

Variation in Nitrogen Content of *Paeonia lactiflora* 'Da Fu Gui' during the Growing Season under Field Production

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Abstract The nitrogen (N) content of all plant parts of *Paeonia lactiflora* 'Da Fu Gui' was investigated throughout the growing season from October through to June. The whole plant absorbed N rapidly from the stem-extending stage to the leaf blade-expanding stage. At the stem-extending stage, leaf blades were the N sink in which the highest level of N had concentrated, namely 4.82 g·kg⁻¹. Stems, leaf blades, petioles and flower buds absorbed much more N during early growth stages than in later stages. This study indicates that the bud's fully-opened stage is the ideal timing to apply N-fertilizer.

Key words

Absorption rate, Fertilizer, Nitrogen, *Paeonia lactiflora* 'Da Fu Gui'

Areal limit in the Romanian territory: 7. *Corylus colurna*

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Abstract Among the species with areal limit on the Romanian territory, this paper presents the species within the southern area, *Corylus colurna* L., which does not pass beyond the north of the Carpathians. The data presented in this paper is concerned of the spreading of the species in Romania, and it also present some ecological and coenological considerations. It is a calcicolous species that has its origin in the Balkans. The spreading in Romania is quite small, only Banat and Oltenia. The Vâlcan Mountains is the northern limit of its spreading.

Key words

Corylus colurna, chorology, eco-coenology, areal, Romania

Experimental results on the tuber yield of some potato isogenic lines under "insect-proof" tunnels and open field conditions

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Abstract In true potato seed (TPS) technology the main barrier, but also a challenge to science is the production of seeds which produce uniform tubers despite the great genetic variability of potato. Sexual reproduction on potato involves more elements, compared to other plants, because the potato has four chromosome sets (tetraploid). Therefore, plants obtained from true potato seed have completely different genetic characteristics of their parents regarding phenotype, the group of earliness and the characteristics of the tuber. Today, however, due to the amazing progress, potato hybrid seed is available in sufficient quantities at a reasonable price, and the obtained product is characterized by uniformity and quality.

In the period 2006 - 2009 has been studied the tuber yield of four potato isogenic lines: Mindy, Zolushka, Gilroy and Catalina (creations of Bejo Zaden company, Netherlands), compared with two control varieties (Santé and Rustic) both in fields and "insect-proof" tunnels.

Key words

potato isogenic lines, productivity, „insect-proof” tunnel

Contributions to the mycobiota knowledge of spruce forests from Obârșia Lotrului health resort(Romania)

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Abstract This paper presents 116 macromycetes species of spruce forests [Eastern Carpathian subalpine spruce forests (*Picea abies*) with *Oxalis acetosella* – association *Hieracio rotundati* - *Piceetum* Pawł. et Br.-Bl. 1939 *oxalidosum*] from Obârșia Lotrului Resort – area which is part of the site Natura 2000-Parâng, also socio-economic potential of the species (edibility, toxicity, practical importance).

Key words

Obârșia Lotrului, Romania, macromycetes, edibility, toxicity, practical importance

24-Epibrassinolide and 28-homobrassinolide, two brassinosteroids, inhibit protocorm-like body development in hybrid *Cymbidium* (Orchidaceae)

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Abstract Brassinolides, a sub-class of brassinosteroids, have demonstrated plant growth regulator (PGR)-like activity in other crops. Two brassinolides, 24-epibrassinolide (24-epiBL) and 28-homobrassinolide (28-homoBL), have shown some ability to induce somatic embryogenesis in a limited number of orchids, while they have primarily shown to mitigate the negative effects of biotic and abiotic stresses in several plants. In this study, the induction of new protocorm-like bodies (or *neo*-PLBs) in hybrid *Cymbidium*, an important ornamental, under the influence of 1, 2, 4, 8 or 16 μ M of 24-epiBL and 28-homoBL (separately) was attempted using regular explants (half-PLBs) or PLB transverse thin cell layers (tTCLs) cultured on PGR-free Teixeira *Cymbidium* (TC) medium. tTCLs produced significantly fewer *neo*-PLBs than half-PLBs, which in turn produced significantly fewer PLBs on PGR-free medium supplemented with any concentration of 24-epiBL or 28-homoBL than on control TC medium with PGRs. Results of this study show that while brassinolides are unable to satisfactorily substitute for PGR-like activity, they can mitigate heavy metal- and salt-induced stress (unpublished data).

