producers, processors, wholesalers and supermarket owners or shopkeepers or market traders.
Another local, short type, involving producers, processors and shopkeepers and/or market traders.

Channel 3

State farms
↓
Local rice factory
↓
Wholesalers
↓
Retailers
(Supermarkets, Shops, Outdoor markets)

Channel 4

State farms
↓
Local rice factory
↓
Retailers
(Shops, Outdoor markets)

3. Outlets surveyed

The types of outlet vary depending on the economic importance of the consumption centre. All types are found in the main cities (Table 4).

Table 4. Outlets surveyed in Romania

Town	Neighbourhood	Wholesalers	Retailers		
			Supermarkets	Shops	Outdoor markets
Bucharest	Rich	4	3	2	0
Bucharest	Average	19	2	5	14
Bucharest	Poor	1	0	4	1
Ploiesti	Rich	6	9	3	0
Oltenita	Average	0	0	11	1
Calarasi	Average	0	0	4	5
Braïla	Average	1	0	3	0
Braïla	Poor	0	0	0	11
Focsani	Average	8	1	0	0

Most of the wholesaler surveys were conducted in Bucharest and Focsani.
As regards retailers, most of the surveys were conducted at the most representative types of outlets, ie greengrocery type shops and outdoor markets (around 60 surveys). In comparison, just 15 supermarkets were surveyed. Most of the shops surveyed were in Oltenita, whereas most of the outdoor markets were in Bucharest and Braïla; these Atypes of outlet® are common in towns with average to low income levels. In Ploiesti, a wealthy town, Asupermarket® type outlets are common, and nine were surveyed. In Braïla, the wholesaler surveyed was also interviewed.

IV – Rice quality characterization

1. Quality standards for rice sales in Romania

Table 5 gives the organoleptic and physicochemical quality characteristics and acceptable rates for two official grades governing national rice sales in Romania (Standard SR 1226, date 1994).

Table 5. Quality characteristics and thresholds for two commercial grades

Quality characteristic	Acceptable level (maximum %)	
	Grade I	Grade II
	Appearance	Fully husked kernels
Colour	White	White to yellowish-white
Smell		No foreign odours (mould, rodents)
Taste		Pleasant, specific
Contamination		No insects at any stage of development
		No spider=s webs
Organic impurities	0.5	2.0
Inorganic impurities	0.2	0.3
Yellow kernels	0.0	5.0
Red streaked kernels	3.0	12.0
Immature (green) kernels	0.0	5.0
Chalky kernels	0.0	10.0
Broken kernels	7.0	20.0
Small broken kernels	0.5	2.0
Moisture content	15.0	

The characteristics relating to sanitary standards, viz. the absence of insects and any other form of contamination, are the same for both grades, as are the organoleptic characteristics: taste, smell and appearance. However, the threshold levels for characteristics relating to kernel defects and broken kernel percentages make a clear distinction between the two grades. The proportion of red streaked kernels can be up to 12% for grade II; likewise, the same goes for the acceptable proportion of broken kernels, which is high for grade II: 20% (compared to 7% for grade I).
The maximum moisture content is 15% for both grades.

2. Characterization of rice sample during surveys

11 rice samples were characterized (Table 6):

- five Romanian rice samples, including four taken at the OLRIZ factory in OltenitaC*Polizesti, Cristal, Oltenita, Chirnogi*Cand one taken at an outdoor market in Focsani.
- six imported rice samples of Egyptian origin taken at different outdoor markets.

