GALAXY INTERNATIONAL INTERDISCIPLINARY RESEARCH JOURNAL (GIIRJ)
ISSN (E): 2347-6915
Vol. 13, Issue 1 January (2025)

YIELD INDICATORS OF AMARANTH (AMARANTHUS)

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ABSTRACT

This article analyzes the yield indicators of amaranth plant varieties introduced in the soil and climatic conditions of Tashkent region, including the wet and dry weight of one plant stalk and the green mass of one plant over the years.

Keywords: Introduction, variety sample, stalk, wet weight, dry weight, green mass, starting material, standard variety,

AMARANT (AMARANTHUS)NING HOSILDORLIK KO‘RSATKICHLARI

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ANNOTATSIYA

Ushbu maqolada Toshket viloyati tuproq iqlim sharoitida introduksiya qilingan amrant o‘simligi nav namunalarida hosildorlik ko‘rsatkichlaridan bir dona o‘simlik shingilining ho‘l va quruq og‘irligi hamda bir o‘simlikning yashil massasi yillar kesimida tahlil qilingan

Kalit so‘zlar: introduksiya, nav namuna, shingil, ho‘l og‘irlik, quruq og‘irlik, yashil massa, boshlang‘ich ashyo, andoza nav,

INTRODUCTION

Amaranth is a climate-resistant grain and a versatile food crop that is of particular importance worldwide. It is mainly grown in Mexico, Peru, Bolivia, India, China and several African countries. Amaranth is distinguished by its high nutritional value, as it contains high amounts of protein, iron, calcium and magnesium, and does not contain gluten.

Amaranth has a strong ability to grow in conditions of water scarcity and high temperatures. In addition, its adaptability to various soil conditions, including low-fertility and acidic soils, is also important for its cultivation in reserve lands.

Today, amaranth is considered an effective solution to climate change and food security. It is especially widely used to ensure food security, as it can be grown in a variety of soil and climatic conditions. Not only the grain, but also the leaves of this crop are used for nutritional purposes.

Amaranth is drought-resistant, but it grows well with moisture. Amaranth has a low water transpiration rate (270-280), which allows for economical use of moisture.

This plant, originally from South America, was used as a feed until the 1980s. Today, it has been found to have unique properties in medicine. Amaranth can also be used as a vegetable crop that compensates for the lack of vitamins, nutrients, and protein in the human diet. This is especially important for people living in extreme environmental conditions. The use of amaranth significantly improves the quality of food and makes the diet of the population more complete. The leaves and unripe flowering shoots are boiled or eaten like spinach. Amaranth leaves can be harvested dried for future use and used as a protein-vitamin supplement. Harvesting for silage - during harvesting, the share of leaves in the amaranth crop is 30-35%, and corn is 16%.

Scientific research on amaranth is important not only for ensuring food security, but also for developing sustainable agriculture in the face of climate change.

The weight of the amaranth plant's scutellum (flower head) depends on the plant variety, growing conditions, agrotechnics and level of care. In general, the raw weight of amaranth scutellum can range from 200–1000 grams. Since most of it is water, the weight of the dried scutellum is less.

Based on the above, we also conducted analyses of the wet and dry mass of amaranth scutellum in our research (Table 1).

According to the analysis results, the average weight of one pod of our selected variety samples from among the collection varieties introduced in the soil and climatic conditions of the Tashkent region in 2017 was from 333.0 (New 21) grams to 585.5 (Check 3) grams, depending on the variety and sample. In the standard variety Marhamat, the weight of one pod this year was 405.2 grams, while among the variety samples, Check 5 (324.5) grams and New 21 sample were 333.0 grams, and showed a result lower than the standard variety by 72-81 grams.

Wet weight of amaranth varieties and samples 1-table.

Liniya nomi	Liniya kodi	2017 y		2018 y		2019 y	
		M±m	V%	M±m	V%	M±m	V%
New 65	102	432,1±0,76	0,37	454,4±0,58	0,28	465,2±0,82	0,40
New 21	103	333,0±1,24	0,61	335,0±1,04	0,51	338,0±1,03	0,50
Check2	513	417,6±1,70	0,82	435,5±1,08	0,52	453,2±1,98	0,94
New 41	113	556,7±1,43	0,70	578,3±0,81	0,39	600,0±1,87	0,88
New 13	202	444,5±1,51	0,74	458,4±0,85	0,41	466,0±1,45	0,92
New 30	222	456,2±1,04	0,51	469,6±0,75	0,36	477,0±2,38	0,13
Check 7	303	459,2±1,10	0,54	462,5±0,85	0,41	472,0±1,67	0,78
Check 5	304	324,5±1,08	0,53	329,8±1,19	0,58	362,3±2,91	0,52
NEW45	104	536,8±1,03	0,50	553,2±1,55	0,76	567,0±1,99	0,93
Check 3	505	585,5±0,81	0,40	608,9±1,46	0,70	627,0±1,98	0,93
Oq amarant	508	578,4±1,87	0,91	594,6±1,61	0,29	605,7±1,00	0,38
Andoza Marhamat		405,2±0,61	0,30	411±1,22	0,59	425,8±1,03	0,95

