

## Influence of the fertilization on the maintaining of the quality of croton plants (*Codiaeum*) cultivated in pots

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**Abstract** Researches presented in this paper aimed the identification and quantification of the influence of the different nitrogen and potassium concentrations in fertilizing solution, at the producer, on the maintaining of the quality of *Codiaeum* (croton) plants, to beneficiary. Initially it was followed the effect of nitrogen, in different quantities (50 mg N/l, 100 mg N/l, 200 mg N/l and 300 mg N/l), on the falling of the leaves and roots damage. It was found that the optimum level of nutrition with nitrogen, in relation with the quality maintaining of the plants after valorization, for 30 days, is of 100 mg N/l (37.7% prematurely fallen leaves, compared with 48.1% and 62.2%, at doses of 200 mg N/l and 300 mg N/l respectively). Subsequently, to clarify whether the obtained results on maintaining of the quality of croton plants in indoor conditions are caused by increased salts content in the substrate of the culture or by the specific effects of nitrogen, was conducted an experience in which the nutrient solution had in composition different nitrogen doses in combination with different doses of potassium. There were made three combinations of solutions: N 150/K 150, N 300/K 150 and N 150/K 300 mg/l. It was observed that the excess of nitrogen strongly affects the duration of the quality maintaining of the plants, comparative with the excess of potassium (85.6%, beside 50.0% fallen leaves), optimum dose of nitrogen fertilization being more lesser than the optimum dose of potassium fertilization.

### Key words

nitrogen, potassium, falling leaves, root damage

## The production commodity quality indicator of table grapes obtained to INCDBH Ștefănești-Arges

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**Abstract** A quality indicator is the table grape and grape appreciation based on the size, grain size and uniformity, color them, especially from black grapes, absence or presence of fungal diseases and pest attack. The varieties studied in this paper (2012-2014) cultivated in the vineyard Ștefănești: Argessis, Golden Ștefănești the witness of Muscat Adda and Canner, Perlette to witness the variety Augusta. Following the determinations made was a significant difference in terms of quality, both between species and between experimental variants of the same variety. Early and medium varieties showed a high percentage of commodity production, due to a more uniform ripening of the grapes and berries. In late maturing varieties and variations without standardizing the blossom percentage of freight was significantly diminished production of incomplete maturation of grains from the

### Key words

commodity production, quality table grapes, standardization of production

top of the bunch. Also, a significant share of the harvest has met the quality criteria because traces of fungal disease attack more common variants with payloads from 20 Eye / m<sup>2</sup>.

## Applying green special operations and increase production of table grapes in the vineyard Stefanesti-Arges

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**Abstract** Table grapes are fruits that "eyes are consumed first," therefore, if these varieties is very important commercial aspect of grapes, which has a decisive influence on consumer decisions. Where wine grape varieties, is less important commercial aspect, the basic chemical composition of grapes. To achieve quality and beautiful grape must cultivate varieties suitable to practice efficient technology culture in which work and green jobs have a very important role. Green works and operations comprise a complex of phyto running of the bulls during the growing vines. They complement fruition cuts for settling the processes of growth and fruiting. The work is done in green operations and ventilation and adequate lighting bodies hub, reducing disease and improving the quality started production.

### Key words

table grapes, vineyard, green operations, commercial aspects

## Assessment of fruiting precocity of some cherry varieties according to the fruit production in the first year of fructification

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**Abstract** Cherries are the first fresh fruit of the year and by high content of vitamins, minerals, easily assimilated sugars, attractive aspect and pleasant refreshing taste, they are the subject of one of the most efficient commercial activities that take place from the second half of the month May to late July, without the competition from other tree species. Precocity of fruiting is a feature of variety, fructification of cherry trees taking place starting with 4-6 years after planting. The study of the behavior in the first 4 years in orchard of 33 cherry varieties, grown in the seaside area, demonstrates a strong variability in age of entry on their fruiting. Although the data is indicative in this early stage of the fructification, given the earliness, production and the main quality features, is considered that deserve attention for the future of the culture of cherry tree in Dobrogea, the varieties: NY 9295, NY 13272, Cerna, Kristin, Ponoare and Catalina. It was noted, by the amount of fruit reached maturation, variety Van, with 2059.2 g/tree in the first year of bearing fruit (the fourth year of planting). May be mention as valuable the varieties with fruits weighting over 7.0 g (Kristin, New Star, H 15/25, NY 13272, Summit, Severin,

### Key words

number of fruits, average weight, stone percent, dry matter

NY 9295 and Lambert) and the varieties with the percentage of the kernel less than 5% by weight of the fruit (Colina , Ponoare, Symbol). Being the first year of fructification, from economical point of view this production can not be taken into consideration. It only indicates the fructification precocity and the quality of the studied varieties.

