

The intensity of some physiologic processes of the “FLORINA” apple tree breed, in different systems of crown pruning

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Abstract In order to get large, constant and high quality yields a lot of crown pruning types have been applied and tested. This work shows the variation of the transpiration and photosynthesis rates for “Florina” apple trees that have been shaped in 6 different types of crowns. CO₂ present in the leaf and water evaporation were quantified. The content of the fruit in the 6 different types was analysed as well, and the dried content, the sugariness and vitamin C were determined. The results prove that the physiologic processes rate is not correlated with the crown shape. The “pot” shapes yielded less but better fruit than thick, spindled crowns.

Key words

Crown shapes, light intensity, photosynthesis, transpiration, biochemistry, yield

Off-type plants in wheat by aneuploidy

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Abstract Compulsory requirements of varietal purity in wheat tolerate minimum presence of the atypical variants within a cultivar. If such variants exceed the admitted standards, they cause problems at the seed certification. We cytologically analysed the progeny of atypical tall plants in some semi-dwarf Romanian cultivars carrying height reducing gene RhtB₁ (previous designation Rht₁). The results showed that the tall plants are mostly aneuploids especially monosomics (2n=41) for chromosome 4B on which the gene is located.

The increased height of monosomic 4 B plants is the result of reduced dosage for RhtB₁ gene that normally acts in euploids (2n=42) as the height suppressor. Mitotic analysis on Breeder's stock of recently released doubled haploid (DH) cultivar Glosa revealed a presence of 0.44% aneuploids and even of a plantlet with 2n=63.

Key words

varietal purity, aneuploidy, height reducing gene, dosage effect

Energy from Forest Biomass: Current Challenges for Future Generations of Moldova

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Abstract Developing a progressive strategy for the use of energy from forest biomass will become a critical challenge for the future generations of Moldova. Located in the southeastern part of the European continent between Ukraine and Romania, Moldova has limited natural resources compared with other developing European countries such as Albania or Bosnia. The lack of fossil fuels (natural gas, oil and coal) and mineral ores have resulted in a strong economical and political dependence on Russia and Ukraine. Agriculture has been the dominant land use over the last few centuries, and poor land practices has led the country with some of the richest soil in the world to now have a greatly diminished economy with few alternatives. This, in turn, jeopardises the security of Moldova. New alternative land use based on forest resources could diversify and greatly improve the economy. In Sweden for instance it was the development of mining, forest and hydroelectric industries from indigenous raw material that enabled Sweden to become a modern industrial nation. Denmark may become the world leader in straw combustion and Norway is developing its wood pellets market. Developing a bioenergy program for Moldova based on forest biomass may provide a similar strategy that could greatly improve the economy of Moldova. This strategy must encourage farmers to invest money, land and time in commencing commercial forestry practices aimed at developing a bio energy economy. There are numerous cultural, historical and political challenges that need to be overcome in order to develop a viable forest biomass energy program in Moldova. We hypothesised that the forest use histories as reflected in ownership pattern and forest area affected the sustainable forest management. However, the opportunities are equally great as the challenges, and the development of a bio-energy program for Moldova can result in economic independence, security, and social health for future generations.

Key words

energy, forest biomass, natural resources, alternative

Two methods of DNA extraction from musts and leaves

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Abstract Characteristics such as production yield, alcoholic level, acidity and anthocyanin levels vary among grape varieties. Since these characteristics are highly correlated with the final wine quality, it is important to be able to detect and correctly identify the grape varieties present in must and wines. This is particularly relevant in controlling the quality and authenticity of wines. A DNA-based method has been applied to the identification of several musts using microsatellites markers.

Key words

DNA, microsatellite, grape must, DNA quantification

Researches regarding the physiological, agrochemical and morfological state of cabbage seedling while planting

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ABSTRACT This experiment was conducted in the field of Faculty of Horticulture from Bucharest. There were produced seedlings of early cabbage, using various variants. Those varieties were resulted from the mixture of perlite, manure and top soil. Each of those materials has different characteristics and formed a very productive combination. The seedlings were produced in warm greenhouses by direct seeding, followed by their transplant in plastic glasses (with a diameter of 6 cm). The periods of optimal growing and the system of culture were respected properly. From the results obtained was concluded that the mixture used helped plants to grow in a proper way, supplied the appropriate quantity of nutritive elements and gave a well physiological state. The seedlings had a height of 5.8 cm at V2 and 3.7 cm at V3 and V8, 7-8 leaves, a well developed root system, 11.8 cm long roots for V1 and 19.9 cm long roots for V4 and a root volume of 1 cm³ at V7 and V8 and 2.5 cm³ at V8.

Key words

Early cabbage, nursery transplant, quality

Molecular differentiation of Plum pox strains in Cluj plum-growing area using RT-PCR and RFLP techniques

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Abstract Plum pox virus (PPV) is the causal agent of sharka disease, which causes severe damage and important economic losses in the stone fruit industry. The disease mainly affects apricot, plum and peach. Sharka is originated from Eastern Europe and was described for the first time around 1915 in Bulgaria [1]. In this study we collected thirty PPV isolates from one experimental plot from Fruit Research and Development Station Cluj. Molecular strain typing was done by RT-PCR analyzed three genomic regions of the virus (Cter)CP, (Cter)Nib-(Nter)CP and CI. With RFLP analysis we could distinguish the two major strains, D and M based on Rsa I polymorphism located in (Cter) CP. All PPV isolates typed as PPV-M by molecular differentiation proved to be recombinants between D and M when we make the analysis in (Cter) Nib – (Nter)CP region.

Key words

Plum pox virus, PPV strains, RT-PCR and RFLP analysis

Results in potato breeding department of potato research and development station Targu Secuiesc

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Abstract Potato, from the breeding point of view, presents the following biological physiological specific features: vegetative multiplication, heterogeneity of progenitors', large plasticity, sterility, incompatible to hybridization, excessive sensibility to diseases. The first three specific features advantage the breeding process on a large scale, but the last two thus complicates the breeding activity and constitutes important problems to success.

The breeding of potato has as permanent objective the obtaining new varieties with high yield capacity, with high resistance to diseases and pest, with high quality, which have to give the satisfaction to consumers.

The creation of new potato varieties is a continue process, which has to take into account the change of ecological conditions, with increase of aggressively and pathogenity of diseases and pest, apparition of rases, stems, brotypes, pathotipes, as well as the continue increasing of consumers demands.

Key words

Potato, cultivars description, brdeeding

The evolution of the national forestry fund in Romania and of the works carried out within it

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Abstract The main characteristics defining the evolution of the forestry fund as well as the type of works involving it, were obtained for the post revolutionary period of the years 1989-2005 ,as a result of the comparative study on the surface of the forestry fund and of the works executed on it, for every year within the period in case .

The paper is structured on two chapters, one referring to the evolution of the surface of the forestry fund, the other to the development of the works performed within this surface, for the time-interval we have dealt with.

Key words

forestry, national, Romania

Characterization of some plant extracts produced for vegetable pests control

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Abstract Experiments performed under laboratory, greenhouses and/or field conditions had as aim the testing of plant extracts belonging to 18 different botanical species against of some most important pest organisms (*Tetranychus urticae*, *Trialeurodes vaporariorum*, *Thrips tabaci*, *Frankliniella occidentalis*, *Cerosipha gossypii*, *Leptinotarsa decemlineata* and *Deroceras agreste*) which attack the sweet pepper, tomato, egg-plant, cucumber and lettuce crops. Based on obtained results was accomplished a botanical species efficacy inventory accompanied of their characterization under different aspects, including: extract type, concentration of treatment solution, concentration of vegetal compounds content, plant extracts efficiency against target-organisms, the action mode, efficacy action spectrum (i.a. list of organisms towards which the plant extract presented an efficiency $\geq 50\%$), plant extract activity potential (i.a. list of organisms towards which the plant extract manifested an efficiency $< 50\%$).

Key words

plant extracts, effects, plant growing, pests, efficiency, mode of action, action spectrum

Influence of variety and the type of cultivation (organic and conventional) on productivity, in four table grapes varieties, grown in Cluj county, Romania

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Abstract Four table grape varieties (Timpuriu de Cluj, Napoca, Chasselas dore, Muscat Hamburg) were tested in 2007, in Gherla, Cluj county, Romania, under two types of cultural practices: organic and conventional. The conventional system has comprised the use of two systemic fungicides: Ridomil gold MZ 68WP and Melody Duo 66,8 WP and two contact fungicides: Folpet 50 WP and Dithane M 45 in the interval may 3rd decade until June the 1st decade. The organic treatments were applied in the same interval with the following products: Bordeaux mixture 0,5% + purine of greater nettle fermented 1/20 dilution and copper sulphate 1% and at the end of the interval, with Bordeaux mixture 1% + soluble sulphur 0,4% and Trichodex 25 WP. In this study the following parameters were observed for the four table grape varieties: the number of grape clusters on vine stock, the average weight of the grapes, the absolute productivity index (API), the relative productivity index (RPI) and the grape production.

Key words

table grape varieties, organic, conventional cultivation, productivity

The experiment was a bifactorial one (type of culture x cultivar) with four table grape varieties grown in two types of culture systems (conventional and organic). The Napoca variety, cultivated in an organic system has registered higher values for three of the studied parameters (API, RPI and production) by comparison with values from the other three types in the conventional system, which suggests that there is a possibility of choice, from the present table types of cultivars with a high adaptability to the organic culture system.

Studies regarding factors which influence the biodiversity in a fruit-growing ecosystem

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Abstract. The climate change has a major impact on biodiversity. These changes strongly affect the energetic flux and the biocoenoses metabolism, establishing important modifications in the trofic chain of the ecosystem through reducing the activity of some elements and intensifying others. The changes in temperature and humidity affect the relations among species, the species adapted to warmer climate refugiate to higher areas, when normal species living in warmer places expand their spreading area. These observations were made in 2005- 2008 in the orchards in the Experimental Station Moara Domneasca.

Key words

climate, biodiversity, pest.

The influence of extraradiculare fertilization on productivity at cherry tree

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Abstract Notably that in generally the pomicole species extracted from soil during the time significant quantities of nutrients through obtained annual production. The fertilization is very important for level mineral elements of soil.

So, using a method of fertilization which reduce the risk of chemical pollution of the environment due to intake of fertilizer substance has become a priority. In this contest, additional fertilization, extraradiculare applied with the tehnology required prevents the pollution in soil and plants. In this study is presented the behavior "Van" cherry cultivar in conditions of extraradiculare application of three unconventional products obtained by combination some macroelements, microelements and vitamins.

The aim of this study is determining influence of extraradiculare administration of these products on biometrical indicators and fruit production.

From the results we can conclude that all the indicators have recorded higher values compared with the check, emphasizing the V1 and V2

Key words

extraradiculare fertilization, productivity, cherry tree

The behaviour in culture of some varieties and hybrids of strawberry obtained through multiplication of two technologies

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Abstract The success and profitability of strawberry culture is conditioned by the use of the most valuable varieties and application the best technology. An essential factor for culture technology of strawberry is constitute the material used to the establishing of strawberry plantation annual or multiannual. Were performed many researches and were obtained remarkable results in producing of seedlings for strawberry. The obtaining of seedlings through unconventional methods ("in vitro" culture), was very effective because of some advantages, such as: obtaining seedlings in large quantity on a small area and in a short time and obtaining seedlings free of diseases and pests. In this study are presented results regarding the efficacy of manipulation technologies strawberry culture, using seedlings produced "in vitro" and fortified compared with material produced by vegetative multiplication, unfortified, concerning yield rooted, plants vigour and capacity appearance of filaments and runners. Were analyzed ten varieties and hybrids of strawberry: *Favette*, *Premial*, *Hood*, *Cardinal*, *Marmolada*, *Tono*, *H 90-17-17*, *H 87-25-40*, *Redgauntlet* si *Pandora*.

