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Chataigner J. (ed.).
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Montpellier : CIHEAM
Cahiers Options Méditerranéennes; n. 24(2)

1997
pages 153-155

Article available on line / Article disponible en ligne à l'adresse :

<http://om.ciheam.org/article.php?IDPDF=CI011098>

To cite this article / Pour citer cet article

Alionte G. **Rice production and consumption in Roumania**. In : Chataigner J. (ed.). *Activités de recherche sur le riz en climat méditerranéen*. Montpellier : CIHEAM, 1997. p. 153-155 (Cahiers Options Méditerranéennes; n. 24(2))



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Rice production and consumption in Roumania

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Résumé. En Roumanie, la zone de riziculture s'étend sur 62 000 ha. En 1994, la superficie ensemencée a couvert 4489 ha. En 1995, elle était de 6060 ha et en 1996 de 9300 ha. Le rendement le plus faible a été obtenu en 1989 (850 kg/ha) tandis que le meilleur résultat a été enregistré en 1995 (3830 kg/ha). Le rendement en riz a augmenté chaque année à partir de 1991. Si le coût de production s'est établi à environ 0,27 \$EU, en revanche le prix de détail a oscillé, passant de 0,20 \$ en 1990 à 0,77 dollar en 1996. La zone de riziculture est située en bordure du Danube dans quatre régions principales et les variétés utilisées sont essentiellement : Polizesti 28, Oltenita, Cristal et Chirmogi. Les principaux facteurs limitant la production de riz sont : les basses températures aux différents stades de développement, la salinisation élevée du sol, le nivellement du sol, le stockage, etc. Les rendements peuvent être améliorés pour dépasser les 5 t/ha dans les 2 ou 3 prochaines années, tandis que la superficie cultivée pourrait avoisiner les 30 000 ha en l'an 2000. L'Institut des céréales de Fondulea conduit 80% des travaux de recherche sur le riz effectués en Roumanie. Ces recherches se proposent essentiellement : de créer de nouvelles variétés modernes ; de développer les techniques de riziculture et de limiter l'apport d'intrants.

Abstract. The rice growing area in Romania is 62 000 ha. The largest rice area cultivated was 4489 ha in 1994. The rice area cultivated was 6060 ha in 1995 and 9300 ha in 1996. The lowest yield was obtained in 1989 (850 kg/ha) and the highest yield was in 1995 (3830 kg/ha). The rice yield has increased annually from 1991. The production cost was approximately US\$ 0.27 and the detail price varied from US\$ 0.20 in 1990 to US\$ 0.77 in 1996. The rice area is situated near the Danube river in four main regions and the principal varieties used are: Polizesti 28, Oltenita, Cristal and Chirmogi. The most serious constraints in rice production are: low temperature at different rice growth stages; high salinity soils; land levelling storage, etc. The rice yields can be increased to over 5 t/ha in the next 23 years whilst the rice area can approach 30 000 ha in the year 2000. The Cereals Institute in Fondulea carried out 80% of the research work on rice in Romania. The most important targets in rice research are: to obtain new modern rice varieties; to increase the cropping technology of rice and to obtain a low input.

1. General information

Total land area	14 790 000 ha
Cultivable area	9 367 000 ha
Rice area	62 000 ha

2. Rice production and consumption

Table 1. Rice production and consumption since 1981 to present

Year	Area (ha)	Yield (kg/ha)	Total yield to (paddy)	Total consumption to (white)
1981	22 000	1 600	35 200	75-80 000
1982	22 000	2 080	45 700	75-80 000
1983	25 000	3 010	75 250	75-80 000
1984	30 000	3 300	99 000	75-80 000
1985	40 000	3 500	140 000	75-80 000
1986	45 000	3 600	162 000	75-80 000
1987	50 000	3 780	189 000	75-80 000
1988	50 000	2 700	135 000	75-80 000
1989	50 000	850	42 500	75-80 000
1990	28 799	1 412	40 664	75-80 000
1991	20 263	1 208	24 477	75-80 000
1992	15 549	2 046	31 813	75-80 000
1993	11 859	2 633	31 224	75-80 000
1994	4 488	3 101	13 917	75-80 000
1995	6 060	3 830	23 210	75-80 000
1996	9 350	-	-	-

□ Production and detail prices, between 1981 and 1989, are difficult to establish. Production varies from 0.23 US \$ in 1990 to 0.24 US \$ in 1996 for paddy rice. Detail prices vary from 0.20 US \$ in 1990 to 0.77 US \$ in 1996.

