

## The influence of tree formation methods on development and placement of generative organs in apple orchard

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**Abstract** The experiment was carried out in a commercial orchard "Codru-St" Ltd. founded in 2000 with bench-graftings. Apple trees of the varieties Gala Must, Golden Reinders and Idared were grafted on dwarfing M9 rootstock. The distance of plantation between rows is 4.0 m, and between trees in the row is 1.0 m. There were studied 4 variants (method) of crown formation. From 2002 to 2006 were studied the quantity of bud-fruit formations, bud-fruit formation type, their located on different age branches and fruits location on different branches in dependence of slender spindle crown formation methods.

It was established that on the studied varieties, the highest cumulated quantity of bud-fruit formations formed variety Gala Must 667-876 pcs and in function of crown formation in the variants with minimize of pruning degree at crown formation and design of 2 provisional horizontal branches through fixation on row direction were was established an increase of the 15-31% in comparison with control variant. At the studying varieties and methods of crown formation during 2003-2005 years the spurs share constitute 40-46%, the multi-annual spurs 38-45%, thorns and rods average 6-9%. Studying the investigated variants of crown formation, there were no significant differences in location of the bud-fruit formation on different branches. Location of the fruits on different age branches, as the bud-fruit formations is a hereditary characteristic of the variety. At the varieties of III type of fructification, grafted on M9 rootstock, the fruits mostly were located on the young branches with ages of 1-3 years. Investigation of the fruits and bud-fruit formations located on the different age branches permitted to recommend pruning degree of the fruit-bearing branches for maintaining the correlation between the growth and the fructification.

### Key words

Apple Tree, Varieties, Orchard, Bud-fruit formation, Different age branches, Fruits

## Influence of five rootstocks on growth and development of two apple varieties in the nursery

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**Abstract** Investigations were conducted in 2008-2009 in Nursery Fruit Company „Codru-ST” Ltd., which is located in the centre of Moldova. As objects of research were used two apple varieties (Idared and Golden Reinders) and were bench-grafted on five rootstocks (M 9, 62-396, M 26, M 7 and MM 106). Distance of planting was 90x35 cm.

In the results of the researches made it was established that in the first and second fields of the fruit nursery the main indicators of apple tree growth manifest significant increases in function of increase of rootstocks' vigor of growth that were used in the process of grafting and the evidence obtained corresponds to the current standard of the Republic of Moldova.

### Key words

Apple Varieties, Variety-rootstock Combination, Rootstock, Planting material, Fruit Nursery

# The impact of covering plants with weeds species on the prior plant and production to the winter wheat crop

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**Abstract** The research was conducted in 2008-2009 and followed the influence of six plants run on the cover of plants with weeds plants culture and production of winter wheat. Predominant weeds were Veronica hederifolia, Viola arvensis, Polygonum Convolvulus, Convolvulus arvensis and Stellaria media. The degree of reduction of weeds, depending on pre-plant fluctuated between 17,84 and 28%, 43% in 2008 and between 20.49% and 29.58% in 2009. Production is directly proportional to the absolute level of covering plants with weeds plants, beings from 38.05 q / ha and 43.26 q / ha in 2008 and between 44.72 q / ha and 52.08 q / ha in 2009.

## Key words

rotation, revolution, culture, degree of covering plants with weeds plants production

# Researches concerning the stability of green matter yield in maize hybrids

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**Abstract** Maize hybrids are grown under a wide range of conditions such as different soil types, soil fertility levels, moisture levels, temperatures and cultural practices. All these variables encountered during the production of the hybrid are collectively referred to as the environment. The objectives of this study were to evaluate the stability of green matter yield for 10 maize hybrids, in tree locations during 2006-2008, through different statistical models to analyze and partitioning of the genotype-by-environment interaction.

The hybrids: Florencia, PR36K67 and PR37N54 have a high static stability associated with lower levels of green mass yield, ie below experimental mean. As such, those hybrids are considered to be specifically adapted to unfavorable environmental conditions to this crop. The hybrids: PR36R10, PR35P12 and PR37F73 achieved high values of this trait associated with a reduced stability, being specifically adapted to favorable environmental conditions.

## Key words

stability, green matter, yield, maize

# Study regarding the influence of environmental conditions on plant weight in maize

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**Abstract** Dry matter yield and feeding value of silage are the most important features describing the productivity of forage maize. In general, it is emphasized that the capacity for production of grain should be kept at a high level, while the yielding capacity for dry matter and the nutritive value of the crop should be improved.

The objectives of this work consisted in determining the effect of environmental conditions on total plant biomass in 10 maize hybrids. The climate conditions variability and environmental conditions during experimental period in the three locations have a significant influence on plant weight for the studied hybrids. In terms of hybrid response to environmental conditions in the three localities it is observed that there are significant differences in plant weight for hybrids: PR37F73 (Manastur-Semlac); PR36D79 (Manastur-Nadlac); PR36R10 (Manastur, Nadlac-Semlac).

## Key words

plant weight, environment influence, maize

# Wet gluten analysis depending on cultivar, fertilization, herbicide application and climate conditions, in winter wheat

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**Abstract** In this paper we present the study over a period of three experimental years of the impact of mineral fertilisation on wet gluten content (%) in two winter wheat cultivars. Researches were performed in the experimental field belonging to the Didactic Station Timisoara during the 2004-2007. The studied cultivars were Alex and Romulus. Fertilization levels were N<sub>0</sub>P<sub>0</sub>K<sub>0</sub>, N<sub>45</sub>P<sub>45</sub>K<sub>45</sub>, N<sub>100</sub>P<sub>45</sub>K<sub>45</sub>, N<sub>150</sub>P<sub>60</sub>K<sub>60</sub>. We used the following herbicides: Icedin super RV, Derby 175 SC and Aim Plus. Experiments were of the polyfactorial type and organised after the sub-divided plot method with 4 replications. As for the climatic characterization we can assess that the agricultural year 2004-2005 was a rainy year, the agricultural year 2005-2006 was a normal one, and the agricultural year 2006-2007 was a dry one. The researches lead us to the conclusions that the correlation between wet gluten content and fertilizer doses in both cultivars is positive, no matter the herbicide we used. The variant with the highest amount of nitrogen applied, i.e. N<sub>150</sub>P<sub>60</sub>K<sub>60</sub> was the variant with the highest values of wet gluten. Another conclusion is that the climate conditions influence directly wet gluten content. So, in the year 2004-2005, rainy year, the average of the wet gluten content in Alex cultivar was 26,27% compared to that of the Romulus cultivar 24,18%. In exchange, in agricultural years 2005-2006 and 2006-2007, normal and dry years, the Romulus cultivar proved superior to the Alex cultivar from the point of view of this quality indicator. Regarding the herbicides, we can conclude that herbicide application has a positive impact on the wet gluten content, the differences between the averages of the three herbicides being small.

## Key words

winter wheat, wet gluten content, mineral fertilization

# Correlation between raw protein content and fertilizer doses in winter wheat under conditions of Banat area

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**Abstract** Research was carried out in Didactic Station Timisoara in 2005-2007 period and aimed at improving fertilizer response with effect on raw protein content. The studied cultivars were Alex and Romulus. Fertilization levels were N<sub>0</sub>P<sub>0</sub>K<sub>0</sub>, N<sub>45</sub>P<sub>45</sub>K<sub>45</sub>; N<sub>100</sub>P<sub>45</sub>K<sub>45</sub>; N<sub>150</sub>P<sub>60</sub>K<sub>60</sub>. We used the following herbicides: Icedin super RV(300 g/l acid 2,4 D+100 g/l dicamba) 1l/ha, Derby 175 SC (75g/l florasulam+100g/l flumetsulam) 0,07 l/ha and Aim Plus (5,75 % carfentrazon-ethyl + 64,7% acid 2,4 D) 0,35 kg/ha. Experiments were of the polyfactorial type and organised after the sub-divided plot method with 4 replications. The soil taxonomical unit was vertic strongly gleyed chernozem. Soy was the pre-emergent crop. As for the climatic characterisation the agricultural year 2004-2005 was a rainy year, the agricultural year 2005-2006 was a normal one, and the agricultural year 2006-2007 was a dry one. The results show that no matter the agri-fund, protein content was strongly influenced by climate conditions. The variant N<sub>150</sub>P<sub>60</sub>K<sub>60</sub> was optimal for this quality indicator in both cultivars.

