Kairekenova B.S., Karipov M.M., Taishibaeva E.U.

DESCRIPTION OF MORPHOLOGICAL FEATURES AND BIOMETRIC PARAMETERS PROMISING MELON HYBRIDS

Abstract

In the article present morphological features and biometric parameters promising melon hybrids in the soil and climatic conditions of the southeast of Kazakhstan.

Key words: melon, hybrid, morphology, biometrics, leaves, flower.

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Kalieva K.E., Zhaparkulova E.D., Amanbayeva B.Sh., Nabiollina M.S.

Kazakh national agrarian university, Almaty

WATER RESOURCES MANAGEMENT ON IRRIGATED LANDS OF SOUTHERN KAZAKHSTAN

Summary

Kazakhstan is among the countries where irrigated farming in agricultural production plays a leading role, and it accounts for over 70% of water abstraction sectors of the economy. For farming on irrigated ecosystems of southern Kazakhstan, the main drawback is the lack of water resources and the deterioration of irrigated land, so in this area are urgent to develop water resources management by water - saving technologies and the use of surface water in irrigated areas. Analysis of water resources in the irrigation systems of South Kazakhstan, shows that in the conditions of lack of water only water-saving irrigation technologies can improve water availability of irrigated land.

Key words: water resources management on irrigation lands, through furrow watering, elements of irrigation techniques, water – saving technologies.

Introduction

Kazakhstan is among the countries where irrigated farming in agricultural production plays a leading role, and it accounts for over 70% of water abstraction sectors of the economy [1]. For farming on irrigated ecosystems of southern Kazakhstan, the main drawback is the lack of water resources and the deterioration of irrigated land, so in this area are urgent to develop water resources management by water-saving technologies and the use of surface water in irrigated areas [2]. This approach to irrigated agriculture allows targeted management factors of plant life as well as obtaining high and stable yields of crops is achieved by maintaining the water necessary for the plant, salt, air, soil nutrient and thermal regimes. Analysis of water resources in the irrigation systems of South Kazakhstan, shows that in the conditions of lack of water only water-saving irrigation technologies can improve water availability of irrigated land.

On the irrigated ecosystem Asa-Talas river basin main reason agriculture is the shortage of water resources and the deterioration reclamation condition of irrigated lands. In this regard, the aim of our research was the justification for measures aimed at the development of water-saving technologies for the use of surface water resources in irrigated areas, to reduce the cost of water for getting a unit of agricultural products [1]. Consequently, in this area is urgent to develop water-saving technologies of surface water use in irrigated lands. On water resources management use of water-saving technology enables targeted management factors of plant life as well as obtaining high and stable yields of crops is achieved by maintaining the desired plant of

water, salt, air, soil nutrient and thermal regimes. Therefore, the development and introduction of resource-saving technologies by water resources management of crop irrigation and reclamation of irrigated lands in view of soil-reclamation, climatic, hydro geological characteristics of irrigation systems, accelerate the pace of irrigated hectare productivity growth and reduce the expenses of water per unit of agricultural products [4].

Methods

Investigations to establish water resources management parameters of resource-saving technologies and irrigation water distribution, carried out on pilot production lands Kazakh Scientific Research Institute of Water Economy in the village Besagash. The task of the field research was to study the techniques of irrigation cabbage furrows with water supply in each furrow and the furrow.

Experience variants

1. Variant - watering crops by furrow;
2. Variant - watering crops through furrow.

In the pilot production site for the establishment of technology parameters and irrigation technology by furrow and through furrow for uniform supply of water in each furrow and the account of their size (from a distance of 15-20 cm from the front section) installed watering shields.

Irrigation shields made of sheet metal thickness of 1-3mm round and triangular holes (Figure 1). The height of the establish irrigation boards adjusted after the start of water in a lead-out groove furrow. For a uniform supply of water to all furrows water supply pressure over irrigation holes shields created equal.

Figure 1 - Watering shields for the measurement of water flow in the furrow

The periods of watering is set at the threshold of pre-irrigation moisture, which corresponds to the different phases of development of plants: before flowering to soil moisture was maintained not less than 65-70%, during flowering - fruit formation - not less than 75%, and during the ripening - at the level of 60-65% of the small moisture capacity.