□ Rice area and yield per region, 1995

Regions	Rice area	Yield
Braila	3 848	3 982
Ialomita	544	4 230
Calarasi	1 200	3 533
Dolj	1 240	2 742
Timis	250	3 600

□ Main cultivated rice varieties per region

Regions	Main varieties
Braila	Polizesti 28, Cristal
Ialomita	Cristal, Chirnogi
Calarasi	Oltenita, Cristal, Chirnogi
Dolj	Oltenita, Polizesti 28
Timis	Bega

3. Constraints and potential of rice production

□ Main constraints per region

Climate	Continental temperature zone
Soil	Alluvial
Water & irrigation	Water from the Danube and continuous submersion method
Diseases	<i>Pyricularia oryzae</i> , <i>Helminthosporium oryzae</i> and <i>Gyberella fujikuro</i>
Insects	<i>Chironomidae</i> by <i>Cricotopus silvestris</i>
Weeds	
Other constraints	Salty soils

- ❑ Increasing rice yields. For the time being this can be easily achieved. The rice yield was increased from 2 046 kg/ha in 1992 to 3 830 kg/ha in 1993, and in 1996 the average yield was expected to be over 4 500 kg/ha.
- ❑ Increasing the rice area. It is possible to increase the rice area from 10 000 ha in 1996 to 25-30000 ha for the year 2000.

4. The rice research network

- ❑ Institutions working on rice and rice production:
 - Research Institute for Cereals and Industrial Crops, Fundulea, Rice Laboratory
 - Research Station for Soils Breeding, Braila
- ❑ Main research topics of the above institutions:
 - Creation of rice cultivars characterized by crops of over 7 t/ha earliness (110-120 days), resistant to lodging and suitable to mechanical harvesting, resistant to diseases and pest, to low temperatures at critical vegetation periods, of high quality and tolerant to salty soils.
 - Elaboration of cropping technologies specific to each cultivar and ensuring high yields with minimum expenses.
- ❑ Number of researchers per institution: 5 for the Research Institute for Cereals and Industrial Crops, and 2 for the Research Station for Soils Breeding
- ❑ Most important achievements in rice research:
 - Developed rice varieties: Braila, 1985 – Cristal, 1988 – Chirnogi, 1989 – Oltenita, 1992 – Speranta, 1994
 - Land preparation
 - land leveling
 - land preparation for normal soils and land preparation for saline soils
 - Methods of crop establishment
 - for direct seeding by broadcasting in water conditions and in dry conditions
 - for direct seeding by drilling
 - Crop protection
 - cultivar resistance to *Pyricularia oryzae*, *Helminthosporium oryzae*
 - Weed control
 - research and trials of new herbicides to control *Echinochloa spp.* and *Cyperaceae spp.*
 - Fertilizer management
 - elaboration of an optimum fertilization system on normal soils and improved salty soils
 - Water management
 - establishment of the irrigation method for each seeding method
 - Harvest
 - introduction of new types of harvesting combiners: Klass, New Holands, etc.
- ❑ Actual programs in the field of breeding will aim at creating new cultivars characterized by: long shaped grain or semi-long, superior quality, increased output at processing, high yielding potential, earliness and resistance to low temperatures. With the view to increasing the cropping technology of rice, the research programme includes the following:
 - the study of the various methods of soil preparation for seeding
 - research on the application of some breeding methods on salty-alkaline soils cultivated with rice to increase their fertility and yield
 - elaboration of an optimum fertilization (weeds, diseases and pest control).