

## The Evaluation Effects of Some Vegetative Propagation Methods and Plant Growth Regulators on Bulblet Production Rate in Crown Imperial (*Fritillaria imperialis* L.)

Mousa Solgi <sup>1\*</sup>, Kheirola Dastyari <sup>2</sup> and Ebrahim Hadavi<sup>2</sup>

<sup>1</sup>Department of Horticultural Sciences, Faculty of Agriculture and Natural Resources, Arak University, Arak 38156-8-8349, Iran, <sup>2</sup>Department of Horticulture, Karaj Branch, Islamic Azad University, Karaj, Iran.

\*Corresponding author's email: [M-solgi@araku.ac.ir](mailto:M-solgi@araku.ac.ir)

**Abstract** This study was conducted to evaluate the effects of different vegetative propagation methods and some PGRs on adventitious bulblet production of *Fritillaria imperialis* in Iran for the first time. Mother bulbs were soaked in a solution containing equal doses of NAA plus BA in four levels (0, 100, 200 and 300 mg/L) and four vegetative propagation methods (i.e. scoring, chipping with 4-chip, chipping with 8-chip and horizontal). Then after, they sealed in plastic bags containing equal volumetric proportions of humid vermiculate and perlite. Results showed that, there is a significant difference between various vegetative propagation methods and levels of PGRs (NAA plus BA). The highest average number of bulblets production per bulb was achieved from 8-chip method and the least average number was from scoring method. Treating bulbs by using 300 mg/L NAA + 300 mg/L BA indicated maximum bulblet regeneration while the least ones were observed in no PGRs treatment. In our experiment, the application of 300 mg/L NAA plus 300 mg/L BA in combination with horizontal cutting of bulbs yielded the highest bulblet formation per mother bulb (31.3) which was significantly higher than control treatment with five bulblet per bulb. We conclude that the application of proper vegetative propagation method combined with the use of NAA plus BA could be a reasonable outcome in term of propagation rate.

### Key words

Crown imperials, Vegetative propagation, Chipping, Bulb, Bulblet, PGRs, BA, NAA.

## Research on the behavior of autumn grown cauliflower cultivars

Apahidean Al. S.<sup>1</sup>, Apahidean Al. I.<sup>1\*</sup>, Brîndușa Aniela Rusu<sup>1</sup>

<sup>1</sup>University of Agricultural Sciences and Veterinary Medicine, 3-5 Mănăştur Street, Cluj-Napoca, 400372, Romania

\*Corresponding author. Email: [apahidean\\_alx@yahoo.co.uk](mailto:apahidean_alx@yahoo.co.uk)

**Abstract** In the Transylvanian Plateau, from cabbage group of vegetables, cauliflower ranks second after white cabbage in the share of the crop. In vegetable production cultivar is a key factor of production and the financial result largely depends on it. Cultivar can influence the level of production, commercial aspect and the period when yield is obtained. Choosing the right cultivar must take into account the specificity of the area where the culture is carried out. Cauliflower is grown mainly with seedlings but there are concerns about its cultivation, in some cases, by direct sowing. Climatic conditions are favorable in Transylvania for the cultivation of

### Key words

cauliflower, cultivar, plant growth, production

cauliflower, mainly in spring and autumn, when temperatures moderate values are favorable for the formation of high quality inflorescences.

Experience took place between 2013-2014, in the vegetable basin of Apahida-Juc, Cluj county. In the experimental crop, following cultivars were used: Stargate, Nautilus, Valiente, January, Master, Idol, and Igloo grown by seedling, from July to October. As a result of differential growth of cauliflower plants during the growing season, the average production achieved by studied cultivars was between 38.5 t / ha at Stargate and 52.1 t / ha at Nautilus.

## Study of autumn cabbage cultivation in the specific conditions of Iernut area, Mures county

Apahidean, Al. S.<sup>1</sup>, Chiper Lidia-Ioana<sup>2</sup>, Heitz Minerva<sup>2</sup>, Căpușan Janina<sup>2</sup>, Apahidean Al.I.<sup>1\*</sup>

<sup>1</sup>University of Agricultural Sciences and Veterinary Medicine, 3-5 Mănăștur Street, Cluj-Napoca, 400372, Romania; <sup>2</sup>Center for Vegetable Research and Development, Iernut (CVRD Iernut), 1A Energeticianului Street, Mureș, Romania

\*Corresponding author. Email: [apahidean\\_alx@yahoo.co.uk](mailto:apahidean_alx@yahoo.co.uk)

**Abstract** In vegetable production, cultivar is a key factor of production, the financial result largely depends on it. Cultivar can influence the level of production achieved, commercial aspect and the period when production is obtained. When choosing the cultivar, the specificity of the area where the culture is carried out, must be taken into account. Autumn cabbage is grown to be used fresh, pickled or in the preparation of various dishes. Depending on the destination of production, different cultivars, with different characteristics are chosen.

Cabbage is grown mainly by seedling in early, summer or autumn cultures but there are concerns about its cultivation, in some cases, through direct sowing. Climatic conditions in Transylvania are favorable for growing cabbage in open field, due to favorable rainfall regime and lower temperature level. The area is favorable both for heads production and for obtaining seeds, in the second year of vegetation.

The experiment was conducted in 2012-2013, in CVRD Iernut, Mureș County. In the experimental culture, the following cultivars were used: L-Poienița, L-Covasna, L-Niraj, L-Mureș and Mocira.

### Key words

cabbage, cultivar, morphological characters, production

## Aspects regarding the vegetative multiplication of Begonia x tuberhybrida plants

Alexe Constanta<sup>1\*</sup>, Lamureanu Gh.<sup>2</sup>, Pricop Simona<sup>3</sup>

<sup>1</sup>Research and Development Institute for Processing and Marketing of the Horticultural Products Bucharest;

<sup>2</sup>Research Station for Fruit Growing Constanta; <sup>3</sup>Ovidius University Constanta

\*Corresponding author. Email: [tantialexe@yahoo.com](mailto:tantialexe@yahoo.com)

**Abstract** This paper presents the results regarding the vegetative reproduction of some varieties from Begonia x tuberhybrida species. This species of begonias, spread in the culture under different breeds and varieties, presents certain biological particularities that determine the difficulty of multiplication. Naturally, in its case are used the tuberous bulbs, but it matters a lot the conditions of their keeping and planting, which are specific to

### Key words

cuttings, flower quality, gripping percent, tubers, variety

each variety. These researches were conducted during period 2013-2014, using three varieties of *Begonia x tuberhybrida*: *Crispa marginata* (white), *Marmorata* (coral-red) and *La Madelon* (yellow). The variety with yellow flowers (*La Madelon*) and coral-red (*Marmorata*) are distinguished by a multiplication coefficient, precocious flowering and superior quality plants, comparative with white flowers variety (*Crispa marginata*). It was found that the method used in multiplication influences significantly both the quality of planting material and the quality of the obtained plants. The whole tubers and half sectioned ones provide good results regarding the starting of vegetation, the flowering percent and the flowers quality, but the best multiplication coefficient was obtained in the case of the tubers sectioned in quarters. The three years old tubers have better results comparative with the younger ones. The multiplication by apical shoot cuttings is superior to the leaf cuttings multiplication, and the best period for this operation proved to be in June.

## Promoting Breeding of New Mung Bean Genotypes for Sustainable Agriculture and Food Security

Brezeanu Creola<sup>1,2\*</sup>, Robu T.<sup>1</sup>, Brezeanu P. M.<sup>2</sup>, Ambarus Silvica<sup>2</sup>

<sup>1</sup>"Ion Ionescu de la Brad" University of Agricultural Sciences and Veterinary Medicine Iasi; <sup>2</sup>Vegetable Research and Development Station Bacau

\*Corresponding author. Email: [creola.brezeanu@yahoo.com](mailto:creola.brezeanu@yahoo.com)

**Abstract** Improvement and exploitation of species and new varieties are key factors in improving and developing of agriculture and economy in general. New plant varieties with higher nutritional quality and production yields, disease and pest resistant, able to perform in suboptimal conditions (drought, less fertile soil, low intake of fertilizers and pesticides) and suitable to ecological system are increasingly required by farmers and consumers. In our country there are no approved or patented varieties for *Phaseolus aureus* species. The present work presents the results of a rigorous program designed to improve the species potential use, to obtain genotypes with shorts periods of vegetation and superior qualitative and agronomic features, suitable to perform in conventional and ecological system in our climate condition. Our developed genotypes exhibit superior value, in term of yield, vegetation period, protein content, oil content and sprouting capacity.