Terms of watering date is defined by the estimated soil moisture. The dynamics of soil moisture with watering by furrow was established by sampling before - and after irrigation in the irrigation furrow, on the ridge and unwatering furrow.

Research results

Chemical analysis of soil shows that the maximum value humus occurs in the upper layer of 0-20 cm. This layer of humus reserves amounted to 1.44%. With increasing depth of the root soil strata there is a decrease in their size and 40-50 cm layer is 0.40%. The similar condition is distribution by soil profile of gross nitrogen and phosphorus (Table 1).

Table 1 - Stocks of humus and gross forms of nutrients in soils experimental production areas.

Horizons, cm	Humus		Gross form, %		CO_2 carbonates
	%	t/ha	nitrogen	phosphorus	
0-10	1,44	21,9	0,158	0,122	5,10
10-20	1,09	17,0	0,176	0,118	5,08
20-30	0,87	13,9	0,167	0,118	5,36
30-40	0,75	12,1	0,078	0,065	9,00
40-50	0,64	10,4	0,057	0,050	8,74
50-60	0,40	6,6	0,042	0,041	7,40
0-30	1,13	52,8	0,167	0,119	5,18
0-60	0,87	81,9	0,113	0,086	6,78

When furrow irrigation main elements of irrigation technique are furrow length, jet irrigation. The choice of irrigation technique elements is depend on the water and the physical and chemical properties of soils and terrain slope. On the irrigated lands of the south slope of Kazakhstan allocated 5 ranges [2]: 1-very large - 0.025-0.05; 2 - large - 0,0075-0,025; 3 - medium - 0,0025-0,0075; 4 - small - 0,001-0,0025; 5 - very small - 0,0005-0,001. Also highlighted in 5 grades is on the water permeability of soil: A - Strong (sandy loam, light loam); B - high (powerful light loam); C - average (loam); D - low (heavy loam); E - low water permeability (clay, loam).

In Besagash village where is conducted research, irrigation, carried out mainly by furrows. With this method of watering, the soil is moistened individual jets of water absorbed by the water in the bottom wall and furrows. When furrow irrigation, moisture between them occurs through capillary movement of moisture, which has no negative effect on the physical condition of the surface soil horizons. One of the advantages of irrigation furrow is the possibility of its use at different slopes irrigated areas. If the slope of the land surface of more than 0.01, the furrow is recommended to cut at an angle to the horizontal lines when the water velocity does not exceed the rate of erosion of 0.1-0.2 m/s.

Depending on the width of the aisles deep furrows can vary from 10 to 20 cm. However, many researchers have noted that the high quality of furrow irrigation is achieved by the use of deep furrows [3].

A layer of water in the furrow is a very important element of the watering technique. This element determines the rate of water flow in the furrow and the volume of water removal and the rate of water absorption soil. Therefore, the formation rate of water movement and thus the rate of migration of salts, nutrients depend on the layer of water in the furrow. Thus, the more the water layers in the furrow, the greater the loss of irrigation water and for discharge filtration (Figure 2).

Figure 2 – Watering cabbage through furrow in village Besagash

In the vegetation period, soil moisture in the root layer zone was kept in optimal condition. When watering cabbage through furrow was the moistest furrow, which was carried out irrigation, moisture in the 0-100 cm layer varied from 18.2 to 22.4%. Humidity of soil on the ridge between the watered and not watered furrows in the upper levels was lower than in the watered furrow. In the lower layers of soil moisture is increases. Similar dynamics of soil moisture on the profile of the case and not is watered furrow.

The findings show that by furrow irrigation supplied the bulk of the water is redistributed, both vertically and horizontally, as in through furrow irrigation. Soil moisture is distributed almost identical regardless of the method of irrigation.

Economic calculations that increase productivity of cabbage by watering through furrow the provide greatest profit from 1 ha of irrigated land. In this embodiment, the profit from 1 ha of irrigated land was 758 thousand tenge. In the control variant, where the irrigation carried out, watering by furrow profit and has a minimum value of 603,700 tenge/ha (Table 2).

