

## **Annotation**

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### ***Creation and assessment of sugar beet hybrid materials by the root crop shape***

*One of the most urgent problems of sugar beet selection is to improve the basic crop potential through effective implementation of competitive varieties and hybrids into the production. Due to changes in plant genotypes the varietal resources become diverse, their productivity increases, as well as the product quality is improved. Therefore, the role of genetic features of modern varieties and hybrids of sugar beet in the intensification of the branch is significant.*

*Today, the existing shape of a root crop creates certain restrictions to further increase of sugar beet yield. Besides, it is linked to huge energy costs during their pulling from the soil and significant removal of the topsoil. One way to solve this problem is to use the potential of fodder beets in the process of selection as the donors of a number of genetic features.*

*During the years of research (2013–2015) the work on assessing genotypes of raw materials of sugar and fodder beets was completed in order to create new hybrid materials with improved parameters of root crop shape, high rates of the basic productivity and combining ability.*

*Hybrid materials obtained by crossing sugar and fodder beets differed significantly in their root crop shape from the original parental samples. Their roots were characterized by oval and conical shape and have a form index ( $F$ ) within 1.23-1.43. Group variability between individual varieties was negligible. The coefficient of variation ( $V$ ) was 5.97%. In comparison with the original shapes of sugar beet hybrid materials the length of root crop ( $L$ ) decreased and the rates of maximum diameter ( $D$ ) and the distance from the area of the maximum diameter to the top ( $B$ ) increased. Root crops of hybrid materials are characterized by greater protrusion above the soil which also helps to reduce energy costs in their digging.*

*The created hybrid materials are a valuable basic material for subsequent stages of selection for the creation of new lines of sterility fixing agents ( $O$  types) with improved parameters of the root crop shape.*

*The shape of a root crop is a polygenic-controlled feature that is changed or inherited depending on the genotype of parental forms.*

*Regardless of research years, the index of root crop shape is a fairly stable indicator for the assessment, description and analysis of selection samples according to this feature. The use of this indicator can define selection material and form a meaningful selection according to the root crop shape and predict the future productivity of sugar beet plants.*

**Keywords:** *raw materials, sugar beet, fodder beet, hybrids, root crop shape, index of root crop shape, productivity.*