

**СОВРЕМЕННЫЕ НАПРАВЛЕНИЯ СЕЛЕКЦИИ ОВОЩНЫХ КУЛЬТУР**

<b>Бочарникова Н.И.</b> Научные приоритеты в современной селекции овощных культур и картофеля. ....	4
<b>Буренин В.И., Артемьева А.М., Виноградов З.С.</b> Генофонд для селекции овощных культур (Отделу овощных культур ВИР - 90 лет). ....	8
<b>Артемьева А.М., Руднева Е.Н., Кочерина Н.В., Чесноков Ю.В.</b> QTL анализ морфологических признаков качества у <i>Brassica rapa</i> L. ....	14
<b>Логунов А.Н., Тимин Н.И.</b> Наследование окраски луковицы лука репчатого. ....	18
<b>Нгуен Чыонг Занг, Ушанов А.А., Монахос Г.Ф.</b> Оценка комбинационной способности партенокарпических и моноцидных линий огурца по продуктивности корнишонов и продуктивности стандартных плодов. ....	24

**СЕМЕНОВОДСТВО И СЕМЕНОВЕДЕНИЕ ОВОЩНЫХ КУЛЬТУР**

<b>Мусаев Ф.Б., Добруцкая Е.Г., Верба О.В., Скорина Вит.В.</b> Качество семян фасоли овощной в контрастных природных условиях репродукции. ....	32
--	----

**ФИЗИОЛОГИЯ И БИОХИМИЯ РАСТЕНИЙ**

<b>Гинс М.С., Лапо О.А.</b> Обогащение чая черного байхового антиоксидантами веществами листьев амаранта. ....	37
<b>Выродов А.С.</b> Фотосинтетическая активность томата в бессменной культуре и звене севооборота при различных системах удобрения. ....	40
<b>Гинс М.С., Харченко В.А., Гинс В.К., Байков А.А., Кононов П.Ф., Ушакова И.Т.</b> Характеристики зеленых и пряно-ароматических культур ....	42

**ИНТРОДУКЦИЯ ОВОЩНЫХ КУЛЬТУР**

<b>Подлесный В.Б.</b> Культура батата – перспективное направление российского овощеводства. ....	46
---	----

**АГРАРНАЯ НАУКА В МИРЕ**

<b>Молчанова А.В.</b> 3-я Международная конференция «3 <sup>rd</sup> International Conference «Effect of Pre- and Post-harvest Factors on Health Promoting Components and Quality of Horticultural Commodities», Скерневица, Польша. ....	50
--	----

**АГРОТЕХНИКА ОВОЩНЫХ РАСТЕНИЙ**

<b>Земскова Ю.К., Савченко А.В.</b> Выращивание овощных корнеплодов семейства Капустные в защищенном грунте. ....	52
<b>Дубинин С.В.</b> Зависимость потенциальной урожайности сортов картофеля от категории посадочного материала. ....	58
<b>Ахмедова П.М.</b> Продолжительность межфазных периодов и урожайность раннеспелых сортов томата при выращивании безрассадным способом в условиях равнинного Дагестана. ....	62
<b>Косицына О.А.</b> Итоги испытания гибридов кукурузы сахарной в агроклиматических условиях южной сельскохозяйственной зоны Амурской области. ....	67
<b>Пойда Е.В., Кирсанова В.Ф.</b> Влияние способов выращивания на скороспелость и урожайность голландских гибридов арбуза в условиях юга Амурской области. ....	70

**СТАНДАРТЫ НА СЕМЕНА И ОВОЩНУЮ ПРОДУКЦИЮ**

<b>Павлов Л.В., Кондратьева И.Ю., Санникова Т.А., Мачулкина В.А.</b> Томаты консервированные чесночные (технические условия). ....	74
---	----

**ГРИБОВОДСТВО**

<b>Вдовенко С.А.</b> Биоэнергетическая оценка использования освещенности при выращивании вешенки обыкновенной. ....	76
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**MODERN TRENDS IN BREEDING OF VEGETABLE CROPS**

