

Number And Viability Of Pollen Grains In A Single Flower And Pollen Grains In A Single Pollen In Interspecific F₁ Plants And Primary Sources.

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Annotation: *The high and low birth rates of hybrid cotyledons and cotyledons as a result of crossbreeding of cotton species depend on the phylogenetic proximity of the selected species and species diversity. The method of interspecific hybridization is the most important source of enriching the cotton gene pool with beneficial traits.*

Key words: *Cotton, cocoon, seed, variability, heredity, dust, pollen, genome, crossbreeding, generation, column, hybrid, heterosis, recombinant.*

1. INTRODUCTION

The fact that the viability of dust in cotton species belonging to the genus *Gossypium* L. is one of the factors ensuring their productivity has been stated in the scientific studies of many scientists [1], [9], [10], [2], [4]. In particular, Z.B. Kuryazov [10] studied the viability of pollen grains in different genomic cotton species and showed that in the obtained hybrids the pollen grains have high viability and F₁ plant yields.

In the scientific researches of Z.B.Kuryazov, S.M.Rizaeva A.A.Abdullaev [3], the study of the viability of pollen grains in different genomic diploid species allows to get a correct idea of the process of fertilization. F₁ hybrids obtained on the basis of cross-breeding of cotton species of different genomes (A₁-A₂, V₁-V₂-V₃, E₁, -E₄, D₅, F₁) showed high viability of pollen grains and some species of *G.herbaceum* L. and *G.arboreum* L. It was observed in the research that the viability of dust grains in F₁ hybrids obtained by cross-breeding of species *G.anomalum* and *G.barbosanum* was low.

H.A. Muminov noted that the F₁ hybrids obtained as a result of cross-hybridization of cotton species belonging to the genus *G.herbaceum* L. have high values of viability of dust grains and noted the phylogenetic similarity of the diversity of this species [3].

B.H.Amanov et al. [2] obtained that *G. barbadense* L. has high rates of viability of pollen grains in semi-wild, cultivated tropical and subtropical subspecies species and forms, and their phylogenetic similarity to each other. found that hybrid offspring had a higher yield potential.

G.hirsutum L., *G.barbadense* L. species species selected as the primary source and the number of pollen grains in the flower of the wild *G.darwinii* Watt species almost did not

differ sharply from each other (117.5-125.5), including *G. hirsutum* L. has a low number of pollen grains (117.5) in the form of wild subsp. *mexicanum* var. *nervosum* (Yukatan). A slightly higher index on this character is *G. hirsutum* L. subsp. It was found that *euhirsutum* "Kelajak" differs from other species in terms of the number of pollen grains, ie the number of pollen grains is 125.5. While the semi-wild f. *parnat* (yellowish fibrous) showed a high rate of pollen count (122.0 pcs.), The cultural tropical subsp. *vitifolium* in the form of f. *brasiliense* (red stem) was noted to be slightly lower on this mark (117.0 pcs.). An analogous situation was observed in terms of the number of pollen grains in the wild *G. darwinii* Watt species (see Table 3.3).

The number of pollen grains in F₁-plants obtained by hybridization of wild and semi-wild forms of *G. hirsutum* L., *G. barbadense* L. species is close, F₁ subsp. *mexicanum* var. *nervosum* (Yukatan) x subsp. in the combination of *ruderales* f. *parnat* *retsi* 121.8-128.8 units, the amplitude of variability was 110.0-140.0 units, and the coefficient of variation was 5.5-7.8%, respectively.

The number of pollen grains of F₁-plants obtained by hybridization of wild x cultured tropical forms is averaged over F₁ subsp. *mexicanum* var. *nervosum* (Yukatan) x subsp. *vitifolium* f. *brasiliense* (red stem) was observed in a combination of *retsi*. The number of pollinators was 115.0-121.6, the amplitude of variability was average (110.0-139.0), and the coefficient of variation was 5.1-6.2% (see Table 3.3).

The number of pollen grains of F₁-plants obtained by hybridization of wild and cultivated subtropical forms is close to each other, ie the number of pollen grains in interspecific F₁ subsp. *mexicanum* var. *nervosum* (Yukatan) x "Surkhan-9" reciprocal combinations is 120.4-124.3, the amplitude of variability was averaged (110.0-124.0; 108.0-135.0 units), and the coefficient of variation was found to be 4.7-6.5-6.2%, respectively (see Table 3.3).