## **Comparative analysis of different DNA isolation methods for *Trichoderma* spp. Strains used as biocontrol agents**

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**Abstract** *Trichoderma* spp. is a widely spread filamentous fungi, common used in biological control of plant pathogens due to its ability to grow over other fungal mycelia and fruiting bodies as hyperparasite. Due to its mycoparasitic capability and ability to colonize vegetal debris, several commercial bioproducts were developed or approved to be used in worldwide.

Six biocontrol strains of *Trichoderma* spp.: Td49, Td50, Td85, al12, M14 and M<sub>2</sub>14, previously selected for their ability to hyperparasite various phytopathogenic fungi and suppress plant diseases, were used in this study.

Fungal DNA isolation and purification is the first step in molecular characterization and identification of filamentous fungi. At present there are a wide range of commercial kits, reagents or classical molecular protocols available. We compared four DNA extraction methods and their characteristics regarding the yield and purity of the nucleic acids, time consumed, and the expenses involved. In our study we used two classical extraction protocols, one currently used in USAMV Bucharest, the other developed by Stirling (2003), the Chelex X 100 resin (Bio-Rad) protocol and the commercial kit "Animal and Fungi DNA Preparation kit" (Jena Bioscience). Our results showed high yield of DNA when using all extraction methods, however, the best purity was achieved when using Stirling (2003) classical purification protocol.

### **Key words**

*Trichoderma* spp., DNA purification, biocontrol

## ***Cydalima perspectalis* Walk. (Lepidoptera: Crambidae), a dangerous pest of *Buxus sempervirens* in Timis County, Romania**

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**Abstract** *Cydalima perspectalis* Walk. (Lepidoptera: Crambidae) is, in present, a dangerous pest on species of *Buxus sempervirens* in Europe to. The importance of this pest result from his spread on almost entire continent, spread realized in less than one decade, and from damages which can produce it on host plants, damages which can contributes to drying of defoliated individuals. In Romania this pest is present to, in special in Timis County, where has been observed in 90% of localities targeted by our research, and where seems to found good climatic condition to multiplying. In

### **Key words**

*Cydalima perspectalis*, damage level, *Buxus sempervirens*, Timis County, Romania

all 10 localities, both in urban and rural area of county, defoliation oscillated from 0 to 100%, damage levels being very different even in the same locality. Thus, it was determined that 19.35% from analyzed box tree individuals were not damaged, 50.00% from individuals had a weak damage level, 8.06% had middle damage level, 6.45% had strong damage level and 16.14% very strong damage level. In general has been observed that the damage level of box tree individuals was weak to middle. If on effects of defoliation produced by *C. perspectalis* overlap the effect of dry summers, with very high temperatures, like that from summer of 2015, the risk that individuals of box tree to dry is more accentuated.

## Researches upon the physico-chemical features of some wine vine varieties, cultivated at 'Dealu Mare' Vineyard

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**Abstract** Researches developed during 2014, at 'Dealu Mare' vineyard, 'Urtași-Ceptura' wine center. Observations were made upon three quality white wine varieties: Chardonnay, Sauvignon blanc and 'Fetească albă', being studied the steps and parameters in white wine-making process for obtaining high quality wines. The white wines obtained at 'Dealu Mare' vineyard are distinguished by their extraction, balanced structure and good acidity, all these being correlated to the south-eastern position of the hills and the culture technology, which maintain moderate productions. Each variety has its own varietal features that give a specific quality level and produce a specific type of wine. The grapes of the mentioned varieties were harvested when they were in the over-maturation phase, the optimum harvest moment being set after doing some analysis and after verifying some aspects concerning the grapes used in winery.

Advances in oenological research on biological products (extraction enzymes, clarification, yeast, activators, tannins etc.) combined with an appropriate technology lead to achieving exceptional results in producing high quality wines.