Table 6. Technological characterization of samples taken during surveys

Samples	Length (mm)	Width (mm)	L/W	Morphological classification	1000-kernel weight (g)	Broken kernels (%)	White bellies (%)	Amylose content (%/DW)
Romanian rice								
Polizesti -OLRIZ	5.1	2.9	1.8	**Round**	20.6	38.4	60% - patches	21.2
Cristal - OLRIZ	7.2	2.8	2.6	**Long (A)**	26.7	39.5	100%	18.6
Oltenita - OLRIZ	5.7	2.8	2.0	**Medium**	24.2	12.0	15%	21.0
Chirnogi - OLRIZ	4.8	3.0	1.6	**Round**	21.0	41.2	30% - patches	20.7
Focsani B Lorena	5.7	3.0	1.9	**Medium**	25.6	43.0	95% - patches + white bellies	20.0
Imported rice								
Braïla - Rominar	5.1	2.5	2.0	**Round**	17.9	13.8	5%	14.5
Focsani - Lorena	4.8	2.3	2.1	**Round**	15.3	11.4	5%	14.9
Focsani - El Nouhi (blue)	5.1	2.7	1.9	**Round**	20.0	25.9	15% - very small patches	15.1
Focsani -El Nouhi (yellow)	5.2	2.5	2.1	**Round**	17.4	11.8	5%	17.1
Braïla - Antony Club	4.9	2.4	2.0	**Round**	17.5	11.6	0%	15.4
Focsani - loose	4.8	2.3	2.1	**Round**	15.2	15.1	15% (opaque kernels)	12.8

A. Characterization of Romanian rices

ccording to the rice morphological classification system used in the EU, four of the Romanian rices analysed were short or medium grain types (Table 6). The kernels were under 6.0 mm long and the length:width ratio less than 3. Only the Cristal variety was classed as grade A long grain, with a length of 7.2 mm (> 6.0 mm) and a length:width ratio of 2.6 (> 2 and < 3).

The 1000-kernel weight (g) was over 21 g for the samples as a whole. It was 21 g on average for the short grain rices, 25 g for the medium grain samples and 26.7 g for the grade A long grain Cristal variety.

Most of the rices analysed had a very high proportion of broken kernels, varying from 39.5 to 48.4% for four of the samples analysed. Only the Oltenita sample had a much lower proportion (12.0%), but this is still too high for it to be classed as grade I (Table 5).

Romanian rice is characterized by the existence of white bellies and patches, which gives processed rice a whitish appearance.
The amylose content was 20-21%, except for Cristal (18.6%).

B. Characterization of imported (Egyptian) rices

The imported rices analysed were short grain types, with an average length of 5.0 mm (between 4.8 and 5.2 mm) and an average length:width ratio of 2 (between 1.9 and 2.1) (Table 6).

The 1000-kernel weight was under 20 g for the samples as a whole. It varied between 15.2 g and 17.9 g, except for the *Focsani-El Nouhi (blue)* sample, for which the figure was 20 g. This rice was graded "*boboss"* by the trader, which means a short, Afat® grain, a characteristic which is appreciated in the Focsani region.

The proportion of broken kernels was much lower than for the Romanian rices analysed, ranging from 11 to 15% for five samples and with a figure of 26% for the *Focsani - El Nouhi (blue)* sample.
The imported Egyptian rices also differed in terms of appearance, with a small proportion of white bellies (between 5 and 15%), a translucent appearance and a cream to greyish colour.
Amylose contents were also very different: under 17% and even mostly under 15%.

C. Quality comparison between Romanian and imported rices

The main differences in quality between these rices concerned their appearance and amylose content. In terms of appearance, the Romanian rices contained a high proportion of white bellies with the patches covering a large part of the kernel, whilst the imported Egyptian rices had both a lower proportion of white bellies and smaller patches. Kernel size also differed greatly: the Romanian rices were short or medium grain, whilst the imported rices were all short grain and smaller (different 1000-kernel weight). The two origins also differed in terms of the proportion of broken kernels, with a very high proportion for the Romanian rices, whilst the imported Egyptian rices had a much lower amylose content.

As regards the proportion of broken kernels, of the Romanian rices analysed, only Oltenita satisfied even one of the Romanian quality standards (grade II), whereas most of the imported rices corresponded to that grade. Nethertheless in spite of the low quality of Romanian rices, Romanian people prefer them. They appreciate the shape of these rices, appearance and also cooking qualities for traditional dishes.

