Effect of plantation age on organoleptic traits of a typical Italian green asparagus crop

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Abstract Asparagus is a very common and important vegetable in Italy especially in the North-east regions where it is also a typical and historical product. For green asparagus, and in particular for typical cultivar grown in Northern Italy, the information on these issues are limited. For these reasons experiments have been carried out in order to evaluate nitrates, nitrites, polyphenols and pigments contents and antioxidants activity of marketable product of green asparagus cv Eros. The qualitative analysis on green shoots were performed on samples coming from 2 plantations with different age: 3 years old crop (YC) and 8 years old crop (OC). During harvest (from April till May), six samplings were performed. After each harvest, shoots were calibrated, washed and placed at 4 C° till next day. For qualitative analysis only extra class shoots (diameter >16 mm) were used. Shoots were weighted and then cut to 270 mm from the apex in order to separate not marketable portion from the commercial one. The latter fraction was cut in 3 parts 90 mm long (apical (A), intermediate (I) and basal (B)) to evaluate quality characteristics of each part. Results showed that OC asparagus had a higher content of dry matter and a greater weight. The nitrate content, which was always far below the recommended WHO limits, was not influenced by location, while considering the part of shoot, as expected, a decreasing trend from the base to the apex was observed. For nitrites there were no significant differences between locations and among shoot parts. The pigments content increased during the advancing of the harvest season in OC that showed the highest values. The content of these compounds strongly increased moving from the base to the top of the shoot and the chlorophyll *a* content was higher than the chlorophyll *b* and the pool xanthophylls + carotenoids. The antioxidant activity and polyphenol analysis showed that the upper part is the richest in these compounds mainly because directly exposed to stress situations.

Key words

Asparagus officinalis L., quality, antioxidant, phenolics, vitamin C, nitrate

Species of *Rhododendron* acclimatization in the Botanical Garden of Jibou and their promotion in landscape

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Abstract The current paper presents the preliminary results of a study regarding the behaviour in crop condition of four *Rhododendron* species, from different parts of the world (Europe, China, Korea, USA) with ornamental value. The research initiated in the Botanical Garden Jibou will help the selection and propagation of ornamental representatives of species that are tolerant to low temperatures, suitable for cultivation in Northwestern Romania.

Key words

Rhododendron sp., ornamental value, adaptability, characteristics

Studies regarding vegetative propagation of *Rhododendron sutchuenense* Franchet species

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Abstract The genus *Rhododendron* belongs to the family Ericaceae, commonly called the heath family. The genus is one of the largest in the plant kingdom, made up of approximately 1100 species. Members of the genus range in size from alpines that may be 5 cm tall to tree size plant up to 24 m tall**.** *Rhododendron sutchuenense* Franchet is a shrub or small tree with 3-4 m high, persistent leaves, grown for beautiful flowers and decorative foliage. It is native to China and is growing in forests situated at an altitude of 2400- 3200 meters. The multiplication were made by cuttings and during the experience was studied the influence of rooting substrate on roots system formation. Some soil mixtures were tested: A. perlite+peat, with a ratio 1:1, B. peat+sand 1:1, C. perlite+sand 1:1, D.perlite (control of experience).The best results for *Rhododendron sutchuenense* were obtained in mixture of peat+perlite 1:1 ratio, rooting occurred in 168 days.

Key words

multiplication, cuttings, shrub, rooting substrate

The influence of some technological sequences on the production of eggplants grown in plastic tunnels

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Abstract In the area of Transylvania, Romania, eggplant culture is mostly practiced in plastic tunnels. Improving technologies on eggplant cultivation contributes to obtaining a better and higher production. In 2011 an experiment was carried out at the University of Agricultural Sciences and Veterinary Medicine in Cluj-Napoca, Romania, to determine the influence of the culture substrate, plant directing method (with 2 and 3 branches) and fertilization, both mineral and organic, on eggplants cultivated in plastic tunnels covered with polyethylene film

Key words

eggplant, fertilization, plant directing, production, substrate

Survey of Banana endophytic fungi isolated in artificial culture media from an applied viewpoint

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Abstract Isolation of fungal endophytes of banana corm resulted in 15 colonies from 4 different genus taxa (*Aspergillus, Penicillium, Fusarium* and *Chaetonium*). Endophytic fungi isolated were evaluated *in vitro* to observe antagonistic effects against the Fusarium wilt. Three endophytic fungi (2 *Aspergillus spp.* and 1 *Penicillium spp.*) inhibited mycelia growth of the pathogen.

Key words

Endophytic fungi, banana, biocontrol, antagonism

Mulch and fertilizer effect on vitamin C concentration and acidity in strawberries

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Abstract Large differences in terms of nutrient content were determined in strawberry varieties affected by enviromental factors. Even so, little attention has been focused on fruit quality and chemical composition of strawberry grown on different mulch systems. The aim of the research was to compare the effects of mulch types (agro-textile, 0,04 mm thick black polyethylene and straw) and two fertilizer systems (poultry manure and liquid NPK 24:8:16, Mg 2,2%, S 2%, B 0.03%, Fe 0,1%, Mn 0,05% and Zn 0,025%) in content of vitamin C and total acidity of 10 new strawberry cultivars (‘Alba’, ‘Kimberly’, ‘Korona’, ‘Elliany’, ‘Elsanta’, ‘VimaZanta’, ‘Viktoriana’ ‘Virena’, ‘VimaXima’, ‘Premial’) .The highist content in vitamin C, strongly recommend the mulch with agro-textil Kimberly variety, organically fertilized. Vima Xima cultivar,under agrotextile mulch, fertilized organic ensures a high percentage (0.85 %) in organic acids (citric acid, predominantly). Vitamin C content (mg/100g fresh fruit) was determined by volumetric method. Total acidity of the fruit was determined in samples from fresh fruit from each sample by taking the equivalent of 10 g.

Key words

strawberry, vitamin C, total acidity, cultivar, mulch system, fertilizer

Composition variation of vitamin C and acidity in ten varieties of strawberries under the influence of mulch and fertilizer

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Abstract The interest in organic farming and organically produced products is increasing every year in Romania. In 2012 the trial with ten widely grown strawberry cultivars ('Alba', 'Kimberly', 'Korona', 'Elliany', 'Elsanta', 'Vima Zanta', 'Viktoriana' 'Virena', 'Vima Xima', 'Premial') fertilized in two variants, organic and conventional, and three different mulch (agro-textile, 0,04 mm thick black polyethylene and straw), was established in a commercial farm. The objective of this study was to assess the strawberry cultivars in organic and conventional growing with regard to their chemical composition (total acidity and vitamin C). It was noted that organically grown strawberries had a higher content of vitamin C and acidity. The highist content in vitamin C, strongly recommend the mulch with agro-textil Kimberly variety, organically fertilized 65,15 mg/100 g SP. Vima Xima cultivar,under polyethylene mulch, fertilized organic ensures a high percentage (0.94 %) in organic acids (citric acid, predominantly).

Key words

strawberry, vitamin C, total acidity, cultivar, mulch system, fertilizer

The dendroarchaeology – review of dating the patrimony items across the globe

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Abstract The dendroarchaeology dating has signified the most accurate method of positioning on a temporal scale a wood item, based upon the analysis of the year growth rings of the trees. Many halidoms of high importance specific to the history study and of the national culture haven't had attestation proofs regarding their origins time. As already known, Saint Stefan the Great (signification of the Romanian title "Stefan cel Mare si Sfant") built monasteries, but no one can accurately attest their number, considering that some of them have been restored, while others have been assigned to him, without proving. The materials used in order to build monasteries and churches had been represented by wood and stone, by far. Even for the stone buildings, there are items of really high cultural value, meaning: wood painted icons, iconostasis, sculptures etc., or some other times, the stone walls have been constructed by surrounding a wood skeleton. The dendroarchaeology can offer us many precise answers as regards the edification year or the provenience of the used materials etc. This current study illustrates some of the dendroarchaeology accomplishments in the world, as well as the fragile dating attempts on some Romanian items. Their acquaintance will be quite significant for the archeologists, the restaurateurs and for the owners of some assets, as well.

Key words

dendrochronology, dating, ring width, pattern, oak

The influence of early wood and late wood to emergence of pointer years in oak trees

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Abstract Axial variation of early wood and late wood widths of thirty oak trees (Quercus petraea (Matt.) Liebl) was analyzed. The influence of sampling trees was found to be weak for both, earlywood and latewood widths, that meaning results don't varied a lot of if the number of tree is larger. The observed trends with expanding number of samples show distinctively that EW (earlywood), don't have influence on appearance or maximized the value of pointer years. The phenomenon is due to the fact that early wood reacts only at the interference of two factors: precipitation and average temperatures of April. Unlike the earlywood, the latewood and total wood shows a high sensibility at the cumulated precipitation and the temperature of September (the previous year of the formation of the growth ring) respectively Mars, April, May, June and July (the year of the formation of the annual ring). Related to the oak's dendrochronological series different reaction at the climate variation there were identified different results for the 3 analyzed series. There are even event years that cannot be found than in the latewood or total wood series, but most care be found in both categories. The percentage of showing in individual series varies at the event years founded in both total wood series and in the analyzed early wood series.