Key words

strawberry, runners, vigour, technology

Research concerning some woody flower plants biology and propagation technology

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Abstract The paper present the results obtained concerning *Bougainvillea C.* and *Hydrangea hortensis L.* propagation by stem cutting, plants with high quality for floriculture and plenty ornamental possibility for gardens, balconies, terraces . In this paper was experimented the influences regarding cutting rooting on three medium for rooting (peat and perlite 2:1, peat and sand 2:1, and peat tablets), on the parapet without heat for culture substrate and in the in the rooting system with temperature control at 22°C. The best result for *Bougainvillea C.* was in the rooting system with temperature control on the peat and sand (43,3%). On the parapet the higher percentage was in peat tablets (33,3%), Regarding *Hydrangea hortensis L* best result was on the parapet in peat and perlite (60%) and also in the rooting system with temperature control in peat

Key words

propagation, vegetative, cuttings, steam, medium, rooting, *Bougainvillea C.*, *Hydrangea hortensis L.*

tablets (46,6%).

Study regarding the behavior of timber and wood based materials in aggressive environments

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Abstract The paper work presents a brief explanation of the behavior of timber and wood based materials when exposed to aggressive environments and a case study about the degradation of timber works in construction structures and some of the possibilities to avoid and treat such problems. The quality conditions imposed to the construction elements constitute the basis of a new approach of the buildings study at the same time with the resources conservation, economical development and pollution reduction and they represent the main instrument in assuring the users requirements. Also some information is provided based on the knowledge of the essential components and natural properties of timber affecting its behavior when exposed to natural and artificial environmental factors of degradation.

Key words

timber, wood, aggressive environments effect,

Analysis of pollen counts of *Betulaceae* in Timisoara, 2001–2004

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Abstract This work presents the first aerobiological monitoring results for *Betulaceae* in Timisoara using a volumetric spore-trap which is now the most commonly used aerobiologic measurement instrument in Europe. In order to collect the airborne pollen, we used a Hirst-type volumetric spore-trap, model Lanzoni VPPS 2000, placed on the West University terrace. The aim of this study was to determine characteristics of *Betulaceae* pollen occurrence in Timisoara atmosphere by measuring daily pollen concentrations and by comparing *Betulaceae* pollen season start dates calculated by different methods, as the base for a future forecasting model. Sampling was carried out during 4 years, starting in 2001, when the aerobiological monitoring unit was set up in the town, until 2004. The data showed that during the early spring the precise pollination periods for these allergenic tree species are highly variable. There were considerable variations in season length and cumulative season total (pollen index).

Key words

aerobiological monitoring,
Betulaceae airpollen,
aeroallergens

The influence of the hydric deficit of soil upon the growth in length wise of young peach offshoots concerning the global heat

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Abstract This work has in view the effects of the drought and the intense (air) heat on the growth in length wise of young peach offshoots (offsprings). The growth diminuation, the reduced rhythm and the growth stoppage in length wise of young offshoots (offsprings), are very important both for the future crops and trees long life respectively the peach trees growing. This is in close connection with the hydric deficit of soil in the adequate phenophase.

An prominent part represents the type of the analysed soil, batomless argillaceous-iluvial-molic soil which comes from the silver red-brown forest soil.

The texture of the soil and the porosity and the content in humus diminuates the pest effects of the drought on young offshoots (offsprings) growing. From this experiment it has been found that tardy varieties of peach trees was influenced much more by drought and intense heat effects. The explanation consists in just differences of phenophases. The tardy varieties starts in the vegetation and crosses the phenophases with maxime consumption of water, later (about 18 days), than early varieties.

In this way at tardy varieties (Flacara and B.IV.90.4.81.) the spring abundend rainfalls and the beginwing of the summer, are not superposed with the critical phases (growth, young offshoots (offsprings), fruits, etc.). The diferences between the rhythm of growth of the young offshoots (offsprings) are more evident for the tasted tardy varieties although all trees analysed, had the same age and size.

Considering the results the preventive measures against the drought and intense heat and the application of an integrated management of the trees growing can be identified and applied.

Key words

the global heat, hydric deficit, heat effects (soil) growth offshoots/(offsprings).

Hericum erinaceus and *Sarcoscypha coccinea* in deciduous forest ecosystem

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Abstract Following the observation which has been made in forest stands from National Park Domogled-Valea Cernei, it has been identify two species of mushrooms *Hericum erinaceus* and *Sarcoscypha coccinea*. These two

Key words

hericum, sarcoscypha,

species of mushrooms are specifically in deciduous forest stands.

forest

Phytoprotection technologies for new promoted apple cultivars

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Abstract The paper present a comparison between 2 phytoprotection programs, applied in 2008 in a superintensive orchard with performant apple cultivars. Phytoprotection programs included new monitoring and forecast techniques and performant plant protection products. In the last years, introduction of new obtained cultivars, the agresivity of the key pest and diseases led to the necessity of preventive application of plant protection products obtained by chemical syntesis, used alone or together with other products with low impact on environment. During the study period, the weather conditions were favorable to th infection with apple scab - *Venturia inaequalis* and powdery mildew - *Podosphaera leucotricha*, and for pests attack, micro-Lepidoptera from *Phyllonoricter*, *Leucoptera*, *Synanthedon* and *Enarmonia* genus, as well as apple codling moth - *Cydia pomonella*. The effect of phytoprotection programs was influenced by weather conditions, orchard density and cultivar. The better response had 'Golden Delicious - Clone B', on which, the application of 'standard' phytoprotection program, limited the apple scab frequency at 2.00%, the cultivar being protected also against the powdery mildew. During the first part of the vegetation period, application of the 'integrated' phytoprotection program only with contact fungicides, provided a good but not sufficient protection for the leaves of 'Fuji Kiku Clone 8' and 'Golden Delicious Clone B', but the effect was counterbalanced by the application of the Kendal TE product conc. 0.3%, as biostimulator and imunizant product. At 'Golden Delicious Clone B', application of the 'standard' phytoprotection program, limited the attack frequency of leaf miners *Phyllonoricter blancardella* at 5.00%. Under the same conditions, at 'Fuji Kiku Clone 8', application of the 'integrated' phytoprotection program diminished the attack frequency of leaf miners at only 10%. Application of 'standard' phytoprotection program, limited the apple codling moth - *Cydia pomonella* attack frequency at 3.00% on 'Jonagored' appes, but application of 'integrated' phytoprotection program diminished the pest attack frequency at only 9.00%.

Key words

apple, new cultivars, growing technologies, phytoprotection programs

Cameraria ohridella deschka & dimič (Lepidoptera, gracillariidae), a damaging pest of *Aesculus hippocastanum* L.

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Abstract The miner moth *Cameraria ohridella* is one of the most damaging pests on horse chestnut tree in south and east of Europe. The intensity of infestation, with this moth, of horse chestnuts in our experience is high. After the attack the hors chestnut suffer more and more because the foliage is losing early. The repercussion is perturbation of physiological

Key words

cameraria, pest, aesculus

activities and decreasing of development vigor.

The influence of storage condition on qualitative attributes of Triumf peach cultivar during storage

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Abstract Post harvest losses in fresh fruits may occur anywhere from the point where the food has been harvested or gathered up to the point of consumption. Peach ripen and senescence rapidly at ambient temperatures and require carefull and rapid handling of fruit after harvest to avoid serious losses.

Due to the increase in fruit production practical methods of packing and storage are necessary to improve post harvest quality of fruits during cold storage and self-life.

The objective of this research was to evaluate the storage pretability of two peach cultivars using two films types and low temperatures.

Fruits were analyzed for various physico-chemical characters like fruit firmness, colour, fresh weight, total soluble solids, titratable acidity. Modified atmosphere in both unperforated and perforated bags were associated with lower weight loss, absence of decay, gradual decreased of acoustic firmness, insignificantly modification of colour and balanced taste of fruit.

Key words

storage, peach, colour, acoustic texture

The germinative capacity of the pollen, the autopollination potential and the free polination for some breeds of apricot, peach and nectarine tree

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Abstract The fertility and the germination of the pollen, the autopollination or the pollinator quality for many variety, are important characteristics for the stonefruit species because they have direct implications on the quality and the quantity of the fruit production.

In this paper was studied we are presenting the results of the researches performed concerning the germination capacity of the pollen for 6 varieties of apricot and 15 varieties of peach and nectarine, the autopollination potential for 24 varieties of peach and nectarine and the free pollination for 23 varieties of peach and nectarine and 12 varieties of apricot, in the climatic conditions of 2007 season.

The results obtained offer us information concerning the biologic and genetic potential for some species or hybrids of apricot, peach and nectarine, used as

Key words

pollen, autopollination, free pollination

genetic sources in the process of improvement.

Study regarding the influence exerted by tillage technologies on maize physical features and yield, at S.D. Timisoara

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Abstract This work presents the results of the researches performed during 2004-2005 on the influence exerted by tillage technologies on some maize physical features and yield. The experimental field was set on the territory belonging to the Didactic Station Timisoara, under the pedoclimatic conditions specific to Banat's Plain. Starting with the necessity to remove the disadvantages provided by the conventional system, the elaboration of some alternative tillage technologies, which would assure soil preservation and the maintenance of soil's productive capacity, and also the reduction of energy intake represent today basic requirements for the development and improvement of a durable agriculture.

Key words

tillage technology, physical features, yields

RAPD and SSR marker selection for some dihaploid wheat lines for *Septoria Tritici* resistance

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Abstract *Septoria tritici* blotch is caused by the fungus *Mycosphaerella graminicola* (anamorph *Septoria tritici*). This disease can cause losses of up to 40-60% of total yield. The researchers deal with genetic, cultural and chemical control measures which is one of the major means for protecting wheat production. STB resistance genes were identified and mapped using DNA markers. In this study were tested RAPD markers and SSR markers on some dihaploid lines on common wheat in order to find linkage between markers and resistance genes to *Septoria tritici*.

Key words

Molecular markers, *Septoria Tritici*, RAPD, SSR

New phytoprotection technologies for 'Idared' cv apple orchards

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Abstract

This paper presents comparative assessment of 4 phytoprotection programs applied during 2008 in an 'Idared' apple orchard. The phytoprotection programs included standard plant protection products, products with low impacts on the environment, biotechnical products and biological products, and were used to assess the response of the orchard ecosystem at damaging agents (pest and diseases). The climatic factors were favorable to the attack of the damaging Lepidoptera like apple codling moth - *Cydia pomonella* and the ones belonging to the genera *Enarmonia*, *Phyllonorycter*, *Leucoptera*, etc. and for the infection with key pathogen fungi like apple scab - *Venturia inaequalis*, powdery mildew - *Podosphaera leucotricha* as well. Based on collected data it was possible to establish the structure of the Lepidoptera population and the ratio between the dominant species (1 : 0,12 : 12 : 28,28). During the hole vegetation the codling moth adults developed 3 generations, the captures in the pheromone traps were 17,0 butterflies/trap/week and the peak of the flight curb was registered during 18-31 Mai. The 2nd generation of the pest was controlled by precise application of the phytosanitary treatments. In the treated variants, the apple scab frequency (F%) ranged between 14,7% and 27,7% on leaves and between 7,1% and 12,4%, on fruits, compared with untreated variant where the apple scab frequency (F%) was 71,2% on leaves and 80,0% on fruits. At the same time, the powdery mildew frequency (F%) ranged between 14,4% and 27,8% on leaves and between 11,3% and 26,0%, on shoots, compared with untreated variant where the powdery mildew frequency (F%) was 27,8% on leaves and 75,0% on shoots. The bunch of phytoprotection indicators offer a clear image on the biological efficacy of applied phytoprotection programs as well as many indications on the level of infestation (biological reserve) of the orchard with apple codling moths, leaf miners apple scab and powdery mildew and their damaging potential for the next vegetation period. The monitoring of the damaging agents made possible the precise application of the phytoprotection programs, the control of the damages under EDT orchard ecosystem, environment and consumer protection as well.

Key words

apple, orchard ecosystems, phytoprotection, resilience

Influence of plant protection management system on the apple orchard ecosystem

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Abstract The general objective of the work was to establish the plant protection management system for the apple culture and assessment of their influence on apple orchards yield and quality. To achieve the expected objectives was organized an experiment with 'Idared' cv., grafted on M106, 1000 trees/ha, where the specific indicators of the apple orchard management system were determined. The experiment about disease and pests control management was organized with the following graduations: a1 -standard chemical control methods; a2 -chemical control of "low risk"; a3 -biotechnical control methods; a4 -biological control. Diseases management strategies using biotechnological and biological tools lead to even better response of the apple trees. In biotechnological and biological treatments, the attach frequency (F%) of *Venturia inaequalis* and *Podosphaera leucotricha* on leaves and shoots ranged between 0.55% and 1.88% face to 4.00–5.44% in untreated plots. Also in low risk and biotechnological treatments the frequency of *Erwinia amylovora* attack on shoots was lower (F% = 7.66% and 3.44%) compared to untreated plots (F% = 65.55%).

