

HISTORY OF SUNFLOWER BREEDING IN THE WORLD

Dragan SKORIC¹

¹ *Serbian Academy Of Sciences And Arts-SERBIA*

draganskoric@sbb.rs

ABSTRACT

The sunflower originates from North America. Native Americans were the first breeders of sunflower. Sunflower arrived in Europe in 1510 as an ornamental plant in a botanical garden in Madrid, Spain. Later, sunflowers spread across Western Europe as a decorative plant. There is written evidence the sunflower arrived in Russia in 1599 and in Ukraine in 1613. In the 1830s in the Russia sunflowers began to be grown as and oilseed crop. Sunflower breeding on scientific basis began in imperial Russia in the early 20th century Kharkiv Station in 1910, Kruglik Station in Krasnodar in 1912, Saratov Station in 1913, and a little bit later in Rostov on Don, Armavir and others. In the first of 20th century at the above institutions a large number of varieties were developed that were highly productive and increased oil content, resistance to the sunflower head moth, and the existing races of broomrape. In the 1960s productive varieties with an oil content of above 50% were developed (Pustavoit and Zhdanov). Among these varieties, the most well known ones were Peredovik, VNIIMK 8931, Majak and others. They contributed to the spread of sunflower across the world. Using interspecific hybridization between the cultivated sunflower and *H. tuberosus*, Galina Pustavoit developed a large number of varieties with a broader resistance to diseases. The first inbreeding efforts were begun by Plachek at the Saratov Station, while the manifestation of heterosis for the major traits based on diallel crosses was first implemented by Morozov. In the 1950s in several centers there was intensive investigation of inbreeding and heterosis in sunflower. This research was carried out by Putt in Canada, Habura and Schuster in Germany, Vranceanu and Stoenescu in Romania, and Gundaev, Zhdanov, Wolf and others in the former USSR. Leclercq obtained the first stable source of CMS by crossing the wild species *H. petiolaris* Nutt. with the cultivated sunflower. Kinman, Enns et al., Leclercq, Vranceanu and Stoenescu and some others discovered the Rf genes, which enabled the development of commercial sunflower hybrids. At that time in public institutions and numerous private companies intensive programs were established on the development of sunflower hybrids, which quickly led to the introduction of sunflower hybrids into large-scale production and an increase in areas under this crop. In the paper proper we will discuss in detail the main centers of sunflower breeding in the world and their achievements. Induced and spontaneous mutations helped develop mutants with different levels of fatty acids (high-oleic) and different tocopherols at VNIIMK, Krasnodar and Cordoba, Spain, which enabled the development of hybrids with novel oils. It should be noted here that the wild sunflower species through the use of interspecific hybrids played a significant role in the increase of genetic variability of the cultivated sunflower, especially in the discovery of sources of resistance to different pathogens. Also, the wild species were used to identify resistance to the herbicides imidazolinones and sulfonylurea. Lately, the use of molecular methods, especially marker genes, is well under way in sunflower breeding worldwide.

Key Words : History, sunflower, breeding, varieties, hybrids, resistance