### Key words

grapes varieties, production, quality, white wines, winery

## Study of yield components for some Romanian tomato landraces under greenhouse conditions

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**Abstract:** Tomato landraces are still cultivated for local use and consumption in many regions of the world. They frequently have distinctive organoleptic traits and nutritional value. Landraces are highly heterogeneous as they were systemically selected for their performance in adverse agricultural

### Key words

tomato, landraces, yield component.

environments The objectives of this work was to assess a set of 15 Romanian tomato landraces collected from Timis County, regarding the yield components, in order to identify some genotypes which might be used in breeding programs. According with the results of this study we can say that there is a considerable variability between landraces regarding the plant yield and its components, which can be harnessed in tomato breeding programs. Some of the landraces like Gradinari, Livezile 498, Periam 48, Sanmartinu S. 180b, with high yield potential could be selected for further research and utilization. Also, in order to a more effective capitalization of the harvest, are worthy of being taken into account the following landraces: Pordeanu 18, Crai Nou 26 and Tarnova 360 who showed a very good precocity.

## Research on the Interaction between Genotype and Technological Factors in the Expression of Some Yield Features in the Macău Onions Cultivated in the Belinț Vegetable Basin, Romania

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**Abstract** Onion has been cultivated for about 5,000-6,000 years. Tackholm and Draw mention as proofs of using onion were found in some tombs from 3,200 BC. It is mentioned in both the Bible and the Quran. Onion was cultivated in Ancient Egypt (6,000 BC), from where it passed to Ancient Greece and then to Ancient Rome. In Antiquity, it was used as both food and medicine.

The biological material used in the experiment was represented by two onion forms: Dughagyma Csanad IIO and Dughagyma Makoi CR, developed by the Research-Development Station in Onion from Makó, Hungary.

As for onion yield during 2012-2013, variance analysis data point out the distinctly significant unilateral influence of the planting time and the significant influence of fertilisation rate; comparing unilaterally the influence of planting time on yield, we could see that there are mean values oscillating between 41.93 t/ha when planting onion bulbs for planting in the third decade of April and 53.30 t/ha when planting in the first half of April; there are significant differences in onion mean yield when planting in the first decade of April between 5.36 t/ha and 5.90 t/ha when using onion bulbs for planting with a diameter of 14-20 mm and above 20 mm; mean yields depending on planting time oscillated between 42.37 t/ha and 53.61 t/ha when using the onion cultivar Dughagyma Csanad IIO and between 41.48 t/ha and 52.99 t/ha in the onion cultivar Dughagyma Makoi CR; depending on the interaction between genotype, fertilisation rate and diameter of onion bulb for planting, mean yield oscillated between 45.34 t/ha (in the onion cultivar Dughagyma Makoi CR on a soil fertilised with 500 kg mineral fertilisers/ha and with a onion bulb for planting diameter of 7-14 mm) and 50.02 t/ha when planting the onion cultivar Dughagyma Csanad IIO cultivated on a soil fertilised with 700 kg chemical fertilisers/ha using onion bulbs for planting with a diameter above 20 mm.

### Key words

*Allium cepa* L., Macău onion bulbs, weight, production

# Study of plant yield for some paprika cultivars under different fertilization treatments

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**Abstract** The dry paprika fruits are generally used for pungent or non-pungent red powder, and also as colorant, for flavoring and garnishing different food products. The biological material was composed from eight cultivars with different genetic origin, studied under four NPK treatments (90:50:40; 120:70:60; 150:90:80; 200:110:100). The aim of this work was to evaluate the plant productivity of some paprika cultivars to identify the optimum levels of fertilization, allowing for increasing the efficiency of this crop.

The fertilization treatment had the highest contribution of approximately 48% to the yield variability, while the cultivar contribution was only 7.5%. The differences between studied cultivars according to plant yield increased proportionally with the increasing of the applied fertilizers amount. For all cultivars, the supplementation of active substances from  $N_{90}P_{50}K_{40}$  to  $N_{120}P_{70}K_{60}$  has not caused a significant increase of yield. The hybrids Bolero and Slager, together with Favorit and Kalocsai M622 varieties, exhibit a similar reaction to applied fertilization treatments, thus in the case of these genotypes set the use of this combination  $N_{200}P_{110}K_{100}$  allow achievement of significant increases to other treatments.

## Key words

paprika, yield, cultivars, fertilization treatments

# The response of paprika yield to different nitrogen level

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**Abstract** Paprika is an important spice on its' own, and it has also become one of the most consumed spice products in the world, popular because of the bright red coloring it can produce in foods and other products. Paprika can range in flavor from mild and sweet to fiery hot. The biological material was composed from eight cultivars with different genetic origin: Bolero F1, Delibab F1 and Slager F1 hybrids, Favorit, Kalocsai V2, Kalocsai M622, Kalocsai 801 and Rubin varieties, respectively. The goal of this paper was to investigate the response of the yield for some paprika cultivars to different nitrogen levels, in order to optimize their crop technology. The differences between cultivars were in most cases statistically covered, indicating that they have shown a different ability to harness the nitrogen fertilization. Kalocsai 801 has responded very weak to the nitrogen fertilization, recording an average increase significantly lower to other cultivars. The most constant response to that fertilization was found in varieties: Kalocsai 801 and Kalocsai M622, while in Delibab hybrid the variability of this parameter was higher. Especially Slager hybrid and Favorit variety were emphasized, for these the application of different nitrogen doses generated a proportional increase of yield with the highest gains. These two cultivars harness on a higher level the nitrogen doses of 150-200 kg/ha.