G. hirsutum L., *G. barbadense* L. The results of the analysis of the number of pollen in F₁-plants belonging to the interspecific cultural tropical and semi-wild forms show that the highest indicator is subsp. *paniculatum* x subsp. in the *ruderales* f. *parnat* combination, the high index on pollen was 159.3 pcs, respectively, while the amplitude of variability 1 was 33.0-172, and the coefficient of variation was recorded at 8.0%. *ruderales* f. *parnat* x subsp. *paniculatum* found a slightly lower index of 129.6 pollen grains.

When analyzing the number of pollen grains in F₁ plants obtained by cross-breeding of interspecific cultural tropical forms, subsp. *paniculatum* x *G. barbadense* L. subsp. in the combination of *vitifolium* f. *brasiliense* (red stem), this figure was found to be 123.5, while the coefficient of variation was 4.6%.

Table 3.3
 Interspecific F₁ plants obtained on the basis of primary sources and their hybridization
 the number of pollen grains in a single flower

Primary sources and F ₁ generation combinations	Number of flowers analyzed	Number of pollen grains, pcs			
		$\pm S \bar{x}$	Lim	S	V%
<i>G. hirsutum</i> L. subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	10	117,5 \pm 2,1	108,0-126,0	6,8	5,8
<i>G. hirsutum</i> L. subsp. <i>punctatum</i>	10	123,3 \pm 1,9	113,0-130,0	6,2	5,0

<i>G.hirsutum</i> L. subsp. <i>paniculatum</i>	10	121,0 ±2,2	110,0-132,0	7,1	5,9
<i>G.hirsutum</i> L. subsp. <i>euhirsutum</i> «Kelajak» sort	10	125,5±3,0	112,0-138,0	9,5	7,6
<i>G.darwinii</i> Watt	10	119,5±2,4	108,0-131,0	7,9	6,6
<i>G.barbadense</i> L. subsp. <i>ruderales</i> f. <i>parnat</i> (yellowish fibrous)	10	122,0±2,1	112,0-131,0	6,8	5,6
<i>G.barbadense</i> L. subsp. <i>vitifolium</i> f. <i>brasiliense</i> (red stem)	10	117,0±2,3	107,0-127,0	7,5	6,4
<i>G.barbadense</i> L. subsp. <i>eubarbadense</i> «Surkhan-9» sort	10	118,6±2,4	108,0-135,0	7,7	6,5
F₁ plants					
1. Interspecific hybrids (<i>G.hirsutum</i> L. x <i>G.barbadense</i> L.)					
wild x semi-wild					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan) x subsp. <i>ruderales</i> f. <i>parnat</i>	10	121,8 ± 3,0	110,0-140,0	9,5	7,8
subsp. <i>ruderales</i> f. <i>parnat</i> x subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	10	128,8 ± 2,25	120,0-138,0	7,1	5,5
wild x cultural tropics					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan) x subsp. <i>vitifolium</i> f. <i>brasiliense</i> (red stem)	10	121,6 ± 2,3	115,0-139,0	7,5	6,2
subsp. <i>vitifolium</i> f. <i>brasiliense</i> (red fibrous) x subsp. <i>mexicanum</i> var. <i>nervosum</i> (yukatan)	10	115,0 ± 1,8	110,0-124,0	5,9	5,1
wild x cultural subtropical					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan) x «Surkhan-9» sort	10	120,4±1,7	110,0-124,0	5,6	4,7
«Surkhan-9» sort x subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	10	124,3±2,5	108,0-135,0	8,1	6,5
semi-wild x semi-wild					
subsp. <i>punctatum</i> x subsp. <i>ruderales</i> f. <i>parnat</i>	10	135,1±2,5	122,0-143,0	7,9	5,85
subsp. <i>ruderales</i> f. <i>parnat</i> x subsp. <i>punctatum</i>	10	144,39±2,26	136,0-175,0	7,16	4,96
semi-wild x cultural subtropical					
subsp. <i>ruderales</i> f. <i>parnat</i> x subsp. <i>euhirsutum</i> «Kelajak» sort	10	139,1±5,7	95,0-162,0	18,0	13,0
subsp. <i>euhirsutum</i> «Kelajak» sort x subsp. <i>ruderales</i> f. <i>parnat</i>	10	143,1±5,8	108,0-163,0	18,4	12,9
semi-wild x cultural subtropical					
subsp. <i>punctatum</i> x subsp. <i>eubarbadense</i> « Surkhan-9» sort	10	123,5±2,7	108,0-134,0	8,8	7,1
subsp. <i>eubarbadense</i> «Surkhan-9» sort x subsp. <i>punctatum</i>	10	121,5±2,2	113,0-136,0	7,1	5,9
cultural tropical x semi-wild					
subsp. <i>paniculatum</i> x subsp. <i>ruderales</i> f. <i>parnat</i>	10	150,3±3,8	172,0-133,0	12,1	8,0

