Introduction of breeding samples of meadow clover according to economically valuable characteristics using modern breeding methods

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Abstract. The paper presents the results of research on the formation of complex hybrid populations, an assessment of the collection samples of clover on a complex of economically valuable traits for the creation of forage varieties. The basis for the study were promising plants that were sown in a wide row and individually in a row. By negative selection, weak and underdeveloped plants were mowed down. It’s been noticed that there was the direct dependence of clover seeds’ creation from the weather conditions. The collection samples of meadow clover’s assessment was given according to the complex of economically valuable features for the creation of the hay–pasture type varieties. The best samples are allocated for the yield of the green mass, the plants’ height. The initial material was obtained on the signs of adaptability, yield of green mass, foliage and seed productivity. Promising clover samples were selected for high seed productivity, reaching more than 60%. Similarly, in accordance with the vertical zonality of the natural habitats of wild introducers, the protein content in plant samples also increases. In terms of fodder yield, the maximum indicators were noted in the varieties Farn, Ustodlivy (Belorussian selection), Orlik (All-Russian Scientific Research Institute of Legumes and Millet Crops), complex hybrid populations that exceeded the standard – the Daryal variety by 12-25%. According to seed, Nart varieties were distinguished. Synthetic populations Syn 305-03, Syn 274-94 (selection SKNIIGPSH VNC RAS), FM-143 (VNII kordov), Dargavsky, (wild specimen of RSO–Alanya).

1 Introduction

Modern technologies for the cultivation of crops are focused on a combination of highly efficient agrotechnical measures that ensure the creation of the necessary conditions for the growth and development of plants, maximum productivity of photosynthesis, obtaining the planned harvest of high quality [1,2,3]. Increasing the production of competitive agricultural products is of paramount importance for the Russian economy. In solving this problem, a certain role belongs to fodder production. Improving the own areas...
2 Methodology

3 The results of the research

Table 1. Characteristics of breeding samples by fodder and seed productivity (2019-2021)

<table>
<thead>
<tr>
<th>Name of the samples</th>
<th>Green mass kg/m²</th>
<th>Inflorescence contamination, %</th>
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<tbody>
<tr>
<td></td>
<td>1st year of life</td>
<td>2nd year of life</td>
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<tr>
<td>Daryal</td>
<td></td>
<td></td>
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<tr>
<td>Alan</td>
<td></td>
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<td>Nart</td>
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</tbody>
</table>
Table 2. Evaluation of wild clover plants in various conditions of mountain phytocenoses

<table>
<thead>
<tr>
<th>Place of sample collection in phytocenosis</th>
<th>Height above sea level, m</th>
<th>Height of the plant, cm</th>
<th>Inflorescence contamination, %</th>
<th>Seed yield, g/m²</th>
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- Thetic populations
- Attached more
- Wild forms contained phosphorus
- Syn 274
- %, respectively. Plants of
- More than 50
- Flowering phase (25% and 15
- Wild introduced samples showed a high protein content and low fiber content
- Legume
- Reaches 352
- Much more higher rates of seeding and when introduced in collection nurseries,
- Dargavsky. For the purpose of attraction the initial images, the selection included wild
- Specimens from mountainous regions that are part of synthetic populations were
- Yaskrava
- ТО
- О
- СЛ
- FN
- Ustodlivy
- Syn 305
- By 12
- Мillet Crops), complex hybrid populations that exceeded  the
- Productivity of each selected plan
- Syn 274
- 0.4 kg per m
- D. Dargavsky. For the purpose of attraction the initial images, the selection included wild
- Introducers, the protein content in plant samples also increases. In terms Farn,
- Above sea level. Similarly, in accordance
- Foliage (2
- Crops, the
- Distinguished by good food advantages. The legend of their stems in the stem phase was 5
- Grazing
- "D"m, lower than that of cultivated varieties. However, during the flowering period
- Varieties was reached. They also had advantages on the basis of
- By 12
- Millet Crops), complex hybrid populations that exceeded  the
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Table 3. Morpho-biological signs of breeding samples of clover (on average for 2019-2021)

<table>
<thead>
<tr>
<th>Name of samples</th>
<th>Number of internodes, pes./one plant</th>
<th>Name of generative stems, one plant</th>
<th>Number of days of mowing before regrowth</th>
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<tr>
<td></td>
<td></td>
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<td>2\textsuperscript{nd} mowing</td>
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<td>Cultivars</td>
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<td>Yaskrava, Farn</td>
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<td>Wild specimens of mountain phytocenosis</td>
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<td>Complex hybrid populations</td>
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4 Discussing

Fig. 1. PCR-analysis samples with primers RCS 1307; 3711R/F; RCS 4001R/F. Holes: M – marker-standard; 1 – Wild-growing; 2 – Vladikavkazsky; 3 – TetraVIC; 4 – Veteran; 5 – Ranny 2.

5 Conclusions

<table>
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<tr>
<th>M</th>
<th>1</th>
<th>2</th>
<th>3</th>
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</thead>
<tbody>
<tr>
<td>M</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>M</td>
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References


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