## Key words

paprika, yield increase, nitrogen, fertilization

# Genetic analysis for test weight in six-row winter barley

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**Abstract:** Test weight has been shown to be an influence of the growing environment, crop management, and the length of the grain filling period, plant diseases, pests and genetic effects. The diallel analysis provides reliable method particularly in autogamous crops to review the genetic system and gene action involved in the expression of plant attributes, right in the F<sub>1</sub> generation. The objectives of this study was to analyze the inheritance type, nature of gene action, and the component of genetic variance for test weight in a six-parent half diallel cross of winter barley. For these parents, generally the dominant alleles increase the value of test weight while the recessive allele leads to a reduction of this trait. The additive effects are involved in the determinism of test weight only in the case of "Orizont" and "Plaisant" varieties. The dominant alleles which control the phenotypic expression of this trait have a higher frequency than the recessive ones and also an asymmetry of positive and negative effects of genes due to dominance was highlighted. The dominance effects have a preponderant and significant contribution to the inheritance of test weight, while the contribution of additive effects was much lower. At least one group of effective factors or gene groups, which have a certain degree of dominance, is involved in the genetic determinism of test weight.

## Key words

Winter barley, genetic analysis, test weight.

# Combining ability for some grains morphological traits in winter barley

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**Abstract:** The quality of barley feed is determined both by physical and chemical criteria in a complex interaction and also by feeding quality of the feed barley grain. Combining ability analysis provides important information for selection of parents in terms of the performance of their hybrids. The aim of this paper was conducted to assess the combining ability using 6 x 6 half diallel crosses of winter barley, in order to identify the best parents and combinations for hulk content, test weight and thousand grains weight, for future use in breeding programs. The additive gene action was more important as compared to non additive gene action in controlling the expression of husk content and thousand grains weight, while in the inheritance of test weight the non-additive effects have a prevalent action. For Lyric and Metal variety the higher additive effects for test weight are associated with average effects for TGW and lower effects for husk content. According to specific combining ability two hybrids were emphasized, Viktor x Turul and Viktor x Lyric, for which the non-additive effects are associated with higher values of TGW and test weight, and low husk content, respectively.

## Key words

Winter barley, combining ability, grains traits.

# Analysis of aquaponic organic hydroponics from the perspective of setting costs and of maintenance on substratum and floating shelves systems

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**Abstract** Old forms of aquaponic organic hydroponics can be traced in many ancient peoples, such as the Chinampa Aztec culture, the cultures around Lakes Inle in Myanmar, the Waru Waru culture of the tribe Uru on the shores of Lake Titicaca in Peru, and rice paddies in China. Scientifically, the first studies regarding soilless cultures were carried on by Francis Bacon who published "Sylva Sylvarum" in 1627. Intrigued by his discoveries, Justus von Liebig elaborated the mineral theory of plant nutrition in 1842, John Woodward added soil particles to water in 1699, De Saussure noted in 1804 that plants are made of compounds that are also found in water and air, and Justus von Liebig published in 1842 a list of elements essential for plant growth. Starting with 1842, research in hydroponics continued until 1980 when Mark McMurtry managed to achieve the first aquaponic organic hydroponics system; in 2004, they acknowledged the superiority of this type of culture. At present, aquaponic organic hydroponics meets the most diverse requirements; it can be met in deserted areas, in areas with severe ecological accidents and in intensive or small-size cultures. In this study, the authors analyse substratum culture and floating shelves culture for small areas to show the advantages of each system from the perspective of setting costs and of system maintenance. Thus, we can see that the floating shelves system is neatly superior since it requires small funds for setting and maintenance; the substratum system is better only from the perspective of plant distance and plant size because substratum provides plants with increased stability.

