




Table S1. Characteristics of *Amaranthus* cultivars used in the research.

<p><i>Amaranthus tricolor</i> cv. Valentina</p> 	<p>The plant is from 1 to 1.5 m high. The variety has a high degree of foliage due to lateral shoots. The leaf is elliptical, whole, red-violet: it contains the betalain pigment amaranthine. The inflorescence is upright, purple-red color, of medium density. The glomerulus of the inflorescence consists of an initial staminate flower surrounded on both sides by female flowers, usually three of these flowers on each side. Seeds are round, black.</p> <p>The yield of leaf mass in the conditions of the Moscow region is 4.5-7.5 kg/m². The variety is characterized by a high content of essential amino acids, pectins, biologically active substances (flavonoids with P-vitamin activity and antioxidants – amaranthine, ascorbic acid, carotenoids, phenolic compounds in the leaves). This variety is a source of raw materials for obtaining a natural food red-violet dye. The leaves also accumulate organogenic forms of silicon and calcium as trace elements. Young plants are used as a vegetable (salad and grain) crop rich in essential amino acids, for the manufacture of a patented amaranthyl tea that improves the growth of intestinal symbiotic microflora, as well as for landscaping lawns and flower beds.</p> <p>The ability to accumulate heavy metals Mn, Fe, Co, Sb in the shoots of <i>A. tricolor</i> cv. Valentina growing on contaminated soils was shown.</p>
<p><i>Amaranthus cruentus</i> cv. Dyumovochka</p> 	<p>The plant is upright, pyramidal, height is 0.91-1.1 m. The leaves are elliptical, emerald green. The inflorescence is up to 0.3 m long, dense, light green. Period from germination to flowering is 45-50 days. The plants are flowering until autumn frosts. Seeds are dark brown, almost black. It is recommended to use in landscape gardening with the red-colored cv. Valentina.</p>
<p><i>Amaranthus caudatus</i> cv. Zelenaya Sosulka</p> 	<p>The plant is upright, green, with elliptical leaves. Its height is 1.3-1.5 m. The inflorescences are light green. The inflorescence spike is hanging, dense, 0.5-0.7 m long. Flowering is long, plentiful. The period from sowing to flowering is 50-55 days. The plants are flowering until autumn frosts. The variety is decorative. Used in landscaping.</p>

***Amaranthus caudatus* cv. Bulava**



The plant is 0.93-1.45 m high. Lateral shoots are well developed. The leaves are green, elliptical. The color of the inflorescences is raspberry-red. Globe-shaped inflorescences, hanging down, medium density. The plants are flowering until autumn frosts. The variety is decorative. It can also be used as a grain crop. The variety tolerates transplantation well and retains its decorative effect. It is resistant to short-term drought, and is relatively resistant to diseases.