<b>Bocharnikova N.I.</b> Scientific priorities in modern breeding of vegetable crops and potato ....	4
<b>Burenin V.I., Artemyeva A.M., Vinogradov Z.S.</b> Germplasm of vegetable crops (Department of vegetable crops of VIR - 90 <sup>th</sup> anniversary) ....	8
<b>Artemyeva A.M., Rudneva E.N., Kocherina N.V., Chesnokov Yu.V.</b> QTL analysis of morphological traits of quality in <i>Brassica rapa</i> L. ....	14
<b>Logunov A.N., Timin N.I.</b> Inheritance of bulb color in onion ....	18
<b>Nguyen Truong Giang, Ushanov A.A., Monakhos G.F.</b> Evaluation of combining ability of parthenocarpic genocious and monoecious lines for productivity of pickling cucumbers and standard fruits ....	24

**SEED PRODUCTION AND SEED STUDYING OF VEGETABLE CROPS**

<b>Musaev F.B., Dobrutskaya E.G., Verba O.V., Skorina V.V.</b> Quality of green bean seeds in contrast natural condition of seed production ....	32
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**PLANTS PHYSIOLOGY AND PHYTOCHEMISTRY**

<b>Gins M.S., Lapo O.A.</b> Enrichment of baikhovi black tea by antioxidants of amaranth ....	37
<b>Virodov A.S.</b> Photosynthetic activity of tomato in continuous culture and crop rotation link at different systems of fertilization ....	40
<b>Gins M.S., Kharchenko V.A., Gins V.K., Baykov A.A., Kononov P.F., Ushakova I.T.</b> Characteristics of green and spiced-aromatic crops ....	42

**THE INTRODUCTION OF NEW VEGETABLE CROPS**

<b>Podlesny V.B.</b> Sweet potato culture – promising trend of Russian vegetable growing ....	46
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**AGRARIAN SCIENCE IN THE WORLD**

<b>Molchanova A.V.</b> «3 <sup>rd</sup> International Conference «Effect of Pre- and Post-harvest Factors on Health Promoting Components and Quality of Horticultural Commodities» ....	50
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**AGROTECHNICS OF VEGETABLE PLANTS**

<b>Zemskova Yu.K., Savchenko A.V.</b> Cultivation of vegetable root crops of Brassicaceae family in indoor planting ....	52
<b>Dubin S.V.</b> Association of potential yield of potato varieties and grade of planting material ....	58
<b>Akhmedova P.M.</b> Duration of interstage periods and yield of early-ripening tomato varieties at direct sowing in condition of lowland Dagestan ....	62
<b>Kosicina O.A.</b> Result of test of sweet maize hybrids in conditions of south zone of the Amur region ....	67
<b>Poyda E.V., Kirsanova V.F.</b> Affect of types of growing on early ripening and yield of Holland hybrids of watermelon in conditions of the South of the Amur region ....	70

**STANDARDS FOR SEEDS AND VEGETABLE PRODUCTS**

<b>Pavlov L.V., Kondratieva I.Y., Sannikova T.A., Machulkina V.A.</b> Canned garlicky tomato (technical specifications) ....	74
---	----

**MUSHROOM GROWING**

<b>Vdovenko S.A.</b> Bioenergetic assessment of light intensity for growing of oyster mushroom ....	76
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## MODERN TRENDS IN BREEDING OF VEGETABLE CROPS

Bocharnikova N.I.

## Enrichment priorities in modern breeding of vegetable crops and potato

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The estimation of basic knowledge base of agriculture is the main reason of its world crisis at the turn of XX<sup>th</sup> century. The main task of scientific support of agriculture at the XXI century is the transformation of this economic sector that will allow meeting the needs of the human in foods and raw material owing to infinity of knowledge of law of nature.

**Key words:** *vegetable crops, breeding.*

Burenin V.I., Artemyeva A.M., Vinogradov Z.S.

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Analysis of investigation and application of genetic resources of vegetable and melon crops since Vavilov's time up to nowadays has been done. The main trends of investigations of the gene bank collection in recent times are described. The results of breeding and seed production are shown. The initial breeding materials are recommended.

**Key words:** *varieties, ecological-geographic study, adaptivity, initial breeding material, identified germplasm collection, donor of agronomical traits.*

Artemyeva A.M., Rudneva E.N., Kocherina N.V., Chesnokov Yu.V.

## QTL analysis of morphological traits of quality in Brassica rapa L.

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Using of the DH-lines of two mapping populations of Brassica rapa L, the morpho-biological investigation and mapping of QTLs determined some morphological traits of quality in greenhouse's condition have been done. The linkage groups of QTLs of the following quantitative traits have been identified and localized: length, width, color, hairiness, and surface of lamina, as well as petiole length and width caused of nutritive value of B. rapa plants. The molecular markers genetically linked with mapped QTLs were revealed. The percent of phenotypic variability determined by the identified chromosome loci was calculated.

