



SELECTION OF VARIETIES AND SAMPLES OF FORAGE LEGUM CROP (VICIA FABA L.) BY THE CONTENT OF CHLOROPHYLL IN THE LEAVES

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Abstract

The article presents a scientifically substantiated analysis of the number of chlorophyll grains on the leaf surface of plants during the formation periods of 25 varieties and samples of broad bean (*Vicia faba* L.) from the world collection in the studied control nursery.

Keywords: Southern region, SPAD-502, nursery, variety, line, leaf surface, soil, biomass.

Аннотация:

В статье отражен и научно обоснован анализ количество хлорофилльных зёрны листовой поверхности растений в периоды формирования у 25 сортов и образцов кормового боба (*Vicia faba* L.), из мировой коллекции в изучаемых контрольном питомнике.



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Ключевые слова: Южный регион, СПАД-502, питомник, сорт, линия, листовой поверхность, почвы, биомасса .

Introduction

In recent years, our republic has placed particular emphasis on the development and cultivation of non-traditional agricultural crops. Forage bean (*Vicia faba* L.) varieties are imported from neighboring countries using foreign currency, causing serious damage to our economy. Given these problems, the development of high-yielding, high-quality varieties of forage bean (*Vicia faba* L.) for irrigated areas of our republic, as well as the planting of these varieties over large areas throughout the republic, is a pressing issue today.

In modern agriculture, forage legumes are high-protein crops for the food and feed industries and enrich the soil with nitrogen and organic matter.

The root system of forage bean (*Vicia faba* L.) samples penetrates to a depth of 1.5-2.0 m, as a result of which microelements such as phosphorus, potassium, etc. pass from the underground horizons into the arable layer, the air and water regime, physical properties, and structure of the soil are improved. [1; st-48; 5, st-75-83].

One of the important factors determining the seed yield of broad bean (*Vicia faba* L.) samples is soil conditions. Broad bean (*Vicia faba* L.) samples can be grown on lighter soils, but they must be sufficiently moist. The soil acidity for broad bean (*Vicia faba* L.) should be 6.5. [2;st-244 3;st-60-62, 6;st-195-196; 1st-111-120].

The fact that leguminous crops do not lose their characteristics during the branching and flowering phases under the influence of high temperatures demonstrates their drought tolerance. An average daily temperature of +15°C is important for grain filling and development. Lower temperatures lead to a decrease in the number of seedlings and delay the development of the reproductive organ [3; art. 1137-1150].

It is known that as a plant's reproductive organs enlarge, leaf area and biomass increase. The amount of chlorophyll in plant leaves is essential for the formation



of organic matter. The amount of chlorophyll in plant leaves significantly influences the development of economically valuable traits.

Research Objective:

Selection of varieties and sample of forage legume crop (*vicia faba l.*) with high photosynthetic productivity, heat and drug resistance for irrigated lands in the southern region of kashkadarya region.

Research using a SPAD-502 chlorophyllometer revealed that the amount of chlorophyll in broad bean (*Vicia faba L.*) leaves during the pod formation period depends on the plant's leaf position. Field leaf analysis using a SPAD-502 chlorophyllometer was used to determine the amount of nitrogen and chlorophyll in the leaves, as well as the plants' nitrogen requirements.

