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Ibolya Simon-Kiss
Irrigation Research Institute, Rice Research Department, Szarvas (Hungary)

Résumé. *La Hongrie se situe à 47-48° de latitude Nord ; elle représente la frontière septentrionale de la riziculture méditerranéenne. Malgré les contraintes climatiques, on y cultive du riz pour la consommation depuis 1946. La superficie a atteint son extension maximale en 1955 (50 000 ha) et son plus faible niveau en 1996 (2 000 ha). Les besoins intérieurs ne sont plus couverts depuis 1960, d'où l'augmentation constante des importations de riz blanc dont le prix est faible. L'amélioration génétique du riz relève de l'Institut de recherche sur l'irrigation (Szarvas) en coopération avec d'autres institutions. Entre 1983 et 1993, on a mis en circulation neuf variétés à cycle court et à grain long, offrant une résistance moyenne à la pyriculariose, un bon potentiel de rendement et un bon niveau qualitatif. Grâce à ces variétés et aux techniques suggérées, les rendements peuvent être améliorés et portés à 4-4,5 t/ha, niveau qui rendra la production rizicole rentable en Hongrie. De bons résultats pourraient être obtenus avec l'amélioration génétique et la mise au point d'une technique pour la riziculture en sec. Il est prouvé que cette technique peut assurer en Hongrie un rendement de 4 à 6 t/ha.*

Abstract. Hungary is situated on 47-48°N latitude: it is the northern border of Mediterranean rice cultivation. In spite of climatic constraints, rice has been cultivated for home consumption since 1946. The largest rice area was in 1955 (50 000 ha) and the smallest in 1996 (2000 ha). Since 1960, the home demand could not be satisfied, so white rice import increased steadily due to its low price. Rice breeding has been carried out at the Irrigation Research Institute (Szarvas) in cooperation with other institutions. Since 1983 to 1993, nine varieties have been released which are of short duration, medium resistant to blast disease, long grain type and have a good yield potential and good quality. The rice yields can be increased by these varieties and with the suggested technology to 4-4.5 t/ha and with this result rice production will be profitable in Hungary. Good progress could be achieved with breeding and technological development for upland rice production. The result proved that 4-6 t/ha yield can be harvested by this technology in Hungary.

I – General information

Total land area	9 303 000 ha
Cultivable area	4 972 000 ha
Rice area	10 830 ha in 1990
	2 000 ha in 1996

II – Rice production and consumption

Table 1. Rice production and consumption, 1981-1995

Year	Area (1000 t)	Production (1000 ha)		Consumption (1000 t)
		paddy	milled	
1981	12.9	39.1	25.4	40.0
1982	12.8	48.6	31.6	40.0
1983	12.4	47.0	30.5	40.0
1984	13.2	33.0	21.5	40.0
1985	11.0	36.8	23.9	40.0
1986	11.6	46.0	30.0	42.0
1987	13.2	39.7	25.8	42.0
1988	12.3	41.5	26.9	46.0
1989	11.8	28.7	18.6	46.0
1990	10.8	36.5	23.7	46.0
1991	7.0	17.7	11.5	53.0
1992	4.9	15.5	10.0	53.0
1993	4.2	12.3	8.0	53.0
1994	2.8	9.7	6.3	53.0
1995	2.3	9.0	5.8	53.0

Table 2. Evolution of production and detail prices

	Production cost in HF t/ha		
	1988	1992	1996
Material (seed, fertilizer, pesticide, fuel, etc.)	22 400	28 000	64 000
Treatments + supplies (varying on seeds)	10 600	12 000	26 000
Wages	4 000	4 000	10 000
Maintenance + Amortization	5 000	6 000	12 000
Other expenses	3 000	4 000	8 000
General costs	3 400	4 500	14 000
Total	**48 400**	**58 500**	**134 000**
Price of paddy (HF t/t)	16 000	17 200	44 000

Table 3. Import and export evolution (in tons)

Year	Import	Export
1962-1990	5 000-18 000	0
1991	25 800	55
1992	39 200	1 200
1993	49 300	187
1994	26 000	1 380
1995	34 400	320

