

Konoplia K.V., candidate of agricultural sciences

Hlukhiv State Pedagogical University named after Oleksandr Dovzhenko

GERMINATION POWER AND GERMINATION OF HEMP SEEDS OF DIFFERENT SIZES

Reviewer – candidate of agricultural sciences S.V. Mischenko

14 hemp varieties by the germination power and germination were investigated: 1) of the individual plants with the highest, middle and the lowest mass of 1000 seeds; 2) of the population of big, middle and small seeds group. In both investigations exceptionally normal ripe seeds without dependence with their group with dismissal of factor of the negative influence of unripe seeds were analyzed. It was revealed that all groups of seeds of individual plants and populations give high indexes as by the germination power, as by germination. The fact of full value of small seeds as sowing material was proved.

Key words: *hemp, seeds, mass of 1000 seeds, big, middle and small seeds group, germination power of seeds, germination of seeds.*

Raising of the problem. Plant-breeding research of size of hemp seeds [1, 3] depends on the study of its viability, in particular with the necessity of establishment of parameters of germination power and stair of sowing material in laboratory conditions.

Analysis of the last researches and publications in which the decision of this problem is founded. Plotnikov S. and Demkin A. P. were engaged in the study of similar question. I. [2, 4], researches were conducted in direction of establishment of dependence of hemp seeds germination on shell colour and size of seed. Use in experiments of seeds of different ripeness, not except green hemp, there was an idea, that small seeds are not high-quality sowing material.

We investigated modern hemp varieties of different geographical origin with the **aim** of establishment of parameters of viability of normally ripe seeds of different factions of hemp for their practical use in breeding.

For the performance of the aim the followings *tasks* were put:

- to find out the parameters of germination power and stair of seed of individual plants with most, middle and the least mass of 1000 seeds;
- to investigated the parameters of germination power and stair of population of seed of large, middle and small factions.

Materials and methods. We investigated 14 hemp varieties of different origin, in particular Yermakivski mistsevi, Hlukhivski 10, US-9 – dioecious hemp varieties, Fedora 17 and Futura 75 are the French hybrids, got as a result of crossing of dioecious hemp with monoecious, other (Hlukhivski 18,

Hlukhivski 33, Hlukhivski 57, Hlukhivski 58, USO-14, USO-31, Zolotoniski 11, Zolotoniski 15, Synelnykivski 3) are monoecious hemp varieties. Hemp was grown in an evaluation nursery, area of feed 50x5 cm. In a period of ripeness hemp were separated by 30 plants of each varieties, seeds were threshed individually by hands.

Experiments were conducted in 2003–2004 on the experimental field and in the laboratory of the Institute of Bast Crops UAAN.

Results of researches. Germinating of seeds of different sizes was carried out by such method: in one experience on each of 14 varieties for seed-germinating we select individual plants with most, middle and the least mass of 1000 seeds. In other experiment on every variety we took seed population and distributed it by special sieves on large, middle and small factions. To eliminate the factor of negative influence of not fully ripe seeds, in both experiments were analyzed only normally ripe seeds, regardless of their faction.

In the table we can see, that all factions of seeds are given by high indexes both by germination power and germination. Divergence at reliable level is marked only by germination power of seeds of individual plants – between large and middle and large and small seeds ($R < 0,05$). This fact is explained that greater in size seeds at germinating swell slower than less by size seeds. In other variants of experience a difference is insignificant enough, unreliable. It is not discovered between information of analysis of seed of individual plants and population of principle differences.

Germination power and germination of hemp seeds of different sizes (middle, 14 varieties)

Seeds faction	Total seeds quality	Germination power of seeds			Germination of seeds		
		$\bar{x} \pm S_{\bar{x}}$, %	V, %	limits, %	$\bar{x} \pm S_{\bar{x}}$, %	V, %	limits, %
Seeds of individual plants of the variety							
Large (l)	1400	93,64±1,89	7,56	76–99	98,79±0,38	1,44	95–100
Middle (m)	1400	98,50±0,39	1,48	96–100	99,43±0,20	0,76	98–100
Small (s)	1400	97,93±0,58	2,21	92–100	99,21±0,21	0,81	98–100
		$P_k - P_c < 0,05$					
		$P_k - P_d < 0,05$					
Population of seeds of the variety							
Large (l)	1400	97,43±0,62	2,37	94–100	98,21±0,37	1,39	95–100
Middle (m)	1400	98,21±0,72	2,74	95–100	98,93±0,44	1,66	95–100
Small (s)	1400	98,50±0,65	2,48	91–100	99,00±0,43	1,63	94–100

It should be noted high level of germination of hemp seed: within the limits of varieties its germination power is 76–100 %, and germination – 94–100%. Fully ripe hemp seeds of all factions are high-quality sowing material.

The fact of establishment that the ripe seed of small faction of hemp by viability (by germination power and germination) do not yield to the seed of large and middle factions, testifies to his full value as sowing material.

Conclusion. Small seed (but ripe) do not yield by germination power and complete germination to large and middle one.

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