Key words

oak, sessile oak, early wood, late wood, pointer years

The behaviour of some varieties of table grapes in Buziaş – Silagiu viticultural area, under the influence of various fertilization methods

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Abstract Viticulture plantations are usually placed on low-fertility soil, which makes fertilization extremely important in grapevine crop technology. Our research tackle the issue of fertilization for table grapes under the specific conditions of Buziaş - Silagiu viticultural area. The biologic material used for the purpose of this paper is represented by three varieties of table grapes: Fetească Neagră, Pinot Noir and Italian Riesling. The study focused on determining the influence of chemical fertilization and foliar fertilization on the resistance and viability of buds; determining the evolution of the sugar content and total acidity of grapes under the influence of chemical and foliar fertilizers; determining the grape yield in relation to different application of chemical and foliar fertilizers; determining the influence of fertilizers on wine quality. The climate conditions over the research years were favourable for balanced grape yield, in what the quality and quantity were concerned.

Key words

fertilization, cold tolerance, productivity, quality, anthocyanins

The influence of fertilization on some varieties of wine grapes in Recaş viticultural area

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Abstract For reaching the objectives of the present research, we made experiments on the following wine varieties: Cabernet Sauvignon, Fetească Regală, Muscat Ottonel and on organic and mineral fertilizers. The aim was to establish the dependence between the means of increasing the yield, the fertilizers and the different varieties' capacity to use them, in order to obtain maximum efficiency in what quality and quantity are concerned.
The research was conducted in Recaş viticultural area. It focused on determining the influence of organic and mineral fertilization on the bud resistance and viability in the three varieties; determining the influence of fertilizers on the sugar content and total acidity of grapes; determining the grape yield in relation to differentiated treatment with organic and mineral fertilizers; determining the influence of fertilizers on the quality of wine. The biggest yields were obtained from Fetească Regală variety, followed by Muscat Ottonel and Cabernet Sauvignon. In what quality is concerned, Cabernet Sauvignon variety yielded wine with higher alcohol content than the other varieties under research.

Key words

fertilization, viability, productivity, quality, wine grapes

Physiological research on some species of the genus *Plantago* L. from Dobrogea region

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Abstract *Plantago* genus comprises 35 species, found in European area; in Romania vegetate 17 species, all of them spontaneous. Three species (*P. major* L., *P. media* L. and *P. lanceolata* L.) are cultivated for their medicinal properties, recognized both in modern, as well in traditional medicine. Due to their similar chemical composition, these three species play mostly multiple and convergent pharmacological functions. The present paper aims to study physiological comparative aspects regarding *P. lanceolata* L., *P. coronopus* L. and *P. maritima* L. from Dobrogea, in order to establish their value as indicator species for saline environments. The degree of hydration in foliar tissues has been gravimetrically determined, and photosyntetic pigments determined by spectrophotometric assay. The analyses concerning processes of photosynthesis and transpiration were performed with LCi portable system on field. the LCi portable system uses infrared rayes for the determinations, in this way the plant is not harmed in any way. Statistical analyses of the results has been conducted, using calculation of correlations. The comparative analyses of the biochemical and functional parameters show the existence of positive correlations, suggesting that these parameters are closely linked.

Key words

photosynthesis, transpiration, foliar pigments, LCi system

The ecological diversity of the cormophytic flora from the Latoriţa hydrographic basin (Vâlcea County, Romania)

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Abstract In this work are synthesized the results of the ecological research on cormophytic flora of the Latoriţa hydrographic basin. The goal of this has been the knowing of the ecoforms spectrum in rapport with the species exigency for the principal ecological indices (the humidity, the trophicity and the pH of soil, the light and the temperature), and in subsidiary, the identification of the taxa with the indicator potential of some characteristics of theirs habitations. Another aspect target was the assessment of the plant sensibility to the anthropogenic impact and the climatic changes prognosticated which will affect the plants from the protected areas of Europe in the following 80 years. The sum of the data recorded, as well as their statistical analysis, allowed us the establishment of the ecological specificity of vegetation in accordance with the complexity of the local pedoclimatic factors.

Key words

anthropogenic impact, cormophytic flora, ecoforms, habitats, hydrographic basin, indicative specie

Nemere variety - result of potato breeding research at Station for Research and Development of Potato 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, variety, breeding,specific, technology

Reaction of native potato varieties to water stress

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Abstract Drought is a natural hazard which has scores of definitions that vary according to the affected area or population group that suffers its consequences. It originates from a deficiency of precipitation over an extended period of time and it should be considered relative to the long-term average or normal balance between precipitation and evapotranspiration (P-ET) in a particular area or in relation to crop demands at particular a time. Drought also implies a condition in which soil moisture is depleted to some small percentage due to which the plant is unable absorb it fast enough to compensate for transpiration [6].
Potato crop yields are highly affected by precipitation amounts during the growing period and its distribution within the stages of crop development [3].
Potato yield is extremely sensitive to drought stress which is a major limiting environmental factor that constrains crop productivity in traditional potato-growing regions, taking a major toll on the quality and quantity of potato crops. Considering the influence of climate change and the fact that the potato crop has reduced genetic variability it is necessary to identify drought-tolerant or drought-resistant genetic material.
Trials were performed to study the reaction to drought of 10 locally bred varieties at the Research and Development for Potato Station and 2 foreign varieties.

Key words

potato, variety, productivity, water stress

On the Behaviour of Some New *Freesia* Cultivated in the Greenhouses of the BUASVM in Timisoara, Romania

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Abstract *Freesia* has been known since the second half of the 18th century on the hills of Cape Good Hope in South Africa. *Freesia refracta* Klatt was first mentioned as *Gladiolus refractus* Jacq. in "Icones, plantarum rariorum", the work of the Austrian botanist N. von Jacquin, in 1970. As *Freesia*, it is mentioned in the description of the German botanist F. W. Klatt, in 1866, who named it so to honour the passionate amateur medical botanist F. T. Freese. The first to be cultivated was the yellow-greenish *Freesia refracta* Klatt. In 1878, they brought to Europe from South Africa the white variety of the *Freesia* hybrid. In time, more and more species have appeared of different colours, both scented and unscented [3,5]

Key words

Freesia variety, culture, morphology

Effects of Cuts on Growth and Blooming of *Thea hybrida* Roses Cultivated at the Didactic Station of the BUASVM of Timisoara, Romania

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Abstract The Eastern part of the Mediterranean and the sub-Tropical regions of Eastern Asia are considered the native areas of the roses. Rose is cultivated mainly as a decorative plant, while wild species are used to consolidate the soil, as protection curtains, or as defensive fences. The rose varieties cultivated in the field or in protected areas are mostly rose varieties or hybrids that originate in several species. In this paper, we present the behaviour of some roses cultivated in the field from the point of view of the effect of different cuts.

Key words

rose, cut, variety, morphology

Influence of the resistance to penetration and shearing on the gas consumption at the execution of the holes for planting saplings

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Abstract The present research displays the results obtained after the digging of holes for planting saplings in a previously unprepared soil, following the steps to carry them out according to some physical-mechanical properties of the soil.
The research was carried out on a horizontal ground in the Forest District Iuliu Moldovan, in two forest compartments 31 C and 32 A, in a previously unprepared ground, on two types of soil: gley-soil (the muddy subtype) and alluvial soil (the vertical-gleyed subtype), and in Forest District Radna, forest compartment 74, on a brown typically luvic soil, using the Stihl BT 121 motto-borer with a 200 mm drill.
The objectives of the research were to make a comparative determination, on different types of soil, of the qualitative parameters, among which the most important ones are: degree of loosening of the soil taken and left in the hole, resistance to penetration, resistance to shearing, degree of scattering of the soil taken out from the hole, degree of evacuation of the soil from the hole, gas consumption for the drilling of the hole, using the Stihl BT 121 motto-borer in order to establish its technical efficiency.
In order to observe the influence which the drilling of holes has on its walls, we measured the resistance to penetration and resistance to shearing every 10 cm at a 30 cm depth, the proper depth for planting small-sized saplings, on two opposing sides, so that we could get the most probable values of these physical-mechanical properties of the soil.
After taking the measures in order to establish the compaction degree of the

Key words

motto-borer, resistance to penetration, average time of drilling, degree of scattering, degree of evacuation

wall and of the bottom of the hole by the borer in that interval, it was judged that in conditions of normal humidity, if the borers have sharp knives and are well conceived and executed from a technical point of view, there are no big values of the resistance to penetration which could affect the subsequent development of the saplings.
The usefulness of the present paper stays in the research data collected, processed, analyzed and valorized in order to offer a pertinent study material, which could indeed be used by specialists in designing the process for obtaining, through a mechanized means, the holes for planting small-sized saplings on a horizontal ground, using the Stihl BT 121 motto-borer.