## Key words

raw protein, mineral fertilization, herbicides, winter wheat cultivars

# Preliminary results regarding the selection of new generative rootstocks for peach trees [*Prunus Persica* (L.) Batsch]

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**Abstract** In Romania the main sources of generative rootstocks for peach are the wild types of common peach (*Prunus persica* (L.)). These constitute a prime selection source, especially those situated on difficult soils like clays or soils rich in limestone.

But the major problems of this type of rootstock are its very high genetic variability and its non-uniformity of growth in the nursery and orchard.

From these populations, peach genotypes have been selected with late maturation, small fruits, and abundant and consistent production, which was considered, suited for rootstock use.

Following a process of clonally selection and studies performed on the preliminary selections few genotypes were considered very well for rootstock use.

In the nursery this genotypes have shown very good germination, giving uniform saplings of limited vigor. They are also easy to root and graft and show good compatibility with various peach and nectarine cultivars, with no external deformations. They give good yields of standard trees.

## Key words

peach stones, selection, breeding, rootstocks

# Nitric pollution of vegetables cultivated in agro-technique conditions of West Romania

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**Abstract** This paper aim is to study the influence of agro-technique methods, applied in vegetable crops: lettuce, spinach, carrots, cabbage, kohlrabi and cauliflower, on their quality. In the period 2005-2007 were grown in an experimental field of Becicherecul Mic, lettuce, spinach, carrots and cabbage crops and it was applied different doses of synthetic and organic fertilizers. Also, in Mosnita Noua was founded an experimental field with cauliflower and kohlrabi, in which we have applied different doses of fertilizers. Samples were taken at full maturity of plants and the analyses were made in the *Laboratory for residues determination* of Faculty of Horticulture and Forestry. Chemical parameters studied in the plant samples were: nitrate, nitrite and ammonium ions.

## Key words

nitrate, nitrite, ammonium, vegetables

# The influence of exogenous enzymes on the dough for bakery product

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**Abstract** This study presents the different action of three types of exogenous enzymes: enzyme preparation witch contains amylase, enzyme preparation witch contains hemicellulase and enzyme preparation witch contains lipase in the dough for bakery products. The determination of the rheological characteristics of the dough is obtained by alveographic method. Addition of exogenous enzymes in bakery products results in larger loaf volume, also the effect of exogenous enzymes on the bread volume improvement results from redistribution of water from the penthosane phase to the gluten phase that gives the gluten more extensibility. The exogenous enzymes are specially used for obtaining bakery products with low fat content, low sintetic aditiv content and high fiber content. Also they are used for improving bakery products texture and flavore. The influence of exogenous enzymes in the dough for bakery can help evaluate and improve the insufficiently developed technology and the nutritive value of the products.

## Key words

bakery, exogenous enzymes, amylase, hemicellulase, lipase, alveograph method

# Organochlorine pesticides characterization by physico-chemical method

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**Abstract** It is known that the use of some synthetic chemicals resulted in the need for solving problems of humanity, but without knowing the consequences or the price that will be paid due to human health or environmental degradation. For this reason, European directives establish pesticides production, storage and handling obligations and conditions.

We present a study on the characterization of organochlorine pesticides in fruits and vegetables available on the market, by atomic absorption spectroscopy method and the following physical-chemical methods of analysis: AOX, UV-VIS spectroscopy, GC-MS.

## Key words

organochlorine, pesticides, UV-VIS spectroscopy, GC-MS chromatography

# Lay out overture with ornamental climbing and voluble plants for pergola, walls, bower and other constructions

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**Abstract** People's love for their beauty and their homes has taken the modern landscaping to another level, much more sophisticated of the one before. Today's tendencies are to create thematic gardens or corners in the impressive styles that have contributed to the developing landscaping architecture. For a great impact it is important to have knowledge about the plants chosen in the garden, the way they will develop over the years, their needs for light, soil and water so they can vegetate well and most of all the impact they will have to the viewer's eye.

## Key words

Plants, garden, corner, landscaping, sophisticated

# Research concerning the quality of the obtained material on a *Freesia hybrida* culture in modern greenhouse conditions

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**Abstract** Being one of the most important cut flowers, Freesia deserves its position in the top of the most profitable greenhouse flower crops (7th place). This is given by the easy culture technology, short time from planting to flower harvesting, big productions of floral stems and few pests and diseases. The greatest expenses in a Freesia culture from bulbs are made on the achievement of the bulbs but they compensate the quality and quantity of the flowers (great number of floral stems, flower stem length, flower stem length to the first ramification, number of flowers in the floral spike, spike length and number of ramifications on floral stem). In the present paper there are presented the results for 5 of the cultivars from a total of 20 taken to research. The results show that the cultivars taken to research show big differences under different characteristics but we recommend taking them all into culture as the weak aspects of a cultivar are compensated by greater aspects of the same cultivar.

## Key words

Freesia, quality, length, ramification, flower

# Research on tracking technology indices perform operational work by different combine harvesters

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**Abstract** Harvesting is crucial group works to ensure timely collection and with minimum loss of grain production. Meanwhile, it has the greatest weight in terms of consumption of labour and material costs throughout the mechanization technology.

This paper presents a comparative study on the performance of different types of cereal grain harvesters having full knowledge of techniques aimed at the rational exploitation. Thus, it was pursued in two Romanian production harvesters (C-12 P and Gloria 1420) and three harvesters made by foreign companies (Claas Dominator, John Deere and MDW) on three farms in Timiș County (S.D. Timisoara, Lovrin and Comloșu Mare) during the wheat harvest in 2009.

## Key words

combine harvesters, work capacity, loss of production

# Researches concerning the influention of some technological factors over the production of one assortment of lettuce cultivated in a greenhouse at the Didactic Base Timisoara

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**Abstract** The assortment of lettuce varieties used in experiment, performed in the period October 2009 – February 2010, was constitute by the next varieties: AS 104, AS 106, AS 107, AS 108, AS 6119 și AS 6123. The lettuce varieties we have considered in our study were introduced in experiments of polyfactor type, the set up of the variants being achieved according to subdivided plot method with four repetitions. The insurance of a optimum space of nutrition (12 – 16 plants/m<sup>2</sup>), contribute very significant at the realization of a cabbages with a superior quality. The use of a natural product Bioplasma at the fertilization assure the obtained of a cabbages with a average weight over 300 grams.

## Key words

lettuce, fertilization substances, planting density, cabbage weight

# Assessing the efficiency of monitoring the environment quality – case study on preventing illegal cuttings

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**Abstract** Implementing the public policies related to environmental issues is a difficult task and implies effort and coordination focused on controlling, checking and double-checking different aspects of the economic activities that might cover illegal actions. Therefore the extent to which the public authorities are using their resources in preventing or penalizing illegal activities in an efficient way is a very difficult task.

Basically the article presents how the Data Envelopment Analysis (DEA) can be used in those situations when the number of inputs and outputs exceeds the number of decision-making units (DMU). The procedure consists of splitting the main problem into some sub-problems, combining a part of the inputs and a part of the outputs in a consistent and logical way, depending on the causal relationships between the two types of data (inputs and outputs). Each sub-problem yields a local efficiency index and, multiplying these indices it is possible to compute an overall efficiency, allowing for sensible ranking of DMU. The method was tested on a set of real data produced by the Romanian forest inspectorates (ITRSV) in the first semester of 2007, referring to the actions carried out for preventing illegal cutting.