### Key words

mung bean, yield, quality

## The relationship between genotypes, diseases attack, yield and quality in winter wheat in western Romania

Bunta Gh.,<sup>1\*</sup> Toma I.,<sup>1</sup> Gorunoiu Gabriela<sup>1</sup>, Pițu S.<sup>1</sup>

<sup>1</sup>Agricultural Research and Development Station Lovrin

\*Corresponding author. Email: [buntag@rdslink.ro](mailto:buntag@rdslink.ro)

**Abstract** In 2015, the disease attack affected strongly the yield and quality of wheat. To determine the relationship between these factors, it was conducted an experiment with many varieties in a breeding field at Oradea. The diseases manifested with high intensity were: powdery mildew (*Erisiphe graminis*), speckled leaf blotch (*Septoria tritici*) and yellow rust (*Puccinia*

### Key words

wheat disease, genotype quality, yield, correlation

*striiformis*). It was studied the relations between diseases attack, yield and quality indicators (protein, wet gluten, hardness and starch). All three diseases affected strongly the yield and quality, too. However, some cultivars (like Alex) or breeding lines (5X 13334), being resistant to this spectrum of diseases, realized good yields and good quality.

## Effect of preservative solutions on morpho-decorative characters of rose cut flowers obtained in soil less culture

Conțiu Ioana, Lazăr V., Gocan Tincuța, Cantor Maria \*

University of Agricultural Sciences and Veterinary Medicine, Faculty of Horticulture, 3-5 Manastur Street, Cluj-Napoca 400372, Romania

Corresponding author: [marcantor@yahoo.com](mailto:marcantor@yahoo.com)

**Abstract** The rose is considered as one of the most important cut flowers because of its beauty and popularity. The durability and longevity of flowers are very important, lead to problems with long distance and marketing. The present paper presents the influence of preservative solution on the decorative period in vase of ten rose cultivars grown in greenhouse in soilless culture on coconut fiber substrate. The experiment was conducted during the years 2013-2014 in the Horticultural Products Technology Laboratory of Horticulture Faculty from UASVM Cluj-Napoca. The results obtained had shown that the interaction of preservative solution with cultivar pointed out the 'Bordeaux', 'Marina' and 'Samba' cultivars which in Hypochlorite of Na recorded significant positive differences in comparison with control (average of experiment), for all the three studied characteristics (diameter of floral bud, the aspect of floral bud and the aspect of leaves on the floral stem). In contrast, 'Merci' and 'Chic' cultivars change color, becomes discolored when stored in Hypochlorite of Na. Good results were recorded for majority cultivars when were preserved in commercial solution Fleur Vital.

### Key words

cultivar, rose, vase life, preservative solution, flower characteristics

## Evaluation of Pests and Diseases Level of Some Rose Cultivars in Soil less Culture

Conțiu Ioana<sup>1</sup>, Husti Anca<sup>1</sup>, Macavei Laura<sup>2</sup>, Cantor Maria\*<sup>1</sup>

<sup>1</sup>University of Agricultural Science and Veterinary Medicine, Faculty of Horticulture 3-5 Manastur Street, Cluj-Napoca, Romania; <sup>2</sup> University of Agricultural Science and Veterinary Medicine, Faculty of Agriculture 3-5 Manastur Street, Cluj-Napoca, Romania

\* Corresponding author, e-mail: [marcantor@yahoo.com](mailto:marcantor@yahoo.com)

**Abstract** The rose is a living organism that risks at any time, as any other plant, to be affected by diseases and pests. The attack causes can be multiple, from not respecting the culture technology to unfavorable weather conditions for the rose, but propitious for the appearance, growth and development of diseases and pests. In a commercial culture, in greenhouses, both preventing and controlling diseases and pests is the starting point for obtaining a profitable crop. If preventive measures are taken, against diseases and pests attack, both chemical treatments and production costs will be significantly decreased. The goal of the work was to determine the damage level of the diseases and pests for roses cultivars cultivated in greenhouses on soilless. During the researches were determinate: the degree of infection to the rose powdery mildew – *Podosphaera pannosa*; the degree

### Key words

damage level, powdery mildew, gray mold, spider common red, soilless culture, cultivars

of infection to the grey mould - *Botrytis cinerea* and the degree of infection to the commune red spider – *Tetranychus urticae*. These results indicate that ,Merci' and 'Avalanche varieties' have the best resistance to powdery mildew attack, 'Bordeaux' and ,Marina, varieties with the best resistance to gray mold and varieties 'Revue' and 'Marina' are the most resistant varieties to spider common red attack.

## **Study on the impact of coverage mixture recipe and of some phytosanitary products upon *Agaricus bisporus* yield, in intensive bizonal system**

**Becherescu Alexandra<sup>1</sup>, Horgoş A.<sup>1\*</sup>, Popa D.<sup>1</sup>, Hoza Gheorghita<sup>2</sup>, Creţu Ioana Alina<sup>1</sup>**

<sup>1</sup>Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I of Romania” from Timișoara; <sup>2</sup>University of Agronomic Sciences and Veterinary Medicine Bucharest

\*Corresponding author. Email: [alexandra\\_becherescu@yahoo.com](mailto:alexandra_becherescu@yahoo.com)

**Abstract** *Agaricus bisporus* culture technology has various work stages, out of which introducing the nutritive culture substratum in the culture place in different recipients, covering the nutritive substratum, to determine mycelia fructification, with coverage mixture prepared from different recipes and assuring phytosanitary protection are the most important.

The impact of these work links upon the productive potential of mushrooms, as percentage share, is different. Its variability is a function of the interaction with the other work links, in this case being synonymous to the experimental factors, which were studied in this polyfactorial experiment.

This article shows the results obtained from mushrooms culture, cultivated in polyethylene sacks and rectangular foil recipients, with two coverage mixture recipes (one with garden soil and black peat in equal quantities and the other one with additive peat), maintained clear of diseases and pests (nematodes in the culture substratum, insects in the air and some pathogens) with different pesticides (particular for nematodes, insects, fungus and also mixtures).

### **Key words**

technology, nutritive culture substratum, culture area, recipient, coverage mixture, pests

## **Study on the impact of culture substratum and fertilization system upon the productive potential of some tomato hybrids cultivated in industrial greenhouses**

**Becherescu Alexandra<sup>1\*</sup>, Horgoş A.<sup>1</sup>, Popa D.<sup>1</sup>, Hoza Gheorghita<sup>2</sup>, Ienciu Anișoara<sup>1</sup>**

<sup>1</sup>Banat's University of Agricultural Sciences and Veterinary Medicine Timisoara; <sup>2</sup>University of Agronomic Sciences and Veterinary Medicine Bucharest

\*Corresponding author. Email: [alexandra\\_becherescu@yahoo.com](mailto:alexandra_becherescu@yahoo.com)

**Abstract** The soil, as main culture substratum in our country's greenhouses, started to be replaced in the past 10-15 years. The main cause for this was the difficulty of its disinfection, which was done chemically, but mainly thermic, and this operation has high costs, in order to maintain the phytosanitary hygiene and to control diseases (*Fusarium*, *Verticillium*, *Corynebacterium michiganense* etc.), which have life forms in the depth of soil profile.

By using other culture substratum, organic or inorganic, there is assured a

### **Key words**

substratum, hybrid, production, fertilizers, technology, tomatoes, quality,

better root phytosanitary hygiene and at the same time a high control of irrigation and fertilization through fertirrigation.

The article presents results from two tomato hybrids, regarding their qualitative and quantitative potential, their earliness, their behavior to the use of two types of modern chemicals, completely soluble (types Yara and Kemira) on culture substratum like: soil, an organic substratum (mixture of peat + well fermented manure combined with soil + garden soil + sand) and an inorganic substratum (mineral wool).

## **Research concerning the possibility of improve the onion (*Allium cepa* L.) Culture technology by direct sowing in Transylvania**

**Căprariu Al. D\* , Apahidean Maria, Apahidean Al. I.**

Department of Horticulture, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania;

\*Corresponding author. Email: [alexandru.caprariu@gmail.com](mailto:alexandru.caprariu@gmail.com)

**Abstract** Studies concerning onion cultivation technologies, varieties and onion chemical composition, were and are among the most important concerns of scientific researchers, onion been one of the most popular and used vegetable in Romanian cuisine and Romanian nutritional habits. But despite of this the level of onion yield is very low, in Romania, 20-25 t/ha comparing with yields obtained in developed countries 50-60 t/ha. This paper presents, our researches and the results obtained after performing studies in the north-west part of Romania, on two onion varieties: Density 4 and Ramata rossa di Milano, direct seeded in two different epochs at two densities one mill. pl./ha and two mill. pl./ha. The great majority of the plants obtained by direct sowing in autumn epoch issued floriferous stems and the culture was compromised in terms of bulbs yield. Plants obtained by direct sowing in spring epoch at both varieties and seeding densities normally developed, yielding an average of 54.12 t/ha for Density 4 to a density of 1 million pl/ha, and 51.31 t/ha at a density of 2 million pl/ha. Ramata Rossa di Milano obtained an average yield of 51,07 t/ha at a density of 1 million pl/ha and 58.38 t/ha at a density of 2 million pl/ha. The higher yield obtained at the variety Density 4 at the density of 1 million pl/ha than, at a density of 2 million pl/ha, give us the possibility to affirm that variety Density 4 do not react well at the high plants densities. On the other hand , Ramata rossa di Milano variety, obtained the higher yield at a density of 2 million pl/ha, than at a density of 1 million pl/ha.