subsp. <i>rudera</i> f. <i>parnat</i> x subsp. <i>paniculatum</i>	10	129,6±2,9	146,0-119,0	9,2	7,1
cultural tropics x cultural tropics					
subsp. <i>paniculatum</i> x <i>G. barbadense</i> L. subsp. <i>vitifolium</i> f. <i>brasiliense</i> (red stem)	10	123,5±1,8	118,0-134,0	5,7	4,6
cultural tropical x cultural subtropical					
subsp. <i>paniculatum</i> x subsp. <i>eubarbadense</i> « Surkhan-9» sort	10	131,8±2,8	119,0-145,0	8,9	6,7
subsp. <i>eubarbadense</i> « Surkhan-9» sort x subsp. <i>paniculatum</i>	10	141,3±2,3	132,0-159,0	7,5	5,3
cultural subtropical x cultural subtropical					
subsp. <i>euirsutum</i> «Kelajak» sort x subsp. <i>eubarbadense</i> «Surkhan-9» sort	10	141,3±5,1	124,0-180,0	16,1	11,4
subsp. <i>eubarbadense</i> «Surkhan-9» sort x subsp. <i>euirsutum</i> «Kelajak» sort	10	143,6±3,3	130,0-167,0	10,7	7,4
<i>G. hirsutum</i> L. x <i>G. darwinii</i> Watt					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan) x <i>G. darwinii</i> Watt	10	134,6 ± 2,4	121,0-146,0	7,8	5,8
<i>G. darwinii</i> Watt x subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	10	126,9 ± 3,1	110,0-144,0	9,9	7,8
wild x wild					
subsp. <i>paniculatum</i> x <i>G. darwinii</i> Watt	10	144,8±1,9	135,0-152,0	6,1	4,2
<i>G. darwinii</i> Watt x subsp. <i>paniculatum</i>	10	150,1±3,0	133,0-163,0	9,5	6,3
cultural subtropical x <i>G. darwinii</i> Watt					
subsp. <i>euirsutum</i> «Kelajak» sort x <i>G. darwinii</i> Watt	10	123,5±4,4	105,0-141,0	14,0	11,3
<i>G. darwinii</i> Watt x subsp. <i>euirsutum</i> «Kelajak» sort	10	127,5±2,6	115,0-138,0	8,5	6,67

The number of pollen grains of F₁-plants obtained by hybridization of the cultured tropical form of *G. hirsutum* L. turichi and the subtropical sample of *G. barbadense* L. is close to each other, i.e. interspecific F₁ subsp. *paniculatum* x subsp. *eubarbadense*. The number of pollen grains in the “Surkhan-9” reciprocal combination is 131.8-141.3, the average amplitude of variability is 119.0-145.0; The presence of 132.0–159.0 pollen grains was detected (see Table 3.3).

F₁ subsp. *rudera* f. *parnat* x subsp. obtained on the basis of interbreeding of interspecific semi-wild and cultural subtropical samples. *euirsutum*. The number of dust grains in the combination “Kelajak” averaged 139.1-143.1 grains, and the amplitude of variability was 95.0-162.0; 108.0-163.0 units, respectively, and the coefficient of variation was 12.9-13.0%.