## Key words

Data Envelopment Analysis, forest management, benchmarking, and illegal logging

# Wood for energy, sustainable forestry and rural development

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**Abstract** The paper summarizes the challenges brought about by the new problems caused by the climate change, fossil fuel scarcity and biodiversity conservation on forestry and wood industry. It is shown that a much higher economic concentration on wood processing facilities might seriously affect the harvesting companies, who are coping with monopsonies on the log market and monopolistic situations on the stumpage market. The profit margin of harvesting companies is supposed to decrease due to these two market distortions and this situation might have negative effects on rural development, too, as little room will be left for improving the labor conditions and workers' salaries. The article also presents an updated literature review on wood used for energy and a template for supply-driven feasibility studies for pellets industry. Thus it was demonstrated that any efficient pellets facility should use the sawdust resulted from processing very large quantities of stumpage and this type of industry goes along or should be integrated within large sawmills having eventually monopsonistic position on the local or regional markets. The final conclusions basically refer to some needed legal provision against large economic concentrations in wood industry, which are essential for keeping up competitive markets on all important stages of wood production cycle.

## Key words

wood pellets, scale economy, feasibility studies

# Influence measures and control of covering plants with weeds on production at plum

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**Abstract** The research was conducted in 2008-2009 and followed the effectiveness of control measures on covering plants with weeds in plum plantation and production of Didactic Station Timișoara. Weeds prevalent in those two years were *Agropyrum repens* and *Cynodon dactylon*, with a participation rate of 46.97% and 22.59% in 2008 and 27.07% and 23.90% in 2009. Degree of control had values ranging between 44.10% and 90.25% in 2008 and 42.32% and 88.50% in 2009. Production was directly correlated with the degree of weed control, varying between 9.38 t / ha and 18.02 t / ha in 2008 and between 12.35 t / ha and 18.78 t / ha in 2009. Variant Roundup (3l/ha) +2 Hand weeding proved to be most effective, both in terms of reducing the level of infestation and production.

## Key words

plum, level of covering plants with weeds, percentage of participation, grade control, production

# Topographic and microclimatic issues in Moldova Nouă Local Sylvic Department

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**Abstract** Because settlement Caras-Severin in the south-west of the country, not far from the Adriatic to the Carpathians shelter, territory fits moderately temperate continental climate, with subtype Banat Mediterranean hues. The climate is characterized by the movement of air masses from Atlantic and Mediterranean air masses invasion, this paper following these issues. Average values of air temperature distribution varies depending considerable altitude, average annual temperature is 14 0C in the lowlands and 9 0C in the mountains. Rainfall increases in relation to altitude, annual average of between 666 mm and 1243 mm depression Almăj altitude of 1900 m.

## Key words

annual temperatures, solar radiation, air temperature, influence

# Monitoring on forest health in Caraș-Severin County - case study

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**Abstract** After monitoring the health of trees in the sample areas in Caraș-Severin, over a decade, one can say that the forest is healthy overall, if we refer to the two parameters examined: foliar discoloration and defoliation; and it could be seen as a very faint discoloration (from 67.8 to 83.3% of all injured trees). Also, although the percentage of defoliation was present in 59.9 to 76.1% of the trees analyzed was low and middle intensity (at 95.4 and 98.7% of injured trees).

## Key words

monitoring, forest, case study

# Influence on fertilization and density on spring oats production in a variety Lovrin 1

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**Abstract** Research conducted during 2009 come to argue the importance of culture spring oats in the western part of Romania. The results are in direct line with growing applied technology. Fertilization directly affect the level of production as output varied between 23.34 q / ha (V6-N120P60K60) and 11.35 q / ha (V1-fertilization). Importance lies in the fact that oats oat grains are a valuable fodder being fed horses, breeding, youth, milk cows, birds, mixed with a legume mash out in spring of very good quality. The investigations conducted so far it appears that leverages spring oats best nitrogen fertilizers.

## Key words

culture, production, fertilizers, varieties, variety

# The yield relationships in sunflower (*Helianthus annuus*)

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**Abstract** This study was made in order to determine the correlations between seed yield and some yield components, and the direct and indirect effects of these characters on seed yield in sunflower. As well as, we wanted to determine their effects on the final goal of each breeding cycle. In order to better understand the interrelationships among the studied variables path coefficient analysis was used for partitioning correlation in direct and indirect effects.

## Key words

sunflower, hybrids, interdependence, correlations coefficient, yield

The 21 sunflower hybrids were included in the investigation and their seven traits (the seeds productions, the height plants, the number of leaves per plant, the capitulum's diameter, the number seed of to capitulum's, 1000 seed weight and the oil seeds content).The seeds productions was very significantly positively correlated with the number of leaves per plant, with diameter of the capitulum's, with the number of seeds to capitulum's and the 1000-seed weight. The diameter of to capitulum's was very significantly positively correlated with the number of seeds and positively but insignificant correlated with the oil seeds content. It is a very important aspect witch could help breeders obtain the sunflower cultivars with high oil content in the seeds through indirect selection

# The informational system for inventorying the game on a hunting territory

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**Abstract** The fundamental objective of this study is focused on realizing a geographical informational system which integrates all information, all data types, necessary to the management of a hunting territory, from inventorying to superior game cropping and recovering. The efficient study of a hunting territory, utilizing GIS supposes firstly the formation of a database of different types (numeric, cartographic, graphic, text, or another type). It must be covered different domains of environmental, social, economic and cultural nature

## Key words

GIS, Digital Map, Hunting, Mapping, Raster

# Researches concerning the use of some herbicides in apple orchards in conditions of the Didactic Station Timisoara

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**Abstract** Weeds' control in apple orchards is a very important problem because of the negative impact that these plants have upon apple trees' productivity. Their negative impact upon trees is due to the facts that they compete with them for water and nutrients and because they are perfect hosts for different diseases and pests. Four apple varieties cultivated in the orchard of our University have been studied concerning the impact of three different herbicides (Roundup 360 SL – 3 l/ha, Basta 14 SL – 5 l/ha, Gallant Super – 1 l/ha) upon apples' production in 2009. All three herbicide variants gave better results than the control variant, which was not treated. The best results were obtained in the plots where Roundup 360 SL (3 l/ha) was used for Generos and Florina apple tree varieties and in those were Basta 14 SL (5 l/ha) was used for Jonathan and Pionier varieties. We recommend the use of these herbicides because they have a large spectrum and destroy a large number of weeds, having also a good impact upon the production.

## Key words

apple tree, herbicides, weeds, production

# Researches concerning the fruit binding degree and fruits' qualities of some nectarine varieties in conditions of Timisoara

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**Abstract** The peach tree represents of the most important species in the temperate climate because of its fruits' qualities and biological features of trees, being considered the III<sup>rd</sup> fruit tree culture in our country considering the economical importance and culture perspectives. The nectarine culture amplified from 1970, thanks to the collaboration between dr. Vasile Cociu and prof. Leon Hough from the University Reurgers, New Jersey, U.S.A. researchers who made up the genetic bases of some nectarine varieties. Among these we observed the behaviour of eight nectarine varieties cultivated in the climatic conditions of Timisoara concerning their binding degree and fruits' quality during 2008-2009.

## Key words

nectarine, binding degree, weight, sugars, acidity

# Studies regarding the survival percentage of speedling plant in the Luncavița- Verendin perimeter

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**Abstract** This paper presents a synthesis of the annual verification of regeneration în improving perimeter Luncavița – Verendin. This perimeter consisting of degraded lands by sheet erosion. Was followed the survival percentage of seedlings plant on two bodys.

## Key words

Degraded lands, afforestation works

# Research regarding the vegetal oil content of some rape hybrids tested at the research and development Station for potato Târgu Secuiesc

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**Abstract** The quality of rape oil represents one of the main important factors for processing and utilization of rape production. In this paper are presented the results of some rape hybrids tested at Research and Development Station for Potato Târgu Secuiesc in 2009 year. The experiment was done in the frame of the project P.S. 5.1.2. *Introduction of secondary method for processing of agricultural production to obtain the products requested by market, as starch, izoglucose, pectin, malt and vegetal oils*, financed by the Ministry of Agriculture and Rural Development Romania.