Study on the influence of soil trophicity on the bioaccumulation capacity of Norway spruce stand from Cindrel Mountains

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Abstract The present study examines the influence of soil concerning biomass accumulation on spruce from soil trophicity point of view. The research have been made on spruce stand at the similar climatic, altitude and vegetation condition, but developed on different soils. The aim of the research was to establish a relationship between trophicity of soil and the ability of biomass accumulation of the trees. Study was conducted in Cindrel Mountains, Oncesti District, Rasinari Forest District. On experimental area were collected soil sample on which test were made on morphologic, physical and chemical properties and forest vegetation was whole inventoried. The determinations of the trees covered the height, diameter, some quality indicators and growth rate. On soil determination watched the pH, degree of base saturation, nitrogen, humus, edaphic useful volume and skeletal content. Other observation focused on the indicator flora and reliability of forest site. The results are statistically interpreted and tabular exposed and based on their can be formulated conclusions about regarding suitability of soils for forestry vegetation.

Key words

soil, biomass, nutrients, spruce, forest

Research on the influence of seed tuber size and planting density on the yield of potato grown on sandy soils

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Abstract The variety, planting density, along with other technological links are only a part of the technological factors that lead to the success of the potato crop on sandy soils, where thermo-hydric stress conditions in summer months prejudicial major production both quantitatively and quality.
Establishing optimum planting density should be made depending on the variety, planted tuber size, level of fertilization and environmental conditions.
Results posted from CCDCPN Dabuleni on commercial production of tubers obtained show that using the seed planted large tubers planted at a density of 63000 plants / ha was achieved highest production of 44.1 t / ha in variety Carera. A level close to production of 36.7 t / ha respectively 36.1 t / ha was obtained in variety Tresor and Carera using the small tubers planted at a density of 63 000 plants / ha.
The results obtained, on the quality of potato tubers, depending on the density of planting, show that the number of plants increases, the quality of the tubers/1ha diminishes, with slight differences depending on variety

Key words

potato, density, production

Auxological and dendochronological parameters analysis in the spruce cultures installed outside the range in Suceava County

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Abstract In order to obtain an increased biomass quantity for the cellulose and paper industry, during 1948 – 1986, resinous cultures were introduced in Romania, beyond the natural vegetation range characteristic for these species. Under the influence of climatic factors and secondary pests (bark beetles), in the last decade, the situation of these forest stands has aggravated significantly, the mass drying phenomenon being noticed on increasingly large areas annually. In order to find the optimum means of conversion for these cultures, it is necessary to perform detailed studies regarding structural parameters, the state of health and modifications brought on stational conditions. The hereby study proposes to analyze such a forest stand 30 from the installment.

Key words

outside the vegetation range, structural parameters, climatic factors, growth indices, SPI

Researches regarding biochemical composition of plants and fruits cultivars of watermelons to some obtained on sandy soils in the conditions of biological agriculture

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Abstract Research has shown that on sandy soils in southern Oltenia can be realized organic crops of watermelons. In watermelons grafted plants builds up a larger amount photosynthetic pigments (chlorophyll and carotene) and the macroelements (N, P, K). A good supply of plants in macroelements during the period growth and development of both plants and fruits,
lead to a balanced metabolism, with increased accumulation process of photosynthesis due to high chlorophyll content of leaves.

Grafting plants watermelons not negatively influences fruit quality, resulting in a higher content of carbohydrates and values very close to total dry matter content and soluble. Changes in soluble dry matter concentrations are strongly influenced by variations in total dry matter, water, acidity and C vitamin and correlation factors obtained higher values in fruits obtained from plants grafted.

Watermelons production level was very high and demonstrates that the sandy soils can achieve effective economic productions by applying a specific cultivation technologies that respects the principles of organic agriculture. Increased production by plant grafting is very evident in the earliest cultivars. The cultivar Crisby F1 achieved an average production of 73,7 t / ha to culture grafted plants and 52,1 t / ha culture of not grafted plants, the production growth of 21,6 t / ha.

The average production is higher in culture plants grafted on rootstock *Macis F1* of the species *Lagenaria Syceraria* , a production of 62,2 t / ha, with 8,3 t / ha higher than in cultures not grafted plants.

Key words

sandy soils, grafted watermelons, quality, economic efficiency

Research on bunches weight of some varieties and local biotypes of table grapes in Arad County

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Abstract The research, run over the course of three years, from 2008 to 2012, focused on the average bunch weight of several local varieties and biotypes of table grapes.

The area of the research included several villages in Arad County, where we went in order to identify and study local varieties and biotypes. These are less known and their potential quantity and quality have not yet been explored thoroughly.

We analysed the average bunch weight in local varieties and biotypes. This parameter is extremely important for these varieties, as consumer demand is targeted mainly on grapes with big berries and bunches. From this point of view, we analysed none local varieties and biotypes, in comparison with the control Chasselas dore.

Key words

bunches, table grapes, viticultural germplasm

Effect of Bioactive Substances on Titratable Acidity in Greenhouse Cultivated Tomatoes

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Abstract In this paper, we present trial results of laboratory analyses concerning the titratable acidity of four tomato hybrids treated with seven fertilisers. Fruit acidity is determined by the presence, in the fruit vacuoles, of organic acids. The main organic acids identified in the tomato fruits are the malic and the citric acids. This value is important in assessing the aroma and it is related to the Brix value. Acidity is often expressed as "acid degree" describing the taste.
The results were obtained according to well-established protocols and current statistic calculus methods.

Key words

hybrid, tomato, greenhouse, titratable acidity

Research on blastogenesis process *ex situ* in some species of angiosperms in Macin Mountains National Park

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Abstract The paper presents results of investigations on the process of blastogenesis in 57 species of herbaceous and woody angiosperms, nine of which are included in the national Red List as "rare" taxa on Pricopan ridge of Macin Mountains National Park. The methodology used included *ex situ* culture, biometric and microscopic analysis of morphology and anatomy of vegetative organs of seedlings and plantlets implicitly as a whole. Blastogenetic research revealed a wide variety of morphogenetic types, of each species. Outcomes help refining methods used to identify taxa as phylogenetic relationships among different species and supra specific taxa, they can also serve to develop a methodology for ex situ reproduction of protected plant species included in the national red lists of Macin Mountains National Park territory.

Key words

ontogenesis, phylogenesis, morphogenesis, multiplication ex situ, phytodiversity conservation

Behaviour of some varieties with black grapes for red wine in the first three years after planting on improved sandy soils from Southern Oltenia

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Abstract In the first year of planting vines vigour has been very good for most varieties. Of the nine varieties studied only one recorded a value of total length of annual increases below 200 cm/vine, namely Pinot noir (167 cm/vine) and 2 varieties under 300 cm/vine, respectively, Cristina (277 cm/vine) and Amurg (279 cm/vine). The most vigorous was Cabernet Sauvignon Cl 33 Vl., which recorded a value of 441 cm/vine.
In the two year of planting, the biggest vigour has been recorded at the Amurg variety, which registered a value of total length of annual increases of 1150 cm spread over 5 shoots, followed by Arcaș and Novac varieties with vegetative growth of 1040 cm and respectively 1020 cm spread over 4 and 3 shoots. The smallest vigour was recorded at the Mamaia variety (610 cm on 3 shoots).
In the 3rd year of planting, the total length of annual increases, registered values over 1000 cm/vine, with one exception, the Pinot noir, which recorded a value of 794 cm/vine. At this variety and number of eyes trained on the vine was the smallest, 70. The most vigorous has been the Mamaia variety (1412 cm/vine and 110 eyes/vine). At the opposite pole, but more vigorous than Pinot noir, were Arcaș variety (1044 cm/vine and 91 eyes/vine) and Amurg variety (1078 cm/vine and 92 eyes/vine).
Although the viable buds were located at the base of vine and these varieties have produced grapes in the 3rd year of the planting. Some varieties have demonstrated their potential to fruiting on the short elements. Were emphasized the Codană variety (5680 Kg/ha grapes) and Novac variety (5680 Kg/ha grapes). The lowest production of grapes achived at the Pinot noir and Busuioacă de Bohotin the varieties (757 Kg/ha grapes) and Cristina and Arcaș varieties (1136 Kg/ha grapes).
The Mamaia variety was the first to come to the harvest maturity on 29.08.2012. It was followed by the Amurg variety, on 02.09.2012. The most varieties arrived at the moment of harvest on 4 and 5 September 2012.