The average number of pollen grains in the “Kelajak” x “Surkhan-9” reciprocal combinations obtained as a result of cross-hybridization of *G. hirsutum* L., *G. barbadense* L. varieties was 141.3-143.6, and the coefficient of variation was 7, respectively. 4-11.4%.

The number of pollens in F₁ plants obtained based on the results of cross-hybridization of *G. hirsutum* L. species with wild *G. darwinii* Watt species was analyzed. The species was divided into wild x wild, cultured tropical x wild, wild x cultured subtropical groups. In particular, in the combination of wild x wild subsp. *mexicanum* var. *nervosum* (Yukatan) x *G. darwinii* reciprocal, the average number of pollen grains is 126.9-134.6, the amplitude of variability is 121.0-146.0; 110.0-144.0 units and the coefficient of variation was found to be 5.8-7.8%. Analogous cases were observed in the remaining groups.

Thus, the results obtained on the analyzed indicators showed that they differed in both primary sources and interspecific hybrids. In the subtropical *G. hirsutum* L. Kelajak and *G. barbadense* L. Surkhan-9 cultivars, the number of pollen grains was found to be almost indistinguishable from the studied species diversity. It was observed that the number of pollen grains in interspecific F₁-plants was in an intermediate or heterozygous state relative to the primary sources. A strong heterosis condition was determined on the basis of the number of pollen grains in hybrid plants obtained on the basis of cross-breeding of *G. hirsutum* L. species diversity in the wild *G. darwinii* Watt species.

The viability of dust grains. It is known that dust survival in cotton species belonging to the *Gossypium* L. family is one of the main factors ensuring productivity in many scientific studies [5], [8], [6].

L.P. Shevchuk [7] studied hybrids based on cross-breeding of *G. herbaceum* var. *africanum* (Watt) Mauer and *G. arboreum* L. According to the results of the study, these species were easily crossed and the viability of F₁-plants was high, while in the F₂-joint cytologically inert and medium-sprouted plants appeared.

B.Kh. Amanov Z.A. Ernazarova A.A. Abdullaev [8] noted that *G. barbadense* L. species species and the species obtained by cross-breeding with *G. darwinii* Watt type and interspecies F₁, F₂ and F₁B₁ It was found that the viability of pollen in plants is high and the obtained hybrids are phylogenetically close, have high yields.

F.U. Rafieva, B.Kh. Amanov, S.M. Rizaeva [6] Representatives of *G. Mustelinum* and *G. darwinii* species, *G. hirsutum* and *G. barbadense* species species and their interspecific hybrids F₁ and F₂ observed that the viability of the grains is high. Despite the high viability of pollen grains, the relatively low birth rate of whole seeds in the cocoon in hybrid combinations showed that not only the viability of pollen grains but also the maternal cytoplasm is important in the process of macrosporogenesis.

The diversity of *G. hirsutum* L. and *G. barbadense* L., as well as the viability of pollen grains in the flower of the genus *G. darwinii* Watt, are high, ranging from 93.9 to 96.9%. The highest index of viability of pollen grains in plants is 96.9% in the future variety, the relatively low index (93.9%) is *G. barbadense* L ssp. *vitifolium* f. *brasilense* (red stem). In the wild *G. darwinii* Watt species, dust viability was also found to be high, i.e. -94.8% (see Table 3.4).

Table 3.4
G. hirsutum L. x *G. barbadense* L. Dust survival in interspecific parent and F₁ plants

Primary sources and F1 generation combinations	Number of dust particles studied, pcs	$\bar{x} \pm S \bar{x}$	Lim	S	V%
<i>G. hirsutum</i> L. subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	1637,4	95,9 ± 0,35	79,4-100	1,12	1,16
<i>G. hirsutum</i> L. subsp. <i>punctatum</i>	1567,4	95,8 ± 0,47	73,3-100	1,5	1,56