## Key words

vegetal oil, rape, experiment

# Mitosis and some sunflower genotypes response

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**Abstract** Sunflower mitosis ensures consistency of the chromosomes number (the heritable material), and the structural integrity of tissues. The mitosis shall also give an indication of sunflower growth and development and ensure the regeneration of vegetable tissues.

In order to determine the sunflower mitotic activity response, were investigated five sunflower genotypes. They were represented by Barolo, Fleuret, Rigasol, Tuscania and Aldaba hybrids. The mitotic activity analyzed to these genotypes, expressed by mitotic index, was variable from 15.6 % to 21.4 % limits. From this point of view, it was found superiority of the mitotic index percentage to Rigasol hybrid with the 7.21 % bigger than Fleuret hybrid, with the 9.91 % bigger than Tuscania hybrid, with the 22.5 % more than Aldaba hybrid and with the 27.4 % bigger than Barolo genotype.

The determination of mitotic activity to sunflower may contribute revealing the peculiarities of cell division to homozygote and heterozygote genotypes and their correlation with the heterosis.

## Key words

mitosis, the mitotic index, sunflower

# Aspects concerning germination tests of *Robinia pseudoacacia* var. *Oltenica*

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**Abstract** Forests reproductive material consisted mainly of forest seeds is the base for forest culture establishment.

Special interest in forest culture establishment, either by direct sowing or by plantations with seedlings, is the quality of forest seeds, particularly their germination attributes.

In order to determine their germination attributes research on several clones of black locust (*Robinia pseudoacacia* var. *oltenia*) and a control were performed.

Results revealed similarities and differences between control and 15 clones of black locust installed, similarities and differences in terms of germination test: period of germination, germination percentage and germination energy.

## Key words

period of germination, germination percentage, germination energy, black locust

# Aspects concerning afforestation in Timis meadow

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**Abstract** Timis meadow offer favourable sites condition for woody plants. But the area occupied by forest are very reduced. Artificial regeneration is the way to increase the forest area. This is the reason way afforestation was made on land occupied long time ago by willow coppice. Mechanical site preparation was made before forest culture establishment. The monitoring of seedling survival was made and the variability of quantitative characters, root collar and seedling height was estimated. Analysis of artificial regeneration highlighted successful regeneration of both situation, installed by plantation or seeding.

## Key words

afforestation, woody plants, seedling

# Researches concerning the effect of phytohormones on plantlets neoformation in *Dianthus caryophyllus*

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**Abstract** *Dianthus caryophyllus* is part of *Dianthus* genus which includes more than 300 species cultivated for cut flowers. The biologic material was represented by carnation stools harvested from a mother plant, obtained in vitro, viroses free. For explants cultivation was used the Murashige-Skoog culture medium with different hormonal balances.

## Key words

*Dianthus* in vitro cell culture, hormonal balances, neoformation

# Researches concerning the effect of some phytohormones combinations on proliferative potential in *Dianthus caryophyllus*

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**Abstract** The effect of some hormonal balances on proliferative potential in *Dianthus caryophyllus* was analysed on "in vitro culture". For explants cultivation was used the Murashige-Skoog culture medium.

## Key words

*Dianthus* in vitro cell culture, hormonal balances, neoformation

# Experimental results concerning the effect of photoperiod and callus culture duration on anthocyanin amount

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**Abstract** The light has a stimulating effect on callus biosynthetic potential, the genotype is the main factor that controls the productive potential of cultures. In photoperiod conditions, the highest biosynthetic potential have been observed for calli of Negru Tinctorial and Burgund Mare varieties.

## Key words

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

# Preliminary results concerning the weeding degree of Jonathan apple tree variety cultivated in conditions of the Didactic Station Timisoara

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**Abstract** Orchards are usually invaded, the same as any other culture, by weeds such as: couch grass (*Agropyron repens*), creeping thistle (*Cirsium arvense*), redroot pigweed (*Amaranthus retroflexus*), sheperd's purse (*Capsella bursa-pastoris*), field bindweed (*Convolvulus arvensis*), common chickweed (*Stellaria media*), dandelion (*Taraxacum officinalis*) and many others, which compete with the trees for nutrients' and water's absorption, having a negative impact upon their productivity. In the orchard of the Didactic Station Timisoara there are cultivated six varieties of apple trees, having the same culture technology, one of them being Jonathan variety, also known as "the king of apples". In 2008, the weeding degree of Jonathan apple tree variety, cultivated in conditions of the Didactic Station Timisoara, was of over 95% so weed control was absolutely necessary. Knowing the predominant weeds is very important in any culture technology so that the growers to be able to control them in the best efficient way, which is why weed filing is an important step before applying the control methods. After doing the weed filing, we noticed that the predominant weeds in Jonathan apple tree variety culture, in 2008, were: *Agropyron repens*, *Stellaria media*, *Cirsium arvensis* and *Capsella bursa-pastoris*.

## Key words

Jonathan, apple, weeds, weed filing, dicotyledonous, monocotyledonous, annuals, perennials

# Dynamic model for seed separation and sorting on vibrating flat sieves

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**Abstract** The operation of separation of seeds is realized due to the vibration of flat sieve. The operation of separation is analyzed with the help of the particle model which executes vibration motions on a plane with friction.

There are analyzed displacement regimes of particle by forward sliding and back sliding. Because of velocity discontinuity which appears as consequence of friction between particle and plan or of dropping on plan in the case of detachment, vibro-impact motion regimes appear. That is why, for the study of motion, there are applied the specific methods, concerning the vibro-impact regimes.

## Key words

flat sieve, dynamic model, material particle, relative motion, vibrational transport

# Preliminary results concerning the weeding degree of Pionier apple tree variety cultivated in conditions of the Didactic Station Timisoara

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**Abstract** Though the progress of technology in agriculture is increasing from one year to another, weeds are still a major problem in orchards and any other culture. In order to establish the efficient and less expensive weed control methods, it is necessary that the grower to know the species of weeds and the weeding degree in the orchard, which can be done by weed filing. The weeding degree in the orchard of the Didactic Station Timisoara in 2008 was over 95%, being present both dicotyledonous and monocotyledonous annuals and perennials. In order to have a good control of them, there was first done an initial weed filing and according to that there were use the most proper control measures. After doing the weed filing, we noticed that the predominant weeds in Pionier apple tree variety culture, in 2008, were: *Agropyron repens*, *Cirsium arvensis*, *Convolvulus arvensis* and *Stellaria media*.

## Key words

Pionier, apple, weed filing, weeds, dicotyledonous, monocotyledonous, annuals, perennials

# Technical research on the use of methods for improving quality seeds at the species *Albizzia julibrissin* Durazz.

Pošta Daniela Sabina <sup>1\*</sup>, Hernea Cornelia <sup>1</sup>, Moatăr Maria Mihaela <sup>1</sup>, Sărac I. <sup>1</sup>, Dragomir P. <sup>1</sup>

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**Abstract** Ornamental woody species are often multiplied by generation and by vegetative varieties [3].

In order to obtain a large number of juveniles is often necessary for reproductive material of good quality and large quantity, to be used to prepare seed so as to secure good conditions for emergence.

Preparation of seed is different, generally recommended: layering, wetting, forcing hydrothermal, scarificare [2].

**Key words**

*Albizzia julibrissin*, generative propagation, seed quality

## Garden terrace development on a block in Şagului 72-78

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**Abstract** Particularly for residents of large cities, flat roofs of the blocks could be converted into valuable green spaces that meet different functions.

The project proposed for a block in the City provides a place for the beach, serving meals, setting up a grill and playground for children with barriers necessary.

