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INFLUENCE OF PLANTING METHODS, TIMES AND CRITERIA ON YIELD AND GRAIN QUALITY OF CHEESE VARIETIES IN IRRIGATED LANDS

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Abstract: The article studies the effect of planting methods, timing and criteria on the yield and grain quality of pea varieties in irrigated lands (in the conditions of the Kashkadarya region). The results of the study show the extent to which pea varieties have an impact on the yield and grain quality of irrigated soils of the Kashkadarya region.

Key words: Irrigated land, soil-climatic conditions, pea varieties, grain quality, harvest time.

Introduction: Today, increasing the safety of food products grown in irrigated and rainfed areas, sustainably providing the population with high-quality protein and vitamin-rich food products, strengthening the feed base of livestock, and increasing and maintaining soil fertility are among the urgent tasks. In world agriculture, legumes, in particular common pea (Cicer arietinum L.), are of strategic importance in maintaining and increasing soil fertility (through atmospheric nitrogen fixation), providing high-quality protein, amino acids, vitamins, minerals, and nutritious food products necessary for human health, an important component of healthy nutrition, and providing the world's population with affordable and high-quality plant protein.

In the current era of increasing water scarcity in irrigated areas, developing optimal planting dates, methods, and seed standards that match the biological characteristics of peas and reduce drought stress is one of the pressing problems in the industry.

The southern region of Uzbekistan, in particular the Kashkadarya region, is characterized by its sharply variable dry climatic conditions, short spring season, and rapid increase in air temperature starting in May. Field experiments are planned to be conducted in the conditions of typical irrigated gray and meadow-gray soils of the Kashkadarya region.

The purpose of the study: The aim of the study was to determine the effect of harvest dates on the yield and technological quality indicators of the pea varieties “Uzbekistan-32”, “Yulduz” and “Malhotra” in typical irrigated gray and meadow-gray soils of the Kashkadarya region and in variable dry climatic conditions.

The objectives of the study are as follows :

Study of the growth, development and yield characteristics of the pea varieties "Uzbekistan-32", "Yulduz" and "Malkhotra" in the conditions of typical irrigated gray and meadow-gray soils of the Kashkadarya region.

the effect of harvest dates on yield, yield elements, 1000-grain weight, and grain biological maturity in pea varieties .

To assess the impact of harvest dates on the technological and quality parameters of pea

grain, including the protein content of the grain and other key quality parameters, and to identify differences between varieties.

To comprehensively assess the yield and grain quality of the studied varieties and harvesting dates, determine the economically effective and optimal harvesting date in the variable dry climate of the Kashkadarya region, and recommend it for production.

Research methods.

In the study, phenological observations, calculations and analyses were carried out according to the method of the All-Union Institute of Plant Science VIR (1984), biometric analyses were carried out according to the methods of the Center for Testing Agricultural Crop Varieties (1985, 1989). Statistical analyses were carried out according to the method of BA Dospekhov (1985).

Two sowing dates, two different sowing rates, and two different sowing schemes were used in the field experiment. Sowing dates: early and late, row spacing in the sowing scheme was 45 and 60 cm, and sowing rates were 200, 250, and 300 thousand seeds per hectare.

Research results. All phenological observations, biometric measurements and yield analyses are carried out based on the methods of the Research Institute of Plant Science (RIST) and the State Variety Testing Inspectorate. The ongoing observations have shown that the sowing date is the main factor affecting the duration of the growing season of peas and the formation of yield elements.

In the variants planted in late February and early March, pea seeds will be fully and evenly harvested due to the winter-spring moisture in the soil. It is assumed that the flowering and podding phases of plants planted during this period will be completed before the air temperature rises sharply (first half of May).

In the variants planted at the end of March, the period of intensive plant growth coincides with days when the air temperature is above 32–35 °C. This negatively affects the pollination process, leading to an increase in the number of empty grains in the pods (up to 22–25%) and a significant decrease in yield . (Table 1).

Table 1. The effect of planting methods and criteria on the yield and grain quality of pea varieties (average indicators)

T/r	Variety name	Planting pattern (row spacing, cm)	Planting rate (thousand, pieces)	Weight of 1000 pieces. gr	Protein content in grain %	Productivity per hectare
1	Uzbekistan-32	45	250	295	23.2	26.4
		60	250	290	22.8	24.1
2	Star	45	250	345	24.5	28.1
		60	250	340	24.5	25.6
3	Malhotra	45	250	315	23.9	29.3
		60	250	310	23.5	27

According to the table, the results of growing pea varieties with a row spacing of 45 and 60 cm and a sowing rate of 250 thousand seeds/ha were studied. The sowing method had a certain effect on the yield of pea varieties, 1000-grain weight, and the amount of protein in the grain.

Higher results were recorded for all varieties with a row spacing of 45 cm. The yield of the Uzbekistan-32 variety was 26.4 t/ha, the Yulduz variety was 28.1 t/ha, and the Malhotra variety was 29.3 t/ha. When the row spacing was expanded to 60 cm, the yield decreased to 24.1; 25.6, and 27.0 t/ha, respectively. Thus, the 45 cm row spacing allowed for a 1.7–2.3 t/ha higher yield, depending on the variety, compared to 60 cm.

In terms of 1000-grain weight, higher values were also observed at 45 cm row spacing. The highest values were in the Yulduz variety - 345 g, in the Malhotra variety - 315 g, and in the Uzbekistan-32 variety - 295 g. At 60 cm row spacing, these values decreased slightly.

The Yulduz variety showed the highest protein content in the grain - 24.5%, and this value was maintained in both planting schemes. The protein content in the Malhotra variety was 23.9–23.5%, and in the Uzbekistan-32 variety - 23.2–22.8%.

Conclusions. In general, among the variants studied in the experiment, the row spacing of 45 cm and the planting rate of 250 thousand units/ha were more effective in terms of increasing the yield of peas and 1000-grain weight. Among the varieties, the Malhotra variety showed the highest yield (29.3 t/ha), and the Yulduz variety showed the highest 1000-grain weight (345 g) and protein content (24.5%).

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