

# Journal of Plant Development Sciences

(An International Monthly Refereed Research Journal)

Volume 10

Number 5

May 2018

## Contents

---

### RESEARCH ARTICLE

- Observations on temperature variation in alpine zone of Uttarakhand: a case study of Tungnath  
—**Shailesh Pd Vashist, Tahir Nazir, R.K. Pathak and S. Nautiyal**----- 263-269
- Effect of plant growth regulators on growth parameters of sweet potato (*Ipomoea batatas* (L.) Lam.)  
—**Sibabrata Behera, C.N. Hanchinamani, H.P. Hadimani, Revanappa, S. Meti and S. M. Prasanna**----- 271-275
- Effect of nursery nutrients management practices on growth and yield of Sambha Mahasuri rice (*Oryza Sataiva* L.) under flood prone ecosystem  
—**Uma Shankar, A.K. Singh, Chandra Pal, Brij Mohan and Satendra Kumar**----- 277-282
- Prospective of selected green algae pertain to Biofuel production  
—**Vikas, S.K. Soni and S. Gupta**----- 283-287
- Espouse of zinc on growth and biochemical changes of wheat (*Triticum aestivum* L.) under sodic soil  
—**Uma Shanker, R.K. Yadav, Brij Mohan and Satendra Kumar**----- 289-293
- Impact of Annabaghya Yojana on women labour intensive farming activities  
—**Annapura Kalal, H. Basvaraj and Geeta Chitagubbi**----- 295-298
- Investigations of maize curvularia leaf spot disease and estimating yield loss in Belagavi, Bagalkot and Vijayapur districts of Northern Karnataka  
—**Vidya Palaki and P.V. Patil**----- 299-302
- Constraints faced by farmers during production and marketing of major oilseeds in Raigarh district of Chhattisgarh state  
—**Devendra Kumar Kurrey, Bhagchandra Jain and Rekha Bai Nagpure**----- 303-306
- ### SHORT COMMUNICATION
- An updates to greenhouse effect and Green House Gases  
—**J.V. Singh**----- 307-308
- Global warming, climate changes and preventive measures  
—**Ashish Tomar**----- 309-310

## OBSERVATIONS ON TEMPERATURE VARIATION IN ALPINE ZONE OF UTTARAKHAND: A CASE STUDY OF TUNGNATH

Shailesh Pd Vashist<sup>1\*</sup>, Tahir Nazir<sup>2</sup>, R.K. Pathak<sup>3</sup> and S. Nautiyal<sup>4</sup>

<sup>1</sup>Department of Botany D.A.V. P.G. College Dehradun

<sup>2</sup>Deptt. of forestry Dolphin P.G collage Dehradun Uttrakhand, India.

<sup>3</sup>D.A.V. P.G collage Dehradun

<sup>4</sup>Ex. Head Plant physiology Forest research Institute Dehradun Uttrakhand

Email: shaileshvashist@gmail.com

Received-18.04.2018, Revised-15.05.2018

**Abstract:** The metrological data for maximum, minimum and soil temperature was recorded at 3600 mt. altitude during 2015-16 for Ph.D. programme under the topic “Phenological response of four Rhododendron species with reference to climate change” and compared with the data recorded for same parameters at the same altitude and place collected during June to September, 1979 by High Altitude Plant Physiology Research Centre Srinagar. In weekly temperature recording it is observed that the maximum air temperature has increased from 2 to 4 °C as well as the minimum temperature has also decreased up to 2 to 3°C within a span of 35 years. However, soil temperature has shown the increase of about 2 to 3 °C. It indicates that though the variation in mean temperature does not increase significantly but the difference between maximum and minimum temperature has increased drastically. This clearly indicates that the variation in temperature which is responsible for all the metabolic processes in plants and plays a significant role in plant adaptation has significantly increased in both sides. Which means that plants has to face both extreme low as well as high temperatures, which may cause loss of those species which has low adaptation potential to these temperature extremes.