The natural environment of communication and the situation influenced the life and work more inhabitants.

**Key words**

garden terrace, Timișoara, district

## Research concerning the genotype influence on the quality to some autumn garlic assortment, taken to experience at the Didactic Base in Timișoara

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**Abstract** The research was done at the Didactic Base in Timisoara in 2008-2009 and the biological material used in research was represented by 7 varieties of garlic: De Frumușani, Menesi, Makói, Makói ősz, Fekete, Francia ősz and Tivadur ősz.

The bulbs content in vitamin C varied between 93.7 mg/kg (Makói) and 152.2 mg/kg (Menesi and Francia ősz). Under the aspect of sugar content, the average values varied between 31.07 mg/kg (Francia ősz) and 35,38 mg/kg (De Frumușani).

**Key words**

garlic, genotype, vitamin C, sugars

# Green Space development project of Dumbrăvița Lake and Green Forest Timișoara

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**Abstract** Timișoara has for the moment a surface of 16 square meters of green space per capita and till 2013 it is considered that it will become 26 square meters. As a solution, has been suggested the creation of green spaces both inside the city (by designing ecological parks, alveolus, park reconstruction and construction) and in the neighbourhood, (planting a new forest in the North as well as reforestation of the Green Forest area.

Considering all those mentioned above, we have concluded that Dumbrăvița Lake, that is situated in the immediate vicinity of Green Forest and in this moment is in a deplorable condition, needs in the near future a sustainable arrangement. This would transform into a nice and pleasant green place for the inhabitants of the city and for visitors.

## Key words

green space, lake, sustainable arrangement

# The effect of some foliar fertilizers upon some tomato hybrids' with determined growth cultivated cold solariums in different fertirrigation conditions

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**Abstract** Growers' bearing to cultivating vegetables in cold spaces, mainly solariums, is a consequence of energy rising costs. In this way, there were and still are affected the small producers and mainly those who cultivate vegetables as beginners and don't have sufficient funds for this. For a profitable culture, in our case tomatoes culture is not sufficient to reduce only the energy or heating costs, which represent an important part in the economical efficiency of a culture. According to this, it is necessary to improve the technological parts of a culture that can compensate the lack of heating, which determined the decrease of early culture and its quality in the first harvest period.

Improving the varieties by cultivating the newest created hybrids, with high productivity and early planting features together with improving the fertilization and irrigation systems by applying them at the same time and fertilizing in certain phenophases, mainly foliar, can contribute to obtaining efficient productions in cold solariums.

The lack of temperature influences the culture technology and has to be compensated by improving some other independent operations, in this case foliar fertilization.

In this article, we present the effect of some foliar fertilizers (Agroleaf, Cropmax, Bionex) upon tomatoes' production and quality of two hybrids with determined growth Magnus F1 and Maximus F1, as a compensation to classical and modern fertirrigation systems with common Kemira fertilizers.

## Key words

hybrids, solarium, production, fertilizers, culture, fertirrigation

# Phases of the technological modernoyed culture flux, factors with high impact upon *Agaricus bisporus* production, cultivated in bizonal industrial production system

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**Abstract** Along mushrooms' culture technology, a distinct operation that has a high role in the development of other operations and in production, is that of preparing the compost and transforming it into nutritive substratum by pasteurization – conditioning methods (for *Agaricus* sp.), by heat disinfection (for *Pleurotus* sp.) and then seeding the mycelium and incubating. At this moment, mushroom growers prefer buying already prepared and seeded and even incubated compost. For them the production activity begins with introducing, in the culture area, the containers with seeded and incubated compost and it continues with applying all the other culture operations until the end of the production cycle.

By this paper we present results obtained in a culture where it was used a compost for *Agaricus* sp. culture – tulpine Lambert, prepared in the II<sup>nd</sup> and III<sup>rd</sup> phases into different culture containers (PE sacks and parallelepiped containers of the same material) which was treated Nemasys M against nematodes. It is remarkable the production obtained by using the prepared compost till the III<sup>rd</sup> phase put into parallelepiped containers to which there were done treatments with Nemasys M against nematodes.

## Key words

compost, recipient, nematode, cycle, nutritive substratum

# Foliar fertilizers agroleaf and cropmax and their effect upon the productive and qualitative potential to some semilong cucumbers hybrids cultivated in industrial greenhouses nonconvetional heated

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**Abstract** Cucumbers culture in greenhouses was and still is an important culture out of the vegetables cultivated in the world and in our country. Along time, there appeared different varieties and hybrids, so that nowadays semilong cucumbers are very important together with the long and small (cornichon) ones.

Because of the high energetic costs of this culture it is necessary to apply new improved and modern technologies or some important operations of these technologies that will give an increase of production and efficacy.

By this article we present some technological operations that might increase considerably the production and which are economically efficient. We refer mainly to some products which contain, among macro and microelements some other components that are favourable and have an immediate effect upon plants metabolism, such as: chelat microelements, auxins, citokinins, giberellins, organic aminoacids, vitamins, vegetal enzymes etc.

## Key words

culture, vegetables, varieties, hybrids, fertilizers, cucumbers, production, greenhouse

# Improvement of some technological crop sequences in the mushrooms *Pleurotus ostreatus* and their effect on yield in some hybrids cultivated under bi-zonal intensive system

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**Abstract** One of the technological crop steps in the mushrooms *Pleurotus* sp. is represented by the „incubation” of the mycelium planted in cellulose nutritive substratum; this aims at mycelium total spread. Yield's quantitative and qualitative level entirely depends on this production sequence.

Incubation may also be defined as the period comprised between planting date and the apparition of the first fructification. This may take place directly in the nature, under the classical system, or in special rooms, under the industrial-intensive crop system.

Most of the newly-created hybrids fructify in two steps and some of them even in three. Successive to incubation, the 1st step- mushrooms are harvested; after this, as novelty in the technology applied in our country, the temperature will be prepared for a new incubation, the so-called „reincubation” (the temperature should not be bigger than 30°C).

The „reincubation” role is to reactivate the total mycelium spread on the crop substratum, in order to increase hybrid efficiency.

Regarding the placement of the cellulose nutritive substratum in crop location, the practice has used, for a long time, different recipients made of wooden boxes coated with polyethylene, PVC boxes or polyethylene bags - these latter ones being mostly used.

**The aim of our researches** was to verify the role of this „reincubation” as step of a modern crop technology in the newly-cultivated hybrids, P-80 and K-12, in the case of the two recipient types - polyethylene bags and polyethylene parallelepiped recipients.

## Key words

mushrooms, substratum, mycelium, technology, incubation, reincubation, hybrid, recipient, yield

# The chemical composition of some walnut biotypes from Padureni, Timiș County

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**Abstract** The walnut is considered in our country, the same as in other parts of the world, one of the eldest fruit species of a great value, being at the same time a fruit tree, a technical tree, a medical one and an ornamental tree.

Man was always interested in walnut, a good proof being the fact that he tried, along time, to spread this species, which has very valuable fruits, easy to keep and transport.

In the current article we present the results concerning the chemical composition of some biotypes cultivated in Padureni locality. All the 20 studied biotypes are valuable, with high values concerning the content of fats, minerals or proteins.

## Key words

walnut, biotypes, composition, minerals, fats, proteins

# Light regime in Apple plantations in function of foliar fertilization

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**Abstract** Light regime was studied in the variety Golden Delicious grafted on M 26, led after slink spill located within the meaning N-S. 4x2 m planting distance measurements were made clear during the 7 to 17 o'clock to 2 o'clock on each height of 0.7 m, 1.5 m and 2.5 m of the ground surface.

The intensive apple orchards with row orientation purposes N-S, during the day, the eastern row of trees receiving 51.5%, 28.2% crown center and the west 45% of the total radiation. Shade covers a larger area in the morning and evening hours, but is worse at 13 when the sun is in zenith. Light regime in the orchard was determined by the intensity of solar radiation incident on the volume and internal structure of the canopy. Planting apple trees driven by time thin, lying between growth and fructification, allows interception of 20.4% of the total light intensity of radiation.