This year, the highest indicators of fresh weight per pod were recorded in the samples of the White amaranth variety: 556.7 grams (New 41), 456.2 grams (New 30), 585.5 grams (Check 3) and (578.4). According to the results of the analysis of the fresh weight of amaranth pods in the second and third years of our experiment, the lowest result was recorded in the New 21 sample, which was up to 350-380 grams. The weight of one pod of amaranth plant in these years was also high, reaching 578.4-600 grams (New 41), 553.2 - 567.0 (New 45), 608.9-627.0 (New41), 594.6-605.7 (Aq amaranth), up to grams, demonstrating superiority over the standard Markhamat variety.

The weight of the hull and dry mass of amaranth depends on its biological and agrotechnical characteristics, growing conditions and various yield factors.

As a result of our experiments and analyses, 556.7 grams (New 41), 456.2 grams (New 30), 585.5 grams (Check 3) and (578.4) variety samples can be used to improve the trait in selection work.

In our research, we analyzed the results of the experiment on the dry weight of one amaranth plant, which is another indicator of productivity, in the soil and climatic conditions of the Tashkent region. Table 2. According to the results of the analysis, the dry weight of the amaranth variety Andoza was the lowest in terms of the year, with the lowest indicator being 115.5-126.8 g (Check 5), and 116.5-133.0 g (New 21), which was 63-81 and 16-75 grams lower than the standard Amaranth variety. In terms of dry weight of the amaranth plant, the remaining varieties showed superiority over the standard variety. In terms of dry weight of the amaranth, the varieties and samples

Dry weight of the shingles of amaranth varieties and samples, gr 2-table.

Liniya nomi	Liniya kodi	2017 y		2018 y		2019 y	
		M±m	V%	M±m	V%	M±m	V%
New 65	102	140,0±0,78	2,71	142,1±1,29	1,65	162,8±0,75	1,54
New 21	103	116,5±0,88	2,11	122,5±0,96	2,10	133,0±0,95	1,99
Check 2	513	146,2±0,58	2,59	152,4±1,13	1,40	158,6±0,67	1,34
New 41	113	194,8±0,51	1,90	202,4±0,97	1,81	210,0±1,06	0,99
New 13	202	155,6±1,14	2,27	160,4±1,32	1,99	163,1±1,49	1,48
New 30	222	159,6±1,23	5,51	164,4±1,27	4,47	166,9±140	3,13
Check 7	303	160,7±1,61	2,08	162,7±1,27	1,59	165,2±0,92	1,11
Check 5	304	115,5±0,74	1,01	120,4±0,71	0,93	126,8±1,62	1,05
NEW45	104	187,9±1,43	1,94	194,0±1,19	1,57	198,4±1,79	1,22
Check 3	505	202,4±1,71	1,81	208,1±0,63	1,27	212,9±0,94	1,27
Oq amarant	508	204,9±1,13	1,85	213,1±1,02	1,60	216,9±1,57	1,01
Andoza Marhamat		141,8±0,39	1,39	143,8±0,99	1,22	149,0±1,10	1,13

Among the following samples, it was found that they have the following indicators in terms of the number of years (New 45) 187.9-198.4 (New 41) 194.8-210.0 (White amaranth) 202.4-212.9, (Check 3) 204.9-136.

The total green mass of an amaranth crop (excluding roots), that is, the total weight of its leaves, stems, etc., is measured in a wet state and can vary significantly depending on the season. The fresh mass of amaranth can be 30-50 tons per hectare or even higher.

In our research, we also analyzed the total green mass of imported varieties and samples of amaranth crops, which is one of the productivity indicators, in the soil and climatic conditions of the Tashkent region. According to the analysis results, the average total green mass of amaranth plant variety samples ranged from 1240 (Check5) grams to 1720 (White amaranth) grams. In the Andoza Marhamat variety, this figure was 1455 grams.

Amaranth crop

Among the introduced varieties in the soil and climatic conditions of the Tashkent region, low indicators were observed in the samples (Check 5) 1240 grams (NEW45) 1365 grams, which were 245 and 90 grams lower than the standard variety. In all other samples, the standard variety Marhamat was superior in terms of green mass. In the typical gray soil of the Tashkent region, the samples with the best indicators in terms of total green mass were (New 65) 1600 grams, (Check 3) 1620, and the White Amaranth sample 1720 grams, which were 145, 165, and 265 grams superior to the standard variety Marhamat.

According to the analysis of the research results, it is advisable to use the amaranth varieties (New 65), (Check 3), and White amaranth varieties, which have higher yield indicators, as starting materials in selection processes to create high-yielding varieties.

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