Key words

24-epiBL; 28-homoBL; brassinolide; brassinosteroid; PLB; Teixeira *Cymbidium* (TC) medium

Cross pollination on randomly chosen commercial varieties of *Phalaenopsis*

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Abstract *Phalaenopsis* is one of the most popular orchid currently on the market of developed countries. Due to the high number of varieties being sold, hundreds of colors and chromatic combinations, *Phalaenopsis* became a first choice by the orchid enthusiasts. Cultivating new *Phalaenopsis* varieties takes a long time. Modern hybrids derive from two high quality paternal strains. Such cultures are designed to better the size and colouring of the flowers, as well as other characteristics, like longevity, inflorescence quality, disease resistance and cultivation ease.

Key words

orchid, *Phalaenopsis*, seeds, capsules, flower

In vitro plant growth and rooting of *Dendrobium nobile* using different growth hormones concentration

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Abstract Orchid culture is a widely debated topic among scientists. Along the time, experiments were made on different parts of the orchid like the shoot tip, flower stalk, root and the leaf. The *Dendrobium* is currently one of the most studied species, achieving the best results in vitro cultures. This paper follows *Dendrobium nobile* multiplication in vitro by culturing canes on Murashige-Skoog medium supplemented with various growth hormones for the purpose of obtaining a large quantity of plants in a short period of time.

Key words

orchid, Dendrobium,
propagation, modern,
steams

Serological ELISA test of some Black currant and Red currant cultivars

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Abstract Red and black currants are, for all practical purposes, the same fruit, differing only in color. Currants are a popular fruit among northern Europeans. The fruit is little known in Romania because the plant was blamed for spreading the disease, so for a lot of time was restricted in the culture. Red and white currants are, in fact, relatively resistant to the disease. The new researches in this field, is now renewed interest in Romania in these fruits. The main objectifs for this work is to test some of the black and red currant cultivars (Deea, Roxia, Elita 124, Abanos, Triton, Rolan, , JH Van tets, Det van, Tattran, Kzvana) for the two currant's viruses *Blackcurrant reversion virus* (BCRV) and *Raspberry leaf curl luteovirus* (RLCV) using serological Elisa test . After preliminary tests two romanian cultivars Roxia and Elita 124 was foundes negatifs in Elisa test ant coul be an imporant promise for the next molecular determination. This paper presents data from PhD thesis part of the project POSDRU/107/1.5/S/76888, funded by European Social Fund through the Sectoral Operational Programme Human Resources Development 2007-2013.

Key words

anticorps, redcurrant, black
currant, Elisa, resistance,
virus

Researchs on determination of organoleptic qualities of the black and red currant fruits

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Abstract The blackcurrants are the most important due to large area in cultivation, high production levels, and fruit health benefits for consumers. The breeding aims are common and similar in different countries. These are: breeding for resistance to main pests and diseases, breeding for fruit quality and suitability for fresh market and processing, and good adaptability to local environmental conditions. Our theme is included in this topic with a some biochemical determination on currant fruits.

Key words blackcurrant, HPLC, redcurrant, soluble carbohydrates, vitamin C.

This paper has proposed to bring more clarity in biochemical characterization of currant fruits (Deea, Elita 124, Roxia, Abanos, Triton, Rolan, , JH Van tets, Det van, Tatran, Kzvana) in order to establish best practices for storage and recovery of fruits.

This paper presents data from PhD thesis part of the project POSDRU/107/1.5/S/76888, funded by European Social Fund through the Sectoral Operational Programme Human Resources Development 2007-2013.