<i>G.hirsutum</i> L. subsp. <i>paniculatum</i>	1776,9	96,5 ± 0,27	77,4-100	0,87	0,9
<i>G.hirsutum</i> L. subsp. <i>euhiirsutum</i> «Kelajak» sort	1929,9	96,9 ± 0,25	84,0-100	0,81	0,83
<i>G.darwinii</i> Watt	1886,2	95,1 ± 0,36	80,0-100	1,14	1,19
<i>G.barbadense</i> L. subsp. <i>runderale</i> f. <i>parnat</i> (yellowish fibrous)	1384,3	93,9 ± 0,34	77,7-100	1,09	1,16
<i>G.barbadense</i> L. subsp. <i>vitifolium</i> f. <i>brasilense</i> (red stem)	1544,2	95,5 ± 0,12	84,1-100	0,39	0,40
<i>G.barbadense</i> L. subsp. <i>eubarbadense</i> «Surkhan-9» sort	1743,0	94,8 ± 0,31	81,1-100	1,0	1,13
F₁-plants					
1. Interspecific hybrids (<i>G.hirsutum</i> L. x <i>G.barbadense</i> L.)					
wild x semi-wild					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)x subsp. <i>runderale</i> f. <i>parnat</i>	1342	89,4 ± 2,9	70,8-100	9,4	10,5
subsp. <i>runderale</i> f. <i>parnat</i> x subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	1255	89,0 ± 3,0	72,0-100	9,5	11,3
wild x cultural tropics					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)x subsp. <i>vitifolium</i> f. <i>brasilense</i> (red stem)	1357	78,7±4,8	52,0-100	15,3	19,5
subsp. <i>vitifolium</i> f. <i>brasilense</i> (red stem) x subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	1350	76,7±4,7	59,0-100	14,6	19,1
wild x cultural subtropical					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)x «Surkhan-9» sort	1263	83,6±3,7	64,7-100	11,7	14,1
«Surkhan-9» sort x subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	1378	84,2±4,2	60,0-100	13,4	16,0
semi-wild x semi-wild					
subsp. <i>punctatum</i> x subsp. <i>runderale</i> f. <i>parnat</i>	1365	83,3±2,6	75,0-100	8,2	9,9
subsp. <i>runderale</i> f. <i>parnat</i> x subsp. <i>punctatum</i>	1346	84,2±3,5	67,0-100	11,2	14,4
semi-wild x cultural subtropical					
subsp. <i>runderale</i> f. <i>parnat</i> x subsp. <i>euhiirsutum</i> «Kelajak» sort	1250	77,5±1,0	60,0-100	14,5	18,8
subsp. <i>euhiirsutum</i> «Kelajak» sort x subsp. <i>runderale</i> f <i>parnat</i>	1450	76,3±4,7	58,0-100	14,9	19,5
semi-wild x cultural subtropical					
subsp. <i>punctatum</i> x subsp. <i>eubarbadense</i> «Surkhan-9» sort	1022	94.3±0.50	77.1-100	1.58	1.67
subsp. <i>eubarbadense</i> «Surkhan-	1056	97.1 ± 0.19	85.4-100	0.61	0.63