V – Price analysis

We compiled the different price figures per town and also per type of outlet. The average, minimum and maximum prices and standard deviation are given in Table 7. The analysis concerned the rices sold in 900g plastic bags, the most common type of packaging in Romania. At the time of our surveys in December 1998, the exchange rate was 10 000 leis to the dollar.

1. Analysis of price differences between towns

The highest average price, all outlets combined, was in Ploiesti (6 789 lei) and Calarasi (6 522 lei) the lowest in Focsani (4 694 lei) and Braïla (4 710 lei). The average prices in Bucharest and Oltenita were inbetween (5 651 and 5 511 lei respectively). The lowest price for a 900-g bag was recorded in Bucharest and the highest in Ploiesti.

Price variability was higher in Bucharest than in the other towns: the standard deviation was 669 in Bucharest, whereas in the other towns, it varied from 205 (Calarasi) to 457 (Braïla). This can be put down

to the large number and geographical dispersion of markets in Bucharest, whilst in the provinces, the close proximity of markets reduces price differences.

Furthermore, the average price in provincial towns in the East of the country was 5 440 lei, around 5% less than that in Bucharest (5 651 lei).

Table 7. Rice prices in the different towns and types of outlet in Romania

Town	Shops	Outdoor markets	Wholesalers	All types of outlet combined
BUCHAREST				
Average	6 288	5 724	5 302	5 651
Minimum	5 500	5 000	4 250	4 250
Maximum	7 000	6 700	6 000	7 000
Number of surveys	16	19	25	60
Standard deviation	354	462	711	669
OLTENITA				
Average	5 511	*	*	5 511
Minimum	5 200	*	*	5 200
Maximum	6 000	*	*	6 000
Number of surveys	9	*	*	9
Standard deviation	262	*	*	262
CALARASI				
Average	6 475	6 560	*	6 522
Minimum	6 100	6 500	*	6 100
Maximum	6 800	6 800	*	6 800
Number of surveys	4	5	*	9
Standard deviation	287	134	*	205
PLOIESTI				
Average	7 167	*	6 600	6 789
Minimum	7 000	*	6 500	6 500
Maximum	7 500	*	6 800	7 500
Number of surveys	3	*	6	9
Standard deviation	289	*	155	341
FOCSANI				
Average	*	*	4 590	4 590
Minimum	*	*	4 275	4 275
Maximum	*	*	5 200	5 200
Number of surveys	*	*	14	14
Standard deviation	*	*	284	284
BRAILA				
Average	*	5 009	4 411	4 710
Minimum	*	4 500	4 275	4 275
Maximum	*	6 000	4 700	6 000
Number of surveys	*	7	7	14
Standard deviation	*	467	155	457

2. Analysis of price differences between types of outlet

All the types of outlet were analysed in Bucharest, compared to just two in Oltenita and Braïla, which makes the data for these last two towns difficult to interpret.

The average wholesale price in Bucharest was 5 302 lei (standard deviation = 711). On outdoor markets, the retail price of a 900-g packet was 5 724 lei (standard deviation = 462), ie around 10% more than the average wholesale price. The average retail price in shops was 6 288 lei (standard deviation = 392), almost 20% more than the average wholesale price.

3. Analysis of price differences between rices

A. Identification and characterization of the types of rice sold

In addition to recording prices, quality characteristics were also estimated during the surveys, including:

- ❏ overall appearance: cleanness, colour, processing quality.
- ❏ kernel morphology.
- ❏ estimated proportion of broken kernels.
- ❏ presence of foreign kernels or paddy rice kernels, etc.

This enabled us to identify five types of rice.