Influence of different types of composts on growth and chlorophyll content from tomato seedlings

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Abstract This study was carried out to investigate the effect of different types of compost on growth and chlorophyll content from tomato seedlings.

Key words tomato seedlings, chlorophyll content, compost, seedlings growth

We compared six types of compost in different percentage amounts, mixed with field soil and sand for tomato seedlings. Vegetative growth parameters (average plant height, number of leaves, chlorophyll index) were used to evaluate the efficiency of these substrates in seedlings production.

In this study we used 4 experimental variants with 100%, 75%, 50% and 25% compost, with three repetitions each of it, in order to obtain tomato seedlings.

In general variants B3 with 50% compost, S3 with 50% and S1 with 100% compost produced a higher number of leaves, a significantly better growth of seedlings and a higher chlorophyll content than other variants.

Mineral content of some *Cruciferae* species, available on romanian market

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Abstract The aim of this study was to investigate the mineral composition of cabbage (red and white), cauliflower and broccoli, due to the fact that some of the *Cruciferae* species are recommended in hypocaloric diets, since they are rich in fibre and low in calories and an important source of vitamins and minerals. From the studied vegetables was concluded that broccoli presents the highest Zn, Cu, Fe and Mg content while red cabbage presents the highest Mn and K content. Based on the mineral composition data are given recommendations for different diets

Key words

Hypocaloric diet, mineral content, cabbage, cauliflower and broccoli

Red cabbage, millennium's functional food

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Abstract Red cabbage (RC), known also as purple cabbage is very low in saturated fat, cholesterol and a source of thiamin, riboflavin, folate, K, Ca, Fe, Mg and Mn, dietary fiber, vitamins A, C, K, B, providing big amounts of anthocyanins and presenting high antioxidant properties which may decrease the risk of cardiovascular diseases, brain disorders and cancer.

Key words

mineral content, vitamins, glucosinolates, cancer prevention

Genotype-Environment Interaction and Correlation of Some Stability Parameters of total Starch Yield in Potato in Amhara Region, Ethiopia

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Abstract This study was carried out to assess the nature and magnitude of genotype-environment interaction (GEI) and the correlation among some stability parameters. Eleven potato genotypes were evaluated during 2011 rainfed season at three locations with Randomized Complete Block design with three replications in Amahara region. Combined analysis of variance indicated that the main effect due to location, genotype and genotype by environment interaction were highly significant. Location and genotype were the most important source of variation, accounted for 46.51% and 33.82% of the total variance respectively. The GxE interaction was further partitioned using GGE biplot model. The first two principal components obtained by singular value decomposition of the centered data of total starch yield (t/ha) explained 96.8% of the total variability caused by (G+GE). Out of these variations PC1 and PC2 accounted 81% and 15.8% respectively. GGE biplot view across test environments indicated that E1 (Adet) was ideal test location. The stability analysis identified Guassa as more stable and high yielder genotype and recommended for commercial production for Amahara region. Significant ($P < 0.01$) and positive correlations were found among $\delta^2 i$, W_i and ASV implying that anyone of these parameters could be used to describe genotype stability.

Key words

Potato (*Solanum tuberosum* L.), genotype plus genotype by environment biplot, genotype-environment interaction, principal component and stability parameters

Mineral Content of Some Medicinal Herbs

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Abstract This paper is a study on the distribution of trace minerals in different native plants used in the preparation of medicinal teas: *Cynara scolymus*, *Achillea millefolium*, *Calendula officinalis*, *Mentha piperita*, *Hypericum perforatum* and *Matricaria chamomilla*. Were determined by flame atomic absorption spectrometry (FAAS), the following microelements: Fe, Mn, Zn, Cu, Ni, Co, Cr, Pb and Cd. The experimental results show appreciable content of bio-micro-elements, especially Fe, Mn, Cu, Zn and very low concentrations, insignificants, of toxic elements: Pb and Cd.