Key words

behaviour, sandy soils, vine, red wine

Diversity of forest ecosystems from Dognecea hills

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Abstract Stationary and various conditions in the studied area (geological substrate mosaic composed from various metamorphic and sedimentary rocks, slopes with various exhibitions etc.), have led to a variety of ecotope, able to maintain biocenoses with a large variety of forest species which

Key words

ecosystem type, type of humus, biosynthesis

vegetate in mixtures.
Because of the great diversity of types of sites and forest types, it was enclosed the studied area in ecosystem types and was described the main ecosystem type which occupies 60% of the studied area. There were analyzed the advantages of the both types (forests and sites) in the ecosystem typology, in terms to solve some problems of major interest for forestry and the limited opportunities, at present, the classification of forest ecosystem types, which requires further research to fit the entire forest ground in ecosystem types and to develop technical standards for these forest types.

Experimental aspects concerning in vitro growing of the chilli pepper (*Capsicum annuum L.*)

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Abstract The study proposed to establish the existent interrelations and phytohormones influence and its concentration in the culture medium on plantlets growing of chilli pepper (*Capsicum annuum* L.). The plantlets of chilli pepper, local population Buteni were obtained in in vitro conditions through the culture of axillar shoots. It were added in the base culture medium (Murashige-Skoog) three classes of phytohormones (auxins, citokinins and gibereline) in five concentrations (0.1; 1.0; 1.5; 2.0; 2.5 mg·L^{-1}). Generally, the auxins and gibberellic acid, in combination with big concentrations significantly favored the plantlets growing. The biggest values of the characters were registered in combinations: NAA/2.5 mg·L^{-1}, IAA/2.5 mg·L^{-1}, GA3/2.5 mg·L^{-1}. The growing regulators influence, indifferently the concentrations had been applied in the culture medium, it regularly manifested, on the plantlets growing, as it followed (from the biggest to the smallest values): IAA, NAA, GA3, KIN, 2IP. Under exclusive influence of growing regulators, the plantlets height oscillated between 25.0 and 42.1 mm.

Key words

axillar shoots culture, chilli pepper, Capsicum annuum L.

Data concerning forestry habitats from Buila-Vânturariţa National Park

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Abstract This paper presents five forestry habitats from Buila-Vânturariţa National Park: **91E0*** Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae, Salicion albae*), **91V0** Dacian beech forests (*Symphyto-Fagion*), **9110** *Luzulo-Fagetum* beech forests, **9180*** *Tilio-Acerion* forests of slopes, screes and ravines and **9410** Acidophilous *Picea* forests of the montane to alpine levels (*Vaccinio-Piceetea*). These habitats were characterized by the following elements: distribution in territory, site characteristics, correspondence with plant associations, floristic composition, conservation status, potential threats.

Key words

forestry habitats, national park, Buila-Vânturariţa

Environmental control of the phytopathogenic agents protected tomato crops and seed production

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Abstract This paper is proposing a review of combating organic tomato phytopathogenic agents both in our country and abroad, combating performed by using plant extracts and is trying to compile all the information about the chemistry occurring plants (main activity, essential oils) and their successful use in organic farming. Organic farming aims to preserve unspoiled environment using organic fertilizers and minerals, avoiding products that can have harmful effects. Organic farming does not allow the use of synthetic herbicides and pesticides, and weed control agents phytopathogenic is realizing only with products that do not harm the environment.

Key words

organic farming, phytopathogenic agents, environmental control, bio-pesticides, plant extracts

Tree Mortality Processes in Natural Forests – short review

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Abstract Tree mortality processes are some of the most complex and hard to describe ecological processes within the forest ecosystem. This short review describes first the concepts of tree mortality and virgin forest, then it focusses on current approaches regarding the study of tree mortality. A few insights are shown of the classical forest dynamics models such as JABOWA, FORET 1, SILVA 1, SORTIE and their respective mortality sub-routines are shortly described; these models were developed both in Europe and the US, but there are examples from other regions also. A special attention is given to the dendrochronological approach on the tree mortality studies. The results from a mortality study conducted in the Romanian virgin (natural) forests is briefly described.

Key words

tree mortality, natural forests

Research on litter and humus amounts in a beech natural forest

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Abstract Natural forests preserve the structure and functioning of forest ecosystems as they evolved during millenia. This paper aims to present the amounts of litter and humus as they occur in the natural forests, knowing that these two elements are very important outputs of the ecological processes within the forest. The study was conducted in one of the largest Romanian reerves, Izvoarele Nerei, and the results of the study are presented on altitudinal levels.

Key words

litter, humus, natural forests

Research concerning the use of some seed and material preparation methods in the production of biological material in generative *Koelreuteria paniculata* LAXM

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Abstract *Koelreuteria paniculata* LAXM originates in China and Japan and it reaches 10 m in height. It prefers warm, sunny areas and it is resistant to drought but it is sensitive to frost while young. It vegetates well on fertile soils, fructifies frequently and abundantly.

Koelreuteria is increasingly used in green areas; this is why it needs seeding material in sufficient amounts and of high quality.

The author has made biometric measurements on the seedlings: crown diameter, stem height, root diameter, root number, and root length.

The trial aimed at producing generative seedlings using different methods of seed preparation, identifying the best variant of nutrient mixture and the best foliar fertiliser for the studied species.

Key words

Koelreuteria paniculata LAXM, seeds, germination, nutrient mixture, fertilisers.

Research concerning the effect of green works and operations on yield in the Burgund mare grape variety cultivated at the Didactic Station in Timisoara, Romania

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Abstract The history of cultivating grape in Romania ever since times immemorial made Romanian historian and writer Bogdan Petriceicu Haşdeu say, over a century ago that “The Romanians have never stopped being a grape cultivators and wine makers”.

The national viticultural heritage covers all the grapevine plantations in Romania (fructifying vineyards grafted and planted, direct producing hybrids, viticultural nurseries, lands being prepared for cultivation, winemaking centres, and wine cellars.

Unfortunately, the economic and financial difficulties have caused the short progress of viticulture right after 1990 to be stopped; therefore, at present, land areas cultivated with grape are declining.

Viticulture is an important source of raw material for the production of wines, wine distilled drinks, and for the food industry, that produces grape juices, concentrated grape must, grape jams, grape preserves, raisins, etc.

In this paper, we present how grape growth and fructification processes can be regulated through works and operations in green on plants during vegetation.

Research aimed at presenting the effect of these works and operations in green on yield in the grape variety Burgund mare, a wine grape variety that responds well to such works.

The variants with the best results compared to the control variant were V_{11}, in

Key words

operations in green, grapes, cutting young shoots, cutting secondary grape shoots, cutting stem tips

which we applied a complex of operations in green (weeding, cutting young grape shoots, cutting stem tips), followed by the variant V_{16} (weeding, cutting secondary shoots, cutting young grape shoots, cutting stem tips), and the variant V_{15} (weeding, cutting secondary shoots, cutting young grape shoots).

Analysis of genotype x environment interaction for yield in some maize hybrids

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Abstract The considerable variation in soil and climate has resulted in large variation in yield performance of maize hybrids annually, thus GE interaction is an important circumstance for plant breeders and agronomists. The large GE interaction variation usually impairs the accuracy of yield estimation and reduces the relationship between genotypic and phenotypic values. The requirement for stable genotypes that perform well over a wide range of environments becomes increasingly important as farmers need reliable production quantity. The AMMI model is considered to be a better model for analysis of G×E interaction. It not only gives estimate of total G×E interaction effect of each genotype but further partitions it into interaction effects due to individual environments. The objectives of this study therefore were to determine the relative magnitude of *G*xE interaction effects on maize grain yield for a set of 32 hybrids. The weather conditions from the experimental period had the highest contribution (44.87 %) over the yield variability, whereas the genotypes had a lower influence (23.09 %), and genotype x environment interaction contributed only with 10.56% to the total variation. The hybrids: PR36V74, PR36K67, PR36D79, DKC5276, DKC4490, PR36V52, registered an upper yield to the general mean, and are specifically adapted to the higher yielding environments, achieved higher yield in favorable climatic conditions for this crop. The hybrid DKC4685, DKC5143, DKC5276 with lower GSI value are considered the most desirable of both stability and high yield.

Key words

maize, grain yield, genotype x environment interaction, AMMI

Research concerning the behaviour of some late cabbage hybrids in field conditions at the Didactic and Research Station in Timisoara (Romania)

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Abstract White cabbage is cultivated for the heads, which are consumed as fresh salads, in different culinary dishes and also preserved (pickled, dehydrated or frozen).

The biological material used in our experiment was represented by 6 late cabbage hybrids. These are: Arrivist F_1, Daneza Dulce F_1, Uniqor F_1, Ixxion F_1, Green Flash F_1 and Tobia F_1.

Key words

late cabbage hybrids, field conditions, morphological characters, production.