### **Key words**

direct sowing, onion varieties, plant density, sowing time

# The effect of low temperatures in Southern Oltenia on fruit plants

Enache V<sup>1</sup>., Baci A.A.<sup>2</sup>

<sup>1</sup>The Research and Development of plant-growing on sands Dăbuleni; <sup>2</sup>University of Craiova, Faculty of Agriculture and Horticulture

\*Corresponding author. Email: [enacheviorel13@yahoo.com](mailto:enacheviorel13@yahoo.com)

**Abstract** According to literature, the degree of resistance to frost is higher in pome species (apple, pear) and lower in stone species. During biological dormancy, the stone species trees can withstand absolute minimum temperatures ranging from -26 °C to -28 °C (apricot), sweet cherry -29 °C, sour cherry -30 °C and plum tree -30 °C, -32 °C.

Only trees with good vegetation conditions, having accumulated great amounts of reserve substances, which completed their growth in due time and have had good conditions for the completion of the hardening can withstand these temperatures.

According to weather data recorded at Dăbuleni research-development centre for sand soil cropping, and based on observations regarding phenology it is apparent that temperature variations, especially low temperatures have had a negative impact on fruit trees, leading to blight of flower buds in apricot species. The sweet cherry, sour cherry and plum species have also been affected, but to a lesser extent.

In conclusion we can assert that although the resistance parameters in apricot species are -26 °C to -28 °C, as a result of minimum temperatures of -20,4 °C in December 2014 and -23,1 °C in January 2015 the flower buds were affected by 90%; in sweet cherry species by 2%, sour cherry species by 2% and plum species by 10%.

## Key words

fruit species, phenology, low temperatures, optional dormancy

# Wild privet (*Ligustrum vulgare* L.): A Multipurpose Species with an important role in Forest Land Reclamation

Enescu C.M.<sup>1\*</sup>, Loghin C.C.<sup>2</sup>, Ștefan V.<sup>3</sup>

<sup>1</sup>Department of Soil Sciences, University of Agronomic Sciences and Veterinary Medicine from Bucharest; <sup>2</sup>Forest Research and Management Institute from Bucharest, <sup>3</sup>M.Sc. student Forest Information Technology, Eberswalde University for Sustainable Development Germany

\*Corresponding author. E-mail address: [mihaienescu@agro-bucuresti.ro](mailto:mihaienescu@agro-bucuresti.ro)

**Abstract** Wild privet (*Ligustrum vulgare* L.) is generally recognized as a useful shrub species across its wide natural distribution range. The aim of this review paper was to give an overview of the species' multiple uses and highlight its relevance in forest land reclamation projects. Data regarding taxonomy, chorology, ecological requirements and biological characteristics are also presented. Even though it is listed as an invasive species in several countries worldwide, wild privet is one of the main shrub species used in establishing protective forest shelterbelts on several types of degraded terrains.

## Key words

wild privet, *Ligustrum vulgare*, land reclamation, afforestation

# The possibilities of multiple characterization of the ecological potential of a viticulture region by graphic and numerical methods

Giugea N.<sup>1\*</sup>, Mărăcineanu L.C.<sup>1</sup>, Popa C.<sup>2</sup>

<sup>1</sup> University of Craiova; <sup>2</sup> National Land Development Agency

\*Corresponding author. Email: [giugeanicolae@gmail.com](mailto:giugeanicolae@gmail.com)

**Abstract** This paper intends to update the study related to the evaluation of Banu Mărăcine viticulture region and recommend the suitable production trends for this area. For that, the climatic study is based on a series of ecometrical indicators specific to viticulture regions (thermic balance, oenoclimatic aptitude index, bioclimatic index of vine, etc.). The ecological description is added with methods specific to phytogeography (Mayr tetratherme, histophenogram, etc.), resulting a multiple characteristic of the ecological potential of this wine centre. It is therefore distinguished the predisposition of the area for wine grape making, being analysed in the larger context of biogeography.

## Key words

ecology, wine-growing region, zoning

# Researches on the sweet potato (*Ipomea batatas* L.) behaviour under the soil and climatic conditions of the South-West of Romania

Dinu Maria<sup>1\*</sup>, Soare Rodica<sup>2</sup>

<sup>1</sup>University of Craiova, The Faculty of Agriculture & Horticulture, The Department of Horticulture and Food Science, 13 A.I.Cuza Street, 200858 Romania; <sup>2</sup>University of Craiova, Faculty of Agriculture & Horticulture, Libertatii Street, no 19, 200583, Craiova, Dolj, Romania

\*Corresponding author. Email: [dinumariana@hotmail.com](mailto:dinumariana@hotmail.com)

**Abstract** This study aims to present the role of sweet potato (*Ipomea batatas* L.) in human alimentation, specifically to present two new cultivars recently cultivated, their way of behaviour in the south-west of Romania, the biochemical composition of the tuberous roots and the productive potential of this species.

## Key words

sweet potato, cultivation, biochemical composition

The sweet potato is appreciated for its very high nutritional value, both of the tubers and of the young aerial parts. The thickened roots rich in carbohydrates, starch, minerals (Ca, Mn, Cu Fe, P, K) and vitamins ( $\beta$ -carotene, vitamin C, B6) can be used in various forms of meals: mashed sweet potatoes, soups, fries, desserts. Considering the qualities of these varieties, in The Didactic Research Station of the University of Craiova there was studied the behaviour of two cultivars of sweet potato, Pumpkin and Chestnut in terms of productive potential and biochemical composition, under the conditions in the south-west of Romania.

Within the experiment there were made observations on the way of plant growth: the number of stems in the bed, the average and total weight of haulm and the total quantity of vegetal material. We also observed the characteristics in terms of tuberous roots production, and the average number of the tuberous roots per bed, their dimensions and weight. The water content, the dry matter and soluble dry matter, the titratable acidity, the

starch, total sugar and vitamin C content were determined and the yield was calculated. The study shows that the best productive performance was recorded in the Pumpkin cultivar, 53.3 t/ha, and in terms of chemical composition, the total sugar content and vitamin C content, the higher values were recorded in Chestnut, 14.1 %, 14.6 mg/100 g FW respectively.

The results of our study should determine the development of certain research activities at national multidisciplinary level which aim at improving the production technology, the storage, the post-harvest and processing technologies, and the quality of sweet potato and its value-added products.

## Estimation of genetic effects implied in apple inheritance of quantitative traits

Dan Cătălina <sup>1</sup>, Sestras F. Adriana <sup>1\*</sup>, Bozdog C. <sup>1,2</sup>, Sestras E. Radu <sup>1</sup>

<sup>1</sup> University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, 3-5 Manastur Str, 400372 Cluj-Napoca, Romania, [catalina.dan@usamvcluj.ro](mailto:catalina.dan@usamvcluj.ro); [rsestras@usamvcluj.ro](mailto:rsestras@usamvcluj.ro); <sup>2</sup> Fruit Research Station, Cluj-Napoca, 5 Horticultorilor Str., 400457, Romania, [calinbozdog@yahoo.com](mailto:calinbozdog@yahoo.com)

\*Corresponding author. Email: [adriana.sestras@usamvcluj.ro](mailto:adriana.sestras@usamvcluj.ro)

**Abstract** Wild species are used in apple breeding as alternative sources of genetic resistance, in order to develop cultivars with specific gene combinations that validate in durable resistance. The inheritance of major apple traits in F<sub>1</sub> hybrids population belonging to intra and interspecific hybridisation were analysed. General combining ability (GCA) and specific combining ability (SCA), respectively additive and non-additive gene actions, contributed significantly to the expression of analysed apple characteristics. Seedlings vigour, juvenile period and fruit size oscillated significantly among the studied apple combinations, depending on parental formula. The smallest vigour was noted for *Malus prunifolia* x *M. niedzwetzkyana* hybrids, which also had the shortest juvenile period (4.91 years). The data regarding fruit size, illustrated the quantitative (polymorphic) inheritance of the trait, both due to GCA and SCA effects. Thus, rustic species strongly influenced the small fruit character among descendants, while the cultivars determined the largest fruit of seedlings. The smallest values obtained for apple scab and powdery mildew attack were noted for *M. prunifolia* x *M. niedzwetzkyana* hybrids. The coefficient of variability illustrated the possibility to select valuable progenies for analysed traits in all hybrid combination. Combining ability determined in the mating cross scheme using Griffing diallel pattern brings more understanding of gene nature and actions involved in the expression of quantitative traits, so that is more reliable to predict the performance of the progenies and facilitate the introgression process of desired genes from wild species (crab apple) in order to obtain new genotypes of edible or ornamental apple.