Table 8. Identification and characterization of the rice sold in Romania

Type	Origin	Estimated proportion of broken kernels	Appearance	
T 1	Imported Egypt/Asia	< 10%	Good appearance	
T 2	Imported Egypt/Asia	10-30%	Good appearance	No positive observations
T 3	Imported Egypt/Asia	10-30%	Nothing positive specified	Foreign kernels, chalky kernels Dust, dirt Some paddy rice kernels
T 4	Romania	10-50%		Whitish appearance,white bellies
T 5	Imported European Union/USA		Good appearance	

- ❏ **Types 1, 2 and 3** include the imported rices from Egypt or Asia. They differed in terms of the proportion of broken kernels (estimated visually) and appearance. **Type 1** corresponds to rices with < 10% broken kernels and a very good appearance; **type 2** primarily differs in terms of the proportion of broken kernels (between 10 and 30%); **type 3** corresponds to rices with between 10 and 30% broken kernels, with no positive observations concerning the appearance of bleached kernels, but containing foreign kernels, chalky kernels and dust.

- ❏ **Type 4** includes all the Romanian rices, with between 10 and 50% broken kernels and a Awhitish® appearance due to a high proportion of white bellies. There were also dust, foreign kernels and paddy rice kernels in some cases.

❏ **Type 5** corresponds to rice imported from the European Union or the USA: white or parboiled, fragrant rice, with a good appearance. This type of rice is very marginal and is only found in the rich parts of Bucharest, and was thus excluded from our price analysis.

B. Analysis of imported (Egyptian) rice prices

Table 9 gives the average, minimum and maximum prices and standard deviations per type of rice and per town.

Table 9. Prices and standard deviations per type of rice and per town

TOWN/TYPE	T1	T2	T3	T4	T5
BUCHAREST					
Average	5 483	5 756	5 080	5 954	27 656
Minimum	4 500	4 860	4 250	5 500	18 180
Maximum	7 000	6 500	6 500	6 412	114 840
Number of surveys	3	10	15	18	24
Standard deviation	1 333	553	798	259	19 901
BRAILA					
Average	4 794	4 567	4 840	*	*
Minimum	4 275	4 275	4 700	*	*
Maximum	6 000	5 000	5 000	*	*
Number of surveys	4	6	4	*	*
Standard deviation	808	312	125	*	*
FOCSANI					
Average	*	4 433	4 592	5 200	*
Minimum	*	4 275	4 275	-	*
Maximum	*	4 680	5 200	-	*
Number of surveys	*	4	12	1	*
Standard deviation	*	196	240	-	*
OLTENITA					
Average	*	*	*	5 511	*
Minimum	*	*	*	5 200	*
Maximum	*	*	*	6 000	*
Number of surveys	*	*	*	9	*
Standard deviation	*	*	*	262	*

Every type of rice was found in Bucharest, with mostly types 2 and 3 (25 type 2 and 3 rices out of 28 surveys). The average price of all types of rice combined varied between 5 080 leis (T3) and 5 756 leis (T2), with an intermediate price of 5 483 lei for type 1.

If types 1 and 2, which were characterized by a good appearance, were pooled and compared with type 3, which looked Adirty®, the price difference between the two sets was slightly higher, viz. 613 lei (T1 + T2: 5 693 lei and T3: 5 080 lei). The cleanness of imported rice would thus seem to have an impact on its price, irrespective of the proportion of broken kernels.

In Braïla, types T1, T2 and T3 were found, at very similar average prices (4 794, 4 567, 4 840 lei respectively). In Focsani, types T2 and T3 were dominant, particularly type T3 (12 type 3 rices out of 17 surveys).

There was a difference between Bucharest and the other two towns for every type of rice identified: they were all more expensive in Bucharest. The highest price differences were for type T2, with an almost 30% difference. The differences were smaller for type T3.

Likewise, rice was more expensive in Braïla than in Focsani. All three types of rice were found in Braïla, suggesting that there was a degree of choice or diversity, whereas only types T2 and T3 were seen in Focsani.