**Key words:** *Brassica rapa L., morphological traits of quality, QTL mapping.*Logunov A.N.<sup>1</sup>, Timin N.I.<sup>2</sup>

## Inheritance of bulb color in onion

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The results of study of inheritance of bulb color in onion are presented in the article. It was shown that the differences in bulb color (yellow, brown, white, red, etc) are determined by several genes in genome.

**Key words:** *bulb onion, segregation for color of the inbred (L<sub>1</sub>-L<sub>2</sub>) and hybrid (F<sub>1</sub>, BC<sub>1</sub>) lines, genes of color.*Nguyen Trung Giang<sup>1</sup>, Ushanov A.A.<sup>1</sup>, Monakhos G.F.<sup>2</sup>

## Evaluation of combining ability of parthenocarpic genocious and monoecious lines for productivity of pickling cucumbers and standard fruits

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The results of a study of the genetic control and evaluation of combining ability for productivity of pickling cucumbers and standard fruits of 20 cucumber lines obtained after crossing 10 parthenocarpic gynocious and 10 monoecious lines resistant to downy mildew are presented in the article. The cucumber lines with the high combining ability were identified. In the future, these lines will be used in breeding programs.

**Key words:** *cucumber, GCA, SCA, productivity, resistance, downy mildew, pickling cucumbers.*

## SEED PRODUCTION AND SEED STUDYING OF VEGETABLE CROPS

Musae F.B.<sup>1</sup>, Dobrutskaya E.G.<sup>1</sup>, Verba O.V.<sup>1</sup>, Skorina V.V.<sup>2</sup>

## Quality of green bean seeds in contrast natural condition of seed production

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The analysis of changing of amount of total proteins and storage proteins of green bean was done. The influence of the contrast natural conditions on the quality of green bean seeds was revealed. The obtained data can be used for seed production of green bean.

**Key words:** *green bean, seeds, ecological heterogeneities.*

## PLANTS PHYSIOLOGY AND PHYTOCHEMISTRY

Gins M.S., Lapo O.A.

## Enrichment of baikhovi black tea by antioxidants of amaranth

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The development of new type of tea, the baikhovi black tea with leaves of amaranth (50:50), allowed the enrichment of tea by the compounds with vitamin P-activity, quercetine, rutin (3-times increasing), protein, pectin, key amino acids, vitamin C, calcium, ferrum, and organogenic silicon. Owing to the high content of red-violet antioxidant betacyanin in leaves of amaranth, the tea color was improved and antioxidant activity was increased.

**Key words:** *amaranth, baikhovi black tea, antioxidant, phenolic compounds, amaranthine.*

Virodov A.S.

## Photosynthetic activity of tomato in continuous culture and crop rotation link at different systems of fertilization

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The study of net productivity of photosynthesis of tomato in continuous culture has been conducted during 2010-2013. The influence of two-year interruption by crop rotation link and different systems of fertilization on the growth of vegetative mass (g/m<sup>2</sup> per day) was determined.

**Key words:** *tomato, photosynthesis, crop rotation.*

Gins M.S., Kharchenko V.A., Gins V.K.,

Baykov A.A., Kononkov P.F., Ushakova I.T.

## Characteristics of green and spiced-aromatic crops

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The characteristics that are typical for all leaved crops were identified in the studied green and spiced-aromatic crops. Maximal amount of the total antioxidants per 1 g of raw material is accumulated in juvenile leaves, flowers, and inflorescences. Total antioxidant content is decreased in old leaves of plants.

**Key words:** *green and spiced-aromatic crops, antioxidants.*

## THE INTRODUCTION OF NEW VEGETABLE CROPS

Podlesny V.B.

## Sweet potato culture –

## promising trend of Russian vegetable growing

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Results of research of possibility of introduction of a new for the Russian Federation tuberous crop culture, sweet potato, are presented. The influence of planting dates on the yield of this culture was studied. According to the field experiment, the high yield of sweet potato tuber and resistance to diseases and pests were revealed.

**Key words:** *sweet potato, planting dates, yield, resistance to diseases and pests.*

## AGRARIAN SCIENCE IN THE WORLD

Molchanova A.V.

