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Dependence of Harvest Structure and Productivity of Pea Varieties on Forage Area Approval

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Abstract. The article discusses the effect of planting strategies on plant production elements and productivity when peas are planted in october in the Sirdarya region's weakly saline soils. The variety of samples of peas" Uzbekistan-32 " (control) FLIP 98-140c-(Guldu-Tashdau), FLIP 98-1116c-(Miroz), FLIP 98-152C and FLIP 98-183s-(Khalima) when sowing in 60x10x1, 60x15x1, and 60x20x1 systems, the quantity and mass of pods and grains yield elements were greater in the 60x20x1 system. On the contrary, the reduction in food area resulted in a drop in the number of grains per plant, which had a favorable influence on grain size. The mass of 1000 grains was 69-128 g more in all analyzed pea samples than in the control, but the grain was larger in the FLIP 98-183s-(Halima) sample than in all other kinds, with a mass of 1000 grains of 403-388 g. According to the data acquired, the grain yield of pea types is higher when planted densely (60x10x1). Pea samples FLIP 98-140c-(GulSU-TashSAU) (25-36.1 ts/ha) and FLIP 98-1116c-(MirOZ) (25.4-39 ts/ha) produced the best yield.

Keywords: "Uzbekistan-32" pea varieties, FLIP 98-140c (GulDU-TashDAU), FLIP 98-116c (MirOz), FLIP 98-152c and FLIP 98-183c (Xalima) samples, crop structure, planting system, pod number, pod mass, grain number, grain mass, productivity.

1 Introduction

Peas are third in terms of cultivated area among leguminous crops, with a cultivated area of 13-14 million hectares and an average yield of 6.5 tons/ha. There are 71 million peas in the globe. India produces 83% of the grain [7; 8]. In Uzbekistan, peas are cultivated on 4-5 thousand hectares of dry and irrigated land at a cost of 20-25 centners per hectare on irrigated land and 8-10 centners on the dry ground [10]. The production and quality of peas are directly connected to crop structure. The crop structure is closely tied to various features, external influences, and technological measures. The pace of planting is one of the technical measurements. Z.S. on researching the norms and techniques of growing peas in our republic's various soil and climate circumstances. Z.S. Bobomurodov [1], S.B. Mustanov [4], Z.K. Yuldasheva [9] and G.K.Mirsharipova [3] conducted several investigations, and it was discovered that crop structure varies as the proportions of planting methods and standards utilized alter. Because it is normal for a legume's grain output to be high if the grains are entire and complete. The influence of the planting system on crop element formation and productivity was evaluated using the "Uzbekistan-32" variety of peas planted in fall and "FLIP 98-140c-(GulDU-TashDAU)", "FLIP 98-1116c-(MirOz)", "FLIP 98-152c", "FLIP 98" -183s-(Xalima)" samples.

2 Materials and methods

Our research was performed out at the "Sirdarya Experimental Station of the Scientific Research Institute of Grain Legume Crops" under circumstances of ancient irrigated gray-meadow, weakly saline soils. The experimental field is located southeast of Mirzachol and has its unique natural and climatic characteristics, which are markedly continental, hot and dry in summer, and mild in winter. There is also a significant disparity between daily and yearly temperatures.

In the experiment, seeds of pea types and samples were sown in autumn in the second half of October in the 60x10x1, 60x15x1, and 60x20x1 schemes, and the sprouts were fully recovered in the soil's natural wetness. The previous crop was winter wheat, and the experimental field was planted with widely established agrotechnical procedures. There were 15 alternatives, divided into four iterations and four stages. Each option has a total size of 48 m2. Placement of the experiment, calculation, and analysis "Methodology of the State variety testing of agricultural crops" (1985, 1989), and mathematical analysis of the acquired findings B.A.

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Based on Dospekhov's (M. 1985) dispersion analysis manual and completed in the SPSS program [2]. The seed quality indicators were assessed using the State Standards (GOST 12038-84) "Seeds with/x culture, methods for determining germination" [5].