We can conclude that the analysed herbal teas are of interest not only for their pharmaco-dynamic properties, but also for their micro-elements content, which makes herbal teas both foods and medicines. It is nutritionists who should recommend the type of herbal tea depending on the micro-elements contents.

Key words

micro-elements, *Cynara scolymus*, *Achillea millefolium*, *Calendula officinalis*, *Mentha piperita*, *Hypericum perforatum*, *Matricaria chamomilla*

The Mineral Content of Different Coffee Brands

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Abstract Given the considerable amount of substances, roasted and ground coffee contributes to the completion of mineral supply with macro- and micro-elements that are essential to the human body.

The purpose of this paper is to determine the concentration of minerals: Ca, Na, K, Fe, Mn, Zn, Cu, Ni, Co, Cr, Pb and Cd from different types of coffee: Jacobs-Aroma, Jacobs-Kronung, Doncafe-elite, Fort-Strong coffee and Nova Brasilia using flame atomic absorption spectrometry (FAAS). The experimental results show that macroelements are representing 99.96% from total mass of minerals, the values decreased in the order: K > Ca > Mg > Na, in all coffee assortments. Quantitative contribution of micro-elements in the composition of the different types of coffee is very small (0.04%). This does not minimize at all the importance of these essential bio-elements in body. The micro-elements values decreased in the order: Fe > Mn > Cu > Zn > Ni > Co > Pb > Cd, in all types of coffee. Potentially toxic mineral elements Pb and Cd were detected below the maximum allowed by law, so coffee varieties analyzed are without risk of contamination.

Key words

macro- and micro-elements, coffee, FAAS

Landscape change and tourism - Eastern Carpathians perspectives

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Abstract Following the failure of the 18th UN Climate Change Summit at Doha, dangerous perspectives seem to lay ahead the world's socio-ecologic systems. The feeble hope for decency and reasonable political consent is lost, leaving landscapes to uncertain future. Either imminent or distant, landscape change will affect all the supported human activities – but most of all tourism and agriculture. The agro-silvo-pastoral mountain systems are particularly vulnerable in such circumstances. Between a 'top 100 place not to go to' and finding new opportunities, this paper analyses the Vrancea Land case. Based upon the regional climate development simulations and DPSIR analysis, landscape change forecasts are made and tourism impact is analyzed consequently.

Key words

climate change, cultural landscape, ecosystem services, Vrancea Land, tourism management

Production and quality potential of different black and red currant cultivars in Baneasa Research Station condition

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Abstract Berry fruit play a significant role in human nutrition, especially as sources of vitamins, minerals, antioxidants and dietary fiber. The purpose of this study was investigation of yield, quality characteristics of some black and red currant cultivars grown in Romania. Physical parameters (weight, dry matter) and chemical parameters (soluble solids contents, titratable acidity, ascorbic acid, anthocyanins) were evaluated. The results showed that the tested genotypes different in evaluated traits. The Bogatyr and Slitza cultivars are characterized by dark coloured fruit and a high anthocyanins and C vitamins content. Red Lake and Stanza red currant cultivars have a high content of dry matter, ascorbic acid but only Red Lake cultivar have a high anthocyanins content.

Key words

anthocyanins, vitamin C, quality fruit, yield

Study on the composition of rhizosphere microbial communities and their importance for the improvement of plant nutrition

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Abstract In the present paper we will present the results concerning comparative studies about the composition of rhizosphere microbial communities and the soil biological activity of sunflower and maize rhizosphere in case of two variants of fertilizer used. The estimation of the activity of rhizosphere microorganisms was realized in the plants' 5-6 leaf stage by determining the soil respiration potential (SRP). We have found that SRP is directly influenced by the level of plant nutrition and indirectly by the climatic conditions. Thus, a lower level of SRP from the rhizosphere soil samples can be explained by a lower contribution of released rhizodeposit or root exudates by plants that should sustain the growth and the abundance of rhizosphere microbiota. A total of 22 different bacterial strains were isolated from the rhizosphere of sunflower and maize based on the morphological colony shape and GRAM property of cell staining. Fifteen of these were tested for indolil compounds (IAA) synthesis and P-solubilizing activity. Finally two of them have shown capacity of IAA production of over 50 µg.ml⁻¹ and four strains have proven solubilization traits of hard phosphorus compounds.