**Keywords:** Alpine Zone, Metrological data, Temperature, Uttarakhand

## EFFECT OF PLANT GROWTH REGULATORS ON GROWTH PARAMETERS OF SWEET POTATO (*IPOMOEA BATATAS* (L.) LAM.)

Sibabrata Behera\*, C.N. Hanchinamani, H.P. Hadimani, Revanappa, S. Meti and S. M. Prasanna

College of Horticultural, Bagalkot

Received-09.05.2018, Revised-24.05.2018

**Abstract:** A field experiment was carried out during *kharif*2016-17 at Kittur Rani Channamma College of Horticulture, Arabhavi (Karnataka) to study the effect of growth regulators on growth parameters of sweet potato [*Ipomoea batatas* (L.) Lam.]. The results revealed that the spraying of GA<sub>3</sub> @ 100 ppm (T<sub>3</sub>) showed significantly highest Vine length (125.50 cm), Petiole length (26.83 cm) and Significantly highest leaf area (87.43 cm<sup>2</sup>) was recorded with the combination of GA<sub>3</sub> 100 ppm plus CCC 250 ppm (T<sub>10</sub>), which was on par with GA<sub>3</sub> at 100 ppm (85.18 cm<sup>2</sup>),

**Keywords:** Sweet potato, Plant growth regulators, Growth parameters

## EFFECT OF NURSERY NUTRIENTS MANAGEMENT PRACTICES ON GROWTH AND YIELD OF SAMBHA MAHASURI RICE (*ORYZA SATIVA* L.) UNDER FLOOD PRONE ECOSYSTEM

Uma Shankar<sup>1\*</sup>, A.K. Singh<sup>2</sup>, Chandra Pal<sup>1</sup>, Brij Mohan<sup>3</sup> and Satendra Kumar<sup>4</sup>

<sup>1,2</sup>Center of Advanced Faculty Training in Crop physiology, Department of Crop Physiology,

<sup>3</sup>Department of Agronomy, Narendra Deva University of Agriculture & Technology Kumarganj, Faizabad 224229 (U.P.) India

<sup>4</sup>Department of Soil Science, SVP University of Agriculture & Technology, Meerut-India

Email: [umashankarpaswan88@gmail.com](mailto:umashankarpaswan88@gmail.com)

Received-02.05.2018, Revised-18.05.2018

**Abstract:** Present investigation was carried out to study the “Effect of nursery nutrients management practices on growth and yield of samba mahasuri rice (*oryza sataiva* L.) under flood prone ecosystem” during wet season, 2013-14 and 2014-15. Experiment was laid out in randomized block design with three replication and one variety Samba Mahsuri *sub1* in cemented pond (size; 21x17.50 m x1.25 m). Twenty five days old seedlings were transplanted in ponds. Recommended dose of nursery N, P, K& silicate @ 40:40:40 +120, 50 ppm Kg ha<sup>-1</sup> was applied at 10 DAS. Main field accompanied with nursery reframed with time schedule as (T<sub>3</sub>N<sub>2</sub>) N 30 Kg ha<sup>-1</sup> with combination of P and K @ 60, 50 Kg ha<sup>-1</sup> applied as basal before transplanting followed by (T<sub>7</sub>N<sub>4</sub>) N 30Kg ha<sup>-1</sup> as top dressing at 5<sup>th</sup> day after de-submergence and P full dose before transplanting and K 20 kg ha<sup>-1</sup> at 5<sup>th</sup> days de-submergence one week before flowering respectively (30Kg N ha<sup>-1</sup> at each days), (T<sub>3</sub>N<sub>2</sub>), N 30 Kg ha<sup>-1</sup> with 40 Kg ha<sup>-1</sup> P and K as basal application @ N 30 Kg ha<sup>-1</sup> at 5<sup>th</sup>, 20<sup>th</sup> days after de-submergence and one week before flowering and with 40Kg ha<sup>-1</sup> P and K as basal further recommended dose of N applied during post flood @ 60, 30 and N 30 Kg ha<sup>-1</sup> at subsequently at 5<sup>th</sup>, 20<sup>th</sup> days after de-submergence and one week before flowering as foliar respectively. fifteenth (15) days complete submergence treatment was given after 20 days transplanting. Results indicated that before submergence lower dose of N @ (30 Kg ha<sup>-1</sup>) and potassium (1/2) 25, 20 kg ha<sup>-1</sup> at 5<sup>th</sup> days after de-submergence significantly increased the maximum plant survival, plant height, dry weight, ear bearing shoot m<sup>-2</sup> panicle length number of grain per panicle, test wt. in samba mahsuri *sub1* rice variety at par with T<sub>7</sub>N<sub>4</sub> in which N was applied in four split doses (N 30 Kg ha<sup>-1</sup>) as basal top dressing was higher in comparison T<sub>4</sub>N<sub>2</sub> T<sub>3</sub>N<sub>2</sub> T<sub>6</sub>N<sub>4</sub>, T<sub>2</sub>N<sub>2</sub> and T<sub>1</sub>N<sub>1</sub> 5<sup>th</sup> days after de-submergence corresponded N 30 Kg ha<sup>-1</sup> applied as basal at transplanting, mean while, plant mortality at recovery was higher (6.68 to 5.58%) in comparison to T<sub>7</sub>N<sub>4</sub> (6.32 to 5.92%). Although maximum plant mortality (6.68 to 5.58%) was recorded with N 30 Kg ha<sup>-1</sup> applied as basal. Moreover, lower dose of N 30 Kg ha<sup>-1</sup> applied with P and K @ 50, 40 Kg ha<sup>-1</sup> as basal at transplanting and rest N applied in three split doses (30Kg ha<sup>-1</sup> each split) with time frame *i.e.* before 5<sup>th</sup> days 20<sup>th</sup> days and booting and panicle emergence after de-submergence and one week before flowering significantly improved survival and yield (Kg/plot) of samba mahsuri *sub1* rice variety. Above package and practice might be recommended for farmer practice after further validation.