3<sup>rd</sup> International Conference

## «Effect of Pre- and Post-harvest Factors on Health Promoting Components and Quality of Horticultural Commodities»

March 24-25, 2014 in Skierniewice (Poland) the 3<sup>rd</sup> International Conference «Effect of Pre- and Post-harvest Factors on Health Promoting Components and Quality of Horticultural Commodities» was held, devoted to achievements of horticulture. The Conference, as a joint activity of the Storage Section of the Committee of Horticultural Sciences of Polish Academy of Sciences and EUFRIN «Fruit Quality Working Group», is organized by the Storage and Processing of Fruits and Vegetables Departments of the Research Institute of Horticulture (InHort).

**Key words:** *storage and processing of fruits and vegetables, harvest technology, quality of horticultural commodities.*

## AGROTECHNICS OF VEGETABLE PLANTS

Zemskova Yu.K., Savchenko A.V.

## Cultivation of vegetable root crops of Brassicaceae family in indoor planting

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The results of winter and spring sowing times of vegetable root crops of Brassicaceae family in protected area are presented. Five varieties and three hybrids of daikon, seven varieties of radish, and five varieties of turnip were studied. The minimal and maximal weight of roots for each sowing time was revealed. The average weight of products over three years of research was calculated.

**Key words:** *daikon, radish, turnip, planting dates, weight.*

Dubinin S.V.

## Association of potential yield of potato varieties and grade of planting material

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The estimation of the new approach of obtaining of potential yield of common varieties and new breeding samples of potato growing on row-boxes of the new technology of the company «SeDeK» was done. The use of the complex of agricultural practices, such as healthy initial material, high soil fertility, seed vernalization, early planting, application of covering materials, and watering, are allowed to get yields of potato at the level of 100 t/ha.

**Key words:** *potato, variety, mini-tubers, technology, productivity, potential yield.*

Akhmedova P.M.

## Duration of interstage periods and yield of early-ripening tomato varieties at direct sowing in condition of lowland Dagestan

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The duration of interstage periods and fruiting time as well as their correlation with yield were studied. The correlation between density of early ripeness and density of interstage period «flowering-ripeness» was revealed.

**Key words:** *interstage periods, varieties, tomato, density, correlation, yield.*

Koscina O.A.

## Result of test of sweet maize hybrids in conditions of south zone of the Amur region

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Based on the complex of agronomical traits, the foreign sweet maize hybrids Testy Sweet, Honey, Bentham, Trophy, Sweet Nugget, and Super Sundance are recommended for growing in the conditions of the south zone of the Amur region. In this conditions, the vegetation season is 78-80 days, the yield of corn of milky ripeness is 16,9 t/ha.

**Key words:** *foreign sweet maize hybrids, phenological and biometrical investigations, yield, sugar content.*

Poyda E.V., Kirsanova V.F.

## Affect of types of growing on early ripening and yield of Holland hybrids of watermelon in conditions of the South of the Amur region

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The results of the study of different types of growing of large-fruited watermelons in conditions of south zone of the Amur region are presented. Three promising Holland early ripening hybrids were tested. The optimal sowing time and ways of plant development were determined. The hybrids were fully characterized; the guidelines for their growing in the condition of this region are described.

**Key words:** *watermelon, hybrids, type of growing, sowing time, bush development.*

## STANDARDS FOR SEEDS AND VEGETABLE PRODUCTS

Pavlov L.V., Kondratieva I.Y., Sannikova T.A., Machulkina V.A.

## Canned garlicky tomato (technical specifications)

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The aim of technical specifications is the development of quality rating system of canned garlicky tomato in vinegar and tomato sauces with garlic, sugar, salt, and vinegar. The project of the technical specifications is developed for the first time in Russia.

**Key words:** *tomato, standard, technical specifications, canning, sauce, industrial processing.*

## MUSHROOM GROWING

Vdovenko S.A.

## Bioenergetic assessment of light intensity for growing of oyster mushroom

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Data of bioenergetic assessment of two strains of oyster mushroom in conditions of basement with different light intensity were obtained. The energy for the product development and the energy accumulated by the economically valuable part of yield were evaluated. The high ratio of the bioenergetic efficiency (up to 2,42) was revealed for the strain HX-35 when the day-light lamps at 600-800 lux of intensity were used.

**Key words:** *strain, efficiency, light intensity, energy accumulation, ratio.*