## Key words

Hydroponics, Organic hydroponics, Aquaponics

# Adapting the flower species *Sparaxis tricolor* to aquaponic organic hydroponics

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**Abstract** In this study, we analyse the adaptability of the species *Sparaxis tricolor* (Schneev.) Ker Gawl., a member of the Family *Iridaceae*, to the conditions specific to floating shelf hydroponics starting from its natural features that make it fit for this type of culture. A first argument is its origin – Cape Floral Kingdom, South Africa – characterised by droughty summers and rainy winters, where it can be cultivated in temperate areas by saving heating; the second factor was its preference for moist soils rich in humus and the possibility of cultivating it both in gardens and in pots – very important features for a hydroponics culture characterised by a permanently moist soil. Since we wanted a culture as close to nature as possible, we wanted to

## Key words

Hydroponics, Organic hydroponics, Aquaponic, *Iridaceae*, *Sparaxis tricolor*

integrate in it recycled materials that we used in our study in the making up of a mechanic feeder for fishery species and as pots for the culture of *Sparaxis tricolor*, which proved beneficial because the plants developed harmoniously and produced many flowers.

## Studies on the variability of biotypes of Jonathan apple variety, from southwestern Romania

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**Abstract** The Jonathan variety grown in classic orchards, presents a great variability. The existing biotypes can be used in breeding programs, but can be maintained in culture in area of the provenience. The study evaluated 7 biotypes of the variety Jonathan, collected from the mountain area of Banat. The purpose of the experiment was to assess the local biological material with regard the variability of morphological and qualitative traits. The biotypes show high variability as regards the fruit size (diameter, height), and lower variability for secondary characters. The fruits of the studied biotypes from Jonathan variety falls into the category of small or medium size. Between biotypes are differences about the accumulation of sugars, but in terms of acidity, they are similar. The biotypes with larger fruit (Zervești, Teregova and Cornea) They may be recommended for propagation and cultivation area of origin.

### Key words

apple, Jonathan, biotypes, variability, fruit characters

## Art in the public space and its relation with landscaping

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**Abstract** Visual art has never been and will never be a hermetic, self-sufficient field focused on a purely aesthetic function. On the contrary, in the course of time it has been enriched with connotations that go far beyond this status, especially after the beginning of the 2<sup>nd</sup> millennium. One might even say that contemporary art derives its strength exactly from its interference with other fields of knowledge, and more and more people acknowledge the role it plays in obtaining multiple benefits from these.

The present paper discusses a particular case among these partnerships, namely the point of confluence between art and landscaping, from the point of view of their cohabitation in the public space. The artist borrows the means, practices and material from the landscape architect, thus expanding the possibilities of art to express and relate to the world. Through such artistic manifestations, art will strengthen its role and involvement at a social level, opening new fields of critical analysis of society, raising awareness on the importance of green spaces in the urban environment, for protecting certain ecosystems or for the image projected into the world by the city.

### Key words

art, landscaping, public space, plants, planting, green space, parks, ecology, ecosystems, biodiversity

# Living Vegetation in Contemporary Art

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**Abstract** Contemporary art has greatly expanded its territories; its fusion with other fields of knowledge is no longer new. Although still surprising for the large public in our country, the use of theoretical foundations specific for certain fields and practical applications of these, in order to make art, is nowadays a common procedure for international artists and for exhibitions in the greatest museums in the world.

The fields of horticulture or landscaping have not been overlooked, either, and their use in contemporary art has led to the appearance of suggestive terms: Plant Art, TransPlant Art, etc. This study presents a few well-known artists who use live plants together with their natural environment – and the range of practices and procedures derived from this. The natural environments of plants are either collected or rebuilt in the location of the exhibition, offering artists wide perspectives for drawing attention on certain issues that society has to face, with ecological, cultural and social implications.

## **Key words**

art, live plants, horticulture, green space, biotopes, gardens, ecosystems, ecology

# Biomass production of some Swedish willow hybrids on the West of Romania. A case study

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**Abstract** Willow short rotation coppice is not very common in Romania. The first crops date from 2006 but were attempts on small areas. There haven't been reported very good results for willow Swedish clones in specific conditions of our country. This is the reason why we try to test biomass production of willow clones on a meadow alluvial soil of Bega River. In this regard, an experimental culture with seven Swedish willow hybrids (Gudrun, Inger, Klara, Stina, Olof, Tora, Tordis) have been established. The aims of this study were to quantify the biometric characters and biomass production on different willow hybrids. The results showed significant differences in terms of shoots biometric characters for all analyzed clones. There have been highlighted correlations between diameters and the height of the shoots. In terms of dry biomass, satisfactory results were obtained for clones Olof and Stina.

## **Key words**

willow, biomass, biometric observation