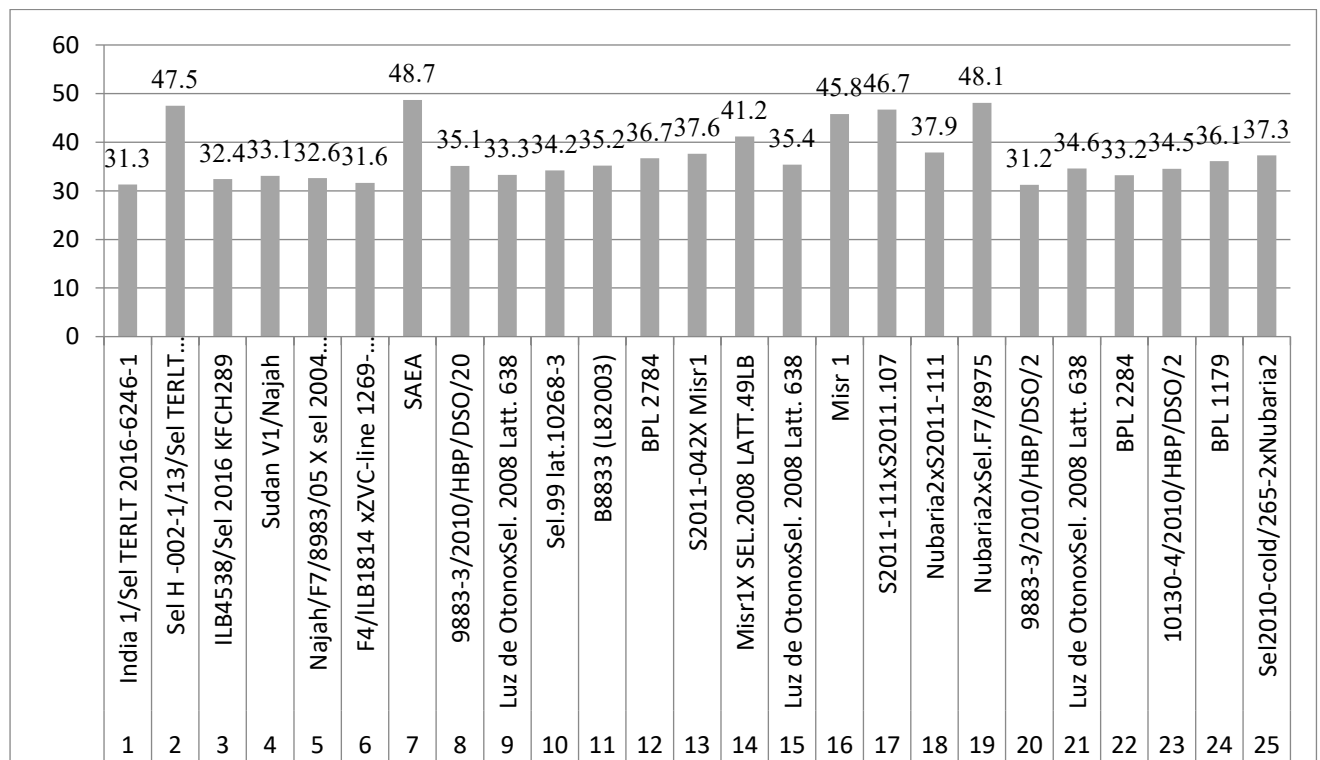


Fig. 1 The amount of chlorophyll in the leaf at the pod formation stage of varieties and lines of samples of forage bean (*Vicia faba L.*)



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In the experiments, leaf chlorophyll content was determined by measuring 10 locations on the last leaf of the plant. Measurements were taken on 10 plants from each sample. The measurements were taken at the pod formation stage. Significant differences in chlorophyll content were observed between the varieties and samples during the forage bean (*Vicia faba* L.) formation stage.

During the research on the chlorophyll content in the leaf during the pod formation phase of forage bean (*Vicia faba* L.) samples, the following samples were selected: Sel H -002-1/13/Sel TERLT 2016-6223- 2, SAEA, Misr1X SEL.2008 LATT.49LB, S2011-111xS2011.107, Nubaria2xSel.F7/8975, which had the highest chlorophyll content in the leaf, from 41.2% to 48.7%. These lines were selected for further breeding.

The analysis revealed that chlorophyll levels were relatively low in 10 varieties and samples, ranging from 31.2% to 34.5%. Their leaf blades were thin and light green, indicating low chlorophyll levels.

Nine accessions were found to have an average chlorophyll content, with leaves containing 35.1-37.6% chlorophyll. These cultivars and accessions were found to have medium leaf thickness and a green color.

Conclusion

Based on the research results, the following samples were selected: sel h-002-1/13/sel terlt 2016-6223-2, saea, misr1x sel.2008 latt.49lb, s2011-111xs2011.107, nubaria2xsel.f7/8975, which had the highest amount of chlorophyll in the leaf, from 41.2% to 48.7%. these samples were selected for further selection process.

References

1. Abdalla V.V., Fischbecq G. Potentiality of different subspecies and types of Vision *Faba* L. for breeding // *Z. Pflanzenzucht.* - 1981. - V. 87. - № 2. -P. 111-120
2. Badina G.V. Cultivation of legumes and weather / *Gidrometeoizdat*, 1974. - 244 p.



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3. Balashova I.T. et al. Culture of vegetable beans in the Non-Chernozem zone of Russia // *Vegetables of Russia*.-2013.-№ 1.-P. 60-62.
 4. Budvitene V.P. Fodder bans / M.: Agropromizdat, 1989. - 48 p.
 5. Vishnyakova M.A. Collection of grain legumes of VIR as a source of initial material for current and promising breeding directions // *Kharkov*, 2005. - P. 75-83.