C. Analysis of Romanian rice prices

Of the different markets surveyed, Romanian rice was only found in Focsani. The prices we were given in Bucharest were from wholesalers who came to buy rice at the OLRIZ factory in Oltenita. Romanian rice was systematically more expensive than imported rice.

VI – Price factors (Table 10)

Imported rice prices varied between $ 250 and 450/t. Egyptian rice was the most expensive ($ 450 to 480/t). The price depended on rice type and quality (moisture content, proportion of broken and foreign kernels).

The various taxes added by *importers* were 15% customs duty, 11% VAT, 6.5% customs commission, 10 to 20% gross profit.

The *wholesalers* added a gross profit of between 10 and 40%. Transport costs varied depending on the point of sale. They were low in Constanza (port of arrival) and tended to increase with distance. The price we were quoted was $ 0.60/km for 20-t trucks. Lastly, the *retailers* added a gross profit of between 0 and 30%.

Table 10. Imported rice price factors

Operator	Origin	
	Egyptian $/t	Other $/t
Importers	450.00	250.00
15% customs duty	67.50	37.50
11% TVA	49.50	27.50
6.5% customs commission	29.25	16.25
10% gross profit	45.00	25.00
Wholesalers	641.25	356.25
10% gross profit	64.13	35.63
15% transport	96.19	53.44
Retailers	801.56	445.31
10% gross profit	80.16	44.53
Consumers	881.72	489.84

VII – Overview of and prospects for romanian rice growing

The Romanian economy has been in a transitional phase since 1989. This situation has had its repercussions, particularly in the agricultural sector. For instance, almost a million hectares have been left to fallow due to a lack of cashflow and support resulting from economic policies that have failed to encourage productive long-term investments, particularly in agriculture, which has seen the gradual dislocation of the national production system and backup, credit and input supply services.
In the local rice sector, the areas planted and output have shrunk. This rice crisis has hit the whole of the commodity channel: the production and processing system is old and largely uncompetitive, and local rice is finding it hard to gain a foothold in distribution channels.

As a result, the Romanian rice sector is currently characterized by the dominance of imported rice and distribution channels dominated by importers. The data collected indicated that imports cover the major part Cover 95% Cof rice consumption. Egypt is the leading supplier, with almost 70% of the rice consumed in Romania. The import networks, which are dominated by importers of Arabian origin, seem to be highly structured. Nethertheless the request remains stable and imports compensate the output decrease.

A comparison of various quality criteria revealed a substantial difference between local and imported rices. The size are primarily characterized by short or medium grain Asquat® rices with a high proportion of white bellies and broken rices. The rices imported from Egypt are smaller, short grain varieties with a small proportion of white bellies. In addition to these visual criteria, there are also differences in amylose content, leading to variations in cooking performance. Nethertheless in spite of the low quality of Romanian rices, Romanian people prefer them. They appreciate the shape of these rices, appearance and also cooking qualities for traditional dishes. About the price, in spite of these differences of quality, the price of local rices is higher than imported rices.

The feasibility of the reviving Romanian rice growing would allow for and study now the cost of production in the today economic system. The possibilities to increase the productivity must be study, as follows:

1/ the improvement of rice cropping systems (land preparation, inputs…),

2/ the improvement of the quality by improvement of post-harvest equipement and techniques of harvesting, drying, storage and milling. The quality could be increased with a perfect control of post-harvest conditions. Processing would be upgraded to reduce broken kernels and increase the final quality of rice.

On the other hand, it is necessary probably at first to study and to evaluate the competitivity and the profitability of national production of rice compared to others less labour-and input-intensive crops.
Finally, it is important to take account of the development, structure and current competitiveness of imported rice distribution channels compared to those for Romanian rice. Moreover, the current dominance of imported and particularly Egyptian rice may eventually lead to changes in consumption habits and quality criteria.