Table 2-Economic effect using of water saving technologies watering by furrow and through furrow, tg/ha

Indicators	Variants	
	Watering by furrow	Watering through furrow
Preparation of irrigated lands for sowing, planting, cabbage tenge/ha*	48000	48000
Care of seedlings during the vegetation period (cultivation, cutting furrows, sprinklers time, application of herbicides and pesticides), tenge/ha	32000	32000
The expenses of irrigation, tenge/ha	15800	12000
The cost of cleaning and transport, tenge/ha	65000	72000
Total expenses tenge/ha	198800	202000
Productivity of land, ton	32,1	38,4
Selling price of 1 ton of cabbage, tenge	25000	25000
Cost cabbage, tenge/ha	802500	960000
Expenses, tenge/ha	198800	202000
Net income tenge/ha	603700	758000
Additional income tenge/ha	-	154300

*ha-hectare

Analysis of the data shows that is increase in the yield of cabbage with watering through furrow provide the greatest profit from 1 ha of irrigated land. In this embodiment, the profit from 1 ha of irrigated land was 758 thousand tenge. In the control variant was, where the irrigation carried out, by furrow profit and has a minimum value of 603,700 tenge/ha.

Conclusions

Thus, in the conditions of southern Kazakhstan, where water resources are limited, to obtain economically acceptable yields, sustainable development of irrigated agriculture the problem can be solved by improving irrigation technology furrow or furrow, which will reduce irrigation of water on the field up to 30% in the application of water-saving irrigation technical equipment, water reduces the cost of obtaining a unit of production by 15-20%. Water-saving technology is the best approach to solve the water shortage in irrigated lands in the village Besagash using by furrow and through furrow watering (Zhambyl region).

Recommendations

Water resources management implemented on the irrigated lands of Zhambyl oblast, Zhambyl region. Water-saving technology of furrow irrigation and furrow is recommended to use in irrigated lands of the South Kazakhstan shallow ground water.

Literature

1. Система ведения сельского хозяйства Жамбылской области, рекомендации/под ред. к. э.н Б.Б. Жексембина. – Тараз: Сеним, 2006.-455 с.

2. Джумадилов Д.Д., Кожанов К.Ш., Бекбаев Р.К. Эколого-мелиоративная оценка водно-земельных ресурсов на орошаемых экосистемах в бассейне рек Аса-Талас //Материалы международной научно-практической конференции «Индустриально-инновационное развитие – основа устойчивой экономики Казахстана». – Шымкент, 2006. - 357-360 с.

3. Костяков Н.Н. Основа мелиорации. Москва: Сельхозгиз, 1951. - 751 с.

4. B. Amanbayeva., Prof. Dr. Bekbayev R.K., Pfor. Dr. Tilman Rost., MASTER'S THESIS//Topic: «Water saving technology usage of water resources on irrigated lands of the village Besagash (Zhambul oblast)» – Almaty, 2013. – 75 p.

Калиева К.Е., Жапаркулова Е.Д., Аманбаева Б.Ш., Набиоллина М.С.

УПРАВЛЕНИЕ ВОДНЫМИ РЕСУРСАМИ НА ОРОШАЕМЫХ ЗЕМЛЯХ ЮЖНО – КАЗАХСТАНСКОЙ ОБЛАСТИ

Аннотация

Казахстан входит в число стран, где орошаемое земледелие в сельскохозяйственном производстве играет ведущую роль, и на его долю приходится более 70% отраслей абсорбции воды в экономике. Для ведения сельского хозяйства на орошаемых экосистемах южного Казахстана основным недостатком является нехватка водных ресурсов и ухудшение состояния орошаемых земель, поэтому в этой области необходимо срочно разработать управление водными ресурсами с помощью водосберегающих технологий и использования поверхностных вод на орошаемых участках , Анализ водных ресурсов в ирригационных системах Южного Казахстана показывает, что в условиях отсутствия воды только водосберегающие технологии орошения могут улучшить доступность воды орошаемых земель.