Table 4. Rice area and yield, 1995

Rice area (ha)	Yield (t/ha)
2 360	Average 3.80
	Record 6.50

Table 5. Main cultivated rice varieties

Main varieties
Ringola, M-225, Sandora
Köröstáj 333, Dáma

III – Constraints and potential of rice production

❒ **Main constraints**

Climate	Mainly low temperatures at critical phases
Water and irrigation	Irrigation cost is very high; drainage system is obsolete
Diseases	Blast
Insects	
Weeds	
Other constraints	

❒ **Potential**

– Increasing yields: country average of 4.5 t/ha; farm records of 5-6 t/ha
– Increasing the rice area by: + 8 000-10 000 ha by the year 2005

IV – The rice research network

❒ Institutions working on rice and rice production :

• Irrigation Research Institute
Szabadsag u.2.
H-5540 Szarvas
Tel. 36-66/312-322 Fax : 36-28/310-804

• University of Agriculture, Inst. Genetics and Plant Breeding
Pater K. u. 1.
H-2103 Gödöllö
Tel. 36-28/320-200 Fax : 36-28/310-804

• Cereal Research Institute
P.O. Box 391
H-6701 Szeged
Tel. 36-62/435-235 Fax : 36-62/435-235

• Agricultural Biotechnology Center
P.O. Box 170
H-2100 Gödöllö
Tel. 36-28/330-600 Fax : 36-28/320-096

• Institute of Hungarian Academy of Sciences
Brunszvik u. 2.
H-2462 Martonvasar
Tel. 36-22/460-016 Fax : 36-22/460-213

• Jozsef Attila University, Institute of Plant Physiology
P.O. Box 654
H-6701 Szeged
Tel : 36-62/454-000 Fax : 36-62/454-000

• Mrs. Simon-Kiss Ibolya
Irrigation Research Institute
Szabadsag u.2.
H-5540 Szarvas
Tel. 36-66/312-322 Fax :36-66/311-178

• Mr. Ipsits Csaba Miklos
Irrigation Research Institute
Szabadsag u. 2.
H-5540 Szarvas
Tel. 36-28/312-322 Fax : 36-66/311-178

• Mr. Heszki Laszlo E.
University of Agriculture, Inst. Genetics and Plant Breeding
Pater K, u.1.
H-2013 Gödöllö
Tel. 36-28/320-200 Fax : 36-28/310-804

• Mr. Pauk Janos
Cereal Research Institute
P.O. Box 391
H-6701 Szeged
Tel. 36-62/45-235 Fax : 36-62/435-235

• Mr. Jenes Barnabas
Agricultural Biotechnology Center
P.O. Box 170
H-2100 Gödollö
Tel. 36-28/330-600 Fax : 36-28/320-096

• Mr. Barnabas Beata
Inst. of Hungarian Academy of Sciences
Brunszvik u.2.
H-2462 Martonvasar
Tel. 36-22/460-016 Fax : 36-22/460-213

• Mr. Zsoldos Ferenc
Jozsef Attila University, Institute of Plant Physiology
P.O. Box 654
H-6701 Szeged
Tel. 36-62/454-000 Fax : 36-62/454-000

❒ Main research topics of the above research institutions: Breeding by conventional and biotechnological methods.

❒ Number of researchers per institution: Researchers are mostly in part time for rice research.

❒ Most import achievements in rice research:

• Developed rice varieties

Variety	Released in	Cycle days	Grain shape
Augusta	1992	127	Long
Ringola	1990	134	Long
Karmina	1990	138	Medium
Köröstaj 333	1990	138	Medium
Sandora	1993	140	Long
M-488	1995	140	Short
Dama	1992	144	Long

- Rice production technologies:
  - Land preparation
  - Methods of crop establishment – Time and way of seeding
  - Crop protection
  - Weeds control
  - Fertilizer management – Improvement of N fertilizer efficiency by inhibitor treatments
  - Water management – Rice production by sprinkler irrigation
  - Harvest
  - Others

❒ Actual programs:
– Varietal improvement for cold and disease tolerance as well as grain quality
– Fertilizers improvement and water management

❒ Contraints of rice research: due to the decrease of the rice area, financial support to rice research has decreased drastically making it impossible to maintain the experimental fields and laboratories which served rice research until 1995.

V – The rice production policy

Sixty percent of self-support for short programmes and self-sufficiency for long programmes.