### Key words

breeding, cultivar, general combining ability (GCA), interspecific hybrids, *Malus* species, specific combining ability (SCA)

# Monitoring of six *Agriotes* click beetles in areas suitable for the installing of shelterbelts in Banat's plain region

Fora C.G.<sup>1</sup>, Zellner M.<sup>2</sup>, Lauer K.F.<sup>1</sup>, Stanciu S.<sup>3</sup>, Moatăr M.<sup>1</sup>, Berar C.<sup>1</sup>

<sup>1</sup>Faculty of Horticulture and Forestry Timișoara; <sup>2</sup>Bavarian State Research Center for Agriculture, Institute for Plant Protection; <sup>3</sup>Faculty of Farm Management Timișoara

\*Corresponding author. Email: [foraciprian@yahoo.com](mailto:foraciprian@yahoo.com)

**Abstract** Evaluation of click beetles population in the moment that it decided it to install protective shelterbelts is a "*sine qua non*" condition. The easier method is to evaluate the beetles number by using the pheromone traps. In Banat's plain region, 6 species of click beetles are more representative: *A. brevis*, *A. lineatus*, *A. obscurus*, *A. sordidus*, *A. sputator*, *A. ustulatus*. From all of them, *A. sordidus* and *A. ustulatus* formed the majority of *Agriotes* population. The lowest numerical species was *A. lineatus*.

## Key words

wire worms, populations, pheromone trap

# Research concerning the correlation of soil with wines quality in some varieties of wine grapes in Miniș-Măderat vineyards

Dobrei Alina Georgeta<sup>1\*</sup>, Dobrei A.<sup>1</sup>, Iordănescu Olimpia<sup>1</sup>, Nistor Eleonora<sup>1</sup>, Balla G.<sup>2</sup>, Mălăescu Mihaela<sup>1</sup>, Drăgunescu Anca<sup>1</sup>

<sup>1</sup>USAMVB "Regele Mihai I al României" from Timisoara, Faculty of Horticulture and Forestry; <sup>2</sup>Wine Princess SRL

\*Corresponding author. Email: [ghitaalina@yahoo.com](mailto:ghitaalina@yahoo.com)

**Abstract** Research was carried out in 2013 in Miniș-Măderat vineyards, located just along the road which defines the Wine Route. Research has focused on correlating climate and soil with wines quality produced from studied grape varieties. Grape varieties were divided in three plots; on each plot were performed soil profiles, were taken and analyzed soil samples to can know how the type of soil, rock and its components influence the quality of wine obtained considering that lately more and more the term "terroir" is commonly used in wine tastings. In fact, the main purpose of this research and the subject of the paper were to study the influence of "terroir" on the work improvement in vineyards and on the choice of winemaking, which is reflected in the final product properties. Due to the complex significance and interdependent elements, the wine terroir is considered by connoisseurs to be a very important issue of a wine identity. Regarding the material studied, consisted of three superior white wine grape varieties (Pinot gris, Traminer, Fetească Regala) and three superior red wines grape varieties (Cabernet Sauvignon, Fetească neagră, Cadarcă).

Grapes varieties were harvested separately from each plot and were individually vinified. The aim was to determine the physicochemical properties and organoleptic properties of the varieties studied, for each plot separately.

## Key words

terroir, white wines, red wines, organoleptic properties

# Research concerning the qualitative potential of the wines obtained from different grape-growing ecosystems

Dobrei Alina Georgeta<sup>1\*</sup>, Dobrei A.<sup>1</sup>, Nistor Eleonora<sup>1</sup>, Sala F.<sup>2</sup>, Mălăescu Mihaela<sup>1</sup>, Drăgunescu Anca<sup>1</sup>, Camen D.<sup>1</sup>

<sup>1</sup>USAMVB"Regele Mihai I al României" from Timisoara, Faculty of Horticulture and Forestry; <sup>2</sup>USAMVB"Regele Mihai I al României" from Timisoara, Faculty of Agriculture

\*Corresponding author. Email: [ghitaalina@yahoo.com](mailto:ghitaalina@yahoo.com)

**Abstract** Researches were performed in 2013, in private vineyards plots from famous viticultural areas of the western of Romania, namely: Buziaș-Silagiu, Recaș and Miniș-Măderat, concerning the climatic conditions of the area and soil influence on the wine quality.

Researches were carried out on three white wine grape varieties (Pinot Gris, Sauvignon blanc, Fetească regală) and three red wine grape varieties (Cabernet Sauvignon, Merlot and Fetească neagră) located on southeast and southwest slopes, roughly equal-sized plots, with row spacing of 2.2 m and vine spacing of 1 m. Vineyards were in the fifth year of production, being established in 2005. Pruning system in all experimental plots was mixed.

On results obtained, it could be concluded that of all three areas where the experimental fields were located, red wines had alcoholic and organoleptic better results in the Miniș-Măderat area, while white wines could be characterized as balanced, full-bodied, fruitful, especially those obtained from plots located in wine growing area Recaș.

Year 2013 had favorable conditions for producing wines with enhanced quality traits in most viticultural areas from the west of the country, so that in areas where researches were carried out, the results were acceptable speaking of quantity and quality. Fetească neagră stand out with an alcohol content of 14.9% alongside a total acidity of 5.2 g/l H<sub>2</sub>SO<sub>4</sub>.

## Key words

wine, qualitative potential, grape varieties, viticultural areas

# New potato varieties created at the National Institute of Research and Development for Potato and Sugar Beet Brasov

Hermeziu R.<sup>1\*</sup>, Hermeziu Manuela<sup>1</sup>, Stefan Floriana Maria<sup>1</sup>

<sup>1</sup>National Institute of Research and Development for Potato and Sugar Beet Brasov, Romania

\* Corresponding author: email: [hermeziuum@hotmail.com](mailto:hermeziuum@hotmail.com)

**Abstract** Potato breeding are oriented to obtain varieties with resistance to biotic and abiotic factors and with high yield capacity to satisfy the both quantitative and qualitative needs of consumers.

Productivity, quality and stability are achieved through crop improvement works to promote new varieties with advanced traits.

Among the achievements of National Institute of Research and Development for Potato and Sugar Beet in 2014 are registered the varieties Brasovia, Castrum, Marvis and Sarmis.

These varieties are medium early and there are obtained through sexual hybridization and individual clonal selection.

All mentioned varieties have a high yield capacity and resistance to black wart (*Synchytrium endobioticum*), middle resistance to different viruses (PVY<sup>0</sup> and PLRV) and to late blight (*Phytophthora infestans*).

The consumption destination is for autumn-winter, being suitable for all kinds of culinary preparations, from salads to mash potatoes.

## Key words

new potato variety, Brasovia, Castrum, Marvis, Sarmis, genealogy, characterization, yield capacity

# Researches concerning vigor of growth by some peach varieties belonging world collection to this species in pedoclimatic conditions of Timisoara

Iordănescu Olimpia Alina, Costea Viorica Adriana, Blidariu Aurelia, Olaru Daniela

<sup>1</sup>USAMVB"Regele Mihai I al României" from Timisoara, Faculty of Horticulture and Forestry;

\*Corresponding author. Email: [olimpia.iordanescu@yahoo.com](mailto:olimpia.iordanescu@yahoo.com)

**Abstract** Peach represent one the most appreciated fruit tree specie of the temperate climate, which in the last time has benefited of a special attention, fact that has led to the expansion of cultivated areas with varieties and to diversification of the assortment. Researches carried out in USA, Canada, France, Italy, even in our country had led to obtained a large number of varieties with remarkable agro-productive characteristics. In the present work were studied ten varieties of peach belonging to the Peach and Nectarine World Collections introduced and multiplied in Romania by Acad. Dr. Vasile Cociu. The varieties studied originating from all continents has been planted in Timișoara in 2007 year, with the purpose of being tested in culture and naturalizing in Romania of some new foreign varieties. In this paper, we presented the partial results concerning vigour of growth, respectively: the trunk diameter and tree height. The varieties followed were: Poli, Sun Hun Hui, Yinqing, Piros Magdalena, Gold Dust Eureka, July Elberta, Giala di Roma Tardiva, Elbertina, and that witness experiment was choice Spring Gold variety.

