

штаммы *P. putida* 3, *P. putida* 9, *P. fluorescens* 6 для объединения их в полифункциональном бактериальном препарате с *Bacillus megaterium* ИМВ В-7168 и *Azotobacter chroococcum* УКМ В-6082. Найдено стимулирующее влияние культуральных жидкостей культур-деструкторов в фитотестах на проростках репака озимого сорта «Ольга».

Isolated cultures-destructors gekсахлорциклоксан, capable to decompose its isomeric forms on 28,7 – 78,3% and represented by *Pseudomonas putida* biovar A and *Pseudomonas fluorescens* biovar V. On the base destruction properties of *Pseudomonas* cultures, their compatibility with agronomic valuable cultures were selected strains *P. putida* 3, *P. putida* 9, *P. fluorescens* 6 for association them in multifunctional bacterial composition with *Bacillus megaterium* ИМВ В-7168 and *Azotobacter chroococcum* УКМ В-6082. Was determined stimulating influence cultural liquid products destruction cultures in fitotests on the base of *Brassica napus* L. var. *oleifera* Metzг sort «Olga».

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STUDY BIOLOGICAL AND ECOLOGICAL FEATURES OF *TRIGONELLA FOENUM-GRÆCUM* L., *SILPHIUM PERFORATUM* L., *GALEGA ORIENTALIS* LAM, IN THE PROCESS OF THEIR INTRODUCTION, THEIR SELECTION IMPROVEMENT AND THE DEVELOPMENT OF THE CULTIVATION TECHNOLOGIES

In modern agricultural production the level of contamination and the destruction of the natural environment is rapidly increasing. So, the quality and safety of the agricultural produce is decreasing. That is why the problem of the development of scientifically grounded sustainable, ecologically safe, regenerating and viable agriculture is very acute. To achieve this it is necessary to create and support biodiversity in agricultural ecosystems by means of producing new introduced leguminous plants possessing high production potential. In selecting leguminous crops it is necessary to take into account not only their productivity (the highest output from hectare of valuable bio-mass, first of all protein) but also their environmental impact (the highest nitrogen fixing capacity on sites with low nitrogen content). It is especially important from the point of view of bio-energetic to study levels of energy accumulation of not only by leguminous plants, but various agro-cyanosis formed with their participation. All these factors contribute to research of the production and environmental potential of leguminous plants and to find out sources of its increase, to determine optimal volume and variety composition of leguminous in the process of agro-cyanosis formation.

Special attention was paid to the practical introduction of new crops on farms, their nutritious and feeding value, selection, improvement, and cultivation technologies. The technology of the new crop cultivation in condition of Belarus and Hungary will be developed, their role in crop rotation, the influence on the increase of soil fertility and nitrogen accumulation, environment and insects-entomophilies protection and in supporting biodiversity will be studied

Objectives:

- to test a belarussian variety of *Galega orientalis* Lam, variety Nesterka cultivated in conditions of Hungary;

- to estimate the economic and biological value of Hungarian varieties of *Trigonella foenum-graecum* L cultivated in different ecological conditions of Belarus, to study their productivity, feeding value and agro technical importance;
- to issue recommendations on cultivation of the above mentioned crops in fodder production, plant growing and in health protection as medicinal plants;
- to select crops possessing the largest biomass and the possibility of their use for bio-fuel production;
- to develop cultivation technologies of *Galega orientalis* Lam, variety Nesterka in conditions of Hungary and *Trigonella foenum-graecum* L in conditions of Belarus;
- to study the significance and the role of the new plants in increasing soil fertility and nitrogen accumulation, insects-entomophilies protection and the environment in supporting biodiversity.

Research object are new introduced leguminous plants possessing valuable ecological feeding and energy importance providing environmental protection, soil fertility increase, having high production potential of not only ecological highly nutritious fodder but of obtaining bio-fuel. They are *Galega orientalis* Lam, *Trigonella foenum-graecum* L. and *Silphium perfoliatum* L. Special attention was paid to the practical introduction of new crops on farms, their nutritious and feeding value, selection improvement and cultivation technologies.

As a result of the selection work in the BAA a new variety of *Galega orientalis* Lam named Nesterka has been created which has been ecologically tested in Hungary for 2 years.

The results of the test showed that Nesterka variety is well adapted to conditions of Hungary and is of high yielding capacity of green-mass. Hungary became interested in the variety for its large-scale cultivation. It is planed to purchase from BAA original seeds of Nesterka variety in the amount of 0,5 tons and cultivate for feeding purposes.

RESULTS

Table 1 Results of the analysis of variance for the seed yield of Fenugreek varieties

Factors	SQ	FG	MQ
Total	16627053	191	
Repeat	443351	3	
A factor	4952400	3	1650800*
Error a	555876	9	61764
B factors	4343386	11	394853***
AxB interaction	4051041	33	122759***
Error b	2280998	132	17280

Table 2 Yield difference of varieties of Fenugreek (2002-2005)

Varieties	2002 (t/ha)	2003 (t/ha)	2004 (t/ha)	2005 (t/ha)	Yield (t/ha)
ÓVÁRI GOLD	1,443	1,391	1703	1702	1,560
ÓVÁRI-4[®]	1,124	0,892	1573	1550	1,285
METHA	1,300	1,101	1069	1497	1,242
GHAHKAMON	1,188	1,237	1164	1370	1,240
19 X	1,017	1,081	1090	1380	1,142
H 26	1,176	0,837	1076	1429	1,130
OBANOS	0,981	0,979	1186	1170	1,079
BLIDET	0,813	1,145	1191	1158	1,077
HERBAR	0,796	0,939	1333	1163	1,058
GERS	0,785	0,789	1349	1209	1,033
D 19	0,957	0,427	1529	1191	1,026

CIADONCHA	0,991	0,618	1163	1249	1,005
Sz.D.5%					156,2

Table 3. Yeald avaragge of Trigonella variety

Year	Seed (kg/ha)
2002	1047,4
2003	953,0
2004	1285,4
2005	1338,9
Average	1156,2
Sz.D.5%	86,9

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SUMMARY

At the beginning testing concentrated on the plant as leguminous roughage and as protein plant, however recently the tests were spread to the use as medicinal and forage plant. Plants from different ecological environment were obtained from institutes abroad, these plants were propagated, selected and compared (average yield, inner content value). As for today two new national variety candidates were bred, their introduction for qualification is planned for 2007.

In our studies the comparative examination of 10 foreign, the variety *Óvári-4* and the variety candidate mentioned under the name *Óvári gold* is evaluated.

The ÓVÁRI giant cup plant (*Silphium perfoliatum L.*) is in silphium genus. It is a perennial herb, it belongs the *Asteraceae* family. This kind of plant has not grown in Hungary yet.

Our object to create such a big productivity, long life, disease and pests against resistant, formation of *Silphium* genus, which expansively available for feeding (bluntly and to conserve), and the energy plant, great quantity for biomass (biogas) turning out. Honey-bee lease as well as usable for the ecological farming allusive areas (conservation, ecological farming, etc.) in its defence of useful alive organizations, support of biological diversity, expansion. Efficient adaptation of *Galega orientalis Lam.* in Hungary to local soil climatic conditions envisages elaboration of new cultivation technology, optimization of agro methods ensuring nursing of seedlings and crop harvesting. A vital aspect of galega productivity is selection of efficient plant –microbial association composed of adapted varieties of *Galega orientalis Lam.* and biopreparation of local competitive specific strains of nodulating bacteria *Rhizobium galegae*.

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