The Impact of Soil Maintaining Systems upon Jonathan Variety Apples' Quality, in Conditions of Timişoara

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Abstract The importance of apple tree culture for worldwide fruit production is due to the high importance of its fruits' qualities, which have are indispensable in alimentation, in prevention and control of some diseases. The culture technology of apple trees is one of the determinant factors of good quality yields. In order to improve some of these, a study was developed in the Agrotechnique Department of Faculty of Horticulture and Forestry of Timisoara upon Jonathan apple variety cultivated in the orchard of the Fruit Culture Department. This article presents the impact of three soil maintenance systems upon fruits' quality, meaning weight, sugars and acidity content. For this, there were stablished four experimental variants: V1 – no herbicides, no hoes – control variant; V2 – mulching with mowed grass between the tree rows; V3 – mixed *Fabaceae* plants seeded between the tree rows + Roundup (3l/ha) on the tree row; V4 – 2 manual hoes + 2 mechanical hoes. The results show that, for Jonathan variety, the best results concerning fruits weight and sugars content were obtained in variants V3 and V2, and the smallest fruits were harvested from variants V1 and V4. On the opposite, the highest content of acidity was determined in variants V1 and V4. The sugars-acidity index is a parameter which shows whether there is a good balance between these two features, in all of the variants passing the value of 50, showing that the fruits are well balanced, of a good sweet-sour taste.

Key words

apple, Jonathan, soil maintaining systems, weight, sugars, acidity

The Impact of some Agrotechnical Works upon Two Apple Varieties' Quality cultivated in Conditions of the Didactic Station Timişoara

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Abstract Fruits' quality is an important goal in fruit culture researches, because, on one hand it is a genetically feature very influenced by the climatic conditions and mainly buy the culture technology. The improvement of culture technology consists in the following: choosing the right variety grafted on the proper rootstock, choosing the correct culture system in favourable culture areas and improving the technological links, such as: fertilization, irrigation, soil maintenance and controlling diseases and pests. A good orchard floor management is important as it eases the development of the other technological operations and at the same time, the more organic it is, the more qualitative and quantitative productions it gives. This article presents the impact of some soil maintenance systems upon two apple varieties cultivated in the Didactic Station Timisoara, under the same diseases and pests

Key words

apple, treatment, soil, weight, sugars-acidity index, sugars, acidity

controlling scheme: Generos and Pionier, concerning fruits' quality – weight, sugars and acidity content. The experiment is monofactorial, having four experimental variants: V1 – no herbicides, no hoes – control variant; V2 – mulching with mowed grass between the tree rows; V3 – mixed *Fabaceae* plants seeded between the tree rows + Roundup (3l/ha) on the tree row; V4 – 2 manual hoes + 2 mechanical hoes. The results show for both apple varieties the best results concerning fruits weight and sugars content in V3 and V2. The sugars-acidity index was also calculated, showing that, even though acidity had high values, there was still a good balance between the two parameters and the fruits had a better taste.

The Study of Six Tulip Cultivars for Establishing Their Landscaping Value

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Abstract The studie was focused on the behavior of six cultivars of tulips, in the climatic conditions of the city of Cluj-Napoca. The aim was to establish their landscape value for introducing in the floriculture range for arranging the green spaces.

Following investigations have established the periods when the characteristic phenophases have decorative features for the studied tulips. Also the mean values where set for the buds size, color, duration in days when the bud will maintain its color, looks and some floral stem values.

Following these determinations some conclusions were made and a recommendation was made to introduce the six cultivars in floricultural cultivation, they are valuable for spring landscaping.

Key words

tulips, tulip cultivar, Candela, Unicum, Mary Ann, Golden Apeldorn, Judith Leyster, Chameron rouge

Analysis of excised leaves water loss in winter barley

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Abstract The objective of the present study was to evaluate the ELWL for characterization of drought tolerance as an early stage screening criterion.The studied biological material consisted of four barley varieties with different genetic and ecologic origin, along with their 6 one-way crosses. The effects of parents and crosses were significant for leaf water loss, this indicated the presence of variability among hybrids and their parents, for this trait. The lowest values of heterosis for this character have been observed in Adi x Djerbel , DH 260-18 x Djerbel, which proves a high drought tolerance compared to parental forms, and can be considered for drought tolerance improvement in winter barley.

Key words

leaf water loss, drought tolerance, barley

Influence of water stress on the chlorophyll content in barley

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Abstract Drought is a major abiotic stress that severely affects food production worldwide. Agronomic and physiological traits associated with drought tolerance are suitable indicators for selection of drought tolerance genotypes to reduce the impact of water deficit on crop yield in a breeding program. Chl fluorescence technique is useful as a non-invasive tool in eco-physiological studies, and has extensively been used in assessing plant responses to environmental stress.
The purpose of that study was the applying of an indirect test method to drought tolerance, based on influence determination of hydric stress upon chlorophyll accumulation.
Determination of chlorophyll content was realized at 7, 14, 21 days from stress induction using the portable chlorophyll meter. Regarding the environment effect on chlorophyll content it could observe that in hydric stress conditions the chlorophyll content decreased (31.85SPAD).

Key words

water deficit, chlorophyll content, barley cultivars

Variation of some vegetation and crop indicators through guided nutrition in grapevine

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Abstract Nutrition level in grapevine has been studied through the prism of foliar area of the leaf opposed to the grape cluster (a leaf representative for foliar diagnosis tests) and of the woody mass in the stems because of annual growths. We have also assessed the crop from the perspective of the mean grape yield per plant, of the total production, and of the dry matter content of the must. Guiding nutrition in grapevine has been done through organic fertilisation (animal manure in doses of 30, 40, and 50 t/ha) and mineral fertilisation (NPK 50, 100 and 150 kg active substance/ha). The indicators taken into account have expressed, at different levels of significance, the nutrition level ensured through fertilisation. The foliar area had values between 128.80±14.83 and 172.24±15.60 cm^2 in the variants fertilised, compared to 117.01±7.66 cm^2 in the variant not fertilised (soil natural fertility). The level of development of the woody mass in the mature stems expressed as mean length and thickness of internodes recorded variations depending the fertilisation type. Yield level correlated positively with both foliar area (the leaf opposed to the cluster) and the level of development of the stems expressed as the mean length and thickness of the internodes on the mature stems from the previous year measurements made upon the fructification cuts in the current year spring. Yield data have a significantly positive correlation with the values expressing the degree of development of the fructification stems (r_{Am} = 0.905; r_{NPK} = 0.975). The foliar area of the test leaf is positively

Key words

grapevine, fertilisation, nutrition, foliar area, Burgundy, yield, grapes, dry matter

correlated with the mean yield per plant (r_{Pb-Am} = 0.837; r_{Pb-NPK} = 0.808) and with the dry matter in the must (r_{SU-Am} = 0.811; r_{SU-NPK} = 0.824). Total yield correlates positively, very significantly with the foliar area of the test leaf in organic fertilisation (r_{Am} = 0.903) and with lower significance in mineral fertilisation (r_{NPK} = 0.746).

Aspects concerning the variability of certain quantitative characters at the level of an assortment of mustard plants under experiment in conditions created at ARDS Lovrin

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Abstract The mustard is a cultivated plant, important for its seeds which have a high content of 28-30% oil, which, in its turn, makes first-hand raw material in numerous industries, especially in the pharmaceutical and cosmetic ones.

Research regarding the genetic variability and its components such as the heredity of main characters as well as the interactions genotype x environment is relatively scarce.

On the other hand, there is definitely need for studies, taking into consideration the more numerous demands for the obtaining of plants in large and constant productions which could be resistant to biotic and abiotic unfavourable factors simultaneously.

Key words

Variance analysis, types of plants, amplitude of variation

In vitro regeneration of *Crocus sativus* L.

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Abstract For *in vitro* regeneration of saffron, the effects of 2,4-D (2,4-dichlorophenoxyacetic acid) and BAP (6-benzylaminopurine) were tested initially. It was observed that 1 mg/L 2,4-D and 1 mg/L BAP combination was favorable for direct organogenesis and 0,25 mg/L 2,4-D and 1 mg/L BAP combination was superior for indirect organogenesis. Frequency regeneration by in vitro indirect organogenesis was very low. Callus induction rate was 5%. Not all fragments produced embryogenic callus, moreover, many embryos failed to develop. The best results were obtained by direct organogenesis. All tested individuals had regeneration ability. The number of regenerants per explant varied between 0 and 7.

Key words

saffron; *in vitro* micropropagation; direct organogenesis; indirect organogenesis

Experimental results concerning plantlets vitrification in *Dianthus caryophyllus*

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Abstract This study was conducted to evaluate the effect of plant growth regulators on in vitro vitrification of carnation cultivar. Axillary buds were cultured on MS medium added with different levels of growth regulators and vitrification rate were tested. Given the unilateral effects of hormones is observed that there are statistically assured differences between them regarding plantlets vitrification. Thus, the highest values were recorded when applying in the culture medium of cytokinins: KIN and BAP while auxins led to a reduction the vitrification process.