## Key words

peach, World Collections, vigour of growth, trunk diameter and tree height

## Study regarding the variability of daffodil's (*Narcissus stellaris* L.) variability from „Bătești protected area”

Madoșă E.<sup>1\*</sup>, Velicevici Giancarla<sup>1</sup>, Ciulca Adriana<sup>1</sup>, Avadanei C.<sup>1</sup>

<sup>1</sup>Banat's University of Agricultural Sciences and Veterinary Medicine „King Michael I from Romania” from Timisoara, Faculty of Horticulture and Forestry, Calea Aradului 119, 300645 Timisoara, Romania

\*Corresponding author: e-mail: [madosae@yahoo.com](mailto:madosae@yahoo.com)

**Abstract** The aim of the study was to evaluate the variability of *Narcissus stellaris* from the protected area „The daffodil meadow from Bătești”. This variability has an importance for maintaining of natural populations in the context of anthropic limitations. The biologic material was represented by the daffodil population from a reservation situated between Făget town and Margina village. The study took place „*in situ*”, by making biometrical measurements. The statistical analysis of experimental data determined the parameters which characterize a population in terms of variability but also the links between the characters using coefficients of correlation. The daffodil population from our study has a low number of specimens, the number and dimension of leaves shows a great variability, most of the plants having 3 leaves with an average length of 20.86 cm. The corolla presented a medium to high variability, with an average diameter of 5.20 cm. Between the studied characters there are very few correlations. The parts of the flowers are correlated but there are also connections between the size of the leaves and of petals. The variability makes possible to maintain the population in the area of study.

## Key words

Variability, daffodil meadow from Bătești, *Narcissus stellaris*

# Researches regarding the analysis by atomic fluorescence X-ray of scandium content in soil

Alda S.<sup>1\*</sup>, Alda Liana Maria<sup>1</sup>, Cristea T.<sup>1</sup>, Gogoasa I.<sup>1</sup>, Nita Simona<sup>1</sup>, Negrea Adina<sup>2</sup>, Gergen I.<sup>1</sup>

<sup>1</sup> University of Agricultural Sciences and Veterinary Medicine of Banat "King Mihai I of Romania" Timisoara;  
<sup>2</sup>"Politehnica University" -Timisoara, Romania

\*Corresponding author. Email: [aldasimion@yahoo.com](mailto:aldasimion@yahoo.com)

**Abstract** The concentrations of toxic metals in soils have continuously increased as a result of anthropogenic activities through inputs mainly from mining, municipal wastes, road traffic or fuel burning. In addition to their toxicity, metals persist in soil for long times and have the capacity to be transferred into the food chain, thus the assessment of their content in soil is of great interest. Scandium, the Mendeleev's hypothetical element "eka-boron" is considered one of the Rare Earth Elements (REE) group, in abundance in the earth's crust of 16 ppm. REEs are required in industry, agriculture, medicine, biotechnology and many other fields. The aim of the study was the analysis by atomic fluorescence X-ray of the scandium content in soil, in a polluted area (Tarnaveni, Mures county, Romania). Tarnaveni was an important industrial centre. Seven locations were taken into our study. The analysis of experimental data highlights high values of scandium content in the soil samples. The highest scandium concentrations were found in the locations close to the chemicals waste. The preliminary results can be used as informative data that they will be confirmed by further analysis by absorption atomic spectrometry method (FAAS).

## Key words

atomic fluorescence X –ray, scandium, soil

# Researches regarding rubidium content in soil and plants using analysis by atomic fluorescence X-ray

Alda S.<sup>1\*</sup>, Alda Liana Maria<sup>1</sup>, Cristea T.<sup>1</sup>, Gogoasa I.<sup>1</sup>, Negrea P.<sup>2</sup>, Danci M.<sup>1</sup>, Gergen I.<sup>1</sup>

<sup>1</sup>University of Agricultural Sciences and Veterinary Medicine of Banat "King Mihai I of Romania" Timisoara;  
<sup>2</sup>"Politehnica University" -Timisoara, Romania

\*Corresponding author. Email: [aldasimion@yahoo.com](mailto:aldasimion@yahoo.com)

**Abstract** The increased concern for reduction of environmental pollution has stimulated continuing research on the toxicology of heavy metals. The content of rubidium in soils is largely inherited from the parent rock, as is indicated by the highest mean Rb contents 100 to 120 ppm, in soils over granites and in alluvial soils. Rb apparently is easily taken up by plants, as are other monovalent cations. The aim of this study was to determine rubidium uptake in *Agropyron repens* and *Cirsium arvense*, in a polluted area, using analysis by atomic fluorescence X-ray. This is a modern method of determination of mineral elements, for environmental samples, geological, biological (solid and liquid) without processing. Our results regarding rubidium contents in soil and studied plants are higher than those obtained by other researchers. *Agropyron repens* and *Cirsium arvense*, accumulated rubidium in their tissues differently. The preliminary results can be used as informative data that they will be confirmed by further analysis by absorption atomic spectrometry method (FAAS), an specific method for determining such elements.

## Key words

atomic fluorescence X –ray, rubidium, soil, *Agropyron repens*, *Cirsium arvense*, polluted area

# Research on the way of manifestation of the physiological elements at the *Castanea sativa* Mill identified in the North of Oltenia

Alecu Anca<sup>1,2\*</sup>, Botu M<sup>1,2</sup>, Burnaz R.<sup>2</sup>

<sup>1</sup>University of Craiova, SCDP Vâlcea, Str. Calea lui Traian nr. 464, Rm. Vâlcea 240273, Romania;

<sup>2</sup>University of Craiova, Faculty of Agriculture and Horticulture, Department of Horticulture and Food Science, Str. Al. I. Cuza nr. 13, Craiova 200585, Romania

\*Corresponding author. Email: [\\*ancutzza\\_3187@yahoo.com](mailto:*ancutzza_3187@yahoo.com)

**Abstract** Sweet chestnut (*Castanea sativa* Mill) is present into the semi-spontaneous flora of Northern Oltenia, around old monasteries from Vâlcea (Horezu, Bistrita, and Turnu) and Gorj (Tismana and Polovragi) counties or in the forest fund.

Present study was conducted in order to improve knowledge about sweet chestnut from in this area and assess its qualities having the aim of at preserving indigenous genetic resources, affected by the genetic erosion and promoting valuable genotypes, which can be used for chestnut crop recovery and breeding new cultivars and rootstocks.

Based on physiological measurements taken with device LCI Photosynthetic Portable System, accompanied by documentation of the chestnut shade tolerance, data which strengthens this hypothesis was obtained.

## Key words

sweet chestnut,  
physiological elements,  
biodiversity

# Filamentous fungi variation in the soils from grasslands populated with *A. Capilarris* I from Banat`s Mountains

Borozan Aurica Breica<sup>1</sup>, Dogaru Diana<sup>2</sup>, Bordean Despina Maria<sup>2</sup>, Moldovan Camelia<sup>2</sup>, Sandoiu I.<sup>3</sup>, Dumbrava Delia<sup>2</sup>

<sup>1</sup>Banat`s University of Agricultural Sciences and Veterinary Medicine, "King Michael I of Romania" ,Faculty of Horticulture, Calea Aradului no. 119, RO- 300645, Timisoara, Romania; <sup>2</sup> Banat`s University of Agricultural Sciences and Veterinary Medicine, "King Michael I of Romania" ,Faculty of Food Technology, Calea Aradului no. 119, RO- 300645, Timisoara, Romania; <sup>3</sup>Banat`s University of Agricultural Sciences and Veterinary Medicine, "King Michael I of Romania" ,Faculty of Agriculture, Calea Aradului no. 119, RO- 300645, Timisoara, Romania

\*Corresponding authors: [diana25\\_dv@yahoo.com](mailto:diana25_dv@yahoo.com), [ionut\\_sandoiu@yahoo.com](mailto:ionut_sandoiu@yahoo.com)

**Abstract** The diversity of soil microorganisms is influenced on the one hand by the relations between plants roots and soil microorganisms in rhizosphere. This study tracks the influence of *A. capilarris* L, besides humidity and heights on filamentous fungi. In order to isolate this microbial group were taken soil samples from 14 different places from Banat`s Mountains (Anina Mountains, Almaj Mountains and Semenic Mountains, all from Western Carpathians). All samples were taken in autumn. The samples were prepared in laboratory. For filamentous fungi study was applied the method of soils grains and then fungal genders were put on Czapek medium and studied macroscopic and microscopic. There was observed that fungal

## Key words

filamentous fungi, "method of soils grains", *A. capilarris*, Banat`s Mountains

diversity is generally reduced. Fungal biomass could be influenced by humidity. Population degree of soil grains depends of heights.

## **The influence of climatic factors on the vegetation development phases of peach species (partial observations)**

**Dămureanu Andreea Ionela\*, Baci A.A.**

University of Craiova, Faculty of Agriculture and Horticulture

\*Corresponding author. Email: [pretorianandreea@yahoo.ro](mailto:pretorianandreea@yahoo.ro)

**Abstract** Studies on the impact of environmental factors on tree species phenology allow decisions about the appropriate choice of product for different areas of culture, according to ecological conditions.

This paper has proposed to study the influence of climatic factors changes lately on the development phases of vegetation peach *Prunus persica* L. species (Batsch) in terms of Oltenia Romania). The observations refer to the second stage of fruit bud rest, the optional rest.

The impact assessment of climate variability on tree species involves the use of thermal agroclimatic indices that can quantify the producing of a major thermal risk in tree species during the spring season, while the risk to late frosts is major for fruit growing production.

The climatic factors of the previous year, the exit out of deep rest (winter) and temperatures of the first months have produced severe damage to the experimental field research SCCCPN peach groves.