Key words

Malusxdomestica, plant protection, orchard, associated useful entomofauna.

Optimization of certain technological measures for hyssop (*Hyssopus officinalis*) crops in the ecological conditions

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Abstract The main goal of the study was to optimize cultivation technology by variation of the establishment biological material, plant density and fertilization in the ecological conditions from the Biarom Farm (Iasi County). The highest fresh yield (10.54 t/ha) and dried one (3.45 t/ha) were obtained by seedling establishment, using a density of about 180 thousands plants/ha and two times fertilization with 500 l solution of Cropmax 0.2%.

Key words

hyssop, ecological conditions

Researches concerning the variability of fertile tillers number for the somaclones and gametoclones of the wheat cultivar Lovrin 41

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Abstract Wheat somaclones and gametoclones have been obtained when *in vitro* culture of two explants types were used, namely anthers and immature embryos culture. The cultivar used as explants donor was a Romanian cultivar created in the West side of our country named Lovrin 41. Plants regenerated from the two types of explants were analyzed together with their descendants during a few years. Several characters were analyzed when the plants were cultured in the field and one of the characters was the fertile tillers number. This character has a direct influence on the plant productivity. Thirty plants for each somaclone and each gametoclone were randomized chosen when they attended the physiological maturity and biometrical measurements were effectuated. Data obtained were statistically analyzed and average, average standard deviation and variability coefficient were determined. Comparative studies of the results registered for both somaclones and gametoclones emphasized none statistically significant differences comparing to the control when the character number of fertile tillers was analyzed.

Key words

somaclones, gametoclones, comparative cultures, control, number of fertile tillers

Research concerning the establishment of plum cultivation technology in a superintensive system

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Abstract In order to modernise plum plantations and to increase economic efficiency, the super intensive cultivation system in this species should benefit from proper solutions to apply in agricultural practice. Plantation distances allowing the maximum limit in the super intensive system (5 x 2 m) ensure higher fruit tree growth vigour from the point of view of trunk section and canopy diameter, together with higher cultivar yield. To note, among studied canopy shapes, the Pillar shape, in which studied cultivars yield the most. Studied cultivars behave well in the area; the Stanley cultivar is to be noted in conditions of super-intensification.

Key words

super intensive, productivity, economic efficiency

Molecular analysis of wheat dihaploid lines in scope of selection for common bunt resistance

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Abstract

Common bunt of wheat, caused by two heterobasidiomycete fungi of genus *Tilletia*, *Tilletia laevis* and *Tilletia tritici*, produces significant damages to wheat especially when chemically untreated seeds are sown. The identification of molecular markers linked to common bunt resistance can improve phenotypic selection of resistant lines as the trait is expressed late and is highly influenced by environment. The objective of this study was to analyse the polymorphism at the molecular level between wheat dihaploid lines (DHLs) (resistant to bunt), selected from two crosses (GP384=99419G4-1A/1-1/98047G14-21INC1 and GP369=99419G4-1A/1-1/00356G8-1) and eight susceptible lines and cultivars (from 15 to 22), in order to find markers to be used for selection of resistant lines. RAPD (Random Amplified Polymorphic DNA) technique by testing a total number of 38 decamer primers has been used. We have also used a pair of specific PCR primers FSD (forward) and RSA (reverse), (Laroche et al., 2000) for *Bt-10* bunt resistance gene. Among the random primers tested, primers OPA16, Mic14, OPC10, Mic03, UBC570 and Mic07 revealed polymorphic fragments between resistant and susceptible lines to bunt. Thus, primers Mic14 and OPA16 have generated polymorphic DNA fragments of 630 bp and 900 bp respectively. These were present at almost all the dihaploid lines (resistant) but not at the susceptible wheat lines and cultivars. Specific PCR primers FSD and RSA generated a polymorphic fragment of 1450 bp present at almost all the dihaploid lines (resistant) but not at the susceptible lines and cultivars. These results suggest that polymorphic DNA fragment of 1450 bp from specific primers FSD and RSA might be considered as a marker for some of the common bunt resistance genes. To increase the reliability and the reproductibility of the identified RAPD fragments as polymorphic markers further genetic analyses are necessary to convert them into SCAR markers (Sequence Characterized Amplified Region).

Key words

RAPD primers, polymorphism, wheat, dihaploid lines, common bunt

Improvement works in Steierdorf perimeter to increase of ecological value of degraded lands

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Abstract

The perimeter improvement meets anthropogenic degraded lands through spoil mounding with sterile raw resulting from mining activity. These lands are unproductive, have an unaesthetic, affecting the beauty of landscape, and are sources of pollution to adjacent land and nearby waters by washing taluses, and movement of soil particles by wind infertile. In order to improve current conditions, an area for improvement, designed to bring those lands into production.

Key words

anthropogenic land degradation, pollution, afforestation works

Improving collections of floral plants with new *Canna indica* cultivars

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Abstract The most common use of *Canna* by Europeans and North Americans is as ornamentals. Cannas are popular cultivated flowers in temperate gardens because they produce some of the world's most beautiful and exotic blossoms (3). The species have attractive foliage. In recent years many new cultivars have been created and thousands of *Canna* cultivars have been introduced into the world of gardening. Although a plant of the tropics, most cultivars have been developed in temperate climates and are easy to grow in most countries (2).

Researching activity for diversification of floral plants assortment by introducing of the most competitive foreign floral cultivars is one of the objectives of our experiments. This paper describes 8 new *Canna indica* cultivars received from University of Debrecen Hungary, Horticulture Department: 'Pretoria', 'Durban', 'City of Portland', 'Wialage', 'Romeo', 'Wyoming', 'Madam Butterfly', 'Golden Lucifer'.

These were observed in our Transylvanian behaviors and recorded for the following characteristics: blooming time, colour of florets, plant height, spike length, number of florets per spike, and florets diameter. The cultivars studied have a rich range of flower colours with variegated foliage - red/purple stripes on a green leaf.

The most representative *Canna indica* cultivars can be used for landscape design in herbaceous borders, as a patio or decking plant (4). They are also grown as potted plants or as cut flowers.

Key words

germplasm, floral collection, diversity, new varieties, morphological characteristics

Efficacy of integrated protection complexes in fighting against the pest *Delia antiqua* Meig.

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Abstract *Delia antiqua* Meig. is a frequent pest in most European countries and causes remarkable losses in onion and other *Liliaceae* crops.

During the years with conditions favoring the development of onion fly - *Delia antiqua* Meig, the losses recorded after this attack reach 20-30% of the whole yield.

In order to understand some aspects related to the fighting against the pest *Delia antiqua* Meig., we supervised the efficacy of the following protection complexes: Trichodex 25 WP 0.2% + VICTENON 50 WP 0.05%; Bravo 500 SC 0.15% + Actara 25 WG 0.01%; Previcur 607 SL 0.15% + Confidor 70WG 0.02%; Folpan 80 WDG 0.15% + Karate Zeon 0.02%; Ridomil Gold MZ 68 0.25 % + VICTENON 50 WP 0.075%; -Ridomil Gold Plus 42,5 WP 0,3% + Mospilan 20 SP 0.025%; Dithane M45 0.2% + Fastac 10EC 0.02%.

Key words

Pest, attack degree, fighting against, efficacy

Evaluation of nitrate contamination level in the surface waters from Caras-Severin County

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Abstract Two third of the earth surface is covered by water. With a continuous growing population there is an increased pressure on existing water resources. As a direct consequence oceans, rivers and other water resources are practically suffocated by human activities with major consequences on their quality. Water pollution is a problem of humanity which appeared early in the history. Before the 19th Century Industrial Revolution there was a nice harmony between man and nature. How bad is it? According to the latest estimations the chemical pollution threatens the life on earth. Every ocean and every continent from tropics to the poles is contaminated. Our work intended to assess the level of nitrate contamination in the surface waters in 7 localities (Gradinari, Forotic, Ciudanovita, Oravita, Comoraste, Calina, Racasdia,) from Caras-Severin County. The investigations took place along three years (2005-2008). Our results show a large variation of nitrates concentration and a positive correlation between analyzed location, rain regime and anthropic activity.

Key words

surface waters, nitrates, pollution, human activity

Contamination with nitrates and nitrites of the surface waters in Gradinari locality, Caras-Severin County

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Abstract Environmental degradation and climate change are one of the major problems of humanity. The effects of environmental pollution are wide spread and have a different impact in different regions according to the social and economical development. Water pollution is a stringent problem which implies major economical aspects. Water contamination with nitrogen compounds is one of the most frequent forms of pollution. We monitored during three years the level of contamination with nitrates and nitrites in the surface waters in a Gradinari locality. Our results show the high levels of pollution in these area and source of contamination. We found that levels of contamination in the sampling fountains can threaten local's health taking into account that fact that 70% of them use their own water source without any previous treatment.

Key words

surface waters, nitrates, nitrites, pollution

Aerobiological monitoring of *Taxaceae/Cupressaceae* pollen in Timisoara

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Abstract This study analyzes the pollen representation of *Taxaceae/Cupressaceae* in the atmosphere of Timișoara during the years 2000-2004. Annual variations in the concentration of pollen in the atmosphere were analysed by the volumetric method. During the studied period, inter-annual variations, concerning the total annual pollen counts and the beginning, peak and ending dates of the APS, were reported. *Taxaceae/Cupressaceae* is one of the best represented taxa in the atmosphere of the city of Timișoara where it constitutes between 2.6% and 4.9% of the total. The highest annual level was attained in 2004 with 854 PG/m³. In the 5 years studied, the lowest concentration of *Taxaceae/Cupressaceae* pollen was observed in 2000. The highest monthly total concentrations were recorded in March and April. The mean annual concentration for 5 years of study was 623,8 PG. Pollen seasons were defined as the periods in which 90% of the total catch occurred. In the course of five years, significantly greater differences in annual totals of pollen grains of the studied taxa were observed in Timișoara. *Taxaceae/Cupressaceae* airpollen are not nearly as potentially relevant in pollinosis for the western România.

Key words

Atmospheric Pollen Season (APS),
Taxaceae/Cupressaceae

Results regarding potato (*Solanum tuberosum* L.) cultivars reaction to *in vitro* culture conditions

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Abstract The *Solanum* genus presents a great importance for research due to its economical importance being a great aim to different breeding programs. It is the best represented genus from the *Solanaceae* family, part of this family species producing tubers. Working method used in our experimentations was double node fragments culture. Our studies aimed regeneration and multiplication of four potato cultivars (*Desirée*, *Redsec*, *Coval*, *Productiv*) in order to improve the multiplication and pathogen free material obtaining protocols.

Key words

potato varieties, *in vitro* cultures, regeneration and micropropagation

Studies regarding thousand grains weight for Dropia's somaclones and gametoclones

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Abstract Plants regenerated in vitro from anthers (gametoclones) and immature embryos (somaclones) cultures were studied, together with the control constituted by the cultivar Dropia itself, regarding the character thousand grains weight. Both somaclones and gametoclones obtained from in vitro cultures were studied in two field comparative cultures placed after the complete randomized bloc design in three repetitions.

The experimental results obtained after biometrics measurements were statistically interpreted using variances analysis and t test.

The results obtained show that the average values of somaclones are superior to the average values of gametoclones. Both somaclones and gametoclones registered inferior average values comparing with the control in respect of the studied character.

Key words

somaclones, gametoclones, comparative cultures, control, thousand grains weight

Romania forestry resources on development areas

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Abstract The distribution of the forestry fund on regions is very unequal. The development Bucharest – Ilfov area has a wide deficit of areas covered by forestry vegetation. Biggest quantity of timber mass can be found in North-East area. These are scanty in forest resources if we rapport to the medium surface of forest fund per inhabitant in Europe. All these situations would not be solved without the forest planning. The informing sources for their elaboration were the data from the forest planning.