**Keywords:** Nursery nutrient management, Plant height, Dry biomass, Panicle length

Journal of Plant Development Sciences Vol. 10(5)

## PROSPECTIVE OF SELECTED GREEN ALGAE PERTAIN TO BIOFUEL PRODUCTION

Vikas\*, S.K. Soni and S. Gupta

Department of Botany, Faculty of Science, Dayalbagh Educational Institute, Dayalbagh,  
Agra, 282005

Email: [sahay.vikasalld@gmail.com](mailto:sahay.vikasalld@gmail.com)

Received-11.05.2018, Revised-26.05.2018

**Abstract:** Fossil fuels are the main source of energy for transportation and industrialization. Growing population creates a huge demand of fossil fuels which become cause of exhaustion in near future. Burning of fossil fuels is also cause of climate change, global warming, pollution and various health issues in living organism, so fossil fuels become a topic of concerns for scientist and environmentalist. Petroleum based fuels can be substituted by the biofuels, which can be obtained by the trans-esterification algal oil. Algae are the most efficient producer of oil owing to its higher proficiency of CO<sub>2</sub> fixation, cost-effectiveness and insignificant cultivation land. This study was done to know the potential and physicochemical properties of different algal species found in local water bodies.

**Keywords:** Algal oil, Chemical extraction, Biodiesel, Biofuel, Transesterification, Renewable energy

Journal of Plant Development Sciences Vol. 10(5)

## RESPONSE OF ZINC ON GROWTH AND BIOCHEMICAL CHANGES OF WHEAT (*TRITICUM AESTIVUM* L.) UNDER SODIC SOIL

Uma Shanker<sup>1\*</sup>, R.K. Yadav<sup>2</sup>, Brij Mohan<sup>3</sup> and Satendra Kumar<sup>4</sup>

<sup>1,2</sup>Department of Crop Physiology, Center of Advanced Faculty Training In Crop physiology,  
Department of Crop Physiology

<sup>3</sup>Department of Agronomy, N.D. University of Agriculture and Technology, Narendra Nagar  
(Kumarganj), Faizabad 224229 (U.P.) India

