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# ИНДАУ УРУҒЛИК ЎСИМЛИКЛАРИ ХЎЖАЛИК МУҲИМ БЕЛГИЛАРИНИНГ ЎЗГАРУВЧАНЛИГИ ВА УНДАН УРУҒЧИЛИК ЖАРАЁНИДА ФОЙДАЛАНИШ

# ИЗМЕНЧИВОСТЬ ХОЗЯЙСТВЕННО-ЦЕННЫХ ПРИЗНАКОВ ХАРАКТЕРИСТИК СЕМЕННЫХ РАСТЕНИЙ ИНДАУ И ЕЕ ИСПОЛЬЗОВАНИЕ В ПРОЦЕССЕ СЕМЕНОВОДСТВА

# VARIABILITY OF ECONOMIC-VALUABLE TRAITS OF HARACTERISTICS OF SEED PLANTS OF INDAU AND ITS USE IN THE PROCESS OF SEED PRODUCTION

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## АННОТАЦИЯ

Мақолада индау уруғлик ўсимликларининг турли экиш схемаларида бўйининг баландлиги, новдалар сони, қўзоқлар сони, ўсимлик маҳсулдорлиги ва ушбу белгиларнинг ўзгарувчанлик коэффеценти ҳақида маълумотлар келтирилган. Тадқиқот натижаси 70х20см, 70х25см схемада экилган уруғлик ўсимликларда танлаш ишлари олиб бориш самарали эканлигини кўрсатди.

**Калит сўзлар:** Индау, ўзгарувчанлик коэффициенти, индивидуал ўзгарувчанлик, экиш схемаси, экиш муддати, уруғчилик, ҳосилдорлик.

## АННОТАЦИЯ

В статы приведены сведения от изменчивости высоты растений, колечество ветвей, количество стручков и семенной продуктивности при выращивании семенных растений индау при различных схемах посадки. Исследования показалы, что наиболее эффиктивным является отбор семеных растений при выращивании их по схеме 70х20см, 70х25см.

**Ключевые слова**: Индау, коэффициент изменчивости, индивидуальная изменчивость, схема посева, сроки посева, семеноводство, урожайность.

## ANNOTATION

The statistics provide information on the variability of plant height, the number of branches, the number of pods and seed productivity when growing indau seed plants with various planting schemes. Studies have shown that the most effective is the selection of seed plants when growing them according to the scheme 70x20sm, 70x25sm.

**Keywords:** Indau, coefficient of variability, individual variability, sowing scheme, sowing dates, seed production, yield.

The agronomist has to take into account group (differences between crops, varieties) and individual variability in his work. Individual variability is understood as the difference between some plants of relatively identical material (for example, a variety). This variability is accepted by many researchers as phenotypic variability, and the coefficient of variability is defined as Sv, %. It includes genotypic variation determined by the difference between the genotypes of the genus and modification variation caused by the influence of external environmental conditions. Individual variability is of two types: quantitative and qualitative.

To form a high-level crop, it is necessary to study and know the laws of quantitative variability. This allows you to control the life processes of plants. In the process of breeding, it is necessary to take into account the variability of quantitative signs, most of which are favorable. Knowledge of the nature of the variability of signs is the basis for the correct conduct of breeding work. (Pivovarov V.F., Dobrutskaya E.G., 2000). According to B.A. Dospekhov (1985), if the variability is less than 10%, the signs are low, if it is from 10% to 20%, it is considered average, and if it is more than 20%, it is considered very variable. It is noted that if the trait is less variable (<10%) under the influence of the external environment, it is effective to select the desired genotypes from such populations.

As a result of many studies, it has been found that almost all the characteristics of vegetable crops are variable to one degree or another under the influence of the external environment.

In our experiments, we studied the variability of important economic traits in different planting schemes of indau seed plants planted on September 10.

Data on the variability of the height of seed plants in different planting schemes are presented in Table 1.

Table 1. Variability of the height of indau plant grown in different planting schemes during the autumn period, 2018-2020

| Planting scheme | X̄ | | | | lim | | | | V,% | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** |
| 70x20 | 196 | 172 | 184 | **184** | 175-210 | 158-198 | 163-197 | **165-202** | 4,72 | 5,53 | 4,52 | **4,92** |
| 70x25 | 193 | 171 | 182 | **182** | 183-205 | 161-184 | 161-195 | **168-195** | 4,00 | 4,01 | 4,60 | **4,20** |
| 70x30 | 193 | 168 | 179 | **180** | 179-207 | 162-180 | 170-188 | **170-192** | 4,81 | 2,67 | 2,29 | **3,26** |
| 70x35 | 195 | 170 | 180 | **182** | 172-213 | 165-173 | 176-186 | **171-191** | 5,59 | 1,60 | 1,65 | **2,95** |

It was observed that the height of seed plants decreases as the feeding area increases. Studies have shown that indau is a trait with little variation (<10%) in the height of seed plants. However, as the feeding area increased, the coefficient of variation decreased.

The coefficient of variation was 4.92% in the smallest feeding area and others. 70x20cm scheme, and 2.95% in the largest feeding area and others. 70x35cm scheme. Regardless of the planting schemes, this sign was less variable. But whether the difference between the options is large or significant depends on the degree of variability of the sign. If the trait is less variable (<10%), an observed difference of 3-5% between variants is considered significant. If the trait variability is very high (>20%), an observed 10% difference between variants is not considered significant (Mamaev, 1975). Based on this, it can be considered that the difference between the variants is

significant in terms of the height variability of the indau seed plants planted in the 70x35 cm scheme. It will be effective to carry out selection work on this sign.