Key words

Forestry, Romania resources,

It is the ecology a modern science?

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Abstract In his General Theory of Systems, the Biologist Ludwig von Bertalanffy (1969) conceived the universe as a totality of systems, each system being more than the sum of its components or of the properties of these components.

Key words
ecology, sciences

Decorative elements and species recommended for a rustic garden

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Abstract The traditional gardens are known as rustic gardens. The character that best describes it is homely. Gardens that are arranged in this style are usually surrounded by wooden fences or a border made from solid rock that emphasises its natural character.

Key words
flowering plants, garden furniture, water

About the importance of flowers in human life is not nobody doubts today. The number of flower cultivators by passion and the designers of own garden is still growing.

Rustic gardens with their unique charm, are characterized mostly by their color, shape and diversity, in fact they are optimal combination of plants, small trees and garden accessories. These gardens are the result of free composition, in which natural elements are combined with built ones.

For a natural impression there are used several design pieces, as pebbles, water, gardening furniture, pottery, metal, wooden bridges, rustic pavilions and casings.

Water design is also created naturally: lakes, rivers, ponds, cascades, which take an important place in composition, harmonized with relief forms and existing vegetation.

In these gardens we often see flowers like roses, daisies, mallows, peonies, poppies and aromatic plant, flowers that do not require so much care and attention from their keeper and also plants with an abundant flowering.

Landscape painting in Japanese gardens

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Abstract The Japanese gardens is not simply nature, it is alleays been nature crafted by man. It bilongs to realm of architecture and is nature as art. In Japan, the gardens traces its origins back to the first urban settlements and palaces.

Key words

landscape, painting, gardens

The influence of soil maintenance systems on vigor, quantity and production quality at some grape varieties for wine

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Abstract Surveys were conducted in the vineyard-Buzias Silagiu in the years 2006-2008 and included the influence of soil maintenance systems on total annual growth and maturing, quantitative and qualitative production in the varieties: Cabernet Sauvignon, Pinot noir, Italian Riesling, Muscat Ottonel and Sauvignon blanc.

Key words

grapes,maintenance systems, quality

Maintenance of soil was done by the classical ploughed field variant but also by herbiciding, plant cultivation for green fertilizer and permanent grassing. During the growing season there have been several observations and separate determinations for each variety and variations on logs vigor, total and matured annual growth, production results, sugar content, acidity and the glucose-acidimetric index was calculated.

The maintenance of soil had a major influence on the quantity of production and a less significant influence on its quality. In all varieties the highest production was obtained for the maintenance of soil through cultivation of plants for green fertilizer, while the highest sugar content was recorded all varieties in the variant of ploughed field.

Study of monogenic resistance of potato to *Phytophthora infestans*, using RAPD markers

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Abstract Late blight is a destructive disease found in nearly all areas of the world where potatoes are grown. Without chemical control and when cool and wet weather conditions prevail, late blight kills all plants in a field within ten to fourteen days. In recent years various tools and resources for molecular and genetic analyses of *P. infestans* have been developed. Genetically controlled disease resistance to plant pathogens can be classified as either vertical or horizontal resistance. By classical breeding both types of resistance to *Phytophthora infestans* have been introduced into potato. Vertical resistance, governed by the so-called R-genes, is single gene based. 11 dominant R-genes, all originating from *Solanum demissum* (L) have been introduced into the cultivated potato by breeding.

Key words

Phytophthora, resistance, RAPD, markers

Influence of salt stress on some local land races bean (*Phaseolus vulgaris* L.) photosynthesis and transpiration rate

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Abstract The physiological responses (photosynthesis intensity and transpiration rate) of six different bean local land races (Bocşa Română, Cireşu, Caraşova, Pătaş, Soceni, Sudriaş) to salt stress were studied under laboratory conditions. The plants were grown in pots, and were treated for 14 days with NaCl (41,4 mM P.O – 207,04 mM P.O), starting at the appearance of the first trifoliolate leaf unfolded. It was established that the applied of salt types caused stress in the young bean plants, which found expression in the suppression of growth and photosynthesis activity. The bean cultivars showed different reaction to salinity.

Key words

bean, growth, leaf-gas exchange, salt stress, transpiration rate.

Using WEPP-Software in order to help preserving forest biodiversity in Romania

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Abstract Preserving biodiversity is a task that needs time and money to be accomplished. So using specialized technology helps saving valuable resources, in order to direct them exactly where they are needed. The objective of the Water Erosion Prediction Project is to develop a water erosion prediction technology for being used by organizations that are interested in long-term prediction of water erosion, helping through this preserving biodiversity. The main parts of WEPP are: Weather Generation, Winter Processes, Irrigation, Infiltration, Water Balance, Plant Growth, Residue Decomposition Soil Parameters and Hillslope Erosion and Deposition, components that help simulating water erosion along a slope while using a large range of parameters in order to have a precise result.

Key words

WEPP, Preserving biodiversity, Water Erosion.

Species of trees and shrubs planted in Timisoara in the year 2008

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Abstract Timisoara is town with many green spaces, has nice parks which form an urban system which has a very important ecological and aesthetic role. Though in the last forty years, trees have been planted all over the town, the green surfaces of Timisoara still do not match the requirements of the European Union. In order to achieve the necessary standards, the town hall of Timisoara decided to invest every year great sums of money in the green spaces. Streets and parks without enough vegetation in the past, and others where it is necessary to change or complete the vegetation get attention now. An important problem is the creation of diversity, because in Romania in the past few species of tree were produced by the local companies. Even today a great part of the material that is used is imported from Hungary and western countries which offer diversity and high quality.

Key words

Park, trees, Timisoara, green space

A new park for the town of Jimbolia

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Abstract In the year 2008 the Town Hall of Jimbolia gained from the Ministry of Environment the financial support for the building of a park of 4ha. The piece of land is situated on the edge of the town, but not very far from the centre. For the moment in the town there are only a few little green spaces. The building of this park doubles the surface of green spaces of Jimbolia in accordance with present legislation, and creates for the first time for the citizens the possibility of spending their time in the open in a big organised green space. The investment has important social and economic effects. In the meantime the number of species of trees existing in town will grow.

Key words

Park, Jimbolia, green space, Plan

New playgrounds for the children of Timisoara

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Abstract In the year 2008 the Town Hall of Timisoara had the initiative to build a number of new playgrounds that satisfy European requirements. Children of different ages can benefit of the existence of these properly arranged playgrounds. These pieces of land used by the children are protected by fences, planted around with trees. The pavements are of stone, grass and sand. The playgrounds are intensely used by children who like to spend their time approaching to nature playing. In each quarter of the town the projects had to accommodate to the given conditions, the existing surfaces of land, neighbouring buildings, alleys, roads. The solutions are not very expensive but well designed and useful for the children.

Key words

Park, Timisoara, Green space, Playground

A new public garden in Fabric Quarter Timisoara

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Abstract In the last years ecology is becoming more and more important as a subject of research. The European Union created new standards which assure the proper green surface that is necessary for towns and villages in accordance with the number of population. The town of Timisoara needs in the near future new parks and green squares in order to satisfy these demands. An important step in this direction is the creation of a new park in Fabric Quarter on a piece of land situated between the streets Lorena and Zurich. Besides its ecological importance the project assures higher life standards for the population of the region.

Key words

Park, trees, Zurich street, Lorena Street, Timisoara, public garden

The endangered parks of Timisoara

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Abstract Though the town of Timisoara once was famous for its parks , today the green space of the town are more and more endangered by the new buildings which are built in greater and greater numbers on pieces of land that used to be green. Because of the lack of an adecvated legal system and an acceptable urban policy, parks lose parts of their surface year by year in the benefit of new buildings. The cause is a real estate market that doesn't function in an appropriate way. The green surfaces of towns are anyway exposed to pollution, traffic, insufficient number of parking lots. This is the reason why they must be protected and not endangered by introducing on their surface of great buildings. Ecological studies show that it is important to find sollutions to this problem in a short time.

Key words

Park, trees, Timisoara, building, green space

Research on identification and enhancement of local wine germoplasm in Buzias-Silagiu, area in order to achieve biodiversity conservation

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Abstract Research aimed local biotypes and varieties from Buzias Silagiu vineyard area planted in the area but also in courts and public gardens. Were identified and analyzed biotypes and local varieties, grouped in lines of production. Analysis was done with varieties compared Chasselas dore and Feteasca Regala who are mostly spread in the area. We intended to characterize these varieties from ampelographical, phisico-chemical and technological point of view. In the research were noted by some special qualities some local biotypes, among which we mention: Marele Roz de Buzias, Raschirata alba, Frumoasa alba de Buzias, Ruginiu de Silagiu, Alb Aripat de Silagiu etc.

Key words

Biotypes, local varieties, Buzias Silagiu, germoplasm.

Comparison between oligo- and mono *R* potato with RAPD markers

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Abstract Potato (*Solanum tuberosum*) is the fourth most important crop. *Phytophthora infestans* is the most devastating disease on potato. We used 22 RAPD primers. 16 had amplified potato DNA. The majority of bands are common for the mono- and oligo-*R* accessions. It is due probably to the low specificity of these primers and/or the high conserved sequences in the *R* genes (NBS-LRR).

Key words

Potato *Solanum tuberosum*, *Phytophthora infestans*, resistance genes, RAPD

The Villandry garden

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Abstract: Villandry castle was finished in the year 1536 and was the last of the castles built on the shores of the river Loire in the Renaissance period. The castle was built by Jean le Breton, one of the Finance Ministers of Francois I. His greatest achievement in the architectural domain was the construction of Chambord castle, which le Breton supervised under the lead of Francois I. While he was leading the Villandry project, le Breton also built for himself a small replica of it near the Chambord castle, called Villesavin. Le Breton first was the ambassador of Italy, where he learned everything he could about the renaissance art of gardening. To build the castle Le Breton demolished an old castle the 15th century from which he kept only the tower (donjon) that can be seen behind the main yard.

Key words:

garden, plants, Villandry

Crown systems artistically espaliered in the apple tree

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Abstract: The technique of the espalier art appeared between the 16th-17th centuries when the exceptional gardeners of Europe, using the artistic and scientific principles of stocking, invented ways to cultivate fruit trees that are decorative at the same time. This technique is very useful today: on one hand there can be obtained many fruits in a small space, along a fence or a wall, in a garden or plantation and on the other hand the effect is also decorative. Even the smallest garden can be accommodated with such a technique. The majority of these are plain, but there are some with a circular projection on the ground. There are many artistically espaliered types of crowns that were created to use small spaces for the fruit production and also for ornamental purposes. To obtain them we use trees with a low vigour that have rigorous cuts throughout the year, with the purpose of realizing the wanted geometrical scheme. What is more interesting is the fact that we can make all sorts of objects from these trees, for example bicycles, chairs etc.

Key words:
crown shapes, apple tree, ornamental cuts

The study of foliar epidermis at species of succulents flowery plants belonging to the *Senecio* genre (Fam. Asteraceae)

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Abstract The study of the features belonging to the foliar epidermis and to the epidermal productions (stomata, protective hair) is of a huge importance because all of these represent a taxonomical identification criterion of species. In the present work, there were taken into discussion five species of succulents, flowery plants (*Senecio articulatum*, *Senecio jacobsenii*, *Senecio kleiniformis*, *Senecio pyramidatum*, *Senecio rowleyanus*) and the purpose was to determine the structural features of the foliar epidermis (epidermal cells and stomata). Following the observations carried out, it had been ascertained that, among the species belonging to this type, there are significant differences from the point of view of the features of the epidermal cells, on one hand (form, dimension) and from the characteristics of the stomata (dimensions, density, type of stomata device), on the other hand.

Key words
stomata, epidermal cells, succulents flowery plants.

The study of the foliar epidermis at species of succulents, flowery plants belonging to *Crassula* and *Sedum* genres

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Abstract As they need to adapt to certain environment conditions, the succulents plants have some morfo-anatomical characteristics, which differentiate them from the other categories of plants(non-succulents). The study of the epidermis cells and of stomata is of a huge importance from the morfo-systematic point of view and from the explanation of some physiological characteristics of plants. The observations and the measures done at the level of the foliar epidermis belonging to seven species of succulents, flowery plants (*C.lycopodyoides*, *C. orbicularis*, *C. rupestris* ssp. *marnieriana*, *S.linearum*, *S. mexicanum*, *S. morganiatum* and *S. pachyphyllum*), belonging to two genres (*Crassula* and *Sedum*) emphasize specific values of the stomata density, covered between 7,2 stomata / mm² and 86,57 stomata/mm².

