

Annotation

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Terms of summer sowing of sainfoin under conditions of high temperature and soil

Sainfoin is a valuable crop for fodder production under dry conditions of Steppe of Ukraine.

The purpose of the study is to develop a method of quickening the selection process based on the reduction of the reproduction period of seeds as a result of summer sowing. Components of the method will be used in seed selection for the accelerated reproduction of deficit seed material and in plant production for efficient use of plots that determines the relevance of the study.

In 2011-2013, the researchers of Donetsk SASS NAAS on the assignment of the National Academy of Agrarian Sciences of Ukraine studied the method of accelerating selection process to create sainfoin varieties for three sowing dates: July 12, August 12 and September 10.

All the studies and calculations were carried out according to conventional techniques.

The high temperature of the soil in the early stages of plant development on July 12, has led to plant oppression. The number of plants that died in the period from full germination to the termination of the autumn vegetation is 29.6%. This is three-fold higher than the figure recorded during sowing on August 12 and 11-fold during sowing on September 10.

Under extreme conditions of the vegetation period of early summer sowing (July 12) the decrease in interphase periods of development was observed by 1-2 days. At the time of the termination of the autumn vegetation the plants had 6 shoots up to 18 cm. The sowing was characterized as thinned out; the plant density was 192 plants/ m².

When sowing on August 12, the field germination was 59.5% due to the decrease in temperature on the soil surface. The number of dead plants in the early stages of the development was 9.7%. In autumn, plants have stopped growing season, having 4 shoots up to 9 cm. In one square meter there were 307 plants.

Sowing on September 10 at the optimum temperature of the soil and air and sufficient reserves of productive moisture in the soil provided level sprouts. Germination index reached its maximum value and amounted to 67.7%. The number of dead plants was not significant (2.7%). However, plants have formed on average 2 shoots of 4-6 cm in length, were not sufficiently developed and have not accumulated the required amount of nutritional chemicals for overwintering.

Under conditions of the south-eastern part of Steppe of Ukraine in studying the timing of summer sowing with freshly harvested hulled sainfoin seeds, the best condition of crops is fixed at sowing in the first decade of August. The hydrothermal scheme of vegetation in this period contributed to the decrease in the general prevalence proportion to 9%, provided a high yield of green mass (243 dt/ ha) and seeds (9.3 dt/ ha), the addition to the check variant was 77 dt/ ha and 4.1 dt/ ha, respectively. This element of the technology should be used to speed up the selection process by reducing the period of seed reproduction.

Key words: *sainfoin, summer sowing, temperature control, condition of plants, yield.*