Key words

carnation, *in vitro* micropropagation, vitrification

The Impact of Chemical Thinning with Ethrel upon the Productivity of Two Peach Varieties Cultivated in Periam, Timis County

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Abstract The peach tree is a precocious species, having flower buds even from the tree nursery. Planted in autumn, this species has vigorous growth and it gives fruits even from the second year from planting, and starting with the third year it can give economical yields of a very good quality. The experiment was placed at Periam, a locality near Timisoara, very well known for the old peach orchards that used to be there. The biological material consists in 2 peach varieties: Spring Lady and Maja, chemical thinning was done by sprayings with Ethrel (ethephon 39.5%) for both varieties, using four concentrations: 125 ppm, 250 ppm, 350 ppm and 500 ppm. The average productions in all three years were higher in the control variant for Spring Lady variant, due to the large number of fruits remained on the trees and in variant 1 for Maja variety in the last two years of experiment, while the smallest productions were obtained in variant 4 (500 ppm ethephon) due to the fact that a high concentration of ethephon reduces to, sometimes, more than half the number of fruits left on the trees, even though their weight is larger. Among the varieties, Maja had larger productions and more constant from one year to another, ranging from 11.02 kg to 20.81 kg during the three climatic years, while Spring Lady variety did not pass 15.00 kg in 2006 and 2007, but it has doubled the production in 2008, having over 25.50 kg.

Key words

peach, chemical thinning, ethephon, concentrations, production

The Impact of Chemical Thinning with Ethrel upon the Productivity of Two Nectarine Varieties in Conditions of the Western Part of Romania

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Abstract The nectarine tree has a series of technological advantages like: it is very precocious and productive; it has no fruiting alternation; behaves well when it is fertilized and irrigated; it is not as sensible to late frosts as the apricot tree; the fruits are easily transported and manipulated; it has a very good and modern culture technology. The experiment was placed in a private orchard from Periam, Timis County, very well known for the tradition of peach and nectarine culture. The biological material consists in 2 nectarine varieties: Nectaross and Caldesi 2000, which were sprayed with Ethrel (ethephon 39.5%) for fruit thinning, using four concentrations: 125 ppm, 250 ppm, 350 ppm and 500 ppm. The moment and the used dose of chemical substances used for thinning are very important in peach culture. For these two nectarine varieties, the concentration of Ethrel used for thinning influenced differently the productions. By comparing the two varieties, they were almost the same, except the fact that Nectaross was more severely affected by Ethrel substance when thinning. The results show that productions increase in those variants where light thinning was done compared to those where the number of fruits is reduced to 50-70%.

Key words

nectarine, thinning, ethephon, concentrations, production

Specific management measures for the forest habitat 9180*

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Abstract The concept of multi-functional forest is well known in Europe. This concept integrates all of the important benefits (economic and environment-related) wich forests can offer to the human society. Continuing the economic activities within a sustainable forest management could be also part of the nature conservation strategy for the forest ecosystems from the regions where the use of the forest resources constitutes a historical tradition [3]. The 9180* habitat is located in the alpine and continental regions. On the habitats in these regions can act a number of factors that can affect their conservation status, making necessary the establisment of management measures that counter the negative effect of different threats.

Key words

the 9180* habitat, management, Natura 2000

Specific management measures for the forest habitats 9410 and 9420

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Abstract The major objective of the pan-european Natura 2000 network is to establish a *„favorable conservation status"* for the habitats and species of Community interest. In this respect, the Habitats Directive only indicates the intended objective, without recommending specific conservation/management measures of species and habitats of Community interest within the sites. In Romania, the following biogeographical regions are present: Alpine, Continental, Pannonic, Steppic and Pontic. The 9410 nad 9420 forest habitats are locate din the alpine region. The biodiversity of the alpine region is very high. Almost two thirds of the plants from the European continent are present in this region [3]. On the habitats from this region they might act a series of factors which can affect their conservation status, being necessary to establish management measures to counterfight the negative effect of various threats.

Key words

the 9410 habitat, the 9420 habitat, management, Natura 2000

Fungal infection evaluation for different ecological products

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Abstract In the last period there are controversial opinions regarding the fungal infection in the ecological crops grown without synthetic fertilizers and pesticides. The aim of this work was to identify the presence of fungal infection in different ecological and conventional food products based on PCR methods. These methods were previously used in the screening processes for identification of contamination with pathogenic fungi. 6 ecological food products and three conventional ones were subjected to PCR screening in order to detect the presence of two Fusarium species. The *Fusarium culmorum* was not detected in the analyzed samples. *Fusarium graminearum* was detected in both, ecological and conventional food products, mainly in the unprocessed ones.

Key words

ecological products, contamination, *Fusarium* ssp., detection, PCR

The assessment of the variability induced by tissue culture to *Cymbidium sp.*using RAPD markers

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Abstract In this paper the Cymbidium sp. was studied, one of the most popular winter and spring blooming orchids, belonging to the Orchidaceae. The in vitro cultures were induced and the regenerants were analyzed based on Random amplified polymorphic DNA markers, to evaluate their variability. Studies on somaclonal variation are important for its control and possible suppression when the aim is to produce identical plants or it can be use as a tool to produce genetic variability. The average number of fragments per primer was 8.75. The average diversity generated by all of 8 studied markers had the value of 0.3 Thus, the obtained molecular fingerprints pointed out a high variability induced by tissue culture which can be used for genetic improvement.

Key words

molecular markers, variability, in vitro culture, *Cymbidium*

Estimation of gene actions and genetic parameters for ear yield in maize

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Abstract Since the genetic constitution of each maize plant or line in a population is unknown, the genetic effects of each locus cannot be estimated separately. The breeding procedure to be applied should be based on a good understanding of the inheritance of quantitative traits estimated by diallel cross analysis. The ratio of dominance or epistatic variance to the additive variance indicates the level of difficulty that may be encountered in improving a trait by selection in random-mated populations. The objectives of this research were to determine the type of gene action and genetic parameters for ear yield in a half diallel cross involving six inbred lines of maize.The non-additive types of gene action are mainly involved in the inheritance of this character, while the additive gene have a lower contribution. At T248, T291 and Tc209 lines, this trait is mainly controlled by additive effects, while at Tc 208, Tc 344 and K1080 lines, non-allelic gene interaction may act in the expression of this trait. The dominant alleles controlling this trait have a higher frequency than the recessive ones. The positive and negative alleles were unequally distributed at the loci exhibiting dominance in the parental lines. A significant part of this trait variability is due to the genotype, amid a low contribution of the additive effects on the phenotypic manifestation of ear yield.

Key words

maize, ear yield, gene actions, genetic parameters

Study of inheritance for ear length in maize using diallel analysis

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Abstract The primary objective of any systematic and successful breeding program is the evolution of high yielding and stable cultivars which requires a thorough knowledge of the genetic mechanism governing yield and yield components. For such studies diallel analysis is a useful biometrical approach to understand the nature of gene action. By understanding these components of variance a plant breeder can identify the parents which combine well and produce productive progenies and moreover suitable breeding strategies can be drawn up on the basis of expected performance of the progenies. The present investigation was undertaken to understand the involving gene action and type of inheritance, using genetic components of variance and Wr/Vr graphs, for ear length in maize, by using diallel analysis. The dominance variance have had the largest contribution to the variability of ear length, while the additive variance shows a considerably lower value. Also, it is noted a dominance of the parents with higher ear length. Genes with additive effect act mainly in the determinism of ear length at the lines T248, Tc 344 şi T291, while at the line Tc 208 the manifestation of this character is influenced by non-allelic gene interactions. The line Tc209 has the highest proportion (59.20 %) of dominant alleles involved in the determinism of ear length, followed by T291 (54.60 %) and T248 (52.30 %) lines. The recessive alleles have a high contribution in the determinism of this character to the lines Tc208 (89.90 %) and K108 (57.50 %).

Key words

maize, ear length, gene action

Studies regarding correlations between the main morphological traits in a collection of bell pepper (*Capsicum annuum* var, *grossum*) local landraces

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Abstract The main goal of the study was to detect links between the main traits involved in overcoming the bell pepper production capacity. Local landraces are sources of original material for creating aparental forms. The collected biological material was represented by local landraces of bell pepper, *Capsicum annuum* var. *grossum*, collected from western Romania. Production of fruit per plant is influenced by their number and length. Fruit diameter and number of fruit lodges have no influence on fruit weight/plant. Approximately 52% of the variability in fruit weight is due to the other four traits. Weight of fruit per plant was influenced by number of fruits and fruit weight (P = 0.571). The fruit weight is achieved first by its length followed by its diameter.

Key words

bell pepper, correlations, production traits, local landraces

Studies regarding the behavior of some winter barley genotypes to *Ustilago nuda* f.sp.*hordei* attack

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Abstract The main goal of the study was to test some winter barley double haploid lines alongside with known Romanian varieties. In Romania, loose smut attack (*Ustilago nuda* f.sp.*hordei*) is permanently reported in all regions. The study was conducted on a biological material consisting of 5 Romanian varieties and 8 double haploid lines under conditions of natural infection. Attack of *Ustilago nuda* f.sp.*hordei* was present in all genotypes; a strong attack was reported in 2011. The lowest percentage of attack was presented in DH 7-2 line. Precoce variety is the most sensitive. Double haploid lines are superior to varieties on tolerance to loose smut attack.