Key words

stomata, epidermal cells, succulents flowery plants

Investigations regarding the rooting of the cuttings belonging to some species of succulents, flowery plants

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Abstract The propagation through cuttings is one of the most frequently used reproduction methods of succulents, flowery plants. In this work, there are presented the results of the observations regarding the rooting process of the cuttings belonging to 17 species of succulents, flowery plants (belonging to different genres),as well as the influence of the temperature on the risogenesis process of the cuttings of seven of these species.

Key words

succulents flowery plants, propagation, cuttings, temperature

Following the carried out searches it was noticed that the rooting time, the rooting percent and the development of the radicular system are different in accordance to the genre, species and temperature conditions.

Thus, for the cuttings of the 17 species, planted in the same temperature conditions, it was noticed that the rooting time was between 21 and 53 days, the rooting percent varied between 80% and 100% and the development of the radicular system was characteristic to the species and in the case of the cuttings of the 7 species, planted in different conditions of temperature, it was noticed that this factor influences the rooting process under one or more aspects: rooting time, rooting percent and the development of the radicular system.

Study regarding the structure and activity of edaphic microflora community in conditions of glyphosate addition

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Abstract The study was conducted on two types of soil: chernozem and typical gleysol. The results show the positive effect of glyphosate addition on microflora, representing an alternative C, N and P source. The rate of daily respiration has the highest value in the 4th day after the addition of glyphosate, after then, it decreases progressively. The lowest rate of bio-degradation was observed in the case of chernozem due to the high humus content, which protects herbicide molecules against the microbial attack.

Key words

culturable heterotrophic bacteria, actinomycetes, micromycetes, soil respiration rate

Study about characterization of high valuable genotypes of symbiotic nitrogen fixation regarding of competitive capacity

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Abstract The Rhizobia are nitrogen fixing soil bacteria with a great importance in sustainable agriculture, offering the possibility to replace the mineral fertilizers. The objective of our research was to characterize 4 genotypes of *Bradyrhizobium lupinii* (designated LP53, LP73, LP78 and LP83), from *Lupinus albus* L. plants cultivated on cambic chernozem in 2007. We tested the in vitro resistance at antibiotics synthesized by edaphic actinomycetes. The strain with the most significant competitive capacity was LP83

Key words

Bradyrhizobium lupinii, actinomycetes, inhibition zone grow.

The *Echinacea* species

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Abstract The *Echinacea* species, a member of the sunflower family (*Compositae* or *Asteraceae*), are native to North America and has a long history of medicinal use [1,2]. The genus *Echinacea* has found exclusively in the U.S. and Canada [3]. They have been introduced as cultivated medicinal plants in Europe. The three most common and widespread species (*Echinacea angustifolia*, *E. pallida* and *E. purpurea*), have long been recognized as important medicinal plants and were used by Native Americans for the treatment of many diseases, including colds, toothaches, snake bites, rabies and wound infections [4]. For both commercial production of *Echinacea* varieties and rehabilitation of wild populations, the development of efficient *in vitro* production of large quantities of plants by micropropagation is needed [5].

Key words: *Echinacea* species, taxonomic study, medicinal plants, "in vitro" regeneration, micropropagation.

Biodiversity conservation by multiplication of some rare species at the Botanical Garden “*Vasile Fatî*” from Jibou

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Abstract *Ex-situ* conservation is one of the most important tasks of the botanical gardens. For this reason in the Botanical Garden “*Vasile Fatî*” from Jibou the multiplication of the species from the Red Lists of different countries is an important preoccupation. This paper presents 7 species of plants that are endangered in their natural habitats. These plants are 2 conifers: *Sciadopitys verticillata*, *Araucaria excelsa*, an evergreen tree: *Sideroxylon inerme*, the Brazilian nut tree: *Bertholletia excelsa*, 2 species of cactuses: *Echinocactus grusonii*, *Ariocarpus furfuraceus* and the only representative of the species and family *Welwitschia mirabilis*.

Key words

biodiversity, red list, ex-situ conservation, multiplication

The climate conditions influence on natural weeding of winter wheat crop

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Abstract Research were performed in the experimental field belonging to the discipline of Agrotechnology, located at the didactic Station Timisoara in 2005, 2006 and 2007. Our research aimed at monitoring the impact of the climate conditions on weeding in two winter wheat cultivars (Alex and Romulus). During the trial period, between 2005 and 2007, the natural weeding state in winter wheat was directly correlated with rainfalls.

Key words

natural weeding, temperature, rainfalls

Evaluation of breeding potential for some paprika pepper cultivars

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Abstract To improve breeding programs, different methods were elaborated for choosing parental forms which combined in certain proportion, to allow the obtaining of hybrid populations with mean value presents the lowest deviation in comparison to an ideal genotype. Such a genotype should reflect a possibly achieving level by using a certain set of parental lines. Biological material was consisted of eight paprika pepper cultivars of different genetic and ecological origin, which were evaluated in order to use them as parental lines in hybridization. Objective of this study was the evaluation of breeding potential of a collection of eight paprika pepper cultivars in order to use them as parental lines in hybridization, having in mind the multiple selection index and deviations from ideal genotype, for some yield traits. According to multiple selection index for yield production, for eight used genitors we observe a high yield potential in cultivars: Szegedi, NS 6, Kalacsai which present increased values of studied traits. The lowest deviations in comparison to ideal genotype presented earlier, were identified in case of combination Kalacsai x Alewa WK, with an optimum participation of parental forms of 0,54:0,46. Therefore, simple hybridization between cultivars Kalacsai and Alewa WK, allows obtaining of one population with values of studied traits similar to ideal genotype.

Key words

paprika pepper, breeding potential, parental forms

Study of F₁ paprika pepper hybrids regarding fruit length

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Abstract Most of quantitative traits are controlled largely by genes with additive effects, thus for each trait the mean for a population generated in a plant breeding program should be close to the mean of the parents used to produce that population. Furthermore, choosing parents so as to optimize population means may be the best strategy for short-term (one or few cycles) breeding. Objectives of this study were presented by appreciation of phenotypic manifestation of fruit length in F₁ hybrids in comparison to parental forms and estimation of gene effects involved in determinism of this trait. A set of seven cultivars with different genetic and ecological origin was used in this study, cultivar Arad 6 being used as a common parent. The study of F₁ hybrids, was done with the parental form using the random blocks experimental method with three repetitions. In genetic determinism of fruit length for hybrids of cultivars NS 6, Alewa WK, Karmina and Kalacsai, polygenes with additive effect are acting. For hybrids of cultivars Csardas and Carmen fruit length is controlled by other gene effects or highly influenced by environmental conditions. The highest fruit length breeding potential is presented by combinations Arad 6 x Alewa WK, which offer the possibility of selecting 30,85 % recombinant lines with a fruit length of at least 95 mm.

Key words

paprika pepper, hybrids, fruit length, heterosis

Evaluation of breeding potential for some quality traits in winter barley using multiple selection indices and multivariate analysis

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Abstract When it is difficult to specify relative economic values of a number of traits and when little is known about genotypic and phenotypic variances and covariances within the population, the weight-free index developed by Elston can provide an objective rule for selection. This procedure classifies the genotypes by their phenotypic values according to the focusing of desirable traits for a breeding programme. The objective of this study was to evaluate the breeding potential of 30 foreign and local winter barley cultivars, for different qualitative traits, using multiple selection indices and biplot analysis. According to the multiple selection indexes for all five studied traits we observe a superior quality of seed in cultivars: Judy, Adi, Metal, Orizont, and Andrei, which present reduced values of starch content and husk percentage associated with high protein content, TGW and hectoliter weight. High quality potential of these cultivars can be used in breeding programs for improving forage quality in winter barley.

Key words

Key words: winter barley, quality traits, breeding potential

Analysis of genetic variance and regression for soluble protein content in F₁ hybrids of winter barley

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Abstract Protein content and constituents depend directly on genotype but are also influenced by environment, in a different measure. Therefore, protein content is highly influenced by environment while protein constituents, in a smaller measure. The six genitors (Metal, Orizont, Plaisant, Viktor, Turul, Lyric) were chosen to fit the statistical model adopted for genetic study, and are contrasting in terms of origin and the expression of phenotypic characteristics. Among studied genitors, cultivars Plaisant (52,80 %) and Viktor (45,20 %) present the highest proportion of recessive, while cultivars Turul (75,20 %) and Lyric (61,90 %) have the highest proportion of dominant alleles. Therefore, we observe a high proportion of recessive alleles associated with high values of this trait for cultivar Plaisant, while for cultivar Viktor, recessive alleles determine a decrease of soluble protein content. For cultivar Turul dominant alleles are associated with negative values of this trait, while cultivar Lyric dominant alleles increase soluble protein content.

Key words:

protein content, F₁ hybrids, winter barley, genetic variance.

Researches concerning the influence of manual thinning of Romus 2 apples in conditions of Timisoara

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Abstract Manual thinning of fruits is a very important process in fruit culture because it is a method of obtaining the optimum quantity of fruits, which have high physical and chemical qualities. At the same time it is a way of reducing the alternation phenomenon, very frequent in apple tree culture. Romus 2 is an apple tree variety that ripens in summer, obtained in Romania and very appreciated for its qualities. The research done in the didactic plot of Fruit Culture Department of our University showed that the manual of Romus 2 apples had a big impact upon fruits' weight, but not that much upon the production.

Key words

apple tree, Romus 2 variety, manual thinning, apples' weight, apple production

Researches concerning the behaviour of some peach varieties in conditions of Timisoara concerning the fruit binding degree and obtained production

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Abstract The peach tree is one of the most appreciated species cultivated in the temperate climate because of fruits' special qualities and trees' biological features. Considering their savour peaches are situated after grapes, oranges and apples and they can be consumed fresh or prepared as compote, jam, juice, nectar and in many other ways. Its production potential is high and very high because of the high degree of flowering and fruit binding. The experiment placed in the Didactic Plantation of our University consisted in studying 12 varieties of peach tree considering their fruit binding degree and production. The best varieties, recommended to be cultivated in this part of our country are: Redhaven, Southland, Jerseyland and Redglobe.

Key words

peach tree, peach varieties, fruit binding degree, productivity

Research concerning the pollen germination of some nut tree biotypes in Sannicolau Mare

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Abstract Among the multiple fruit tree species cultivated in Romania, the walnut is one of the most common along the years. Theoretically, the embryology of walnut (*Juglans regia* L.) has a primordial importance because many aspects considering the male reproductive process, like pollen – pistil interaction, embryo- and endospermogenesis, are still less known until now.

Key words

Pollen, pollination, nut tree, biotypes

Research concerning generative and vegetative propagation on *Nerium Oleander* L.

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Abstract *Nerium oleander* L. is a shrub cultivated as an ornamental flowering plant, which is easy to grow as pot plant, on and around terraces and balconies, in hedges and screen plantings. It can be used for hot and dry locations, very tolerant of a wide range of soil types, with small needs concerning environment, drought-resistant, low fertility requirements, and need minimal care for growing and flowering all the summer until late fall. Therefore, multiplication plant material for commercial use became important on the market. In fact, the oleander has been a favorite container plant in Europe for well over four hundred years, and is the number one most popular pot plant in Germany today. In France, Germany, the Netherlands, former Czechoslovakia, Hungary, and Romania all the people have vivid childhood memories of Mama's oleander (2).

Key words

propagation, Nerium, oleander, vegetative, generative, media cutting, shoot, root, in vitro.

The paper present the results obtained on seeds propagation, vegetative propagation by cuttings shoot and in vitro culture. Regarding seeds propagations the determinations and observations consists in establishing the percentage of seeds germination, and the best time for sowing, the days between seeds germination and young leaves appearance. Vegetative propagation consists in determination the percentage of rooting for both tip cuttings and lower cuttings shoot. Other determination was the influence of the three-root medium (peat tablets, peat and perlite 2:1, peat and sand 2:1), establish the role of medium temperature for rooting in the two experimental - fields-parapet and the rooting system for cuttings featured with temperature controller-and the percentage of striking root cuttings after potting. Investigation for in vitro culture was to determine which media yields the best results for explants differentiation.

