



The influence of irrigating norms of favorable sorts of rice grown as baby trees on the growth-development and fertility of rice

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Annotation.

In rice growing it is important to appoint the orders of favorable irrigation in different irrigation methods of early ripening "Iskandar" and "Guljakhon" sorts of rice planted as baby trees as a repeated plant after autumn wheat and to determine the growth of rice sorts and norms of seasonable irrigation in soil-climatic conditions in order develop agricultural management in rice growing.

Key words: irrigation orders, rice sorts, water measuring device "Vodosliv Tompson", water consumption, seasonable and irrigation standards.

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Introduction. In the world in order to supply food security, high crop and economic efficiency are being achieved due to creating, choosing the sorts suitable for soil-climatic conditions, applying leading resource economizing technologies of growing based on science by improving the quality of rice in a number of developed countries which produce rice.

In accomplishing the tasks appointed in the order of the President of Republic of Uzbekistan "On measures of further development of rice growing" adopted on February 2021, Order No. 259 of the cabinet of Ministers of the Republic of Uzbekistan "On prognosis dimensions of economic placement and production of agricultural plants for the crop of 2019" adopted on March 29, 2019 and the Order No. 986 of the Cabinet of

Ministers of the Republic of Uzbekistan "On additional measures of developing rice growing stably" adopted on December 12, 2019 and also other normative-judicial documents referring to the sphere, this scientific investigational work will serve in some sense.

Rice growing is considered to be important as it is one of the food resources of the population. Due to official references, over the past years the average crop gained from one hectare of land in Uzbekistan is not more than 35-39 centners. One of the reasons of it is water insufficiency and the second is growing this plant in swamps and non fertile lands continuously which are close to ground water near rivers and where other types of plants cannot be grown. Besides this, another reason for it is not applying the recommended types of



mineral fertilizers and their amounts and leading agro technologies in a wide range

In order to accomplish the above mentioned tasks, developing the current agro technologies in growing rice and the fact that measures which are taken are necessary and suit the farmers' demands application theoretical and practical basis of innovative technologies are considered to be very important.

Methods and system of investigation. Agro technical measures are carried out based on "Recommendations on the technology of Experiment system

growing rice as a baby tree in conditions of Uzbekistan"(2010) of Rice scientific investigational Institute.

In investigations, in order to determine biometrical indices in all repetitions and versions, phenologic observations were accomplished based on "Methods of carrying out field experiments" and agrophysical and agrochemical analysis were determined based on the method "Methods of agrochemical investigations of soils and plants of Central Asia".

Table 1

No	Sorts	Versions
1.	"Iskandar (Alanga)"	Control traditional method
2.		Water is filled on the floor and does not flow out
3.		Water is filled on the floor and 50% of water is let out.
4.		Water is preserved on the floor in 10-15 cm density for 9 days and water is not opened for 6 days.
5.		Water is preserved on the floor in 10-15 cm density for 4-6 days and then it is stopped, it is kept in 10-15 cm density after budding till accumulation, in the process of accumulation the water is decreased to 5cm, in the process of ripening water is kept in 10-15 cm density till the end of vegetation.
1.	"Guljakhon(T-5)"	Control traditional method
2.		Water is filled on the floor and does not flow out
3.		Water is filled on the floor and 50% of water is let out.
4.		Water is preserved on the floor in 10-15 cm density for 9 days and water is not opened for 6 days.
5.		Water is preserved on the floor in 10-15 cm density for 4-6 days and then it is stopped, it is kept in 10-15 cm density after budding till accumulation, in the process of accumulation the water was decreased to 5cm, in the process of ripening water was kept in 10-15 cm density till the end of vegetation.

Experiment versions were placed in one storey and 4 repetitions. The square of the 1st version is 400 m², the length of the border is 20 m and the width is 10 m. The surface of one repetition is 200x 8=1600 m². Total area of experiment field is 1600 m² x 5=8000 m² or 0.8 ha. During the period of experiment the following observation, measurement and analysis were carried out.

Influence of irrigation regimen on the growth and development of rice.

The height of sorts sown in Republic is

between 90-100 cm and 130-160 cm, soil fertility, amount of mineral fertilizers and water density in rice fields depend on this index directly. Growth process of rice starts intensively in early phase of growth period. In a day one plant may grow average 1-1.5 cm. Therefore, in development of growing period measurement of rice growth separately in every stage is an index which has scientific and practical importance. Origin of the sorts we are studying, differ from each other with the height of their growth and accumulation of dry mass



due to biological description. In the world in order to supply food security, high crop and economic efficiency are being achieved due to creating, choosing the sorts suitable for soil-climatic conditions, applying leading resource economizing technologies of growing based on science by improving the quality of rice in a number of developed countries which produce rice.

In order to accomplish the above mentioned tasks, it is important to implement theoretical and practical fundamentals of applying these innovative technologies widely in developing the current agro technologies in rice growing, the necessity of the accomplished measures since these innovative technologies suit for the plans of farmers of the Republic.

In order to accomplish the above mentioned tasks, we determined the most favorable dates, seasonable and irrigation standards of growing in the system of concrete farming in the method of planting rice as baby trees of "Iskandar" (Alalnga-3), "Guljakhon"(T-5) planted as a repeated plant after cereals on the development and crop fertility of rice in conditions of light brown soils of "Burakhima ona" farm of Pakhtaabad district of Andijan region.

Influence of irrigation regimen of rice on seasonable and irrigation standards.