3 Results and discussion

According to the findings of our study, the crop structure of pea types is closely related to the planting technique. The number and mass of pods, the number and mass of grains, the number of grains in one pod, and the mass of 1000 grains all show this situation. These markers, in turn, are very changeable and alter in tandem with soil-climatic conditions and various biological traits. According to our results (Table 1), the number of pods in the control-"Uzbekistan-32" variety in the 60x10x1 planting scheme is 125 when the peas are planted in the autumn period; 139 pieces in the 60x15x1 planting scheme and 152.5 pieces in the 60x20x1 planting scheme, a high index compared to other varieties was recorded. The "FLIP98-152c" and "FLIP98-183c-(Xalima)" pea samples had the fewest pods. In terms of pod mass per plant, 4.4-5.0 g in the 60x10x1 planting strategy compared to the control and 6.9-6.4 g in the 60x15x1 planting scheme. and 7.8-9.5 g in a planting pattern of 60x20x1. A low rate was observed. In terms of pod mass, the "FLIP98-116c-(MirOz)" sample (60.2, 64.5, 67.6 g) had a rather high indication. When pea varieties and samples were planted in the 60x20x1 scheme, the number of pods was found to be high in all kinds and samples. This may be explained by the fact that as the feeding area increases, so do the number of crop branches in one plant. In turn, it was discovered that a rise in the number of grain branches correlates with an increase in the number of crop branches. The number of grains is high in the "Uzbekistan-32" variety, but substantially lower in the other kinds and samples analyzed compared to the control: 24.6-58.0 pieces in the 60x10x1 planting scheme, 28.2-72.0 pieces in the 60x15x1 planting scheme, and 32.7 pieces in the 60x20x1 planting scheme. It was discovered to be -85.8 units. According to planting schemes, the highest grain mass per plant in the "FLIP98-140c-(GulSU-TashSAU)" sample is 42.5; 47; 51.5 g, compared to the Control, 1.5; 2.0; 3.0 g.
In the scientific literature, it is noted that the number of grains in a pea pod in most cases is 2-3 grains, in rare cases 3 grains. This indicator in our experiments was also equal to 1-2 pcs.

In the research years, grain yield from pods was reasonably high in "Uzbekistan-32" and "FLIP98-140c--(GulSU-TashSAU)" samples, averaging 73.7-76.0% in the 60x10x1 planting scheme, 75.9-77.2% in the 60x15x1 planting scheme, and 75.9-77.2% in the 60x20x1 planting scheme. The crop element indicators are determined by the planting scheme, and when planted in broad rows, the absorption and dissimilation process occurs on the plant's surface, which has a significant influence on the nutrition of the producing fruit. More blooms were generated per plant when planted in the 60x20x1 planting scheme than in the 60x15x1 and 60x10x1 planting schemes. As the rate declined, the rate of planting fruit-bearing flowers increased. More blooms were generated per plant when planted in the 60x20x1 planting scheme than in the 60x15x1 and 60x10x1 planting schemes. As the rate declined, the rate of planting fruit-bearing flowers increased. The blooms and fruits of the plant were better supplied with organic matter when sparsely planted, and as a result, the quantity of completely mature pods rose. On the contrary, the reduction in food area resulted in a drop in the number of grains per plant, which had a favorable influence on grain size. Because the indications and features of variations can vary and form not only as a result of the genotype but also as a result of the external environment. According to R. Siddikov, M. Mannopova, and S. The Saidovs, the fall culture of field peas allows the plant to enter the flowering-fruiting phase sooner than when planted in early spring, that is, before the arrival of hot days, which boosts output [5].

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Table 1. shows the yield components of autumn-planted pea cultivars (three-year average)

№	Landing pattern	Bean				Corn (grains)					
		amount, one	st difference +-	weight, ²	st difference +-	amount, one	st difference +-	weight, ²	st difference +-	amount, one	Harvest grain %
Uzbekistan -32											
1.	60x10x1	125,0	-	56,6	-	145,7	-	41,0	-	1,1	73,7
2.	60x15x1	139,0	-	60,4	-	166,0	-	45,0	-	1,17	75,9
3.	60x20x1	152,5	-	64,0	-	186,5	-	48,5	-	1,2	75,6
FLIP 98-140c-(GulDU-TashDAU)											
4.	60x10x1	100,5	-24,5	55,6	-1,05	121,1	-24,6	42,5	+1,5	1,2	76,0
5.	60x15x1	115,5	-23,5	60,7	+0,3	137,8	-28,2	47,0	+2,0	1,22	77,2
6.	60x20x1	130,0	-22,5	66,8	+2,8	153,8	-32,7	51,5	+3,0	1,18	76,3
FLIP 98-116c-(MirOz)											
7.	60x10x1	109,25	-15,8	60,2	+3,6	116,1	-29,6	42,5	+1,5	1,12	73,0
8.	60x15x1	118,0	-21,0	64,5	+4,13	124,3	-41,7	44,5	-0,5	1,2	71,6
9.	60x20x1	126,5	-25,5	67,6	+3,6	131,7	-54,8	46,0	-2,5	1,1	71,5
FLIP 98-152c											
10	60x10x1	85,5	-39,5	52,3	-4,4	90,0	-55,7	34,1	-6,9	1,06	64,5
11	60x15x1	90,5	-48,5	53,5	-6,9	98,0	-68,0	36,0	-9,0	1,07	67,6
12	60x20x1	94,5	-58,0	54,5	-9,5	106,0	-80,5	37,5	-11,0	1,14	71,0
FLIP 98-183c-(Xalima)											
13	60x10x1	76,8	-48,2	51,7	-5,0	87,7	-58,0	35,2	-5,8	1,13	69,3
14	60x15x1	82,2	-56,8	54,0	-6,4	94,0	-72,0	36,85	-8,15	1,15	71,2
15	60x20x1	87,6	-64,9	56,2	-7,8	100,7	-85,8	38,6	-9,9	1,18	71,5