Second period was the best for germination, percentage was 100%. The best results obtained were in tip cuttings shoot on the system for cuttings with perlite 2:1 and, peat and sand 2:1 media. After pot plant, the percentage-striking root for cuttings was about 100%.

The spreading of the Turkey oak (*Quercus cerris* L.) in Romania. Forestry sites and Turkey oak stands.

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Abstract The development of surfaces with turkey oak at national level comparatively to the 60s-80s period, the great differences concerning the production class, the quality of wood and the mass of wood industrially processed from one geographical area to another, determined us to make a statistic analysis at country level and comparatively, on geographical areas about the spreading of the turkey oak, as well as of their productivity. Thus, it has been used the bank data of the national forestry resources. Therefore it has been noticed that the turkey oak is included in the structure of stands from 162 forestry administrative units, their effective surface occupied by turkey oak being of 185000 ha which represents a share of 3% from the composition of forests. In the 60s-80s, the turkey oak occupied 140000 ha, about 2% from the composition of forests. The distribution of the surfaces with turkey oak is bigger in the west (56%) than in the south (44%). It has been also analyzed the distribution of the turkey oak on phytoclimatic levels, types of sites and soils, its way of participation in the composition of stands, the distribution on classes of production, etc. The turkey oak, an important species of mixture, participates in the composition of stands for production especially (the second functional group totalizes 64% from the surface of stands). Concerning the aspect of turkey oak of superior productivity (50% from the total surface) while in the south of the country this class of productivity totalizes only 15% from the surface of stands.

Key words

turkey oak, site, stand

Improved DNA isolation protocols in wheat

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Abstract We present two methods of DNA extraction from *Triticum aestivum* based on the methods developed by Edwards et al., 1991 and Lodhi et al., 1994 modified by Pop et al., 2003. We tried to improve these protocols in order to use less time and resources, but also obtaining good DNA concentration and purity. We also compared the results obtained to see which of the two is better in extracting wheat DNA.

Key words

Triticum aestivum, DNA extraction

Researches on the ecological role of dead wood in the Natural Reserve “Izvoarele Nerei”

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Abstract One of the defining characteristics of the (quasi) virgin forests is the presence of dead wood (standing dead trees, fallen logs) in different stages of decomposition. The importance of dead wood consists in the fact that it generates a multitude of specific habitats for a large series of organisms, giving a specific note to forest biodiversity. The main objective of this paper is the determination of quantitative and qualitative indexes of dead wood (diameter classes and decomposition –decay– classes, frequency of microhabitats) from „Izvoarele Nerei” Natural Reserve and the determination of the ecological role of dead wood regarding the optimal functionality of forest ecosystems.

Key words

dead wood, decay classes, diameter classes, microhabitats, virgin forests

Researches concerning the wood density of *Robinia pseudacacia* L. var. *Oltenica*

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Abstract In forestry, great importance is given to wood apparent density commonly known as wood compactness. The researches were developed considering five black locust stands. For each population tree cores have been taken in order to determine wood density in anhydrous state as a ratio between mass and volume of wood samples in anhydrous state, conventional wood density as ratio between wood sample mass in anhydrous state and apparent volume of wood with humidity higher than the saturation humidity and dry wood density in open air representing the ratio between mass of dry wood samples in open air and apparent volume of dry wood in open air. Wood density was the main objective used to study in *Robinia pseudacacia* var *oltenica* populations and served to assess the similarities between these.

Key words

anhydrous wood density, conventional wood density, dry wood density *Robinia pseudacacia* var. *oltenica*

Researches concerning the interpopulational variability and correlation between leaf characters of *Robinia pseudoacacia* var. *Oltenica*

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Abstract The results obtained from performed measurements on *Robinia pseudoacacia* var *Oltenica* leaves were statistically processed. The study of variability concerning leaf characters for the studied populations was performed on the ground of means and standard deviation, these clearly indicating the level of variability for the observed values near the center of distribution grouped value. There has been observed differences about leaf characters (rachis length and number of leaflets) for the studied black locust populations. At the same time, very significant correlations between these two characters were establish.

Key words

Variability, leaf characters, rachis length, number of leaflets, black locust

Identification and evaluation of old apple varieties in Gorj County

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Abstract The Gorj County is well known for its environment conditions for fruit trees growing. On the small or large areas a lot of different old species, pears, apples, plums, cerise, and quince are preserved. Our work was focused on distribution, maintaining and characterization of old apple varieties. The precocity and productivity as well as critical diseases were evaluated. As we observed in some villages there were fervently one or two varieties grown. Such distribution is title connected with environment conditions and traditional culture.

Key words

apple, disease, powdery mildew, efficiency, biological

Impact of fertilization on yield in garden beet, cucumbers, celery, radish and spring onion

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Abstract Research carried out on the nitrite and nitrate contents are directly influenced by the level of fertilisation. Applying very high rates of fertilisers on vegetable crops has a negative impact on produce quality, despite the high level of the yield. Analysing yield in the field depending on the level of fertilisation confirms the fact that between the level of fertilisation and the yield there is a positive correlation. In garden beet, yield oscillated between 8,050 kg/ha and 27,325 kg/ha. In cucumbers, absolute yield oscillated between 29,353 kg/ha and 140,260 kg/ha. Celery yield oscillated between 7,840 kg/ha and 25,460 kg/ha. Radish yield had lower values between 4,280 kg/ha and 15,845 kg/ha. Yield in spring onion was lower, i.e. it reached about 16,000 kg/ha in the variant fertilised with N₆₀P₄₅K₄₅.

Key words

vegetable crops, mineral fertilisers, level of fertilisation, yield

Impact of fertilization on nitrate content in garden beet, cucumbers, celery, radish and spring onion

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Abstract Present research in the field of nitrate and nitrite contents in garden beet, cucumbers, celery, radish, and spring onion aim at raising vegetable consumers' awareness of the negative impacts of eating vegetables whose nitrate and nitrite levels are much above maximum admitted limits. This is why we carried out an experiment within which we sampled vegetables to determine their nitrate and nitrite contents. Thus, in 2007, we found out that in most cases nitrate content in vegetables is below maximum admitted limit. In 2008, because of the lower amount of precipitations, nitrate content was higher than that of the previous year. Nevertheless, the amounts above the maximum admitted limit are not an issue here and do not constitute a risk for humans' health.

Key words

vegetable crops, fertilisation, level of fertilisation, nitrates, nitrites

The elaboration of an integrated plan of fire preventions for the Domogled-Cerna Valley National Park

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Abstract The concept of fire risk includes both the probability of fire producing and its potential consequences. This is a reason why it is necessary that the investment in the activity of forest fire prevention to be correlated with the degree of fire risk, the economic, touristic, ecological, scientific benefits and the risk for the population. At present, fire prevention has a wide feature including beside the known preventing activities also the necessary endowments in fighting against fires. Therefore, it is normal that the investment for the fire prevention activity to greater in the scientific reservation and touristic areas of high interest. The Domogled-Cerna Valley National Park with a surface of 45641,8 ha forestry that surround the resort Baile Herculane, presents a special interest concerning fire prevention because: it is known as being with high degree of biodiversity, has over 100 ha resinaceous forests (therefore very high fuel), includes mountain areas where the water source is missing, etc. The elaborated plan includes the following main elements:

- the detailed map of the objective (scale 1:50000)
- the position on the map of the storehouses with means, chemical substances and apparatus for fire extinction and the position of fortified places
- the assessment of the number of terrestrial patrols and of the critical periods
- the position of water supply places
- the position of existing roads with the specification of capacity and degree of utilization

the organizing of the informing campaign for the population concerning the danger of fire and the informing during the critical periods.

Key words

fire risk, prevention, activity, map

The new method “multiple thermic disinfection” of cellulosic materials from composition of nutritive substrate and its effects on *Pleurotus ostreatus* production

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Abstract The destruction of damaging microorganisms and competitor fungi which are found in cellulosic structure of growing substrate are made by thermic disinfection, this being the most important technological operation which ensure constancy production of *Pleurotus* mushrooms on entire production cycle. The application of thermic treatment require the highest expenditure of current in the technological sequence being compulsory in our days, for the reason that, permanently go in search of solutions which improve existing methods and in the same time reducing working expenses.

In this writing is presented a new method of disinfection for cellulosic structure of nutritive growing substrate, named “multiple thermic disinfection” and also its effects on *Pleurotus ostreatus* potentiality production.

Key words

nutritive cellulosic substrate, multiple disinfection, hybrid, mushrooms, *Pleurotus ostreatus*

Studies concerning the estimation of drought tolerance in winter barley using the germination of seeds in PEG solutions

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Abstract Development of drought tolerant genotypes involves selection of suitable plants in segregating populations from a cross. Screening techniques should be fast, easy to apply, inexpensive, and capable to evaluate plant performance at a critical developmental stage in small and large populations. The objective of this study was to evaluate the drought tolerance of 23 Romanian and foreign winter barley cultivars using the germination rate of seeds in different PEG 6000 solutions (14.3 and 19.0 %). Highest values of germinative capacity correlated with a drought tolerance were achieved by cultivars: Esterel, Dana, Adi, Majestik, Ulla. A high sensibility regarding hydric stress associated with low values of germinative capacity in PEG 6000 solution (14.3 %) was observed in case of cultivars: Precoce, Lyric, Pfyner, Manitou, Gerbel. Lowest values of dehydration level of cells correlated with a high drought tolerance were observed in cultivars: Salemer, Secura, Adi, Plaisant, Dana. High sensibility regarding hydric stress evaluated by germinative capacity in PEG 6000 (19 %) solution was recorded in case of cultivars Landi, Precoce, Pfyner, Hauter, Orizont.

Key words

winter barley, drought tolerance, germination rate.

Combining ability for grain number per spike in six-row winter barley

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Abstract Combining ability is one of the most important properties of cultivars, which determines the value of hybrids. Numerous researches led to the conclusion that between productivity of cultivars and simple hybrids, obtained with those cultivars, is not a tight enough correlation. Therefore, in practice of creating new cultivars, determination of combining ability is the crucial stage. Thus, the main objective of the present study was to identify the best combiners and their crosses on the basis of their general and specific combining ability for grain number per spike. Six double haploid lines obtained through "bulbosum method" were chosen to suite the statistical model for genetic study. Differences that appear between hybrids of studied combinations regarding the grain number in main spike are caused in a distinctly significant measure by general and as well specific combinative capacity. Hybrids F₁ Greiff x Fundulea 4 and Alex x GK Gobe, which present high values of specific combinative capacity and whose genitors manifest a high general combinative capacity, may be introduced in complex hybridization programs for breeding this trait.

Key words

winter barley, combining ability, grain number.

Methods of multiplication of some perennial floriculture species for mosaics and borders *Aubrieta deltoidea*, *Arabis albida*

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Abstract An important principle in choosing floricultural species for setting different arrangements is the ability of adapting to the demands and pedoclimatic condition and urban stress factors (dust, pollutants, artificial lighting etc.) and a number of biological features (life-cycle, staggered flowering) [4]. In this respect we consider that species such as deltoid *Aubrieta*, *Arabis albida* are plants suitable for rustic facilities, especially in alpin or vegetable carpets, borders, spots with contrasting colors, etc. Some go very well also to pots or flower pocket, with a high tenacity on winter no matter how low the waist is. This article appeared in our concerns to ensure high multiplier rate of these species to ensure the necessary material in sufficient quantities.

Key words

Aubrieta deltoidea, *Arabis albida*, biostimulatori, coeficient de multiplicare

Study for identify new genetic resources resistant to acidity for in *Lolium perenne* L. tetraploid specie

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Abstract Fertilization with nitrogen, in particular based fertilizers ammonium, imposed by the requirements of high production, contributing to increased soil acidity on the meadows as a result of nitrification. In addition, acid rain causes an accentuation of soil acidity in many regions of the world [4]. Therefore obtaining new biological forms – varieties to the main species of perennial grasses of meadows, with increased resistance to high acidity of degraded land, is the main objective of the research that takes place in the present study. In this way are presented investigations on reactivity testing plant in the acidification of the soil with the most important species of perennial grasses of meadows which is ideal partners for simple and complex mixtures of meadows, being included in a program of improvement.