## Key words

Apple, solar radiation, foliar fertilizer

# The maize gene flow evaluation based on transgene detection and quantification

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**Abstract** One approach to ensuring coexistence of genetically modified (GM) and conventional maize (*Zea mays* L.) is the understanding of maize pollen dispersal in the atmosphere in order to quantify the potential contamination of non-GM maize due to pollen-mediated gene flow from GM maize.

For this purpose in our experiments the gene flow in two different commercial fields was evaluated. It was also determined that the increasing of the distance from the GM source proportionally reduce the GM contamination and the necessary distance to decrease the percent below 0.9% is 8.4 m. Our results are in accordance with the EU recommendations which proposed separation distances of 20 m and 50 m for silage and grain maize respectively, values determined based on statistical data of maize areas and aerial photographs with geographic information systems.

## Key words

Bt corn, qPCR, gene flow

# Studies regarding the genetic basis of the multileflet trait on alfalfa

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**Abstract** The objective of the present research was to find out markers linked with multileaflet trait on alfalfa, thus the Bulk Segregant Analysis (BSA) method was applied.

F2 segregating population necessary for study was obtained by self-pollination of a selected multileaflet individual from the F1 generation. The F2 plants were grouped according to the expression of the interest trait. Two types of bulk DNA was extracted – from three foliated (86 % from the individuals) and from multi foliated plants (14% from the individuals). The two types of DNA, named B1 and B2, were analyzed with different molecular markers. We used 18 RAPD and 64 SSR markers primers both selected as results of our research and mentioned in the literature as valuable on tetraploid alfalfa maps. From both DNA types, all the mentioned markers amplified the same fragments. No molecular markers linked with the interest trait was identified. The most recent data suggest that the leaf architecture could be a result of some gene overexpression and in this case the identification of a gene responsible for this trait it is not possible.

## Key words

alfalfa, multileaflet, Bulk Segregation Analysis (BSA)

# Potato virus strain influence *in vitro* plants regeneration

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**Abstract** Virus diseases determine great losses in potato yield and obtaining potato virus free regenerates becomes very important whilst there are no chemical methods for direct viruses eradication. It was observed that the regeneration percentage from meristem culture depends on the viral strain that infects the donor plant and also in a great measure of the explants size. The lowest regeneration percentage was obtained when the inoculum was constituted of the apical meristem without leaves primordia excised from plants infected with both *Potato virus X* and *Potato virus Y*, being of about 15.93%. The highest regeneration percentage of about 92.18% was obtained from plants infected with *Potato virus S* and the explants were constituted of the apical meristem plus four leaves primordia. The lowest regeneration percentages were obtained from explants excised of plants infected with more than one virus strain.

## Key words

Potato viruses, virus infection, *in vitro* virus regeneration

# A New Role of ATAC-HAT in Dosage Compensation

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**Abstract** In *Drosophila* similar to other eukaryotes, SAGA and ATAC HAT complexes exhibit different specificities in the targeted histone lysines and have essential but distinct functions as it is shown by the different phenotypes occurring in their absence. Besides Gnc5, Ada3 is also an important member of both types of HAT complexes. Loss of dADA3 function results in similar chromosome structural defects like the dGcn5 and dAda2a. The abnormal polytene chromosome structure of dAda3 mutants is visible most clearly on the X male chromosomes which appear bloated. Immunostaining indicates that the level of dADA3 protein is increased on the wild type male X. Nonetheless, the levels of K16 acetylated histone H4, a marker of dosage compensation is similar both in the mutant and wild type male X chromosomes.

ATAC displays a preferential specificity towards acetylating histone H4. Besides already known acetylated lysine's (H4K5 and K12) recent findings suggest a possible role of ATAC in H4K16 acetylation. This marker is well known as being specific for X male chromosome which is double transcribed in males compared to females. We have data that show a 2 fold increase in binding of dAda3 protein was observed on the male X that can be easily associated with increase transcriptional activity on the X. Also, the JIL-1 kinase that is not part of the MOF histone acetyltransferase has been shown to be implicated in dosage compensation. Phosphoryllation of H3 at Serine 10 has been shown to modulate chromosome condensation during mitosis. Reduced phosphoryllation of H3S10 can also be observed in ATAC mutants.

## Key words

ATAC-HAT, histone acetylation, Ada3, X-male chromosome

# Assessment of variability in regenerate of *Momordica charantia* by determining total antioxidant capacity

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**Abstract** The purpose of this work is to highlight variability at the regenerate level compared with normal plants of *Momordica charantia* by determining the total antioxidant capacity of fruit and productivity assessment. The analyzed regenerates have better productivity, recording a high average number of fruits per plant (lines 4 and 5). They also have higher antioxidant capacity compared with control plants, green fruit recording the highest values.

## Key words

*Momordica charantia*, antioxidant, variability

# Factors that influence wheat (*Triticum aestivum*) somaclones and gametoclones regeneration

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**Abstract** Gametoclones are double haploids plants obtained by androgenesis or gynogenesis that presents 100% homozygosity at all loci. They are an important research tool and can be used for mutation studies, transformation experiments, genetic analysis and plant breeding. Somaclones are regenerants from somatic cells by tissue culture, which represent an important biological material that permits by selection to obtain lines with special qualities. In this study gametoclones were regenerated from anthers culture of two wheat genotypes, Dropia and Lovrin 41 on two culture media. Immature embryos culture via callus formation was used for somaclones regeneration from the same genotypes on other different culture media. Both anthers culture and immature embryos culture are influenced by the chemical composition of the culture media and by the genotype. The highest number of gametoclones was obtained for the cultivar Dropia and best results in all the culture stages were obtained, for anther culture, when P2 culture medium was used. The cultivar Dropia regenerated the highest number of somaclones and the best culture medium for immature embryos culture was constituted by the MS.

## Key words

anthers culture, immature embryos culture, *Triticum aestivum*

# Research on the biology, technology and use of shallots (*Allium ascalonicum*)

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**Abstract** Since shallots are a little studied and widespread species in Romania, we intend, through this work, to identify as many aspects of biology, technology and use of it. For this reason several experiments were made in the years 2008 - 2009, and will be continued in 2010. In this paper are presented the 2008 results, regarding cultivars used and fertilizer technology. Experiment aimed at studying several local populations of shallots, vegetative propagated, and an F<sub>1</sub> hybrid, propagated by seeds, and their relationship with fertilizers technology applied (chemical fertilizer vs. organic fertilizer applied to previous crop). Regarding plant biology, an important issue, but controversial, is the formation of the false stem. Following research has proved that shallots make false stem, and that the size of it is influenced by fertilization technology. For use it as green onion, important is the number of brother bulbs formed by plant, reaching up to 8 in some populations studied, unlike the F<sub>1</sub> hybrid propagated by seeds, which do not form brother bulbs. Regarding yields, these were mainly influenced by cultivar and less by fertilizer technology applied.

## Key words

shallots, biology, technology, use, local populations, fertilization

# The influence of the climate variability on the main chemical compounds defining the quality of the viticulture production

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**Abstract** Geographical areas that are suitable for wine-growing include multifarious climatic region, relief and soils, which, correlated with variety and stock peculiarity, are determinative in order to obtain high quality grapes production and wines. The monitoring of the ecological offer has great importance, given the fact that by permanently knowing the condition of the viticultural ecosystems we could pass on to their rational and ecological use. The monitoring has the role of effectively finding any change that occurs in the area, offering the possibility to clarify the cause of the change, in order to adopt certain protective measures that allow the maintenance of a durable balance of the ecosystems in the area. The research studies established the reaction of grape vine to variable climatic conditions. Climatic changes leads to disturbance in the normal development of physiological and biochemical processes in plants, with great implication in quality and specificity of wine-growing and wine-making products. The effect of the varied climatic conditions on the Cabernet Sauvignon varieties was evaluated through the analysis of the chemical compounds: defining the quality of the viticulture productions: glucids, acidity, anthocyanins.