Table 2 Variability of the number of branches of the indau plant grown in different planting schemes in the autumn period, 2018-2020

| Planting scheme | X̄ | | | | lim | | | | V,% | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** |
| 70x20 | 13 | 19 | 18 | 17 | 10-17 | 13-23 | 15-22 | 13-21 | 16,36 | 20,31 | 11,96 | 16,21 |
| 70x25 | 15 | 20 | 22 | 19 | 10-22 | 13-26 | 19-26 | 14-25 | 18,09 | 18,06 | 9,03 | 15,06 |
| 70x30 | 17 | 24 | 23 | 21 | 14-25 | 20-27 | 19-29 | 18-27 | 18,65 | 7,58 | 12,12 | 12,78 |
| 70x35 | 18 | 22 | 21 | 20 | 10-30 | 19-27 | 14-27 | 14-28 | 28,47 | 18,74 | 17,20 | 21,47 |

The number of branches in Indau seed plants was 17-21, and the number of branches increased as the feeding area increased (Table 2).

The variability of this sign was moderate in the 70x20, 70x25, 70x30 cm planting schemes and large in the 70x35 cm scheme. For example, in the scheme of 70x20cm, the coefficient of variation of this sign was 16%, while in the scheme of 70x35cm it was 21%. It will be effective to make a selection in seed breeding and selection work according to this sign.

Table 3 Variability of the number of indau plant stalks grown in different planting schemes in the autumn period 2018-2020

| Planting scheme | X̄ | | | | lim | | | | V,% | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** |
| 70x20 | 2226 | 2759 | 2415 | 2467 | 1784-2608 | 1965-3841 | 1973-2797 | 1907-3082 | 12,33 | 19,35 | 11,37 | 14,35 |
| 70x25 | 2213 | 2820 | 2641 | 2558 | 1698-2718 | 2121-3452 | 2319-3023 | 2046-3064 | 13,79 | 14,14 | 10,00 | 12,64 |
| 70x30 | 2298 | 3184 | 3287 | 2923 | 1706-3001 | 2654-3884 | 1919-4569 | 2093-3818 | 18,65 | 11,80 | 19,67 | 16,71 |
| 70x35 | 3068 | 2392 | 2947 | 2802 | 2254-4572 | 1024-3674 | 2350-3579 | 1876-3942 | 20,89 | 27,03 | 13,82 | 20,58 |

One of the indicators of indau plant seed productivity is the number of pods, Table 3. As the feeding area expanded to a certain extent, the number of pods also increased.

In particular, their number was 2467 units/plant in the 70x20 cm scheme, and 2963 units/plant in the 70x30 cm scheme. However, in the 70x35 cm scheme, its amount was 2802 units/plant, which was 121 units less than in the 70x30 cm scheme. In general, the coefficient of variation of the number of pods in indau seed plants was average and made 14.35-20.58%. This, in turn, ensured that the selection for this character in seed breeding and selection works would be more effective.

Table 4 Variability of seed productivity in indau plant grown in different planting schemes in autumn 2018-2020

| Planting scheme | X̄ | | | | lim | | | | V,% | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** | 2018 | 2019 | 2020 | **Average** |
| 70x20 | 81 | 75 | 71 | 76 | 69-93 | 56-92 | 60-83 | 62-89 | 9,01 | 12,77 | 10,05 | 10,61 |
| 70x25 | 82 | 81 | 74 | 79 | 69-95 | 65-112 | 64-83 | 66-97 | 9,35 | 14,42 | 9,21 | 10,99 |
| 70x30 | 85 | 93 | 95 | 91 | 71-98 | 79-125 | 77-138 | 76-120 | 9,25 | 13,00 | 21,49 | 14,58 |
| 70x35 | 94 | 79 | 80 | 84 | 74-136 | 54-129 | 68-92 | 65-19 | 16,02 | 34,70 | 9,13 | 19,95 |

The seed productivity of the plants increased with the expansion of the feeding area up to a certain level. In particular, in the 70x20 cm scheme, the seed productivity of indau plants was 76 g/plant, and in the 70x30 cm scheme, it was the highest, and others 95 g/plant. However, in the 70x35cm scheme, this indicator was 84 g/plant, and compared to the 70x30cm scheme, it was 7 g/plant less. In general, like other characters, the variability of the seed productivity sign was moderate and was 10.61-19.95%, Table 4. The variability of this sign increased in connection with the increase in the area of nutrition. Plants grown in the 70x20cm plot had a seed yield variability of 10.81%, while in the 70x35cm plot this indicator reached 19.95% or 9.14% higher. In seed work, it is effective to select the plants planted in the 70x20, 70x25 cm scheme according to the sign of seed productivity.

## CONCLUSIONS

As a result of the research, it was found that the height of indau seed plants is less variable (<10%). The number of branches, the number of pods and the characteristics of the seed productivity of plants are considered to be moderately variable (>10<20%).

Planting schemes significantly affect the variability of these characters. As the nutritional area increases, the coefficient of variation of the plant height indicator decreases.

The variability of the number of branches decreased depending on the increase of the feeding area up to a certain level. However, in the scheme of 70x30 cm, its coefficient of variation was very high and amounted to 21%. The coefficient of variation of traits such as pod number and seed yield increased with increasing feeding area.

In most cases, it is effective to carry out selection work on seed plants planted in the scheme of 70x20cm, 70x25cm.

## LIST OF USED LITERATURE

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