Key words

Perennial species meadows, resistance aciditat, improvement, stress sensitivity index, variation analysis

Studies regarding breeding value of some long pepper local landraces

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Abstract Study of variability and heredity ensures the correct utilization of germplasm in breeding process. Starting studies in valorizing local landraces require the evaluation of selection potential and trait heritability. Application of selection is efficient only in processing local landraces which are maintained in culture. Studied biologic material was represented by 8 local landraces collected from West Romania. Breeding potential for few yield components were evaluated for this populations. Heritability is very low for fruit length and pulp weight. Fruit weight is proven to be a trait easily processed by selection, valorous populations being Ceica, Brănești, Rieni or Vinga. Fruit number per plant presents a high heritability in populations Begheiu Mic and Vinga. Regarding fruit weight per plant we remark populations Pocola, Temerești, Begheiu Mic and Brănești. The collection presents variability which can be used in breeding programs, even if the number of collected landraces is low.

Keywords:

long pepper, local landraces, breeding value, yield traits

Study of some bell pepper local landraces regarding quality and seed production related traits

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Abstract Natural variability of pepper is highly pronounced. There is also an important and still unvalorized reserve is represented by local landraces. The aim of the study was the evaluation of 20 bell pepper local landraces collected from West Romania (counties Timis, Arad and Bihor). Local landraces were compared to cultivar Globus, used as a control. Studied fruit quality components were: pulp thickness, pulp weight and pulp percentage, and regarding seed production: seed number and weight in fruit. Studies have shown that collected local landraces present important variability for evaluated traits, some being superior to the control. We recommend this local landraces in breeding programs.

Key words

bell pepper, local landraces, quality, seed

Researches concerning the weight of the grains in the main spike variability for the somaclones and gametoclones of the cultivar Lovrin 41

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Abstract In vitro culture of wheat anthers and immature embryos from the cultivar Lovrin 41 led to regeneration of 4 gametoclones and 14 somaclones respectively. The somaclones and gametoclones regenerated were studied in the field together with the control. Several characters beside which the weight of grains from the main spike were taken into attention. The study was done in two comparative cultures placed by randomized blocks method in three repetitions. Comparative studies between the somaclones, gametoclones and the control regarding the main spike grains weight emphasized that only one somaclone presented distinct significantly superior results whilst the others and the gametoclones revealed not significant differences comparing to the control constituted of the cultivar Lovrin 41.

Key words

somaclones, gametoclones, comparative cultures, control, weight of the grains in the main spike

Research concerning nitrogen and triazine compound content of surface and ground waters in western Romania

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Abstract This paper aims at presenting the results of monitoring the level of contamination of surface and ground water with nitrogen and triazine compounds in Western Romania between 1998 and 2008.

Key words

nitrogen compounds,
triazine, contamination,
ground water, surface water

The GM (genetically modified) detection and quantification in different corn samples

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Abstract In this work the validated methods were applied in our lab conditions for GM detection and quantification in corn seeds. To determine if the extracted DNA is amplifiable an endogenous gene for corn (*zein*) was analyzed. Then, for GMO screening the 35 S promoter was identified as target sequence. All of the positive samples were analyzed by quantitative PCR to determine the GM content as a relative value $\% \text{GMO} = \text{GM DNA} / \text{Species DNA}$. The GM content for the analyzed samples was higher than 0.9% for four samples (E1, E2, E3 and E4) thus they have to be labeled as GM containing product. For the others two samples E5 and E6 the GM content was lower than 0,9%.

Key words

Bt corn, genetically
modification, qPCR,
TaqMan probe

Behavior of new varieties of *Chrysanthemum indicum* at the Didactic Base of the Faculty of Horticulture and Forestry in Timisoara

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Abstract Of all greenhouse crops, chrysanthemums remark themselves through their intensive potential, full recovery of the flowers and a good storage capacity. The experiences developed on a period of two years 2007 and 2008 and the research has been done on four chrysanthemum cultivars: Avignon, Yellow Snowdon, Ton Pears and Palisade. The followed aspects were the earliness of the flowering, diameter of the flowers, plant height and also the number of sprouts for a better consideration of the intense character of the crop. The results showed that the appliance of a correct technology lead to high quality flowers with good selling potential. Under this aspect, Palisade has remarked itself as the earliest cultivar and Avignon as the cultivar with the longest period of flowering.

Key words

cultivar, Avignon, Palisade, Ton Pears, Yellow Snowdon, earliness, intense character

The treatment effect of Cycogan on the growing and flowering on some species of Pelargonium genus

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Abstract Pelargoniums are one of the easiest houseplants to keep. The various genus has given so many hybrids in so many colours that is hard to classify them. Propagation is done by seeds and by vegetative parts of the plant (shoot, strain and even grafting). Sowing can be done any time of the year, preferably during the winter and seedlings can be pricked when they have 3-4 leaves. In the study, we followed plant height, number of shoot and number of flowers when plants were treated with Cycogan. The results showed that the use of Cycogan has influenced positive plant height but most of all flowering .

Key words

Cycogan, Pelargonium, propagation, seedling, plant height, shoot, flower

Potyviridae Family – short review

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Abstract At least 37 viruses naturally infect cultivated potatoes, that are classified in 9 families and the most important of them is the Potyviridae family. All members of the Potyviridae family form cylindrical inclusion bodies in infected cells, but they are unique in the diversity of inclusion bodies. The members of the Potyvirus genus have non-enveloped rod shaped flexuous particles 680-900 nm long and 11-13 nm in diameter, helix pitch 3.4-3.5 nm, encapsidating a genome of about 9.7 kb with multiple copies of a single protein species of 30-47 kDa. Potyviruses are transmitted mechanically by aphid's mouth parts in a non-persistent, non-circulative, stylet borne manner using a helper component protein (HC-Pro) which facilitates binding of virus particles to the aphid's maxillary stylets. The genome of potyviruses is positive – sense single stranded RNA of approximately 10 000 nucleotides. The Potyviruses genome contains one open reading frame (ORF) which is translated as a large polyprotein (between 340k and 368k), that is cleaved into 10 functional proteins (Riechmann et al., 1992): P1-32-64K, HC-Pro – (helper component protein) 56-62K, P3- 38K, 6K1, CI– (cylindrical inclusions) 67-71 K, 6K2, VPg –(viral genomic protein) 5-6 K, NIa – (nuclear inclusion a) 49-55 K, NIb –(nuclear inclusion b) 58-60 K, CP – (capsid protein) 28-40K.

Key words

Potato virus family, *Potyviridae*, virus transmission, virus assembly, virus genome organisation

Influence of ribavirin on potato plants regeneration and virus eradication

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Abstract Chemotherapy techniques combined with meristems culture increase virus free plants regeneration rate, even if meristematic dome is virus infected. Adding ribavirin, a guanosine synthetic derivate, in the culture media destined for potato plants regeneration, increases the percentage of virus eradication from plants. Biological material, used for experimentation, was constituted of four Romanian potato cultivars: *Amelia*, *Christian*, *Nicoleta* and *Roclas*. Tissue culture initiation was done from explants constituted of different sizes meristems on PM culture media added with $5,7 \times 10^{-6}$ M indole-3-acetic acid, $4,9 \times 10^{-6}$ M indole-3-butyric acid and $8,6 \times 10^{-7}$ M gibberellic acid. Different ribavirin concentrations were added into the culture media. Best results regarding virus free plants percentage and regeneration percentage were obtained when ribavirin concentration was of 35mg/l. The lowest virus eradication rate was obtained when meristems were constituted of meristematic dome plus four leaf primordia. On culture media added with ribavirin (35mg/l) the virus eradication percentage increased with 27% comparing with the control.

Key words

chemotherapy, meristems culture, *in vitro* virus free plants regeneration, potato

The utilization of some technological practices regarding the lettuce crop in order to reduce of the pollution edible organs

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Abstract In order to transform the conventional vegetables farms into an ecological system it is necessary, among other changes and the application of the organic fertilizers.

In this context, at the Banu Mărăcine R.D.S. of the University of Craiova, on an area after three years (2005-2007) of conversion from the conventional legumiculture to that ecological, it was followed the influence of green manure fertilizers and husks of grapes (15 t/ha and 25t/ha) on the agrochemical characteristics of the soil and minimalization of the pollution edible organs of lettuce. The green manure, used as the only fertilizer or together with the husks of grapes compost, improves the soil fertility, increasing the contain in humus from 3.02 to 3.09 - 3.80 %, in total nitrogen from 0.131 % to 0.180-0.237 %, the mobile phosphor from 68 ppm to 52.5-99.3 ppm and in mobile potassium, from 243 ppm to 275-423 ppm. The biochemical value is considered as being superior: 6.06 – 6.91 % TDS, 5.04 – 5.72 % SDS, 3.17 – 3.78 % sugar, 11.38 – 12.72 mg/100g f.m. C vitamin, but the nitrates accumulation is low, 1336 – 1847 ppm, on all fertilized variants, being situated under the maximum accepted concentration (2000 ppm).

Key words

ecologically, NO₃, NO₂,
lettuce

Experimental result concerning the growth rate of *Vitis vinifera* L. cell biomass in suspension cell culture in Braun bioreactor

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Abstract Culture medium that have generated best results was a variant of Murashige-Skoog. Comparing the grapevine varieties taken in the study in terms of growth rate of suspension cell culture in Braun bioreactor conditions observed that the and Negru Tinctorial and Burgund Mare varieties had the highest rate of cell culture growth, the values were very significant comparing with the other varieties.

Key words

suspension cell culture, cell biomass, *Vitis vinifera* L.

Researches concerning grape cultivar's Burgund Mare production, after soil fertilization, in the Didactic Station Timisoara

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Abstract The grapes are the most in great demand fruits of all age's consumers. They have high energetical, nutritive and medicinal values. Researches performed between 2002-2004 had as principal aim studding manure and chemical fertilizer influence on grapes yield. The biological material was constituted by the cultivar Burgund Mare, from the Didactic Station Timisoara vineyard. Both organic fertilizer or manure and chemical fertilizers are used in vineyard cultures in order to supplement the mineral and nutritive needs and for physical, chemical and biological soil characteristics improvement. It was observed that fertilizers presence in soil determine humus improvement and usefully microorganisms' activity stimulation. Manure used was constituted of: farmyard manure, farm slurry, plant material manure, compost. This experiment was a monofactorial experiment realized in the filed after the randomized block design with three repetitions and six variants:

V₁ – Unfertilized; V₂ – N₅₀ P₅₀ K₅₀; V₃ – N₇₅ P₇₅ K₇₅; V₄ – Lupine; V₅ – *Lolium perene*; V₆ – farm manure 50 t/ha. Analyzing the experimental years average, one conclusion can be made namely that the fertilizing level influence significantly positive grapes yield, highest grapes productions being registered on the variants N₇₅P₇₅K₇₅ – 12.58 t/ha and N₅₀P₅₀K₅₀ - 10,92 t/ha, respectively. In order to realize a proper vineyard culture agrotechnical background it was concluded that organic fertilization is necessary (farm manure 50t/ha) at least once at four years and N₇₅P₇₅K₇₅ at least once a year.

Key words

Grapes, îngrășăminte, Burgund mare, fertilitatea solului, producție.

Experimental results concerning the synthesized anthocyanin amount in the *Vitis vinifera* L. suspension cell culture in the laboratory bioreactor

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Abstract The researches approached have taken into consideration six varieties of grapevines and were aiming the chemical extraction from the cell biomass and quantitative determination of anthocyanin fractions using spectrophotometry.