## Key words

grape vine, chemical compounds, quality, climate

# Studies regarding the variability of pods number per plant in a landraces collection of common bean (*Phaseolus vulgaris* L.)

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**Abstract** Pods number/plant is an important element of productivity, for common bean cultivated for grains and pods. The purpose of the study was to evaluate the variability for some characters components of production capacity at the local germplasm of dwarf garden bean, to find possible genitors, to be used in breeding programs. Variability in the number of pods per plant is high. The experimental years means ranging from 3.03 pods in Faget landrace and 9.31 pods/plant in Joia Mare 2 landrace. Comparison of variants with Maxidor variety show that only one landrace was superior to its with a very significant positive difference, namely Joia Mare 1 landrace. The Bobis Nano variety shows a positive significant difference. The vast majority of the landraces were below the control. The interpopulation variability on experimental years meana was reduced for all variants. Experimental years conditions also influenced the number of pods per plant, as has been observed that to the biological potential of plants, the recorded values were modest in all years, considering the very high temperatures and lack of precipitation during experimental period.

## Key words

variability, common bean, landraces, pods number/plant

# Leaf stripe resistance (*Helminthosporium gramineum*) in winter barley

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**Abstract** Delivering new disease-resistant varieties on the market is perhaps the most outstanding contribution by plant breeders in achieving global food security. The manipulation of inherent potential of plants in the form of resistant varieties is a cheap, viable and environment friendly alternative to reduce yield losses.

The main purpose of our study was to evaluate the leaf stripe (*Helminthosporium gramineum*) resistance, estimated by the attack intensity levels, of 23 winter barley varieties during 2006-2008.

Given the results of the entire experimental period we observed a better resistance for Dana, Regal, Mădălin and Compact varieties. These Romanian varieties possess resistance genes to various races of pathogens, which occur frequently in the environmental conditions of our country. The highest values of the attack/intensity, were highlighted by the varieties: Lyric, Plaisant, Landi, which extended considerably their growing periods compared to the native varieties.

## Key words

winter barley, leaf stripe, pathogen resistance

# Analysis of combining ability effects for spike yield in six-row winter barley

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**Abstract** Choosing a hybridization method depends mostly on parental forms ability to combine wanted traits in new cultivar. Combining ability implicates possibilities of one parent to produce superior descendents, when it is crossed with another parent. The objective of the present study was conducted to assess the relative magnitude of GCA and SCA for grain weight/spike and to select the best combiner for successful hybridization in six row barley breeding. Six double haploid lines obtained through "bulbosum method" were chosen to suite the statistical model for genetic study.

The high sca effects of cross DH 33-3 x DH 21-2 might be attributed to additive x additive type of gene action and the high yield potential of these crosses can be fixed in subsequent generations.

The results obtained from F<sub>1</sub> and F<sub>2</sub> generations revealed that there is no direct relation between gca effects of parents and sca effects of hybrid combinations. This could be explained from the point of view of gene action since gca is mostly due to additive gene action whereas sca is mostly due to overdominance and epistasis.

## Key words

winter barley, combining ability, spike yield

# Researches concerning wainscot surfaces evolution at the national level between 1989 and 2006

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**Abstract** Wainscoting the lands covered with regeneration cuttings, the empty lands inside a forest or the degraded lands found outside the national forest fond represents a very important activity for the forest sector, but also for the entire national economy and most of all for the entire world ecosystem.

## Key words

afforestations, resins, deciduous, surface

# Researches concerning *Albizzia julibrissin* species behaviour in the *in vitro* rooting faze

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**Abstract** This paper presents research conducted to establish a viable breeding technologies *in vitro* of *Albizzia julibrissin* species. This research has established four types of rooting medium, to observe the evolution of roots and determining the optimal rooting environment of the species. After the bird on the average storage conditions in the growth chamber were identical for all variants, namely a temperature of 25 0 C and a photoperiod of 16 hours. Therefore observed that the optimal variant of the 4 ties in the studied variant V1 was a concentration of 0.2 indolilbutiric acid.

## Key words

*in vitro* culture media, indolilbutiric acid, *Albizzia julibrissin*

# Quantitative determination of compounds in cell cultures of bilberry anthocyanins by spectrophotometry

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**Abstract** In the present study we aimed at obtaining callus producing bilberry anthocyanins and proliferative ability originates from two local populations mountain bilberry (Caras-Severin area). Callus growth and anthocyanins synthesis is supported by the combination of adenine sulphate: AS (40 mg / l), ANA (1.5 mg / l) and BAP (1 mg / l) additional WPM medium culture. Genotype influences the proliferative capacity of callus and synthesis anthocyanins.

## Key words

Bilberry, anthocyanins, spectrophotometry, cell culture

# Genetic Particularities for the Biology of Early Apricot Phenotypes Created in Romania

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**Abstract** Numerous famous specialists, such as Couranjou J. 1975, 1989, Keubemen et al. 1979, Bailey C., Hough L.F. 1977, 1983, Cociu V., Hough L.F. 1985. Audergon et al. 1988, 1995, 2006, Bălan V. et al. 1991, 2006, Bassi et al. 1990, 1999, Badenes et al. 2006, Muleo et al. 2006, emphasized the genetics of apricot maturity, the exploitation of the initial and induced genetic variability, and the employment of corresponding improvement methods. After 2000, these characteristics have resulted in the creation and validation of the following cultivars: 'Rareș', 'Valeria', 'Carmela', 'Viorica', 'Auraș', 'Cristal', 'Fortuna', known for their early fruit maturation given the climatic conditions in Romania (15-20 June), and for their many qualitative, agronomic, and adaptability features, which inscribes them into the new generation of cultivars created in European countries of long tradition in apricot growing.

## Key words

Apricot, genetic variability, breeding, earlier cultivars, Romania

# Use of bacterial bioproduct for plant growth stimulation and protection against phytopathogenic fungi

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**Abstract** Our study emphasizes the use of a bioproduct based on a *Bacillus* sp. strain, tested "in vitro" and "in vivo" conditions, in order to prove its antifungal potential (against some *Alternaria tenuis* strains) and also both germination of seeds and plants growth promotion. The application of the treatment was performed before, simultaneously and after the infection in order to establish the optimum moment of application. The plant growth stimulation action of bioproduct was observed both on sterile and non-sterile soils.

## Key words

biological control, bioproduct, *Bacillus* sp., phytopathogenic fungi

# Formulation studies of *Anethi aetheroleum* loaded vesicles

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**Abstract** *Anethi aetheroleum* loaded vesicles (liposomes) were prepared using the thin film hydration method. Formulation studies were carried on varying composition, size and lamellarity of the vesicles. The entrapment efficiency of the essential oil was investigated by spectrophotometric analysis. The obtained results showed that liposomes may be a good carrier for the *Anethi aetheroleum*, when appropriate formulations are used.

## Key words

*Anethi aetheroleum*, formulation, liposomes, entrapment efficiency

# Environmental feedback mechanisms leading to climate change

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**Abstract** Feedback is a mechanism, process or signal that is looped back to control a system within itself. Such a loop is called a feedback loop. Any change in the environment leading to additional and enhanced changes in that system is the result of a positive feedback mechanism. Alternatively, if a change in the environment leads to a compensating process that mitigates the change it is a negative feedback mechanism. The paper deals with some of the most comprehensible ideas drawn out from the model of climate feedback dynamics in order to be used for educational purposes. The model was built up in the frame of Meridian Programme directed by David Wasdell and is based on the thermodynamics of the planet as a whole, in its context with the Solar System. It raises issues of urgent nature for the world community and calls in question the effectiveness of current strategic responses to global warming.