### **Key words**

phenological observations, climatic variations, peach

## **Influence of climatic factors on the phenology spring in Southern Oltenia (Romania)**

**Cosmulescu Sina<sup>1</sup>, Baci A<sup>1</sup>., Gruia M.<sup>1</sup>**

<sup>1</sup>Department of Horticulture & Food Science, Agriculture & Horticulture Faculty, University of Craiova, A.I. Cuza Street, No.13, 200585, Craiova, Romania

\*Corresponding author. Email: [sinacosmulescu@hotmail.com](mailto:sinacosmulescu@hotmail.com)

**Abstract** Plant phenology is one of the most sensitive and easy to observe features that are changing in response to climate changes, and is considered the ideal way to demonstrate the effects of global warming on the living world. Based on phenological observations, the influence of annual meteorological elements was analyzed on spring phenophases in peach trees grown in Craiova, Oltenia region. Analysis of data obtained showed that flowering time duration in peach is a feature which is influenced by climatic factor and genetic factors. The influence of meteorological factor is manifested in different years, thus causing - in the same cultivar- different time durations between the beginning and the end of flowering. It was found that in the years with early spring season and high temperatures, vegetation phenological phases have developed much earlier than in normal years. Study of phenology in correlation with ecological factors can be used in horticulture for making decisions on composition of cultivars able to adapt to current climate changes, to escape climate accidents, that are common in some areas and sometimes leading to loss of harvest.

### **Key words**

climatic factors, phenology, peach

# Evaluation of physicochemical characteristics on commercially available carrot juice and carrot juice mixed with other fruit

Cozma Antoanela<sup>1\*</sup>, Petcu Mihaela<sup>1</sup>, Velicevici Giancarla<sup>1</sup>, Cretescu Iuliana<sup>2</sup>

<sup>1</sup>Banat's University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" from Timisoara; <sup>2</sup>"Victor Babes" University of Medicine and Pharmacy Timisoara

\*Corresponding author. Email: [antanelacozma@yahoo.com](mailto:antanelacozma@yahoo.com)

**Abstract** The aim of this study was to evaluate some physicochemical characteristics (pH, density, total soluble solids (TSS), titratable acidity(TA)) of commercially available carrot juice and carrot mixed juice with other fruit in the city of Timisoara. Samples of juices were purchased from a local markets in February 2015. Data were statistical procesed to XLSTAT 2015.1 and Student test to demonstrate statistically significant differences,  $p < 0.05$  was considered as significant. Effect of composition juice on physicochemical characteristics of juices is very significant (pH – p-value (two-tailed)  $< 0.00001$ , density – p-value (two-tailed)  $< 0.0001$  and conductivity- p-value (two-tailed)  $< 0.00001$ , TSSC - p-value (two-tailed)  $< 0.00001$  and TA p-value (two-tailed)  $< 0.00001$ ).

## Key words

carrot juice, pH, density, conductivity, TSS, TA

## Weeding levels in grain maize

Cîrciu D.V.<sup>1</sup>, Manea D.N.<sup>1</sup>

Banat's University of Agricultural Sciences and Veterinary Medicine Timisoara, Calea Aradului, Nr. 119 Timisoara, Romania;

\*Corresponding author. Email: [manea\\_dn@yahoo.com](mailto:manea_dn@yahoo.com)

**Abstract** In order to establish the most efficient weed control methods in crops, we need an accurate weed map. Besides determining the number of weeds playing important roles, we also need to know the floristic composition of weed species. The level of weeding in five Romanian localities oscillates between 107 weeds/m<sup>2</sup> in Jena and 145 weeds/m<sup>2</sup> in Măguri. *Echinochloa crus-galli*, *Sorghum halepense*, *Amaranthus retroflexus* and *Digitaria sanguinalis* were predominating weeds. The weed species with the widest distribution was *Amaranthus retroflexus* that shared 8.65% of the 41 weed species. Annual weeds represented 53.66%, and the botanical family with most weed species was *Asteraceae* (13 weed species).

## Key words

weeds, grain maize, share, biological categories, biological families

# Eating Romanian vegetables with Romanian taste. Supply with Romanian vegetable seeds in the period 2015-2020

Glăman, Gh.<sup>1\*</sup>, Lăcătuș, V.<sup>1</sup>, Scurtu, I.<sup>2</sup>, Vînătoru, C.<sup>3</sup>, Floarea Burnichi<sup>3</sup>, Minerva Heitz<sup>4</sup>, Aurelia Diaconu<sup>5</sup>, Gicuța Sbîrciog<sup>6</sup>, Silvica Ambăruș<sup>7</sup>, Luminița Nicoleta Cârstea<sup>6</sup>

<sup>1</sup>AFSA, Horticulture departament, <sup>2</sup>University „C. Brâncoveanu”, Pitești, <sup>3</sup>RDSVG Buzau, <sup>4</sup>RDSVG Iernut, <sup>5</sup>RDCAPS Dabuleni, <sup>6</sup>RDIVFG Vidra, <sup>7</sup>RDSVG Bacau. \*

\*Corresponding author. Email: [horticultura@asas.ro](mailto:horticultura@asas.ro)

**Abstract** During the last years, more and more, our consumer is looking for Romanian vegetables. That is why vegetable research in Romania has established an objective of increasing the offer of certified seed of vegetables by 3.6 times. This means that from 17,650 kg seed in 2015, it will reach 63,816 kg by 2020. The nutritional value of Romanian vegetable species, favorable environmental conditions and the experience that we have are safe premises for success. At the moment, there are Romanian varieties and hybrids which are appreciated by Romanian consumer. Such known varieties of tomatoes are *Pontica* 10, *Vipon*, *Buzau* 10 and 47, *Kristinica*, *Carisma* and not least *Siriana* hybrid. For peppers we have bell peppers *Cornel* 204 and *Asteroid* 209, sweet pepper *Buzau* 10 and *Bârsan* and long pepper *Ionel*. For eggplant we have *Luiza*, *Drăgaica* and white *Belona*. As for white onion variety, there is *De Buzau* and for red onion *Roșie de Arieș*. The climbing beans are *Auria Bacaului*, *Mădărășeni* and *Maura 2000*. As dwarf beans, we have *Mileniu*, *Ișalnița* 43 and *Iuliana*. In garden peas, there are *Adela* and *Ișalnița* 60. For parsnip there is the variety *Alb Lung*. For watermelons, there are *Dulce de Dăbuleni* and *Oltenia*. As for radishes, there is *Roșioară* and for winter radish, *Negre Rotunde*. And finally, autumn cabbage varieties are *Silviana*, *Buzoiana* and *De Buzau*, sought and valued for pickles.

## Key words

Romanian vegetable cultivars, quality, certified seed production

## Influence of pre-emergent crop on weeding rate and crop in winter barley

Cârciu G.<sup>1</sup>, Alda S.<sup>1</sup>, Cristea T.<sup>1</sup>, Drăgunescu Anca<sup>1</sup>, Turc Alina<sup>1</sup>, Molnar L.<sup>2</sup>

<sup>1</sup>Banat's University of Agricultural Science and Veterinary Medicine, Faculty of Horticulture and Forestry;

<sup>2</sup>Banat's University of Agricultural Science and Veterinary Medicine, Faculty of Agriculture

\* Corresponding author. Email: [carciu\\_gheorghe@yahoo.com](mailto:carciu_gheorghe@yahoo.com)

**Abstract** The role of the pre-emergent crop materialises in both decrease of weeding and increases in yield without supplementary expenses. The number of weeds/m<sup>2</sup> in monocultural winter barley is 82.12 in 2013 and 90.05 in 2014. In 2013, the percentage of weed control due to the pre-emergent crop oscillated between 20% (winter wheat) and 31.26% (soybean). The yield of winter barley oscillated between 52.60 q/ha and 57.40 q/ha. Relative yield oscillated between 108.23% and 118.11%, while increases in yield oscillated between 4 q/ha and 8.80 q/ha, respectively. In 2014, the percentage of weed control due to the pre-emergent crop oscillated between 15.59% (winter wheat) and 21.73% (soybean). Winter barley yields oscillated between 60.11 q/ha and 64.85 q/ha. Relative yield oscillated between 106.88 and 115.31%, while yield increases oscillated between 3.87 q/ha and 8.61 q/ha, respectively.