Received-27.11.2017, Revised-29.04.2018

**Abstract:** The present investigation was carried out under field condition at main experiment station (MES) of Narendra Deva University of agriculture & Technology, Narendra Nagar, Kumarganj, Faizabad U.P. during Rabi season 2010-11. The experiment was executed in completely randomized block design (factorial) with three replications. Six treatments comprised of zinc application *i.e.* (control 1%, 1.5% ZnSO<sub>4</sub> seed soaking, 15 kg and 25 kg ZnSO<sub>4</sub> ha<sup>-1</sup> basal application and 1% ZnSO<sub>4</sub> +2.5% urea foliar spray and three wheat varieties (Raj-3077, NW-1014, UP-2425). Seed soaking, basal application and foliar spray of ZnSO<sub>4</sub> increased growth characters in all varieties of wheat. Wheat variety UP-2425 responded better in comparison to NW-1014 and Raj-3077. Variety UP-2425 performed maximum plant height number of tiller, Leaf area, dry weight plant<sup>-1</sup> as compared to Raj-3077 and NW-1014 at the crop growth stages. A control sets was also maintained. Seed soaking, basal application and foliar spray of ZnSO<sub>4</sub> increased growth characters and biochemical changes in all varieties of wheat. Application of 25kg ZnSO<sub>4</sub>ha<sup>-1</sup> in soil significantly increased in chlorophyll content, carbohydrate content obtained. Wheat variety UP-2425 responded better in comparison to NW-1014 and Raj-3077. It is concluded from the results that basal application of 25 kg ZnSO<sub>4</sub> ha<sup>-1</sup> was found superior and economical in comparison to other treatments.

**Keywords:** Zinc, Foliar application, Growth, Soluble carbohydrate, Chlorophyll

Journal of Plant Development Sciences Vol. 10(5)

## IMPACT OF ANNABHAGHYA YOJANA ON WOMEN LABOUR INTENSIVE FARMING ACTIVITIES

Annapurna Kalal<sup>1\*</sup>, H. Basvaraj<sup>2</sup> and Geeta Chitagubbi<sup>3</sup>

*Department of Extension Communication and Management,  
College of Community Science,  
University of Agricultural Sciences, Dharwad, Karnataka*

Received-09.05.2018, Revised-26.05.2018

**Abstract:** Anna Bhagya Yojana Scheme was launched by Karnataka Government, as the most ambitious revised food distribution system to supply 30 kg of rice at Rs. one to nearly one crore poor families. Purpose of Anna Bhagya Yojana was to fulfil basic needs of people Below Poverty Line (BPL). In this scheme, a single card holder in the family got 10 kg rice at a rate of Rs 1/kg. Family with 2 members got 20 Kg rice and 3 got a maximum of 30 Kg rice at same price. Apart from rice, edible oils, sugar, iodized salt, kerosene and other items were also provided at concessional rates. So this helped poor people to get at least 2 square meals a day. Thus it was felt necessary to see whether the scheme had any impact on the beneficiaries and farmers.

**Keywords:** Farmers, Government, Karnataka, Scheme

Journal of Plant Development Sciences Vol. 10(5)

## INVESTIGATIONS OF MAIZE CURVULARIA LEAF SPOT DISEASE AND ESTIMATING YIELD LOSS IN BELAGAVI, BAGALKOT AND VIJAYAPUR DISTRICTS OF NORTHERN KARNATAKA

Vidya Palaki\* and P.V. Patil

*Department of Plant Pathology,  
College of Agriculture, Vijayapur-586 101*

Received-25.04.2018, Revised-11.05.2018

**Abstract:** Intensive roving survey was carried out in three districts (Belagavi, Bagalkot and Vijayapur) of north Karnataka, during October - November 2014. Overall the disease severity was low in all the three districts surveyed and it was ranged between 2.44 to 9.02 per cent. Maximum disease severity of 9.02 per cent was recorded in Belagavi district followed by Bagalkot (5.31%) and Vijayapur (2.44%). Among the taluks Gokak had the maximum disease severity (9.83%) followed by Saundatti (8.97%), Jamakhandi (8.75%) and Raibhag (8.27%) and it was least in Indi (1.80%). Among different genotypes, irrespective of the fungicidal spray significantly higher per cent disease index was recorded in the genotype CP 818 (38.27 %) compared to other genotypes. Next genotype which was recorded higher per cent disease index was Arjun (36.20%)

followed by CP 808 (34.64%), Shimsha 517 (34.55%), and Kaveri 244 (34.25%) and were on par with each other and least per cent disease index was recorded in the genotype DKC 9133 with severity of 15.08 per cent.