Key words

winter barley, double haploid lines, *Ustilago nuda* f.sp.*hordei* attack

Dynamics of Weeding of Winter Wheat and Grain Maize in Western Caras-Severin County, Romania

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Abstract Weed mapping in 2012 in Western Caras-Severin County, Romania, provides a general mage of the segetal flora on winter wheat and grain maize (floristic inventory, percentage share of the different biological categories). The most important weed species weeding winter wheat are dicot species such as *Veronica hederifolia*, *Viola arvensis*, *Stellaria media*, *Polygonum convolvulus* and *Convolvulus arvensis.* The weed species *Veronica hederifolia* has become common in winter wheat with a share of 16.12% in the Berzovia area and 17.46% in the Gradinari area. The weed group most frequent in grain maize is that of dicots such as *Amaranthus retroflexus*, *Chenopodium album* and *Polygonum lapathyfolium.* There was massive infestation by annual monocots. Thus, *Echinochloa crus-galli* has a weeding share of 10.74% in Berzovia and a higher share in Gradinari, i.e. 11.95%. The weeding mean was 122 plants/m^2 in winter wheat and 154 plants/m^2 in grain maize.

Key words

winter wheat, grain maize, segetal flora, weeding degree

Analysis of gene effects for grains traits in winter barley

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Abstract The study of gene effects involved in the inheritance of different yield traits is one of the essential factors for the success of breeding programs. As the most important traits are inherited in a quantitative manner, therefore the results of different crosses are valuable for the improvement of the traits inside and among populations, as well as the production of cultivars. The number of grains per spike is referred to as the direct component of yield dependent on the spike density and length as well as on the number of grains rows per spike. Barley can be selected more strictly in the earlier generations on a higher number of grains per spike and a longer spike for ensuring a higher mass of 1000 grains as well as the mass of grains per spike in the next level of selection. The present work has been carried out to study the genetic control manner of grains number/spike and 1000 grains weight among 15 F_1 hybrids of six winter barley varieties, with different genetic and ecological origin.

Generally the overdominance effects have been found for the combinations where the parental forms do not differ in terms of the grains number/spike, while at the combinations where there are larger differences between parental forms, the inheritance of this trait is controlled by partial dominance effects. The inheritance of TGW for most combinations (87 %) is controlled by overdominance effects, associated with an increase in this trait. In case of GK Judy x Andra the inheritance of this trait is controlled by partial dominance effects. At Andra x Gunda combination the dominance effects have a very weak influence in the inheritance of this trait.

Key words

winter barley, gene effects, grains traits

Analysis of the breeding potential for harvest index in winter barley hybrids

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Abstract Substantial achievements of breeding for improved grain yield in cereals have been demonstrated to result from marked alterations in plant stand structure, especially increased proportion of grain in the vegetative above ground biomass. As harvest index is prone to environmentally induced variation, high harvest index is recorded if pre-anthesis vegetative growth occurs in unfavorable conditions, but then grain filling is favored by good weather, resulting in harvest index grain weight. Low harvest index results when growing conditions and crop management are favorable prior to anthesis and therefore enhance vegetative growth and florets set, but are not favorable during grain-fill when there is terminal drought or severe pathogen infections.

The present studies were under taken to estimate the performance and

Key words

winter barley, breeding potential, harvest index

breeding potential for harvest index among 15 F_1 hybrids of six winter barley varieties, with different genetic and ecological origin. With regard to heterobeltiosis at the combinations: Malwinta x GK Judy, GK Judy x Andra, GK Metal x Victoria and Andra x Gunda, a significantly higher harvest index against the best parent was found. The nature of inheritance for this trait was over dominance for most hybrid combinations with direction towards increasing the harvest index, except for hybrids: Malwinta x Andra şi Malwinta x Gunda, where the overdominance leads to a reduction of this trait. The combinations Andra x Gunda and GK Judy x Andra have the greatest potential for improving harvest index, which allows the selection of 29-31% recombinant lines with the value of harvest index over 60%.

Aspects regarding the management of forest from Timiș County that are hosting threatened, endangered or endemic species, and are not included in protected areas

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Abstract In a responsible forest management context, the establishment of special management measures for forests hosting rare, threatened and endemic species represents an essential objective. These management measures must complete the generic forest measures that were established through the forest management plans and norms, adapting them to the specificities of the biodiversity elements.
Management plans focused on these environmental values were developed for some of the forest areas, with high biodiversity, being part of different protected area categories that were established with the aim of preserving them. However the forest management must be applied in a responsible way for the biodiversity values that are present outside the protected areas, values that if preserved could offer the recognition of a quality management as well as marketing advantages in the forest certification context.
This paper presents a series of aspects concerning the practical way of establishing special management measures for the forests that are hosting biodiversity elements, giving as example the Timiș County Forest Directorate.
Through the methodology of threats and values assessment, promoted by IUCN in the protected areas management, it was followed the adoption of proactive management measures, very specific and integrated, which must answer both to forest production and biodiversity needs.
The modern forest management must prove, apart from economic efficiency, a responsibility towards valuable species and habitats, adopting special management measures such as active management conservation, dead wood and trees for biodiversity management.

Key words

Responsible forest management, biodiversity, assessment of pressures and threats, management measures, conservation, forest planning, threatened endangered and endemic species

A practical method to develop management measures for the High Conservation Value Forests. Case study: Timiș Forest Directorate

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Abstract Forest certification represents a market which ensures the appropriate framework for the implementation of special measures for a responsible management of ecological, social and economic values. In the framework of the *forest certification* policy, the concept of *high conservation value forests* (HCVF) was developed.
The high conservation value forests are considered those forests having a special importance from the perspective of environmental protection, biodiversity conservation and cultural-religious values (25). Their complexity determines sensitive problems in establishing the appropriate measures for their management. The paper presents an example of establishing management measures for the high conservation value forests in the Timiș County, based on the analysis of values and threats – a method that is promoted by the IUCN and often used in the field of protected area management.
The management measures were established by taking into account the need of valuing the wood, forest habitat management through an active management and, especially the need to maintain or increase their conservation value. In this context, the need for a complete palette of management measures, ranging from the total restriction for economic activities (Ex: HCVF 1.2 Macedonia Forest), the partial restriction for the measures provisioned in the forest fund areas (Ex: HCVF 6, in which "the forest harvesting will be done only out of the periods corresponding to local cultural events", to the execution of all interventions provided in the forest management plan (e.g. HCVF 4.2) becomes obvious.

Key words

responsible forest management, forest certification, biodiversity, assessment of pressures and threats, management measures, conservation, forest planning, protected areas

Studies concerning the influence of genotype and planting density on some morphological characters in an assortment of paprika pepper cultivars grown in solarium type

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Abstract Most researchers consider the origin of the common pepper as Central America. There are about 50 species of perennial pepper, grown in tropical America.
After the discovery of America, pepper was brought to Europe (1493) and spread to the southern (Italy, France) in the XVI -th century and in the Balkan Peninsula in the XVII -th century. In Romania has grown from XIX -th century. The first crops of paprika pepeprs were established in Timişoara region

Key words

pepper, morphological characters, solarium type

(Cenadul Mare, Tomantic, Lovrin), around the year 1923.

The experiment developed at the Didactic and Research Base of the Faculty of Horticulture and Forestry, from B.U.A.S.V.M. Timisoara, in a solarium of 400 mp, constructed and equipped with automatic control systems of the microclimate factors.

The biological material used in the trials was represented by 5 cultivars: Délibáb F_1, Sláger F_1, Bolero F_1, SJN 5 and SJD 5**.** Experimentation had polifactorial character, the variants were set up after randomized block method, with three repetitions specific to experiences set up in protected spaces for vegetable growing.

It was noted that fruit length varied between 16,78 cm (Bolero F_1) and 18.40 cm (SJD 5) and under the aspect of fruit diameter this morphological character ranged from 20.23 mm at hybrid Délibáb F_1 to 26.45 mm at Bolero F_1. Also, genotypes Bolero F_1, and SJN 5 registered a significantly higher pulp weight, compared to other cultivars taken in experimentation.

Studies regarding the evaluation of the interaction between genotype x technological factors in the case of some morphological and production characters at paprika pepper cultivated in solarium type

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Abstract History of pepper culture begins 3000-4000 years ago, in Peru, in the ancient Inca Empire, where there was a civilization that practiced a thriving agriculture. Most researchers consider the origin of the common pepper as Central America. There are about 50 species of perennial pepper, grown in tropical America.

In Romania, paprika bell/ chilli pepper was introduced in the XIX-th century by Bulgarian vegetable growers.

Its fruits are consumed to technical or physiological maturity, depending on variety. From the fruits of the pepper varieties created for the production of paprika, paprika is obtained, a popular spice used in a wide range of dishes.