## Key words

winter barley, pre-emergent crop, percentage of weed control, absolute yield, relative yield

# Typological framing of forest from Lunca Muresului Natural Park

Cadar N .<sup>1\*</sup>

<sup>1</sup> Forest Research and Management Institute

\*Corresponding author. Email: [nicu\\_cadar@yahoo.com](mailto:nicu_cadar@yahoo.com)

**Abstract** Forest typology emerged from practical needs to demarcate uniform forest areas where the same type of work needs to be applied. In the first part of the paper an analysis of the evolutionary emergence of the three types has been made: forests, sites and ecosystems. All typologies took into account the definition of the forest as a system (ecosystem) consisting of two interacting subsystems (biocenosis and biotope, or site), but to define the types each typology gave more importance to one criterion or another. It was finally the ecosystems' typology largely responsible for the definition of forest as a complex community life and the type definition (model) in accordance with systems theory. In this respect it was done a research regarding the framing of the forests in the Lunca Muresului Natural Park after the three types. The framing into forest types and site types was done after forest arrangement works and ecosystem types framing was done in the present paper. According to the methodology, the framing into types of ecosystems is based on the types of forest and site types previously set on different criteria, which complicates the framing into types of ecosystems. It is also mentioned that the framing into ecosystem types succeeded in a relatively low percentage (6.5% of the park area) and because there have been created two new types of forest totaling 32.3% of the park area, having no correspondent in the current systematic. Therefore further research is required in order to fit the entire forest area in ecosystem types.

**Key words**

type, site, ecosystem

## The establishment of shelterbelt against the snow cover of national roads in Arad county

Cadar N.<sup>1\*</sup>, Chisăliță I.<sup>1</sup>, Merce O.<sup>1</sup>, Turcu D. O.<sup>1</sup>, Cântar I. C.<sup>1</sup>, Crăciunescu A.<sup>2</sup>, Visoiu D.<sup>2</sup>

<sup>1</sup> – Forest Research and Management Institute; <sup>2</sup> – University of Agricultural Sciences and Veterinary Medicine of Banat Region Timisoara

\*Corresponding author. Email: [nicu\\_cadar@yahoo.com](mailto:nicu_cadar@yahoo.com)

**Abstract** Shelterbelts represent the most efficient way in counteracting the snowstorms on national roads. The present work concerns the national roads in Arad county. There have been identified 23 road segments where almost every year heavy snow occurs. The road segments are 6800 meters long having an area of 20.4 hectares. After establishing the road sections, perimeters of shelterbelts have been achieved and GPS measurements have been made then to draw maps. Soil mapping was undertaken and soil types and subtypes have been determined; soil samples have been collected for analysis. The study on climatic conditions was based on the data from Arad meteorological station. In order to provide better protection against the snow cover, snow accumulating shelterbelts were chosen. Depending on the forest

**Key words**

forest shelterbelts, national roads

site type and especially on the type of shelterbelts, compositions and afforestation schemes have been determined.

## Studies on postharvest quality of some quince genotypes

Beinsan Carmen<sup>1\*</sup>, Sumalan R.<sup>1</sup>, Sumalan Renata<sup>1</sup>

<sup>1</sup>USAMVB Timisoara, Faculty of Horticulture and Forestry

\*Corresponding author. Email: [hortic2002@yahoo.com](mailto:hortic2002@yahoo.com)

**Abstract** The research objective was to determine the physiological and biochemical changes in the main indices during postharvest processes quince fruits.

Fresh fruits and vegetables are highly perishable commodities that can easily spoil or deteriorate during produce handling along the supply chain from the producer to the final retailer.

All fruits and vegetables are living parts of plants containing 65 to 95 per cent water. They continue their life metabolisms after harvest and thus change their characteristics depending on product handling, storage and treatment, all of which have a decisive impact on the life of the product.

Quince is a pome fruit with limited world consumption, as such very few data are available about its pre and postharvest characteristics. The harvest time lasts from mid September to the middle of October based on the different cultivars. Quince fruit show a climacteric respiratory pattern [3].

### Key words

quince, pH, storage, total sugar content, dry matter

## The influence of storage conditions on quality in some varieties of pears

Beinsan Carmen<sup>1\*</sup>, Sumalan R.<sup>1</sup>, Sumalan Renata<sup>1</sup>

<sup>1</sup>USAMVB Timisoara, Faculty of Horticulture and Forestry

\*Corresponding author. Email: [hortic2002@yahoo.com](mailto:hortic2002@yahoo.com)

**Abstract** Fruit maturation represent the vegetative phase from the beginning of fruit ripening and continuing with maximum accumulation of organoleptic qualities, in other words, the achievement of consumption maturity. In all this time, in fruits occur a lot of physiological and biochemical processes from which result modifications of color, consistency, juicy and taste of fruits [11].

Postharvest factors can be optimized in such a way that even when certain preharvest factors are suboptimal, browning incidence can be prevented to a large degree. Postharvest factors that influence the development of browning disorders are the picking date, the duration of the cooling period, the CO<sub>2</sub> and O<sub>2</sub> partial pressure, the storage temperature and storage duration [1,6]. Optimal storage conditions for several pear cultivars susceptible to browning disorders have been summarized by [Richardson and Kupferman \(1997\)](#) and [Schenk \(2004\)](#) [7,8]. The optimal time for harvest is determined by the output destination: fresh consumption, industrialization, etc. For fresh fruit consumption, harvest maturity is determined differently depending on the species, variety, storage conditions, away from the consumer, etc.

### Key words

post-harvest, pear, quality, firmness, storage

# Research regarding agrochemical characteristics and heavy metals content in a vineyard soil

Buzatu Gilda-Diana<sup>1\*</sup>, Dodocioiu Ana-Maria<sup>1</sup>

<sup>1</sup>University of Craiova, Faculty of Agriculture and Horticulture, A.I. Cuza Street, no. 13, Craiova, Dolj County.

\*Corresponding author. Email: [diana\\_buzatu@yahoo.com](mailto:diana_buzatu@yahoo.com)

**Abstract** Soil has a diverse heavy-metal concentration that is dependent on the parent material from which it is formed, the formation processes, and the composition and proportion of the components of the solid phase. The total forms of Cu, Zn, Pb, Ni, Cr, Co and Cd in vineyard soil from Breasta, Craiova were analyzed in order to understand the existence of metals in soils and their potential availability to plants. The content of metals was determined by ICP-MS analysis. Also, soil samples were analyzed in terms of agrochemical characteristics as these properties of soils are a key factor in determining the degree of fertility, so their productive potential and also to develop measures to improve agrochemical and increasing fertility through the use of chemical and organic fertilize.

## Key words

agrochemical properties, heavy metals, soil, vineyard.

# The impact of mining activities from Moldova Noua on forests

Cântar I. C.<sup>1\*</sup>, Chisăliță I.<sup>1</sup>, Cadar N., Merce O.<sup>1</sup>, Turcu D.<sup>1</sup>

<sup>1</sup> Forest Research and Management Institute

\*Corresponding author. Email: [cantar.cosmin@yahoo.com](mailto:cantar.cosmin@yahoo.com)

**Abstract** Located in most cases in areas that belonged of forest areas, current or former mining areas from Moldova Noua removed from forest fund vast tracts of forest, being replaced with mining objectives. This paper aims to achieve a quantitative and qualitative assessment of areas affected by mining residues, surfaces which mostly were part of the forest. The impact of mining on the environment in Moldova Noua in general and forests in particular is a broad topic which, undoubtedly, can not be exhausted only by publishing an article. The negative effects of mining activity can be measured and quantified in money even through a wide assessment of soil, water, blanket herbaceous forest etc. This paper is intended as a starting point on evaluating the impact of mining on the environment in the town Moldova Noua, especially today when, despite the existence of large amounts of ore in the underground, mining activity in this region seems to be forgotten, other industries prospering in the area.

## Key words

Moldova Nouă, mining activity, tailing dumps, forestier fund

# Forest plantations on the tailing dumps from Moldova Nouă – periurban forest

Cântar I. C.<sup>1\*</sup>

<sup>1</sup> Forest Research and Management Institute

\*Corresponding author. Email: [cantar.cosmin@yahoo.com](mailto:cantar.cosmin@yahoo.com)

**Abstract** Located about 1.5 km SW of "Orasul Nou" neighborhood and Moldova Veche village, the forest plantations from tailing dumps from Moldova Noua, in addition to the eco-protective role that they have against wind erosion, represents a real periurban forest due to human activities on they favor and due to many benefits to society. This paper aims to evaluate the activities and benefits characteristic of peri-urban areas present in the study area and identify opportunities for their improvement through human intervention.

## Key words

Moldova Nouă, tailing dumps, forest plantations, periurban forest

# Research on fertigation culture watermelons on sandy soils

Rățoi I<sup>1\*</sup>., Toma V<sup>1</sup>., Mihaela Croitoru<sup>1</sup>, Cristina Emanuela Vladu<sup>2</sup>

<sup>1</sup>Research-Development Centre for Agricultural Plants on Sands – Dăbuleni, Str. Victoriei, 130, Code 207220, Dăbuleni, County Dolj, Romania, Tel. 040 251 334 402; <sup>2</sup>Faculty of Agriculture and Horticultura, Craiova, Romania

\*Corresponding author. E-mail: [iulianratoi@yahoo.com](mailto:iulianratoi@yahoo.com); [ccdcpondabuleni@yahoo.com](mailto:ccdcpondabuleni@yahoo.com)

**Abstract** Watermelons culture on sandy soils in southern Oltenia has seen significant changes. From traditional technology by direct sowing cultivation in field cultivation technology has passed through seedling, grafted plants, low tunnel protection shelters, polyethylene mulching and drip irrigation.