## Key words

Albedo effect, anthropogenic activity, GHG emission, solar radiation, thermal equilibrium

# Determining the irrigation regime and the water consumption for cucumber crops grown in solariums

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**Abstract** As compared to other agricultural species, vegetables need higher water-consumption levels and are negatively influenced by the absence of water, which determines a diminution in terms of both quantitative and, in most situations, qualitative aspects of production.

The central method for improving the water regime in the soil is the irrigation of crops, which leads to a significant improvement of production and ensures a higher-quality of vegetables.

The management of the soil moisture regime for the cultivation of cucumbers in solariums has aimed to maintain the water reserve on the depth of 0-50 cm between the values of the minimum limit and the field moisture capacity. The minimum limit was established at 2/3 (66%) from the active humidity interval. Therefore the humidity of the soil has been determined every 10 days, using the gravimeter technique.

## Key words

irrigation regime,  
cucumbers, solariums

# The influence of some technological elements upon the production of organic cucumbers cultivated in solariums

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**Abstract** The main purpose of this research is to introduce, in the cultivation technology of cucumbers grown in solariums, some new elements of intensification, while identifying the hybrids that are best adapted to the pedoclimatic conditions in the north-western part of our country, to which alternative, ecological cultivation technologies may be applied, with the view of improving their quality through the elimination of chemical residues of synthesis from the finished product, while also creating some advantages in terms earliness, production and fruit quality, so as to increase the economic efficiency of the culture.

The system of organic farming is still in its early stages in our country and is not very much applied in the case of vegetable cultivation.

The use of ecological technologies has a major influence upon productivity and quality parameters. An important aspect is represented by the behavior of some cucumber hybrids when ecologic technologies are applied. Some hybrids give very good results in conventional agriculture, but in organic systems the profitableness of the crop is almost impossible to obtain.

## Key words

Cucumber, solarium

# Researches regarding the evolution of the surfaces covered with afforestation works at the Region 5-West during 1990-2008

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**Abstract** Surfaces covered with afforestation works at the national regional level considerably decreased in the period after the communism. In the Region 5- West these abatements were more pronounced as in 2001, areas covered with works of afforestation, reduced to 4.5 times comparing with the first year after the revolution (1990). This reduction has adverse ecological and economical implications at the national and at the regional level.

## Key words

afforestations, region, resins, deciduous, indicators

# Experimental results concerning the drought tolerance of some new autumn barley genotypes using indirect methods

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**Abstract** In this paper we assess the drought tolerance of barley genotypes by determining germination under stress conditions.

Induction of water shortage in the laboratory showed that osmotic stress was achieved by using solutions Polyethylene glycol 6000 at concentrations (0%, 10% .14.3%, 19%) and sucrose solution concentrations (0%, 5% 10% and 15%).

Barley seeds germination presents a particular importance for the success of a crop, because the germination period may overlap or may be followed by environmental conditions characterized by moisture deficit. It is known that cell dehydration process, which is manifested by the loss of the cell water, called plasmolysis, occurs when the external solution is more concentrated than the internal solution. Plasmolysis of some plants takes place in drought conditions or when soil contains hypertonic solutions (chemical pollutants, excess salt, etc.) [6].

In the laboratory, using a hypertonic solution to induce water stress (with polyethylene glycol, sucrose), it is possible to test the drought tolerance of plants from seed germination stage.

## Key words

barley, drought stress

# Aspects regarding vegetative growing, reproductive development and minerals distribution in highbush blueberry leaves and fruits as affected by substrate composition

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**Abstract** Young blueberry plants of 'Blueray' cv. of two-year-old propagated by rooting hardwood cuttings were transplanted into the pots with sixteen types of substrate (in different percent of peat, manure, sawdust, litter, and distillation residues), with the purpose to examine relationship between substrates characteristics, plants vegetative and reproductive development, also nutrients distribution in leaves and fruits. Plants vegetative growth was evaluated by branches length and new branches formation on a bush. Reproductive development was characterised by flowers apparition and some berries characteristic features. Minerals in the grown substrata, as well as in blueberry leaves and fruits were measured by ICP-AES multi-elemental analysis. The highest vegetative grown and the greatest positive effect on new branches grown was found for bushes grown on 75.00 % peat: 25.00 % manure, followed by those grown on 50.00 % peat: 50.00 % distillation residues, whereas the lowest when 50.00 % peat: 50.00 % sawdust was used. Clusters number, berries number in a cluster, also the fruit size varied and was substrate dependent. On 50.00 % peat: 50.00 % distillation residues bushes were vigorous without fruits, while on 50.00 % peat: 50.00 % manure bushes had many fruits. The biggest fruits were obtained from bushes grown on 50.00 % peat: 25.00 % manure: 25.00 % distillation residues, while the smallest ones on: 50.00 % peat: 12.50 % manure: 12.50 % sawdust: 25.00 % litter. Exists a large variation between different substrate mixture concerning the content of nutrients, but the lower values there were registered for 50.00 % peat: 50.00 % sawdust. Also, our results emphasized the interrelation between substrates composition and minerals distribution in blueberry leaves and fruits.

## Key words

*Vaccinium corymbosum* cv. 'Blueray', nutrients, substrate, leaves, fruits

## Agriculture and environmental legislation in Romania

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**Abstract** The environmental degradation in the race to increase economic productivity is not an exclusive characteristic of the industrialized society, as most civilizations have fallen by the devastation of the natural fertilization that have been the stage for attaining their power. It is estimated that the deserts of North Africa are the effect of the wheat monoculture that fed the Roman Empire to its apogee, as well as of the irrigation systems that have caused soil salinization.

## Key words

groundwater contamination, the destruction of humus, fertilizers and pesticides, biodiversity, the Environmental Protection Law

# Arvena – a new pear cultivar obtained at Fruit Research Station Cluj, Romania

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**Abstract** The pear cultivar 'Arvena' (*Pyrus communis* L.), homologated in 2007, was obtained at Fruit Research Station Cluj, Romania (FRS Cluj) by selection in F1 hybrids derived from 'Triomphe de Vienne', open pollinated. Trees are weak to medium vigour, with moderate-strong branching and semi-upright habit, being very productive and suitable adaptation to Romanian, respectively temperate weather conditions. Fruit size is medium to large, with soft firmness and juicy flesh; the colour changes from green to yellow attractive upon maturity, copper-coloured. Time of maturity for consumption is the second or third decades of September, when the fresh fruit has a good quality rating. The new cultivar 'Arvena', obtained at FRS Cluj enrich the international germplasm repository, representing useful genetic resources, which could be used for pear breeding programs in the future.

## Key words

breeding, *Pyrus communis*, cultivar, quality, peculiarities, description

# Production of propagation material for establishing plantings grafted vineyard INITIAL BASIC in European collaboration parent

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**Abstract** Working with ITV France ENTAV-aimed production of grafted initial biological category to establish BASIC mother plantations with Romanian varieties and clones of interest, using as INITIAL materials free of viruses, eye graft from national germplasm collection growing in INCDBH Ștefanesti-Argeș, material obtained by thermotherapy and culture in vitro, and performed intercomparable ELISA serological results made by INCDBH Ștefanesti Argeș and ENTAV-ITV France, varietal identification by DNA analysis and PCR techniques varieties and clones, confirming the quality and health of the material used and 10,656 pieces of grafts obtained from initial biological category that will be used in 2010 to establish BASIC mother plantations at research units in wine.

## Key words

Multiplication, INITIAL material, virus free, DNA analysis, vineyard

# Field of real estate law and real estate registry silvic and horticol

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**Abstract** We can define and consider Real Estate Law as a set of legal rules regulating the social relations related to the land representing Romania's agricultural real estate, regardless of the owners and their form of ownership. Social relations regarding land plots regulated by real estate law occur between individuals and private legal persons, between public legal persons and between the latter and private persons. Therefore, some legal frameworks on land belong to public law and others to private law.

## **Key words**

real estate, Cadastre and Real estate registry Law, Forest Code, Law of public property, The legal status of land