The experiment developed during the year 2011, at the Didactic and Research Base of the Faculty of Horticulture and Forestry, from B.U.A.S.V.M. Timisoara, in a solarium of 400 mp, constructed and equipped with automatic control systems of the microclimate factors.

The biological material used in the trials was represented by 5 cultivars: Délibáb F_1, Sláger F_1, Bolero F_1, SJN 5 and SJD 5**.** Experimentation had polifactorial character, the variants were set up after randomized block method, with three repetitions, specific to experiences set up in protected spaces for vegetable growing.

It was noted that genotypes Bolero F_1 and SJN 5 registered a mean pulp thickness significantly higher compared to the other cultivars. Also, pulp weight ranged between 17.95 g for hybrid Slàger and 25.58 g at hybrid Bolero.

Key words

pepper, pulp thickness, pulp weight, solarium type

Phenotypic diversity evaluation of bean traits, belonging to some common bean landraces from Caras-Severin

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Abstract Landraces are still cultivated in regions of crop domestication and diversity. Understanding the diversity of common bean landraces will facilitate their use in genetic improvement. Ex situ conservation of genetic resources has contributed to the improvement of several food crops through utilization of preserved germoplasm. Traits such as seed colour, shape, size and seeds weigth, are important for breeding programs and for the consumers of common bean seeds. Bean seed weight and shape are important traits of different market ban classes. In the work reported here, thirthy common bean landraces were collected in August 2009 from four vilages of Caraş-Severin county. The seed traits analyzed were the 100-seed weight, seed shape, diameter, length, width,and the seeds colour.

Key words

common bean, diversity, landraces, evaluation

Research on the temperatures, in 2010-2012, in the Municipality of Timişoara and their effect crop protection forest curtain "Technology park alternative energy and photovoltaic park" from Covaci, Timiş County

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Abstract Air temperature and precipitation are key elements influencing the onset of drought phenomenon which in turn causes disasters crops and forestry. To determine the causes of dry mass crop forest protection installed curtain "Technology park and Alternative Energy photovoltaic park" in Covaci to analyze developments in the last three years of air temperature as a determining factor for the occurrence of droughts.

Key words

temperature, forest, seedlings, dry, dry

Research on the evolution of the precipitations in period 2010-2012 in the Municipality of Timişoara and their effect crop protection forest curtain "Technology park alternative energy and photovoltaic park" from Covaci, Timiş County

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Abstract The time at which precipitation falls and their quantity are important elements of analysis to study the influence of rainfall on the occurrence of droughts which in turn leads to calamity crops and forestry. To determine the causes of dry mass forest crop protection installed curtain „Technology Park for alternative energy Photovoltaic Park" in Covaci, to analyze the evolution of rainfall over the past three years as a determining factor for the occurrence of droughts.

Key words

precipitation, seedlings, forest culture, forest vegetation, drying, drought

Contributions to the achievement network Siria – Ghioroc – Bârsa using modern technology

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Abstract The aim of this paper is to support the achievement of network points and determining its points position by GPS measurements in Stereo coordinate system 70, Black Sea System altitudes. The total surface area covered by new geodetic network created is: 13656 ha on ATU (administrative territorial units) Şiria; 4861 ha on ATU Ghioroc and 5077 ha on ATU Bârsa. Twenty-five sessions of GPS measurements were performed, during 3 days. To determine the coordinates of the new points, the following points of geodetic network state were used: Arad, Beiuş, Făget, Gurahonţ permanent stations, and as points of B class: AR 01 Lipova, AR 05 Ineu, AR 06 Sebiş and points of first order Curtici. Fifty-two new points were determined: 21 new points on ATU Şiria; 13 new points on ATU Ghioroc and 18 new points on ATU Bârsa.

Key words

network support, GPS measurements, state geodetic network

Using the modern technology for land records in Ghioroc, Arad County

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Abstract This paper aim was to study the use modern technologies for updating cadastral plans of the municipality Ghioroc, Arad County, to have a clear record of each parcel of land for its effective use. From surveying made on 05.03.2012, it was found that commune Ghioroc land has an area of 3909 hectares of which: 2641 hectares of arable land; 687 ha of pastures; 39 ha grassland; 536 ha vineyards and 6 ha orchards. Non-agricultural lands have an area of 506 ha of which: 325 ha forestry land; 124 ha of water and reeds; 233 ha communication routes and railways; 150 ha of land with buildings and courtyards; 149 ha unproductive land. Number of positions in the land register at the beginning of 2013 was 2039 of which: Ghioroc 594; Cuvin 550; Miniş 274.

Key words

land registry, agricultural land, non-agricultural land, agricultural register

Galls most used for tanning in Romania - *Andricus hungaricus* and *Andricus quercuscalicis*: tannin level comparison

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Abstract Galls of Andricus hungaricus and Andricus quercuscalicis were the most used in Romanian tanerries. Austrian-Hungarian Empire, at the end of XIXth century, exported these galls and the forestry industry substantially profited financially. Because of the high level of tannin, compared with other natural plant or product components, galls were used to tan the thickest oxen hide parts utilized for shoe making. It was generally known that such methods were used no later than the middle XXth century. However, it was later discovered that gall tanneries used galls up the the year 2000 in the Pancota area of Arad County, Romania. Previously, people from Ineu region collected forest galls and brought them to Pancota's open market for sale. Tanners bought galls at the same price as acorn and then used their attics to dry them. Subsequently, they milled and boiled the galls together with leather. People, it was discovered, brought to market galls of Andricus quercuscalicis. Also, as mentioned in literature, galls of Andricus hungaricus were used in tannery. The question is, if the people sold only galls of Andricus quercuscalicis because these were the only galls found, or that only these galls were useful for tanneries. Research focused on analyzing the level of tannin in both gall types and concluded by identifying which one is preferred for tanning.

Key words

gall, tanning, Andricus hungaricus, Andricus quercuscalicis

Phenotypic variability of pod traits in dry bean genotypes from Romania

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Abstract Succes in any breeding program depend on the identification and isolation of superior genotypes, based on the amount of phenotypic variability from the studied material. Therefore, the information about the phenotypic variability of different pod traits is very useful for breeding strategies. The objectives of this research were to evaluate the performance of different Romanian dry bean genotypes, acoording some pod traits, for use in breeding programs. Phenotypic similarities among genotypes in terms of these traits were also determined.
The most valuable bean genotypes in terms of pod traits are the lines F 835/95 and F 962/97 which show high values for all of the four traits. In case of F 822/95, F 1247/92, F 835/95 lines and Ami variety high values of pods weight and grain number/pod are associated with a medium pod length and an average number of grains/pod. At Star, Diva F1235/91 and F504/96 long pods were recorded, with a higher number of grains / pod, associated with an average weight of them. Avans variety along with the lines F 831/95 and F957/96 shows small pods with a small number of grains correlated with a medium weight of them. Crossing the phenotypically differentiated genotypes like: Ardeleana – F 835/95; Ardeleana – F 962/97; F 835/95 – F 831/95; Vera - F 835/95; F 962/97 - F 831/95, allows obtaining hybrids that possess useful gene combinations and show high levels of heterosis for different pod traits important for achieving yield.

Key words

dry bean, phenotypic variability, pod traits

Biochemical variability in several tomato varieties fruits

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Abstract Tomatoes (Lycopersicum esculentum) are the most popular garden vegetable crop in world. Tomatoes have been reported to be an important source of antioxidants such as lycopene, phenolics, and vitamin C in human diet [1], and have been linked with decreases risk of prostate and various other forms of cancer, heart diseases [12]. In the present study, 3 types of tomato fruits from local areas were analyzed for total antioxidant capacity and polyphenols content. Total antioxidant capacity was analyzed using CUPRAC method and total polyphenols content by Folin Ciocalteu method.

Key words

antioxidant capacities, CUPRAC method, total polyphenols, tomato

The confirmation of the natural forest type in stands from Podu Iloaiei Forest District (Iaşi County Forest Administration) a source of positive externalities for neighboring rural communities

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Abstract One of the principles of management planning is centered on the ideea that a certain type of structure is closely correlated to a stand's ability to fulfill a given function. When asked to fulfill simultaneously a number of functions, as a result of diversified demand regarding forest products and services, foresters must answer to society's needs using a sustainable management approach. Since the first studies on the structure of the natural forest, as early as the 18th century, scholars came to the conclusion that the diversity and structural complexity of natural stands is what confers their multifunctional character. The present paper analyzes the stand structure of two natural reserves "Ghiorghițoaia" and "Frumușica" in comparison to what was already determined as being a typical natural stand, "Humosu" Old Growth Forest, all these forests being part of the area managed by the Iasi County Forest Administration. The comparison uses common characteristics found in all natural forests, no matter the mix of species, the aim being the reflection of the forest potential in the area, a source of positive externalities for the community and a basis for future forest management.

Key words

stand structure, natural forests, sustainable development, communities