## Key words

Sandy soils, watermelons, fertigation, grafting

By aggregating the fertilization effect of grafting watermelons grown on sandy soils have obtained productions between 39.25 t / ha in unfertilized variant founded grafted plants and 86.22 t / ha in variant fertilized with N100 to 100 P<sub>2</sub>O<sub>5</sub> K<sub>2</sub>O 100 + 77 N, established culture grafted plants.

Fertigated variants were made in the first decade of harvest productions whose share of total production was 59.8 to 62.0%, higher than those fertilized classic, assuring the macro and microelente as growth and development phases of the nearest plant requirements. Regarding the influence of grafting on earliness of production, the results confirm those reported in the literature showing that by grafting yields are obtained late in that early production share of the total production of grafted plants was 51.5% and 63.5% grafted plants.

At the grafted plants were obtained with 32.5% heavier fruit than to cultivate ungrafted plants. Variant that were harvested fruits largest (9.443 kg/fruit) was the varian fertilized with N100 100 P<sub>2</sub>O<sub>5</sub> + K<sub>2</sub>O 100 fertigation, dose 2, established with grafted plants.

# Anthocyanins and phenolics in Cabernet Sauvignon and Pinot noir wines

Nistor Eleonora<sup>1\*</sup>, Dobrei Alina<sup>1</sup>, Dobrei A.<sup>1</sup>, Camen D.<sup>1</sup>, Mălăescu Mihaela<sup>1</sup>, Prundeanu H.<sup>2</sup>

<sup>1</sup>Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania" - Timisoara, Faculty of Horticulture and Forestry; <sup>2</sup>Victor Babes University of Medicine and Pharmacy, Timisoara, Faculty of Medicine

\*Corresponding author: [nisnoranisnora@gmail.com](mailto:nisnoranisnora@gmail.com)

**Abstract** Cabernet Sauvignon and Pinot Noir are among the most well-known red wines in the world. Grape variety and chemical composition of the wine are important in oenology. Phenols give to the wine the color, astringency and bitterness. Certain researches confirm the antioxidant activity and health benefits of phenols, including anthocyanins. Wine samples were collected from a set of 36 bottles of red wine (Cabernet Sauvignon and Pinot Noir) from two wineries, sold in supermarkets at the same commercial value, with a vintage range from 2011 to 2013. The lowest concentration in anthocyanins was found in Pinot noir wine from Minis winery in 2012 (214.2±14.0 mg/l) while the highest value was registered in the 2013 in the Cabernet Sauvignon wine obtained in Recas winery (479.3±46.64 mg/l). Cabernet Sauvignon wines from both wineries contains anthocyanins concentrations of moderate values with limits among 258.8±10.29 mg/l (2012 vintage/ Minis) and 479.3±46.64 mg/l (2013 vintage/ Recas). The highest total phenolics content of 2758±149.9 mg/l were found in the wine obtained in the Recas winery in 2013. The lowest phenolics content was registered in Pinot noir wine from 2012 in Minis winery (1752±94.9 mg/l). Overall, in the two wineries, Cabernet Sauvignon wine has a higher content in anthocyanins and phenols. Climatic events, extended drought and rainfall and soil conditions make the difference between phenolic content in the two red wines analyzed. The aim of the study was to compare the total anthocyanins and phenolics content of Cabernet Sauvignon and Pinot Noir wines from two wineries from the west of Romania.

## Key words

wine, wineries,  
anthocyanins, phenolic,  
vintage, antioxidant

## Red wine benefits and side effects: a Review

Nistor Eleonora<sup>1\*</sup>, Dobrei Alina<sup>1</sup>, Dobrei A.<sup>1</sup>, Camen D.<sup>1</sup>, Mălăescu Mihaela<sup>1</sup>, Prundeanu H.<sup>2</sup>

<sup>1</sup>Banat University of Agricultural Sciences and Veterinary Medicine "King Michael I of Romania"- Timisoara, Faculty of Horticulture and Forestry; <sup>2</sup>Victor Babes University of Medicine and Pharmacy, Timisoara, Faculty of Medicine

\*Corresponding author: [nisnoranisnora@gmail.com](mailto:nisnoranisnora@gmail.com)

**Abstract** Various studies indicate that a moderate and regular red wine consumption is associated with human health benefits. Clinical and experimental data have highlighted that red wine may protect against cardiovascular diseases, atherosclerosis, certain types of cancer, type 2 diabetes, neurological disorders, age-related macular degeneration and have positive effects on lung function or aging. One of the components of red wine, resveratrol is known and proven by numerous studies that have antioxidant properties. Red wine contains, however, antioxidants more powerful than resveratrol, like quercetin, catechins and epicatechins. Research has proved that quercetin has antihypertensive effect with protection against LDL cholesterol oxidation and promotes balanced blood pressure and the ability to

## Key words

red wine, antioxidants,  
polyphenols, resveratrol,  
quercetin, cancer, catechin,  
epicatechin

inhibit platelet aggregation. The nature of wine protective constituents is unclear and their action is incompletely understood. It seems that bioactive compounds are benefic due to their antioxidant, lipid regulating, and anti-inflammatory effects. Despite many beneficial effects of red wine, questions about moderate alcohol consumption remain.

## **The behavior of some local walnut biotypes in the Western part of Romania**

**Olaru Daniela Nicoleta<sup>1</sup>, Iordănescu Olimpia Alina<sup>1</sup>, Blidariu Aurelia<sup>1</sup>, Mălăescu Mihaela<sup>1</sup>, Moatăr Mihaela Maria<sup>1</sup>, David I.**

<sup>1</sup>Banat's University of Agricultural Sciences and Veterinary Medicine Timisoara, Calea Aradului, Nr. 119 Timisoara, Romania;

\*Corresponding author. Email: [dana\\_olaru78@yahoo.com](mailto:dana_olaru78@yahoo.com)

**Abstract** The Walnut, is one of the oldest tree species, with particular social and economic importance due to its food value fruits. Wood quality is superior, the use of other organs (leaf, bark, endocarp, shoots) as a source of raw material for the chemical, pharmaceutical and as decorative species and eco-high ameliorative effect. Walnuts are a complete food and concentrate containing: fat - 52-77%, 12-25% protein substances, 5-24% carbohydrates, minerals and vitamins 1.3-2.5%. Fresh fruit contains: water 17.57%, 11.05% nitrogenous materials, fat - 41.58%, 26.5% extractive materials, cellulose 1.3%, ash 1.6% Walnut fruit is rich in Cu and Zn, further comprising K, Mg, P, S, Fe, Co, vitamins A, B, C, P. The energy value of a pound of nuts is equivalent to: 1 kg meat + bread + 0.5 kg plums + fish + 1 kg pears, providing 6364 calories. Walnut crops that provide the raw material for many industries. Extending walnut plantations as large surfaces requires verification of Banat walnut biotypes behavior to establish the most appropriate choice. Previous research has been done by many researchers (1, 2, 3, 4, 5, 6,7).

### **Key words**

walnut, walnut biotype, germoplasm, biometrics

## **Research upon apricot fruit quality on root with different generative branches, under green cutting application**

**Olaru Daniela Nicoleta<sup>1</sup>, Iordănescu Olimpia Alina<sup>1</sup>, Dobrei A<sup>1</sup>., Dobrei Alina<sup>1</sup>, Moatăr Mihaela Maria<sup>1</sup>, David I.**

<sup>1</sup>Banat's University of Agricultural Sciences and Veterinary Medicine Timisoara, Calea Aradului, Nr. 119 Timisoara, Romania;

\*Corresponding author. Email: [dana\\_olaru78@yahoo.com](mailto:dana_olaru78@yahoo.com)

**Abstract** The apricot is a fruit tree species particularly important due to fruit quality, precocity and productivity. Apricots are among the most popular fruits, both fresh consumption and especially for industrialization (2).

From apricot production, 70% is used as industry, because products obtained are very aromatic and fine.

The research was conducted in the Didactic Station of fruit tree plantation Timisoara in 2012-2013, the trees were planted in 2000, at 6 apricot varieties with different ripening periods: Traian and Dacia - early ripening varieties; Mamaia and Sulina - middle age varieties ripening; Litoral

### **Key words**

green cutting, apricot, fruit branches

and Olimp - late ripening varieties.

On apricot varieties were made cuts in green at different times of the growing season 20<sup>th</sup> May and 10<sup>th</sup> June. It was traced the influence of these cuts on product quality, by determining the size of the fruit.

Following the results obtained in the 6 varieties under study, it could be concluded that the best behaved in terms of fruit quality, variety Dacia in both times of execution of cuts in green, followed by variety Mamaia.