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THEORY AND PRACTICE OF CROPS
BREEDING AND SEED PRODUCTIONPROSPECTS OF PROTECTED
GROUND IN RUSSIA

Mamedov M.I.

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The article analyzes the current state and prospects of protected ground development in the Russian Federation based on the data of the Ministry of Agriculture and the Federal State Statistics Service. The indexes of production of vegetable crops in different regions of the Russian Federation are given. The problems, which are holding back the greenhouse business, are discussed. The possibilities of increasing the area of protected ground and vegetable production are shown.

Keywords: protected ground, greenhouse production, vegetables, tomato, peppers, lettuce.

ENHANCEMENT OF EFFICIENCY
OF WHITE HEAD
CABBAGE POLLINATION
IN CASE OF LOW
POLLEN VIABILITYShumilina D.V., Batmanova A.I.,
Shmykova N.A., Bondareva L.L.

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The way of improvement of the efficiency of white head cabbage pollination in case of low pollen viability is presented. The optimal culture medium with Tris maintaining pH 8-9 for germination of cabbage pollen was determined. Pollination of style by the suspension of pollen in the optimal culture medium was suggested. This method allows obtaining of seeds of doubled haploid plants with partially sterile pollen.

Keywords: white head cabbage, haploid, pollen viability, media for pollen germination.

INTRODUCTION OF NEW CROPS

PROSPECTS OF INTRODUCTION
OF NON-TRADITIONAL
FRUIT, BERRY AND VEGETABLE CROPS
IN THE CONDITIONS
OF DAGESTANGins M.S.¹, Zagirov N.G.², Baykov A.A.¹

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June 9-13, 2014 in Makhachkala hosted XI International scientific-methodical conference on the theme: «Introduction, conservation and use of biological diversity of cultivated plants», organized by FGBNU VNISSOK, Dagestan Research Institute for Agriculture and GBS DSC RAS. The conference was attended by scientists from Russia, CIS and foreign countries. Due to the conference Dagestan turned out to be a prime location for the cultivation of both traditional and non-traditional plants with a high content of biologically active substances, as well as a training ground for resistance tests because of the combination of mountain and plain zones.

Keywords: vegetable production, introduction, breeding, seed, antioxidants, stress.

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«PLANT PHYSIOLOGY AND GENETICS – ACHIEVEMENTS AND CHALLENGES», 24-26 SEPTEMBER 2014, SOFIA, REPUBLIC OF BULGARIA

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24-26 September 2014 in the Republic of Bulgaria the International scientific and practical conference entitled «Plant Physiology and Genetics – Achievements and Challenges» was held. The forum discussed the biotechnology and genetic approaches for environmental and sustainable agriculture; genetic resources and biodiversity; efficient use of plant nutrition and symbiotic interaction; regulation of plant growth and development; photosynthesis under stress conditions.

Keywords: physiology, genetics, ecology, plants, agriculture, conference, Bulgaria.

THE MAIN OUTCOME OF THE RUSSIAN-BELARUSIAN
COOPERATION IN BREEDING OF LEGUMES
AND ONION CROPSShimansky L.P.¹, Kopilovich V.L.¹, Sikorsky A.V.¹,
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The Russian-Belarusian cooperation in breeding of legumes and onion crops has resulted in development of new cultivars of pea (Samorodok), bean (Phaeton and Mignon), onion (Palesskaya znahodka, Patrida and Vermeles), winter garlic (Dubkovsky Asilak), which were included in 2014 in the State Register of the Republic of Belarus.

Keywords: collaboration, pea, bean, onion, garlic, yield, cultivar, register.

MODERN TRENDS
IN BREEDING OF VEGETABLE CROPSASPECTS OF BREEDING IN VNISSOK
OF GREEN PEA FOR CANNING

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The article presents the methods and results of the competitive breeding of promising high-quality varieties of vegetable green pea for canning, as well as the main achievements of FGBNU VNISSOK.

Keywords: pea, genotype, variety, yield, conveyor, seed production, processing companies.

SEVERITY OF PROGENY SELECTION FROM DIALLEL
CROSSING OF PEA (PISUM SATIVUM L.)

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The promising pea varieties for canning with an optimum combination of elements of yield production have been selected based on utilization of geographically dispersed and morphologically different forms in prog-

eny of diallel crossing. A comparative evaluation of the severity selection in different hybrid generations is shown, from which conclusions are drawn about the breeding value of parental forms.

Keywords: pea, variety, crossing, selection, group of ripeness, breeding value.

