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**ГРЕБЕННА ТЕХНОЛОГИЯ ЗА ОТГЛЕЖДАНЕ НА ОРИЗ В УСЛОВИЯТА НА
КЗИЛОРДИНСКА ОБЛАСТ
RIDGE TECHNOLOGY OF RICE CULTIVATION UNDER THE CONDITIONS OF
THE KYZYLORDA REGION**

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Abstract

The article contains, for the first time, materials taken under the conditions of the Pre Aral with the ridge technology of rice cultivation, including traditional technology of soil preparation and plantation on ridges.

Key words: rice, ridge technology.

INTRODUCTION

Rice is the main source of food for half of the world's population, which puts before all rice-producing countries, including Kazakhstan, the task of finding ways to increase its production, improving the quality and preservation of ecology of the environment. The emerging tendency of reduction of the volume of world trade in rice with the increasing competition in the international market may create problems with satisfaction of demands on it. Currently, there are rice fields in 112 countries on the area of 147 million hectares with an annual production of grain with over 700 million tons. According to experts of the Food and Agriculture Organization of the United Nations (FAO), this year, rice production in the world has increased by 1.7% and, by amount, to 781 million tons, increasing the demand for wheat for 2-3%. In this case, the expected rice production by 2020 is prognosed to be 750 million tons.

MATERIALS AND METHODS

You can increase the yield of rice by the intensification and optimization of the agrophitocenosis production process, and this requires the whole complex of agronomic measures, the main of which are: planting rice crops in optimal time with the best placement of seed in the square with the minimum depth of their incorporation into the soil, providing formation for optimum density of seedlings,

steady state of irrigation, the normal supply of plant with mineral elements, the protection of crops from pests and diseases by weeds.

The developed ecological situation in Kazakhstan Pre Aral put forward new resource-saving regional technologies of cultivation of the crops providing the complete manifestation of biological potential of plants, increase of their efficiency, restitution of the lost fertility of soils with decrease in salinization and a contamination.

Crops of rice represent dynamic self-regulating system – agrophytocenoses, i.e. agroecocenosis. At high agricultural background, depending on the thickness and area of crop nutrition, coenotic relationship of rice plants are measured that is caused by the architectonics of plants, the intensity and efficiency of photosynthesis and other physiological characteristics. Change of size indexes of photosynthetic activity and growth processes to fluctuations of quantity and quality of a grain yield.

In this regard, one of the modern and recent trends of cultivation of rice is development and deployment of zonal resource-saving, ecologically safe and economically expedient technologies of cultivation of rice based on minimum processing of the soil and a ridge planting method.

Ridge technology is a technology of growing crops, where sowing of seeds is done on combs but irrigation is done by furrows.

RESULTS

Studies were held in stationary of KazSRI (Kazakh Science Research Institute of rice-growing) and laboratory and field methods of researches were applied.

By results of research apparently from table 1 at a ridge planting method by the time of cleaning 93,9 and 95,2% from all grown plants remained, that is 9 and 10% more than at an ordinary way of crops.

The research showed that the productivity of rice lands is independent from a comb sowing method. For instance, sowing of 4.5mln per 1 ha, as a norm, grain yield made up 49 c/ha, but in ordinary way 48,0 c/ha respectively. However, economy of water by 25%, chemical fertilizers by 20% and seeds by 1.7 times is observed.

The quality of grain rice depends on storage materials – starch and proteins, which account more than 90% of dry grains. In the process of growing and development of rice, formation of a quality of grain depends on an interrelation between genetic potential and agro ecological factors (area of nutrition, doses, a period and methods of fertilizer inclusion, irrigation regime).

Table 1

The influence of a comb sowing method to a structure of rice crops

Variants	Number of plants per 1 m ²	Shoot, %	Safety by the time of harvest, %	Tillering, unit	Number of spiked plants per 1 m ²	Yield, t/ha
1 ha sowed with 3,0 m seeds	78,3	26,1	93,9	3,1	227,8	31,70
1 ha sowed with 4,5 m seeds	113,4	25,2	95,2	2,9	318,2	49,10
1 ha sowed with 7,5 m seeds (control)	170,5	22,7	85,0	2,2	317,9	48,00

Chemical, especially nitrogenous, fertilizers make a significant influence for the grain quality. So, against phosphorus and potassium (P₁₂₀K₈₀ kg/ha) fertilizers, content of protein, starch and whole nucleus in grain increases at optimal dose of nitrogen (N₁₆₀ kg/ha) and content of reground increases. An influence of nitrogenous fertilizer (ammonium sulfate, urea) turns up to be of same level (table 2).

Table 2

The influence and ratio of chemical fertilizers to quality of rice grains (sort Kuban 3)

Doses of chemical fertilizers, kg/ha	Protein, %	Starch, %	Filminess, %	Mass of 1000 seeds, g		Cereal yield and its quality, %	
					all	including	
Without fertilizers (control)	7,5	61,2	19,4	31,3	70,2	75,4	24,6
N ₁₆₀	8,1	62,7	20,3	29,8	68,3	70,7	29,3
P ₁₂₀	7,6	61,8	19,3	31,7	71,5	77,9	22,1
K ₈₀	7,5	61,5	20,7	31,8	70,3	76,8	23,2
N ₁₆₀ P ₁₂₀	8,9	75,6	17,9	31,6	73,6	85,1	14,9
N ₁₆₀ K ₈₀	8,3	66,3	19,0	31,8	72,3	81,5	18,5
P ₁₂₀ K ₈₀	7,9	62,7	19,5	31,5	71,2	75,9	24,1
N ₁₆₀ P ₁₂₀ K ₈₀	9,0	76,1	18,0	31,9	74,1	89,5	11,5

CONCLUSIONS

On the basis of generalization of a huge experimental material provided in conditions of Pre Aral, according to the results, proposes and recommends comb sowing method, which includes rice sowing with the ridge width from 60 to 120 cm, to 2-4 lines, with a distance between them 25-30 cm, and seeding width from 3,0 m fertile seeds/ha to 4,5 mln fertile seeds sealing them to depth of 0,5-2,0 cm. It contributes more formation of yield in agrocenosis. So, in order to improve technologies, rice cultivation is actual and has practical importance.

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