**Keywords:** Curvularia leaf spot, *Zea mays*, Karnataka, Survey

Journal of Plant Development Sciences Vol. 10(5)

## **CONSTRAINTS FACED BY FARMERS DURING PRODUCTION AND MARKETING OF MAJOR OILSEEDS IN RAIGARH DISTRICT OF CHHATTISGARH STATE**

**Devendra Kumar Kurrey<sup>1\*</sup>, Bhagchandra Jain<sup>2</sup> and Rekha Bai Nagpure<sup>3</sup>**

<sup>1,2</sup>*Department of Agriculture Economics,*

<sup>3</sup>*Department of Engineering,*

*College of Agriculture,*

*Indira Gandhi Agricultural University, Raipur - 492012, Chhattisgarh*

*Email: [devendrakurrey95@gmail.com](mailto:devendrakurrey95@gmail.com)*

*Received-30.04.2018, Revised-16.05.2018*

**Abstract:** Oilseeds occupy a unique position in Indian agriculture. India is one of the largest producers of oilseeds in the world. An attempt has been made in this paper to finding the production and marketing constraints of major oilseeds in Raigarh district of Chhattisgarh state with ninety farmers who were selected randomly from six villages. From each of the village fifteen farmers considered to collect the required information. Major constraints pertaining to cultivation of oilseeds were lack of resources (81.12 per cent) is generally faced by small category farmers. Due to this reason, these farmers are not able to invest for better production technology. Lack of recommended package and practices particularly doses of fertilizer, insecticides and pesticides are perceived by 77.78 per cent of producers. About 67 per cent farmers faced this problem. According to them this step will also prove very useful in improving the productivity of this crop at one side and in reducing the per hectare cost of cultivation on the other. There is technological gap because the extension wing of department of agriculture is not making proper and sincere efforts to disseminate the technical know-how from research stations to the farmer's fields. Lack of implementation of support price in the villages is the major problem faced by major oilseeds producers. Almost all farmers told that no any intermediary is prepare to give the support price if produce is sold by farmers in the villages. When they were asked that why you do not sale your produce in the market? More than 52 per cent producers perceived that transportation of small quantity of produce may not an economical if they sell this small produce in the market. More than 93 per cent producers told that the presence of itinerant traders in the producing area is only for limited period after harvesting the crop.

**Keywords:** Area, Production, Oilseed, Constraints, Marketing, Farmer

Journal of Plant Development Sciences Vol. 10(5)

## **AN UPDATES TO GREENHOUSE EFFECT AND GREEN HOUSE GASES**

**J.V. Singh\***

*Department of Chemistry, Nehru College, Chhibramau-209721(Kannauj) U.P. India*

*Email: [jvsingh1@hotmail.com](mailto:jvsingh1@hotmail.com)*

*Received-06.04.2018, Revised-25.04.2018*

**Abstract:** Warming of the lower atmosphere (troposphere) and earth's surface is due to greenhouse effect. It is a natural phenomenon and vital to life. An increase in the concentration of greenhouse gases in the atmosphere may lead to problems. The present article is an introduction and updates to the concept of greenhouse effect and greenhouse gases.

**Keywords:** Atmosphere, Greenhouse effect, Greenhouse gases, Energy

Journal of Plant Development Sciences Vol. 10(5)

## **GLOBAL WARMING, CLIMATE CHANGES AND PREVENTIVE MEASURES**

**Ashish Tomar\***

*Department of Chemistry,  
Meerut College, Meerut (U.P) India*

*Received-09.04.2018, Revised-26.04.2018*

**Abstract:** The present article is an introduction to the concept of greenhouse gases, global warming and its effect and measures to reduce global warming. The earth's climate is changing constantly. Warming of earth's surface is due to greenhouse effect. It is a natural phenomenon and vital to life. The drastic increase in the emission of CO<sub>2</sub> within the last 30 years caused by burning fossil fuels has been identified as the major reason for the change of temperature in the atmosphere. More than 80% of the world-wide energy demand is currently supplied by the fossil fuels coal, gas and oil. Increases in concentration of greenhouse gases in the atmosphere may lead to problems.

**Keywords:** Atmosphere, Global warming, Greenhouse gases, Greenhouse effect