In order to study the water amount spent on growing rice sorts in the experimental field the demand of rice to theoretical water was determined at first (20000 m³/ha) and irrigation was accomplished based on the accepted versions due to the experiment system. Here, the norms of water given to the squares of experiment versions and the water opened to running water was measured by means of "Tompson" water measuring device. In the control version the irrigation standards 15552 m³/ha to joining the running water composed 2800m³/ha. In the 5th version water was stopped after preserving it in 4-6 days in 10-15 cm density on the floor. The water was preserved in 10-15 cm till the time of accumulation, it was decreased to 5 cm in the period of accumulation, it was kept in 10-15 cm density during the process of ripening and until the end of vegetation, seasonable irrigation norms composed 11000 m³/ha and joining the running water composed 1659 m³/ha. It shows that seasonable irrigation norms were economized to 4552 m³/ha and running water to 1150 m³/ha compared to the control version (Table 2).

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Seasonable irrigation norms spent on growing rice sorts m³/ha



Table 2.

Versions	Norms of seasonable irrigation, m ³ /ha	Running water outlet, m ³ /ha
1.Control traditional method	15552	2800
2.Water is filled on the floor and does not flow out	8294	-
3.Water is filled on the floor and 50% of water is let out.	10300	930
4.Water is preserved on the floor in 10-15 cm density for 9 days and water is not opened for 6 days.	9332	933
5.Water is preserved on the floor in 10-15 cm density for 4-6 days and then it is stopped, it is kept in 10-15 cm density after budding till accumulation, in the process of accumulation the water was decreased to 5cm, in the process of ripening water was kept in 10-15 cm density till the end of vegetation.	11000	1650

In conditions of light brown soils on Andijan region in order to get high and qualitative crop from the rice sown as a repeated plant after autumn cereals the water was stopped after preserving it in 10-15 cm density for 4-6 days. It was decreased to 5 cm during the accumulation period; it was preserved in the period of ripening in 10-15 cm thickness till the end of vegetation period. Seasonable irrigation standards were economized to 4552 m³/ha compared to traditional irrigation method.

Influence of irrigation regimen on rice fertility

The influence of orders of irrigating on the fertility of two zoning rice types with different growth period was studied. According to the gained results, the highest fertility was

gained when water was preserved in 10-15 cm thickness for 4-6 days and then stopped, it was preserved again in 10-15 cm thickness until accumulation, it was reduced to 5 cm till the time of accumulation and in the period of accumulation it was preserved in 10-15 cm thickness until the end of vegetation. In this version the fertility of “Guljakhon (T-5)” sort composed 56.2 c/ha and in the 5th version this index composed 71.5 c/ha compared to the control traditional version and the difference between them was equal to 15.3 c/ha. In “Iskandar (Alanga-3)” sort this index was 10.9 c/ha higher than the control version (Tables 3 and 4).

Table 3

Influence of irrigation regimen on fertility, c/ha 2021

Versions	Repetitions				Average fertility
	I	II	III	IV	
“Guljakhon”					
Control traditional method	55.8	55.9	56.8	56.4	56.2
Water is filled on the floor and does not flow out	57.2	58.1	57.8	58.0	57.8
Water is filled on the floor and 50% of water is let out.	60.5	59.5	60.1	60.3	60.1
Water is preserved on the floor in 10-15 cm density for 9 days and water is not opened for 6 days.	56.5	57.6	56.9	57.0	57.0
Water is preserved on the floor in 10-15 cm density for 4-6 days and then it is	72.3	70.5	71.2	72.0	71.5



stopped, it is kept in 10-15 cm density after budding till accumulation, in the process of accumulation the water was decreased to 5cm, in the process of ripening water was kept in 10-15 cm density till the end of vegetation.					
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Table 4

Versions	Repetitions				Average fertility
	I	II	III	IV	
“Iskandar”					
Control traditional method	64.3	64.4	65.6	65.3	64.9
Water is filled on the floor and does not flow out	67.9	69.4	69.8	67.7	68.7
Water is filled on the floor and 50% of water is let out.	69.7	68.5	70.3	70.9	69.9
Water is preserved on the floor in 10-15 cm density for 9 days and water is not opened for 6 days.	68.5	67.9	68.2	67.9	68.4
Water is preserved on the floor in 10-15 cm density for 4-6 days and then it is stopped, it is kept in 10-15 cm density after budding till accumulation, in the process of accumulation the water was decreased to 5cm, in the process of ripening water was kept in 10-15 cm density till the end of vegetation.	75.3	76.5	75.2	76.0	75.8

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The following can be given as conclusions based on the investigation results carried on studying the favorable irrigation orders of “Guljakhon (T-5)” and “Iskandar (Alanga-3)” sorts of rice grown in light brown soil with average-heavy clot soil conditions of Andijan region which have been irrigated since old times:

1. Influence of irrigation orders of rice on seasonable and irrigation standards was determined. Here, In conditions of light brown soils on Andijan region in order to get high and qualitative crop from the rice sown as a repeated plant after autumn cereals the water was stopped after preserving it in 10-15 cm density for 4-6 days on the floor. It was decreased to 5 cm during the accumulation period; it was preserved in the period of ripening in 10-15 cm thickness till the end of vegetation period. Seasonable irrigation standards were economized to

4552 m³/ha compared to traditional irrigation method.

2. The influence of orders of irrigating on the fertility of two zoning rice types with different growth period was studied. According to the gained results, the highest fertility was gained when water was preserved in 10-15 cm thickness for 4-6 days on the floor and then stopped, it was preserved again in 10-15 cm thickness until accumulation, it was reduced to 5 cm till the time of accumulation and in the period of accumulation it was preserved in 10-15 cm thickness until the end of vegetation. In this version the fertility of “Guljakhon (T-5)” sort composed 56.2 c/ha and in the 5th version this index composed 71.5 c/ha compared to the control traditional version and the difference between them was equal to 15.3 c/ha. In “Iskandar (Alanga-3)” sort this index was 10.9 c/ha higher than the control version.



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