Key words

soil respiration potential, PGPR, rhizobacteria, indolil compounds synthesis, P-solubilizing activity

Influence of variety and shape crown of the quantitative fruits in the growing Basin Târgu Jiu

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Abstract Considering the favourable area of the quince culture in Northern Oltenia an experience was placed under the conditions for intensive plantations for zoned varieties.

An important factor in intensive quince cultures is the crown shape, with influence on the quantity and quality of the production and especially on the disease attack, mainly *Erwinia amylovora* and *Monilia*.

From the observations it results that, no matter the variety, the quince is less productive when having either a "Shapeless Hedge" crown or a "Bush" one.

As a conclusion, the quince does not react positively to shapeless hedge crown or to a stuffy crown as bush.

As a general conclusion of the obtained preliminary results is that the form of "late bowl" and "simple palm" are the most suitable for intensive plantation quince, using Aromate, Moldovenesti and Aurii varieties, which have the quantity and quality fruit production higher compared to the other studied varieties.

Key words

quince, crown shape, variety, fruit

Data on pollen-mediated gene flow from genetically modified maize to conventional maize under simultaneous sowing conditions

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Abstract This paper presents tentative data on pollen-mediated gene flow between genetically modified maize (MON 810) and conventionally maize (Deliciul verii), in real conditions of coexistence. The two trials have been placed at ARDS Simnic, under simultaneous sowing conditions. With the trial I (W - 100m and E - 100 m away from MON 810) the percentage mean of xenia has been of 0.42. For the trial II (W - 100m, E - 100 m away from MON 810), the presence of buffer strips (8 rows of sunflower) has determined half cut of the xenia percentage (0.24, respectively, 0.26).

Key words

cross pollination, gene flow, maize hybrid, xenia

Study on the influence of climatic factors on rosehip phenology in Bukovina

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Abstract In the evaluation of brier phenology there have been chosen 42 biotypes from the area Suceava-Palma and have been made observations only in the vegetative period (March-October). Geomorphologically speaking, the area taken into observation includes the plain fields of Suceava and Obcina Mare. The phenologic observations were made all over the year 2008 to which were made observation cards in the area specified. The vegetative period started with the expansion of the rose bud and ended with the decay and recess phase. It has been recorded the period in which the phenophases follow each other, making much of the following phenophases: the spring, leaves opening, beginning of the bloom, bloom and maturation of the pseudofruit. The phenophases that interested us were recorded with the purpose of achieving a correlation with the climatic factors. The thermal condition of the area taken into observation was tagged by an annual temperature around + 8,3 C and divided on seasons an average of : 10,6 C in spring, 17,9 C in summer, 8,2 C in autumn and – 2,3 C in winter. The lowest average temperature was recorded in January 2010 (- 7,6 C) at Rădăuți and the greatest average temperature was recorded at Suceava in August. The average annual rainfall was around 765 mm and in the vegetative period around 102 mm.

Key words

phenophase, climatic factors, pseudofruit

Assessment of somaclonal variation of regenerated *Ducrosia anethifolia* plants using AFLP markers

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Abstract *Ducrosia anethifolia* is a medicinal plant of Apiaceae family. The plant contains active constituents with antimicrobial activity which makes it as a valuable crude drug for use in pharmaceutical and food industries. Besides others, *in vitro* production of secondary products is an appropriate way of production of these group of metabolites. In these cases, many factors such as number of subcultures, explant, types of culture media and their constituent's especially exogenous hormones may lead to genetically and epigenetically changes along with DNA methylation which can be exploited as a desirable phenomenon. The present study was done to investigate somaclonal variation in regenerated *D. anethifolia* plants and to study importance of DNA methylation in occurrence of somaclonal variation. To do this, eight abnormal plants regenerated from different explants calli along as