STUDY OF THE TOMATO GENE POOL OF VIR
WORLD COLLECTION IN THE OPEN GROUND IN
MOSCOW REGION

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The results of study of 62 tomato accessions from the world collection of VIR in the open ground are presented. The promising samples from different groups of ripeness were selected for several valuable agronomic characters.

Keywords: collection, tomato, open ground, gene pool.

USE OF GROWTH CHAMBERS
FOR CABBAGE BREEDING

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Use of the growth chambers for cabbage breeding allows the reducing of certain stages of the breeding process and the growing biennial varieties of cabbage in a one-year cycle. In these growth chambers, the nutritional conditions, temperature, and lighting of plants are under control; the open pollination is eliminated.

Keywords: cabbage, seed yield, economic efficiency.

STAGES OF CUCUMBER BREEDING IN THE
LABORATORY OF BREEDING OF
VEGETABLE CROPS OF TRANSNISTRIAN
AGRICULTURAL RESEARCH INSTITUTE

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The main stages of development of research on cucumber breeding during more than 70 years in the Institute, and, in particular, in the laboratory of breeding are described.

Keywords: breeding, cucumber, variety, hybrid, parthenocarpic and bee pollinated hybrids, plastic greenhouses.

ADAPTIVITY EVALUATION OF PEA VARIETIES
SUITABLE FOR FREEZING IN THE SOUTHWEST-
ERN OF CENTRAL CHERNOZEM ZONEShulpekova A.S.¹, Sirota S.M.²,Dobrutskaya E.G.², Pronina E.P.²

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The characteristics of adaptability of 24 pea varieties to justify the use of the assortment in the technology of conveyor cultivation of raw green peas for freezing in conditions of the south-west of the CCZ is presented.

Keywords: vegetable pea, variety, yield, variability, adaptability, stability, breeding value of genotype, conveyor.

VARIETAL DIVERSITY OF WINTER GARLIC
ACCORDING TO RADIONUCLIDES ACCUMULATION

IN CONDITIONS OF THE NON-CHERNOZEM ZONE

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The results of evaluation of 5 varieties and 16 accessions from the collection of winter garlic (*Allium sativum* L.) based on the level of accumulation of cesium-137 and strontium-90 in condition of the Moscow region are shown.

Keywords: winter garlic, cesium 137, strontium-90, radionuclides, biochemical content.

BREEDING FEATURES OF CABBAGE FOR THE SOUTH OF RUSSIA IN VIEW OF MODERN REQUIREMENTS

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The article outlines the direction of breeding of cabbage for the south of Russia, taking into account the climatic characteristics of the region. The breeding achievements are presented: F₁ hybrids of different time of ripening, promising inbred lines with high combining ability. An effective method of seed production of F₁ hybrids is proposed.

Keywords: cabbage, F₁ hybrids, line, breeding, seed, resistance.

DEVELOPMENT OF HERITAGE E.I. KOLBASINA ON INTRODUCTION OF NON-TRADITIONAL CROPS IN THE CENTRAL REGION OF THE RUSSIAN FEDERATION

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The main direction of half a century of scientific activity of Dr. biol. of Sc. E.I. Kolbasina were the introduction of the Central Region of the Russian the Far Eastern and the study of fruit lianas: Actinidia and Schisandracchinensis.

Keywords: heritage, Actinidia, lemongrass Chinese.

GEOGRAPHIC DISTRIBUTION AND INHERITANCE OF «A» TYPE SEED COAT IN BRASSICA RAPA L. POPULATION

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Distribution and inheritance of «A» and «B» types of seed coat in populations of B. rapa originated from Europe, Central Asia, China and Japan was studied. «A» type seeds were found in Central Asian and Japanese populations represented by toria, Asian turnip and plants of «B». rapa ssp. nipposinica (L.H.Bailey) Hanelt. In intraspecific crosses, «A» type of seed coat was controlled by two complementary dominant genes.

Keywords: turnip, quantitative traits, inheritance, taxonomy.

PROBLEMS OF STORAGE AND PROCESSING OF VEGETABLE PRODUCTS

EFFECT OF SOIL TYPE AND STORAGE CONDITION ON FRUIT QUALITY OF PUMPKIN

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The results of pumpkin fruits storage in natural environment of storage facilities during six months are presented. The influence of soil type and pumpkin variety on the content of main chemicals and changes of fruit quality during storage has been found. After six month of storage as a result of fruit spoiling, the quality of pumpkin fruits was reduced up to 22.6-24.4% in cv. Krupnoplodnaya and up to 5.9-7.7 % in cv. Kroshka. The excess of nitrates and toxic elements above the maximum permissible values in the fruits of all varieties of pumpkin was not observed.