Key words

anthocyanin, suspension cell culture, cell biomass, *Vitis vinifera* L., spectrophotometry

Transfer of BEST markers from *M. truncatula* to *M. sativa*, in order to identify the border sequences of the chromosomal gene space

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Abstract *Medicago truncatula* is a model legume species for molecular biology studies, while its close relative *M. sativa* (alfalfa) is an important crop. Extensive genomic investigations have already resulted in fine genetic maps, physical maps and in many functional genomic tools as well as the sequence information of a large part of the *Medicago* genome. An initial cytogenetic map of *M. truncatula* have also been constructed and its present work is focusing on the most telomeric DNA sequences, as well as those most probably targeted to the euchromatic-heterochromatic borders in each chromosome of *M. truncatula* and using them mapping experiments to reveal the length of the sequenced gene space. In the present work, we used these *M. truncatula* molecular markers to identify the homologous counterpart from alfalfa using multiplex PCR approach. We have successfully identified 15 DNA sequences from alfalfa that are suitable to tag different chromosomal positions hybridizing experiments and contribute to the drawing of alfalfa cytogenetic map.

Key words

Medicago sativa, *Medicago truncatula*, BEST markers, molecular markers transfer

Callus culture and suspension cells in *Momordica charantia*

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Abstract In this paper the authors present the results of hormone balance and of the *in vitro* cultivation system on undifferentiated tissue growth in bitter gourd with a view to obtain large amounts of biologically active substance producing callus. Of the six hormone balances we used, the combination 1.5-2 mg/l ANA with 1-1.5 mg/l BAP in a solid medium determines the best growth of the *Momordica charantia* callus.

Key words

callus, *Momordica charantia*, hormone balance, *in vitro* cultivation system

Researches concerning the influence of different fertilization systems on the quantity and quality of the production at some table grapes cultivars

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Abstract Viticulture requires the use of fertilizers in order to obtain high yields due to the fact that grapevine generally occupies terrains with low fertility. In the present paper we studied the influence of different variants of fertilization on growth vigor and production quality at the cultivars Victoria and Muscat Hamburg. In addition to the fertilization variants commonly used in viticulture, we also tried other fertilizing systems: organic fertilizing with manure and green fertilizer, fertilization with foliar fertilizers and various combinations between organic and chemical fertilization.

All variants of fertilization had a positive influence on production. In addition, organic fertilization and fertilization with green fertilizers have a major influence on improving the characteristics of soil and reducing the degree of environmental pollution, having at the same time reasonable costs.

Key words

fertilization systems, production, quality, green fertilizers

Researches on the evolution of the annual biological cycle at some grape varieties under different pedo-climatic conditions

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Abstract The evolution of the vegetation phenophases is highly influenced by the environmental conditions that are specific to each year and each geographical area and not least by the technology applied. Observations were made during the years 2007-2008 on the grape cultivars: Fetească Regală, Fetească albă, Mustoasă, Riesling Italian, Pinot Gris, Muscat Ottonel, Pinot Noir, Cabernet Sauvignon, Cadarcă, Muscat Hamburg, Victoria, in the pedoclimatic conditions of Banat, in the wine-growing centers Timisoara, Recas and Buzias and targeted the evolution of the main phenophases at the grapevine: bleeding, bud breaking, flowering, ripening and full maturation. Although geographically the three wine-growing regions are relatively close among themselves, between the evolution of the annual biological cycles, there have been small differences which must be taken into account when establishing the technologies of culture.

Vegetation phenophases at Recaș were conducted several days earlier as compared with the wine-growing regions Buziaș and Timisoara, in that order.

Key words

Pedoclimatic resources, vegetation phenophases, differentiated technologies.

Researches concerning the production of planting material using vegetative propagation on *Juniperus horizontalis* mnch.

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Abstract In our country, creeping juniper is not regarded as a very important forest species, due to its slow growing habit and it does not reach impressive sizes. Nonetheless, it is frequently use in parks and gardens, due to is decorative aspect and it can be easily modeled into different and desired shapes. In ornamental arrangements it is usually found as shrub.

Key words

juniper, cutting, sapling, mixture

Research on yield performance culture chive onion by using forms of Macau in terms of the field at Didactic Base Timisoara

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Abstract Two forms of onion represent the biological material used in the experiment: Dughagyma Csanad IIO and Dughagyma Makoi CR, creations of the Onion Research-Development Station in Mako. The experience is multi-factorial, having the following divisions of the studied factors: factor A (planting period), factor B (fertilizing doses), factor C (onion forms) and factor D (chive's diameter). The mean production obtained for the surface unit varied between 57,3 t/ha (Dughagyma Makoi CR) and 67,8 t/ha (Dughagyma Csanad II 0).

Key words

onion, level of fertilization, forms of onion chive, yield performances, field conditions

The concerning the proteines variations of the Bănățean Sausage in function of the concentration the starters cultures of lactic bacteria add (II)

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Abstract The variation of the protein concentration in the Bănățean sausage with a fat content of 30% obtained using a lactic starter bacteria in order to ensure a higher preservability and the comparative study among the standardized limit concentrations were done.

Key words

Sausage, proteines, starters cultures

Researches concerning the length of the main spike variability for the somaclones and gametoclones of the cultivar Lovrin 41

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Abstract The biological material used for these studies was represented of 14 wheat somaclones and 4 gametoclones, material that was obtained in vitro by the culture of two explants types, anthers and immature embryos. The control was constituted by the cultivar Lovrin 41. The somaclones and gametoclones of the cultivar Lovrin 41 were studied in two comparative cultures as for the randomized blocks by three repetitions.

Comparing the results obtained for the cultivar Lovrin 41's somaclones and gametoclones on observed that the average of the principal spike length is superior for the somaclones comparing with the gametoclones. The control presented superior values comparing with both gametoclones and somaclones, for this character.

Key words

somaclones, gametoclones, comparative cultures, control

In vitro variability of *Cymbidium* sp. based on random amplified polymorphic DNA (RAPD) markers

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Abstract The objective of this study was to determine in vitro variability using randomly amplified polymorphic DNA (RAPD) markers. DNA from eleven in vitro obtained plantlets of cymbidium was examined using polymerase chain reaction (PCR) to determine the efficiency of randomly amplified polymorphic DNA (RAPD) markers in identifying of somaclonal variability. We used 4 RAPD primers. Concerning RAPD analysis, template DNA produced clear PCR profiles. As a result of UV light screening of agarose gels, it has been observed slight differences between the genetic fingerprints of the studied variety induced by amplification using RAPD primer.

Key words

Cymbidium, RAPD, somaclonal variation

An evaluation of tolerance of some bean (*Phaseolus vulgaris* L.) genotypes to bean Common Mosaic Virus (BCMV) using principle components and biplot analysis

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Abstract The common bean is the most important grain legume for direct human consumption in the world and BCMV is one of the world's most serious bean diseases that can reduce yield and quality of harvested product. To determine the best tolerance index to BCMV and recognize tolerant genotypes, 2 experiments were conducted in field conditions. Twenty five common bean genotypes were sown in 2 separate RCB design with 3 replications under contamination and non-contamination conditions. On the basis of the results of indices correlations GMP, MP and HARM were determined as the most suitable tolerance indices. The results of principle components analysis indicated 2 first components totally explained 98.52% of variations among data. The first and second components were named potential yield and stress susceptible respectively. Based on the results of BCMV tolerance indices assessment and biplot analysis WA8563-4, WA8563-2 and Cardinal were the genotypes that exhibited potential seed yield under contamination and non-contamination conditions.

Key words

Phaseolus vulgaris, BCMV, principle components analysis, biplot analysis, tolerance

Generation of homogeneous parental lines for pepper hybrids

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Abstract The doubled haploid (DH) plant production has a history of several decades and has had a consistent connection with the breeding and research since then. The DH plants can be produced by androgenesis (anther culture, isolated microspore culture) and gynogenesis (ovary culture, ovulum culture, oocyta culture) based on the type of the targeted cells.

The DH plant production methods based on androgenesis are applied to studying microspore embryogenesis, producing mapping populations, genetic transformation, *in vitro* selection or mutant selection. In pepper, DH plant production methods are improved because of breeding.

Microspore culture is an alternative method for doubled haploid plant production, and has some advantages compared with anther culture: (1) Androgenesis is induced without somatic cell and tissue in isolated microspore culture. (2) Process of microspore culture (microspore embryogenesis) can be observed in a simpler way in isolated microspore culture than in anther culture. (3) Monitoring of the microspore culture can give more information to improve this method.

Key words

Pepper hybrids, microspore, androgenesis, MS medium

Influence of Bionat plus foliar bio-fertilizers on the vegetative growth of seedlings on fields I and II

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Abstract The purpose was related to the tracking of Bionat Plus foliar bio-product's effect on the vegetative growth of seedlings on fields I and II of the nursery.

The stimulant effect of plants' vegetative growth and the repulsive effect of Bionat Plus bio-product were tracked on the grafted seedling types of apple, plum, cherry and peach trees, as well as on MM₁₀₆, microbolam, mahaleb and peach stocks.

The average diameter (thickness) at the grafting point of MM₁₀₆, microbolam, mahaleb and peach stocks, treated with bio-fertilizers, had a superior growing percentage in the treated variant compared to the untreated sample on field I. the same thing was noticed related to the average height at harvesting, of apple, plum, cherry and peach seedlings on field II.

Key words

foliar bio-fertilizer, stocks (mother/father plants), seedlings, type/variety.

The effect of some herbicides upon weeds from the sunflower culture

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Abstract The paper presents the experimental results obtained in the year 2007 regarding the individual effect of five weed killers, used for the control of weeds at the sunflowers crops, as well as that action in association with two other herbicides: Sencor applied in a quantity of 0,4 kg/ha and Gesagrade 50 applied in a quantity of 3 kg/ha.

As concerns the effect of the individual application of each weed killer, on the first place we can put Alachlor with an average production increase of 6,95 q/ha or by Treflan with an average production increase of 6,80 q/ha, or 33,0% as compared to the witness.

The weed control by use of herbicides, is a very effective method, this way eliminating the hand hard work used for maintaining the growing.

Key words

herbicide, weeds, sunflower, individual effect, association, production, dosage

The effect of the nitrogen phosphorus and potassium fertilizer upon some elements of the winter wheat crop

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Abstract The paper presents the experimental results obtained during 2006 – 2008, regarding the effect of the chemical fertilizer with nitrogen, phosphorus and potassium, upon some of the elements of the winter wheat crop, grown in the pedo – climatic conditions of Livada region, Bihor county.

Key words

chemical fertilizers, winter wheat, degree of fraternity/unity, number of brathers, the length of the straw, the length of the ear, the weight of the ear

The behaviour of some potato varieties for early and semi-early cultivation in the conditions of the Banat Plains

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Abstract The potato cultivation meets important difficulties in the plain area, like the Banat Plains. Starting from this well known fact, our research targeted the highlighting of valuable genotypes that achieve increased and constant production in this area. Experiments have highlighted especially important conclusions regarding the value of the analysed potato variety, indicating the best ones, but also some particular aspects of the cultivating technology that has a positive impact on the potato cultivation in this area.

Key words

Phenological observations, variance analysis method, production capacity, statistical assurance.

Research regarding biological and quality characteristics of some autumn barley varieties in Romania's Western Plains

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Abstract Autumn barley is an important crop, but deficient when it comes to resistance during winter and water requirements. Considering these, our research followed the manifestation of biological characteristics among which the ones mentioned above, for a wide and diverse array of domestic and foreign varieties cultivated in the conditions offered by the Banat Plains, in order to select the appropriate varieties for this area.

Key words

Crops, germination energy, germination capacity, seed quality.

Research regarding the influence of different biological categories on production and quality at the Dropia autumn wheat

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Abstract The research follows the study of some particular aspects of seed production, with special consideration for Dropia, a variety with very good performances in the Banat plain. The approach of the aspects regarding the reaction of different biological links of the mentioned variety have the purpose to elucidate the necessity of some measures in the seed production process and also in the activity for maintaining the biological value of the seeds at the certified seed categories.

Key words

biological category of seed, biotypes, typical, variety purity

Research regarding the unilateral and interaction effects of some technological factors on the growth of grain production in the seed lots at the Dropia variety

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Abstract The productive potential in the seed production process can be much improved by applying optimum culture technology. The optimum density and the nitrogen fertilization level represent two of the basic factors of technology and that influence significantly the grain production level. The study of the separate action but especially of the interaction of these factors permitted the elaboration of more precise conclusions regarding their contribution to the making of some high productions of seed.

Key words

biological category of seed, sowing density, unilateral effect, interaction effect, the method of the subdivided lots