9» sort x subsp. <i>punctatum</i>					
cultural tropical x semi-wild					
subsp. <i>paniculatum</i> x subsp. <i>runderale</i> f. <i>parnat</i>	1247	94.1 ± 0.52	70.0-100	1.66	1.76
subsp. <i>runderale</i> f. <i>parnat</i> x subsp. <i>paniculatum</i>	1252	94.7 ± 0.73	70.8-100	2.31	2.44
cultural tropics x cultural tropics					
subsp. <i>paniculatum</i> x <i>G. barbadense</i> L. subsp. <i>vitifolium</i> f. <i>brasilense</i> (red stem)	1533	92.9±0.30	71.4-100	0.96	1.0
cultural tropical x cultural subtropical					
subsp. <i>paniculatum</i> x subsp. <i>eubarbadense</i> «Surkhan-9» sort	1426	97,2±0,28	86,8-100	0,90	0,92
subsp. <i>eubarbadense</i> «Surkhan-9» sort x subsp. <i>paniculatum</i>	1545	96,7±0,13	84,6-100	0,43	0,45
semi-wild x cultural subtropical					
subsp. <i>runderale</i> f. <i>parnat</i> x subsp. <i>euhirsutum</i> «Kelajak» sort		94,8±0,83	79.1-100	2.62	2.76
subsp. <i>euhirsutum</i> «Kelajak» sort x subsp. <i>runderale</i> f. <i>parnat</i>		95,5 ± 0,48	83.3-100	1.5	1.59
cultural sub tropics x cultural sub tropics					
subsp. <i>euhirsutum</i> «Kelajak» sort x subsp. <i>eubarbadense</i> «Surkhan-9» sort		95,7±0,35	75,8-100	1,11	1,16
subsp. <i>eubarbadense</i> «Surkhan-9» sort x subsp. <i>euhirsutum</i> «Kelajak» sort		95,6±0,34	80,0-100	1,0	1,14
<i>G. hirsutum</i> L. x <i>G. darwinii</i> Watt					
wild x wild					
subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan) x <i>G. darwinii</i> Watt	1356	91,7±2,7	75,0-100	1,2	1,2
<i>G. darwinii</i> Watt x subsp. <i>mexicanum</i> var. <i>nervosum</i> (Yukatan)	1456	87,7±2,6	71,4-100	8,5	9,7
cultural tropical x wild					
subsp. <i>paniculatum</i> x <i>G. darwinii</i> Watt	1247	95.9 ± 0.27	81.5-100	0.87	0.90
<i>G. darwinii</i> Watt x subsp. <i>paniculatum</i>	1252	94.5 ± 0.43	73.3-100	1.37	1.44
cultural subtropical x wild					
subsp. <i>euhirsutum</i> «Kelajak» sort x <i>G. darwinii</i> Watt	1356	94.8 ± 0.47	70.1-100	1.5	1.58
<i>G. darwinii</i> Watt x subsp. <i>euhirsutum</i> «Kelajak» sort	1320	79,3 ± 4,0	68,0-100	12,7	16,0

When analyzing the viability of dust grains in F₁-plants obtained by cross-breeding of interspecific wild and semi-wild varieties, the results are almost close to each other, i.e., F₁

subsp.mexicanum var.nervosum (Yukatan) x subsp. ruderae f.parnat (n.t-li) in the combination of retsiprok 89.0-89.4%, variability amplitude 70.8-100.0%; 72.0-100.0%, and the coefficient of variation was 10.5-11.3%, respectively.

In the analysis of wild x cultured tropical, wild x subtropical, semi-wild x semi-wild, semi-wild x cultured tropical, semi-wild x cultured subtropical cultured subtropical x cultured subtropical groups F₁-plants in the combination of pollen grain viability 76.3-97.1% formed. In particular, Surkhan-9 variety x ssp, which belongs to the semi-wild x cultural subtropical group. ssp.vitifolium f belonging to the semi-wild x cultural tropical group was observed in the runctatum combination with the highest index of viability of pollen grains 97.1%, variability amplitude 85.4-100.0%, respectively coefficient of variation 0.63%. brasilense (red stem) x G.hirsutum L ssp. In the runctatum hybrid combination, a relatively low index was recorded at 76.3%, a variable amplitude of 58.0–100.0%, and a coefficient of variation of 19.5%.

The viability of pollen grains in F₁ plants obtained on the basis of cross-breeding of G. hirsutum L. species with wild G.darwinii Watt species was analyzed and they were divided into several groups (wild x wild, wild x cultured, wild x cultured subtropical). In the studied F₁-plants, 79.3-95.9% were recorded in combinations of pollen grain viability. For example, G.hir L ssp, which belongs to the cultural tropical x wild group. raniculatum x G.darwinii Watt In the combination of retsiprok, the highest rate of dust grain viability was 95.9%, the variability amplitude was 81.5-100.0%, and the coefficient of variation was 0.90%, while the wild x cultural subtropical G.darwinii Watt x In the future combination, the low rate was found to be 79.3%, the amplitude of variability (68.0-100.0%), and the coefficient of variation to 16.0%.

The analysis of the obtained results showed that the primary sources had high indicators of the viability of pollen grains in interspecific F₁-plants, ie the species studied showed phylogenetic similarity of species diversity, and the obtained hybrids in solving theoretical and practical problems of selection, especially cultural and allows varieties to use wild, semi-wild, cultivated tropical forms in useful cross-breeding, cross-breeding.

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