The mass of 1000 grains is determined not only by soil and climate conditions but also by the biological properties of the variety. This indicator showed that the researched pea varieties and samples outperformed the control in all planting schemes: 69-119.3 g in the 60x10x1 planting scheme, and 73-124 g in the 60x15x1 planting strategy. It dominated the 60x20x1 planting pattern by 76-128 grams. Large grains were discovered in all pea kinds and samples were evaluated when planted in a 60x10x1 planting strategy. The greatest grain size was reported in the "FLIP98-183s-(Halima)" variety when planted in a 60x10x1 scheme, with an average mass of 1000 grains of 403.3 grams, compared to the control (284 g in the "Uzbekistan-32" variety) 119. It weighed more than 3 grams. As evidenced by the study of the experimental outcomes. An increase in grain number resulted in a decrease in grain size. It is normal to keep such records. The grain did not get enormous because the large volume of grain did not entirely meet the need for food. Furthermore, the acquired results show that the grain yield of pea types was higher when planted thickest (Table 2).

Table 2. The yield of pea varieties planted in the fall in ts/ha (three-year average)

№	Landing pattern	Weight of a 1000 corn	St difference +-	Grain crops, *c/ha*	st difference +-
Uzbekistan -32					
1	60x10x1	284	-	28,4	-
2.	60x15x1	272	-	23,2	-

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3.	60x20x1	260	-	20,8	-
FLIP 98-140c-(GulSU-TashSAU)					
4.	60x10x1	353	+69	36,1	+7,7
5.	60x15x1	345	+73	29,0	+5,8
6.	60x20x1	336	+76	25,0	+4,2
FLIP 98-116c-(MirOz)					
7.	60x10x1	363	+79	39,0	+10,6
8.	60x15x1	359	+87	30,6	+7,4
9.	60x20x1	350	+90	25,4	+4,6
FLIP 98-152c					
10	60x10x1	377	+93	26,6	-1,8
11	60x15x1	367	+95	21,0	-2,2
12	60x20x1	356	+96	19,5	-1,3
FLIP 98-183c-(Xalima)					
13	60x10x1	403	+143	27,0	-1,4
14	60x15x1	396	+124	21,5	-1,7
15	60x20x1	388	+128	19,0	-1,8
$НСР_{05}$ = ц $НСР_{05}$ = %				1,1 4,2	

According to our average three-year data, the grain yield of the control variety changed from 28.4 t/ha to 20.8 t/ha in the autumn experiment. The lowest yield was obtained when the "Uzbekistan-32" variety was planted in the 60x20x1 scheme. During three years, the average yield was 28.4 t/ha in the 60x10x1 scheme. When this variety was planted in 60x15x1 and 60x20x1 schemes, it was observed that the productivity decreased by 5.2-7.6 t/ha.

The grain yield of the "FLIP98-140c-(GulSU-TashSAU)" variety was 36.1 t/ha when planted in the 60x10x1 scheme, but reduced by 7.1-11.1 t/ha when planted in the 60x15x1 and 60x20x1 schemes. The strain "FLIP98-116c-(MirOz)" produced the greatest yield. According to years, when this variety was planted in the 60x10x1 scheme, the yield was around 37.0-41.0 ts/ha. The 60x15x1 system yielded 27.0-34.8 ts/ha, whereas the 60x20x1 scheme yielded 22.7-28.8 ts/ha. Grain yield declined by 39 t/ha in the average three-year trial when planted in the 60x10x1 scheme, 9.6 t/ha in the 60x15x1 scheme, and 13.6 t/ha in the 60x20x1 scheme. Conforming to the planting schemes, this variety had a greater yield of 10.6-7.4-4.6 t/ha than the control variety. Among the investigated varieties, the "FLIP98-140c-(GulSU-TashSAU)" variety yielded 7.9-4.2 t/ha more grain than the control. The grain production of the "FLIP98-152c" and "FLIP98-183c-(Halima)" cultivars planted in the experiment varied according to the planting pattern, with grain yield decreasing from 60x10x1 to 60x20x1. However, in the "FLIP98-152c" variety, productivity declined by 1.3-2.2 t/h, and in the "FLIP98-183c-(Halima)" variety, production decreased by 1.4-1.8 t/h.

4 Conclusions

It should be noted that planting schemes influence the development of pea crop components and grain yield, with the 60x10x1 scheme producing the maximum grain yield for the "FLIP98-140c-(Asilbek)" and "FLIP98-116c-(MirOz)" types. These results reveal that crop components are changeable and generated in response to environmental factors. It is also feasible to select autumn-planted pea varieties to suggest for production.

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