Ключевые слова: управление водными ресурсами на оросительных землях, полив бороздок, элементы оросительной техники, водосберегающие технологии.

Қалиева Қ.Е., Жапаркұлова Е.Д., Аманбаева Б.Ш., Набиоллина М.С.

ОҢТҮСТІК ҚАЗАҚСТАН ОБЛЫСЫНДАҒЫ СУАРМАЛЫ ЖЕРДІҢ СУ РЕСУРСТАРЫН БАСҚАРУ

Аңдатпа

Қазақстан ауылшаруашылық өндірісіндегі суармалы егіншілік жетекші рөл атқаратын елдердің қатарына жатады, бұл экономиканың суды жинау секторларының 70% астамын құрайды. Оңтүстік Қазақстанның суармалы экожүйелерінде ауыл шаруашылығын жүргізу барысында кездесетін мәселелердің бірі су ресурстарының жетіспеуі және суарылатын жерлердің нашарлауы басты кемшілі болып табылады, сондықтан бұл салада су үнемдеу технологиялары бойынша су ресурстарын басқаруды және суармалы жерлерде жер үсті суын пайдалануды жеделдету қажет. Оңтүстік Қазақстандағы суару жүйелеріндегі су ресурстарын талдау судың жетіспеушілігі жағдайында ғана суды үнемдейтін суару технологиялары суармалы жерлердің сумен қамтамасыздығын жақсарта алады.

Кілт сөздер: су ресурстарын басқару суармалы жерлерде, борсық суару, суару техникасы элементтері, су үнемдеу технологиялары.

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Кенжебай А., Абрикосова В.И., Айтказы А.Д., Кусаинова Ж.А., Есмуханбетов Д.Н.

Казахский национальный аграрный университет,
Казахский агротехнический университет им. С.Сейфуллина

ВЫРАЩИВАНИЕ И СОДЕРЖАНИЕ ПЛЕМЕННЫХ ПЕРЕПЕЛОВ (COTUNIX COTURNIX) В КЛЕТКАХ В УСЛОВИЯХ СЕВЕРНОЙ ШИРОТЫ КАЗАХСТАНА

Аннотация

На основании материалов исследования считаем возможным сделать следующие предварительные выводы:

Выращивание и содержание племенных японских перепелов в клетках не оказывает отрицательного влияния на их жизнеспособность и воспроизводительные качества.

Для ведения селекционной работы с перепелками в клетках наряду с искусственным осеменением может применяться метод индивидуального покрытия перепелок путем подсадки их к перепелам. Затрат рабочего времени при этом не выше, чем при искусственных осеменениях. Для этого метода следует использовать перепелов с высокой половой активностью.

При групповом содержании в клетках перепелов с перепелками в соотношении 1:3 оплодотворяемость выше, чем при искусственном осеменении или спаривании самок путем подсадки к перепелам.

Ключевые слова: яйценоскость, выращивание, оплодотворяемость, искусственная осеменения, подсадка, эксплуатация.

Введение

Система производства пищевых яиц традиционно сложилась так, что прародительские и родительские стада птиц содержатся напольно, а потомство в промышленных цехах и хозяйствах эксплуатируется в условиях клеточного содержания [1, 2].

Перевод родительского стада с напольного на клеточное содержание показал, что особи внимание при этом следует обращаться на выращивание и отбор перепелов. Выращивание перепелов на полу, а затем содержание их в клетках отрицательно сказывается на их воспроизводительные способности. Перепелам требуется определенное время для адаптации к клеточному содержанию на подножной клетке они плохо координируют свои движения, особенно при спаривании с перепелками. В первое время совместного содержания с курочками большинство спариваний бывают непродуктивными. К тому же срок эксплуатации перепелов резко снижается [3].

Пока еще имеющиеся немногочисленные данные опытов свидетельствуют о том, что селекционная работа с птицей в племенных хозяйствах должна производиться с учетом условий среды, в которых птица будет использоваться на товарных фермах для производства продукции.

Установлено, что ведение селекции при клеточном выращивании и содержании несушек способствует повышению их приспособленности к условиям жизни в клетках [4].