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Rice production and consumption in Russia

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Résumé. Le riz occupe en Russie une superficie d'environ 300 000 ha. Il est cultivé dans la partie européenne, à Krasnodar, Rostov et Astrakhane ainsi que dans la République du Kravkaze. Il est aussi cultivé dans la zone extrême-orientale et en bord de mer. Les conditions climatiques sont très favorables à cette culture, avec une période de végétation de 125 jours dans la zone de Krasnodar et jusqu'à 110-115 jours dans le reste du pays. Les nouvelles variétés de riz doivent avoir un très bon rendement à l'ha, être de très bonne qualité, résistantes aux maladies et aux nuisances, et bien adaptées à la récolte aux moissonneuses batteuses. En Russie, des variétés résistant au sel et aux basses températures (+8°C, +10°C) à la levée ont été créées. Il y a aussi des variétés résistant à une submersion jusqu'à 20 cm d'eau, pour lutter contre les adventices (graminées). Des variétés européennes ont été utilisées comme matériel d'origine, telles que Ardizone, Baldo, Balilla Grana Grasso, Rialto, Maratele 5A, etc., ce qui nécessite un échange permanent de matériel entre chercheurs de différents pays.

Abstract. Climatic and soil conditions allow the cultivation of rice varieties with a vegetation period of 125 days in the Krasnodar Region and up to 110 to 115 days in other rice growing zones. These conditions make the parameters of rice varieties which are released by Russian breeders. Selection and breeding of rice in Russia have a comparatively short history, about 65 years. Release of varieties is carried out in breeding centres in the Krasnodar, Rostov and Primorsky regions. The general requirements to the varieties released in Russia are: high yield, excellent quality of milled rice, good for machine harvesting, resistance to diseases and pests and also to soil-climatic conditions. The most dangerous diseases of rice are: Blast, Fusarium, Bacterial blight and White tip, which are caused by nematodes. The serious rice pest is green bug, the mass propagation of which takes place every 5-7 years.

1. General information

Total land area	1 707.5 million ha
Cultivable area	184.2 million ha
Rice area	306 000 ha

2. Rice production and consumption

□ Rice production and consumption, 1981-1995

Year	Tons
1981	1 408 000
1985	1 169 000
1990	1 304 000
1995	1 206 000

□ Rice areas and yields per region, 1995

Region	Rice area	Yield
Krasnodar	140 000 ha	1,73 t/ha
Rostov	35 000 ha	3,68 t/ha
Astrakhan	24 000 ha	3,45 t/ha

Main cultivated rice varieties per region

Région	Main varieties
Krasnodar	Liman, Slavyanctz, Spalchik, Rulon
Rostov	Kuban-3, Spalchik
Astrakhan	Kuban-3, Spalchik

3. Constraints and potential of rice production

Constraints

Climate	Temperature limit for vegetation period 110-125 days
Soil	Favourable for rice
Water & irrigation	Water enough for rice
Diseases	Blast fusarium...
Insects	Hematodes aphides...
Weeds	Echinochloa, ...
Others constraints	Salty soils

Potential:

- Increasing rice yields: up to 6 t ha
- Increasing the rice area: up to 350 000-400 000 ha

4. The rice research network

- The institution working on rice and rice production: Alle-Rus. Res. Inst., Kuban State Agricultural University, with regional stations.
- Main research topic of the above research institution: Rice breeding and development of technologies.
- Number of researchers: 210 in ARRI and Kuban State Agricultural University ; 50-70 in each station.
- Most import achievements in rice research:
 - Developed rice varieties: more than 30 rice varieties
 - Rice production technologies:
 - land preparation
 - methods of crop establishment
 - crop protection
 - weed control
 - fertilizer management
 - water management
 - harvest
- Actual programs: Release of immune varieties.

5. The rice production policy

The aim of this policy is to provide the whole population with Russian rice only.

Rice occupies an area of about 300 000 ha in Russia. It is cultivated in the European part of the country: in the Krasnodar, Rostov, and Astrakhan regions, and in the republics of the northern part of Caucasus. Rice is also growing in the far East of Russia and in the Primorsky region.

The climate and the soil conditions makes it possible to grow rice varieties with a vegetation period of 125 days in the Krasnodar region and up to 110-115 days in the other rice growing areas. The parameters of the rice varieties released by Russian breeders depend on these conditions.

Rice breeding in Russia has a comparatively short history, about 65 years. The release of varieties is carried out at the breeding centres of Krasnodar, Rostov and Primorsky. The general requirements for the released varieties area are: high yield, excellent quality of milled rice, suitability for machine harvesting, resistance to diseases and pests and also to soil and climatic conditions.

The most dangerous diseases are : Blast, Fusarium, Bacterial blight and White tip caused by nematodes and the serious rice pest is: green bug, the mass propagation of which takes place each 5-7 years. Release of varieties resistant is obtained through the use of special infectious backgrounds during artificial and natural infection. Considering that most of the rice fields occupy saline soils, it is necessary to release salt resistant varieties and also varieties resistant to low temperatures (+8° and +10°C) at the seeding period.

During the recent years, breeding of such varieties giving seedlings from water layer (up to 20 cm) has been carried out for rice growing without anticereal herbicides.

The main method for obtaining the necessary initial stock is interspecific hybridization. Varieties of local breeding and samples of the world collection are used as parent forms. Besides simple crossing, complex multi-spots crossing is widely used for selection purposes.

Moreover, initial stock is created by the method of chemical mutagenesis and biotechnology.

At present there are more that 30 rice varieties cultivated in Russia, among wihch 15 in the Krasnodar region. And 7 of them have been released during the last three years. A majority of the modern varieties in Russia has been released with the participation of European varieties (Ardizone, Baldo, Balilla grana grosso, Rialto, Maratelli 5A...). This explains their excellent donor qualities.

European rice growers know such Russian rice varieties as Krasnodarsky 424, Spalchik, Liman, Slavyanetz, Kulon, which showed good results at testing in different countries including France.

Finally, it seems necessary to continue with the international testing process of new rice varieties and to widen the exchange of collection samples in order to reach mutual success and profit.



Figure 1. An example of the use of West European breeders in the Russian rice breeding pattern