Keywords: pumpkin, variety, soil type, standard, storage, toxic elements, biochemical parameters.

AGROTECHNICS OF VEGETABLE CROPS

INFLUENCE OF SOWING SCHEMES AND PLANT DENSITY ON PRODUCTIVITY AND AVERAGE FRUITS WEIGHT OF THE TOMATO CV. LYANA

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The advantage of the wide-band and stripped scheme of sowing of the early-ripening tomato cultivar Lyana in non-seedling culture is shown.

Keywords: tomato, planting schemes, plant density, variety, yield.

ALTERNATIVE FERTILIZER SYSTEM, ITS INFLUENCE ON YIELD AND QUALITY OF LATE-RIPENING WHITE HEAD CABBAGE

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In conditions of the Left Bank Forest Steppe of Ukraine, the following scheme aimed to increase in productivity of late-ripening white head cabbage up to 65.7 t/ha is proposed. After predecessor harvesting it is advisable to straw plowback with simultaneous application of N40 followed by sowing and plowing of green-manure of wiki with pre-application of N60P60K45 and three times plant feeding (development of 5-6 leaves, beginning of the formation of rosettes leaves, and formation of head) by Kristalon at concentration of 3 kg/ha. For the system of «organic farming», the application of the microbiologic specimens Baikol EM-1U or Fitotsid-r and Azotofit-r is recommended.

Keywords: late-ripening white head cabbage, fertilizers, oil radish, brown Kristalon, microbiological specimens, quality of products.

MECHANIZATION OF AGRICULTURAL INDUSTRY

STATIONARY-MOBILE SEEDS EXTRACTOR FROM FRUITS OF CUCURBIT CROPS

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The technical specifications and test data in 2012-2014 of a new fixed-mobile seed extractor of pumpkin and squash seeds (varieties of different ripeness, size and shape of fruit and seeds) are presented.

Keywords: fruit, seeds, separation, device, quality (without damaging of the embryo and losses), versatility, performance, reliability.

AGRICULTURAL MANAGEMENT

EVALUATION OF THE SUSTAINABILITY OF VEGETABLES PRODUCTION IN PRIVOLZHSKY FEDERAL DISTRICT

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The sustainability of potato production in the Privolzhsky federal district was evaluated with the use of statistical methods. The effect of changes of yield and acreage on the production of the culture was evaluated. The stability of levels of dynamic series is estimated. The stability of production dynamics has been measured with the use of trend models.

Keywords: vegetables, sustainable development, regions of Russian Federation, Privolzhsky Federal District, statistical methods.

PLANTS PHYSIOLOGY AND BIOCHEMISTRY

PROPERTIES OF STAINING EXTRACT FROM INFLORESCENCES AND LEAVES OF AMARANTH AND ITS APPLICATION POTENTIAL

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The peculiarities of accumulation and sustainability of the betacyanins's pigment of antioxidant Amaranth in the inflorescences of different species of amaranth have been discussed. The method of extraction of the betacyanins's staining pigment from inflorescences of amaranth (cv. Valentina) has been proposed. The optimal storage conditions of the betacyanins's staining pigment have been found.

Keywords: amaranth, betacyanins's staining pigment, Amaranthine, extract, irrigation module.

VEGETABLES GEOGRAPHY

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The IV International Broccoli consumption conference «Broccoli. The taste of nature» was held on 7 and 8 October 2014 in the hotel NARVIL Conference & Spa in Serotsk (Poland) with the support of Sakata. The event was dedicated to the production, marketing, consumption and useful properties of broccoli.

Keywords: broccoli, production, marketing, medical properties.

INFLUENCE OF WEATHER CONDITIONS ON RED BEET YIELD IN VARIOUS ZONES OF THE FORE-CAUCASUS

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Based on the researches conducted in conditions of vertical zonality of the Chechen Republic, the high-yielding varieties of red beet in the certain climate and environmental conditions were selected. Moving from the plain zone to the piedmont and the mountain zones, the yield of red beet roots has increased by 1,6-3,4 t/ha regardless of early ripeness of cultivars and hybrids. Application of mathematical modeling allows the selection of the varieties, which are able to realize their yield potential in various conditions.

Keywords: red beet, yield, temperature, rainfall.