Key words

Ducrosia anethifolia, Methylation, Somaclonal variation, AFLP

well as a normal plant were selected and their genomic DNA were extracted using modified Delaporta method. AFLP analysis of selected plants was performed using two different digestion systems. Digested DNA fragments were ligated to adapters and amplification was done using suitable primers. Using two different digestion systems, considerable polymorphism was observed. Considering obtained polymorphism and differences of used enzymes to methylation, it can be concluded that observed variations in regenerated plants are resulted from genome methylation. Additionally, the applied method has the potential to be used for assessment of somaclonal variations for *in vitro* regenerated plants.

Tropane alkaloids elicitation of black henbane parts with calcium and nitrogen application under hydroponics culture

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Abstract Black henbane (*Hyoscyamus niger* L.) an species in Solanaceae family has long been used as a medicinal plant, which is well known for their alkaloid secondary metabolites mainly hyoscyamine and scopolamine. Industrial synthesis of these compounds is difficult due to their complex chemical structure so the compounds are extracted from Solanaceae family plants. This study examined the effects of various calcium (Ca) and nitrogen (N) concentrations (0, 16.6, 33.3 and 50 mg.L⁻¹ as Ca₀-Ca₃ and N₀-N₃) on henbane roots and leaves dry weight and their two main alkaloids content under hydroponics culture. Results showed the highest hyoscyamine content (4.6 g/g.10⁻² and 2.69 g/g.10⁻²) were obtained at N₂Ca₂ in total foliage and root dry weight, respectively. Also, the highest scopolamine content (14.51 g/g.10⁻² and 7.77 g/g.10⁻²) were obtained at N₁Ca₂ and N₂Ca₂ in total foliage and root dry weight, respectively. In henbane plants, hyoscyamine content of leaves were increased significantly with increasing nitrogen and calcium concentration up to N₃Ca₃ treatment, while the largest leaf scopolamine content was observed in the N₃Ca₁ treatment. In the roots, biosynthesis location of alkaloids, maximum hyoscyamine and scopolamine content were observed under N₃Ca₂ and N₃Ca₃ treatments, respectively. Results also showed that hyoscyamine and scopolamine content of roots under N₃Ca₂ and N₃Ca₃ conditions were almost 67% and 64% higher than that of control plants, respectively. The largest plant total alkaloids accumulation was observed in fertilized plants under N₃Ca₁ treatment, which showed the highest elicitation index (65.70). It seems that calcium and nitrogen fertilizer are essential nutrient elements necessary for henbane growth and metabolism, which could be considered as abiotic elicitor or precursor in alkaloid biosynthesis pathway.

Key words

Hyoscyamus niger, Tropane alkaloids, Hyoscyamine, Scopolamine, Nitrogen, Calcium, Hydroponics

Wheat mutagenesis by combining recurrent irradiation, hibridization and DH-technology

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Abstract The well-known potential of induced mutagenesis process to generate genetic variability can be now better exploited in both genetics and crop improvement programs due to advancements and widespread interest in molecular genetics and biotechnology. With the aid of DH (doubled haploid) technology, it is presently possible to fix in only one generation any variability generated by either physical or chemical mutagens application and to search for the new allelic variants at DNA level, using molecular techniques. Similarly, any recombinant/mutagenic events generated through hybridization in association with mutagenic treatment(s) could be also fixed and expressed in phenotype, in homozygous condition without resorting to selection cycles in heterozygous populations.

The paper reports some results obtained using a specific mutagenic protocol including two modern wheat genotypes, two irradiation cycles application, hybridization and DH technology using the *Zea* system. Morphological modifications, resistance/sensibility to brown rust in circumstances of severe epidemics occurred in 2011 and other traits evidenced in a field survey of 338 wheat mutated/recombinant DH- lines are briefly described using selected examples.

Key words

recurrent irradiation, doubled haploids, *Zea* system, mutated/recombinant DH-lines