

Annotation

Mykolayko V.P.

Floral formation and formation of male gametophyte in plants of chicory root

It was determined that regulation of plant growth and development (top removal) positively influenced the intensity of flower formation. The number of flowers on one plant was significantly increased by both planting schemes without irrigation and under irrigation while using top removal. Thus, the number of flowers increased to 419 pieces or to 1,3 times in comparison with the variant without top removal in the control variant by planting scheme of 45 × 60 cm. Similar results were received by planting scheme of 45 × 25 cm. This agricultural method also provided a significant increase in the number of flowers on the seed-bearing plants under irrigation. If 2816 flowers were formed on one plant without irrigation by planting scheme of 45 × 60 cm, then their number increased to 124 pieces or 1,04 times by keeping soil moisture at the level of 60% during all growing season.

Planting schemes – area of nutrition had a significant impact on flower formation. If top removal helped to form more number of flowers, then decrease of area of nutrition on the contrary – led to the formation of a smaller number of flowers without irrigation and under irrigation. Thus, the number of flowers on one plant was 1391 pieces by planting scheme of 45 × 60 cm (area of nutrition – 0,27 m²) without irrigation and without top removal, then there were 1285 pieces or 106 pieces less by planting scheme of 45 × 25 cm (area of nutrition – 0,1125 m²). Reducing of area of nutrition using top removal also led to a decline of flower formation.

Intensity of flower formation of Chicory root significantly increased depending on water supply of the seed-bearing plants. More flowers on one seed-bearing plant were formed by both planting schemes without top removal and with its implementation in comparison with the control variant without irrigation. If there were 1391 flowers (without top removal) and 1810 flowers (with top removal) by planting scheme of 45 × 60 cm without irrigation, then their number was higher – 2816 and 2940 pieces or 1425 and 1130 pieces more (2,02 and 1,62 times more) while keeping soil moisture at the level of 60% from the least moisture capacity.

It was found that the size of pollen grains depends on the use of process of plants growth and development (top removal) and conditions of water supply regardless of the planting schemes of seed plants. Thus, seed-bearing plants formed pollen with well-filled cytoplasm which size was 50,8 μm in the control variant under regulation of plants growth and development by planting scheme of root crops of 45 × 60 cm. It was higher by 17,2 μm compared with pollen in the variant without top removal. Pollen with significantly large size was by planting scheme of 45 × 25 cm while applying top removal of seed-bearing plants in comparison with the variant without top removal use. Similar results were received in terms of drop irrigation. Pollen grains were larger in all variants with top removal use by both planting schemes of root crops than without the use of this agricultural method.

Pollen vitality ranged from 71,0 to 87,6% regardless of the planting schemes of root crops, application of top removal and irrigation conditions. There was no regular increase or decrease of pollen vitality depending on the complex of agricultural methods. It was registered only increase of pollen vitality in the variant where soil moisture was kept at the level of 60% before flowering and 80% from the least moisture capacity during seed interphasic period «flowering – ripening».

Key words: *Chicory root, floral formation, pollen grains, pollen viability, planting scheme, pinching, irrigation.*