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Economics of major pulses and oilseeds grown by the tribal farmers in tarai region of Uttarakhand

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ABSTRACT

The study conducted in tarai region of Uttarakhand was based on data collected from 45 tribal farmers for the agricultural year 2008-09. The study aims at examining the cost of and return from major pulses and oilseeds grown by the tribal farmers. Economics of the crops was measured using total cost concept. The major pulses grown by the tribal farmers were lentil, gram and pea. A major oilseed grown by the tribal farmers was mustard. Among all the pulses, highest total cost was incurred in pea. Among all pulses, lentil was the most profitable crop followed by gram and pea. Moreover, mustard proved as the highest profit giving crop. The area has vast potential to grow these crops on commercial basis but there is need to tap this potential to benefit the tribal farmers. There is need to provide efficient infrastructure support so as to maximize the returns of the growers. Major policy implication is to focus on the gram and pea crops and there is need to promote lentil and mustard cultivation.

Estimation of current fallow using remote sensing technology in Udham Singh Nagar District of Uttarakhand

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ABSTRACT

Land use and land cover mapping serve as a basic inventory of land resources throughout the world. Remote sensing offers a wide means of acquiring and presenting land cover data globally and timely. The present study aims to find out the land use/land cover features of Udham Singh Nagar district of Uttarakhand state, India through application of Remote sensing and GIS. At present the reported geographical area of Udham Singh Nagar is 2579 km² as compared to remotely sensed data of 2755.70 km². The study was made with the help of high resolution LANDSAT satellite imagery of 30th November, 2013 and ENVI and Arc view software to classify the land use/land cover features. The results indicated that the highest area was covered by crop land (55.08%) followed by forest area (20.86) and current fallow (15.08%). The area under water bodies, built up, orchards and weeds and shrubs were found at the tune of 4.88%, 4.02%, 0.04% and 0.03%, respectively. The remotely sensed data indicated that there was a little variation among the different land use covers. The current fallow land is supposed to be utilized during rabi season for the production of mainly wheat, legumes, oilseed crops etc.

Subsoiling and fertilizer placement effect on yield performance, soil physico-chemical properties, nutrient uptake and nutrient recovery by sugarcane (*Saccharum officinarum* L.)

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ABSTRACT

A field experiment was conducted during 2007-2008 at G. B. Pant University of Agriculture and Technology, Pantnagar, India to study the effect of subsoiling and deep placement of fertilizers on soil fertility and nutrient uptake in sugarcane (Var : Co-Pant 90223). The experiment consisting of eight treatments, viz. Ploughing + 4 Harrowing + Furrow application of fertilizers (FAF), Ploughing + 2 Rotavator + FAF, Subsoiling + 4 Harrowing + FAF, Subsoiling + 2 Rotavator + FAF, Subsoiling + 4 Harrowing + Differential rate placement of fertilizers (DRPF), Subsoiling + 2 Rotavator + DRPF, Cross-subsoiling + 4 Harrowing + DRPF and Cross-subsoiling + 2 Rotavator + DRPF was laid out in randomized block design with four replications. The data indicated that subsoiling and cross-subsoiling prior to harrowing or rotavator resulted in significantly higher NPK uptake, NPK recovery efficiency and yields in sugarcane plant crop.

Situational analysis of agriculture in Kangshabati Irrigation Command Area, West Bengal: An observation to the issues and challenges

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ABSTRACT

The fulfillment of the ever increasing demand of food crops is a significant issue in India. To assure the food security of the common people, the agricultural practices should be improved in mand Area (KICA) is a vulnerable agricultural region of West Bengal. The region suffers from frequent agricultural producing proper technological know-how. The Kangshabati Irrigation Com drought. The present paper dealt with the status of agricultural production and the identification of spatial distribution of paddy culture both in rabi and kharif season in KICA. Primary as well as secondary data were incorporated properly to assess the irrigation system, trend and intensity of crop production at block levels. RS & GIS tools were applied to assess the spatial distribution of paddy in KICA. The study revealed that most of the district blocks of KICA are attributed with moderate to high level of agricultural drought where immediate attention is to be paid for the improvement of paddy culture as well as agricultural development.

Effect of cultivars and picking dates on physico-chemical characteristics of Karonda (*Carissa carandas* L.) jelly

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ABSTRACT

Karonda jelly was prepared from three cultivars viz., Pant Manohar, Pant Sudarshan and Pant Suvarna three different picking dates, 40, 60 and 80 days after fruit set. The storability of the jelly samples were evaluated at ambient temperature for a period of nine months. The jelly prepared from Pant Suvarna fruits exhibited maximum moisture, total soluble solids (T.S.S.), reducing sugar, non reducing sugar, total sugar, non-enzymatic browning and pectin content. The maximum pectin content, colour, appearance, taste, consistency and overall acceptability scores were observed in the jelly prepared from the fruits harvested 60 days after fruit set. Gradual reduction in the moisture content, non-reducing sugar, total sugar, ascorbic acid, pectin, colour, appearance, taste consistency and overall acceptability was observed during the nine months storage period. However, there was an increase in the T.S.S., reducing sugar, titratable acidity, non enzymatic browning and flavor as the time for storage period advanced. There was no fungal growth being observed during the entire storage period.

Genetic divergence studies in Gladiolus

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ABSTRACT

The present investigation was carried out with 20 genotypes of gladiolus (*Gladiolus grandiflorus* L.) which were evaluated to assess the genetic diversity existing among them. The data were subjected to multi variate test. The original mean values were transformed to normalize variables & all possible D₂ values were collected. Grouping was done using Torcher's method. All the genotypes were grouped into eight clusters, indicating the presence of considerable divergence and variation for different growth, flowering and corms traits among the various genotypes. Cluster VII was largest with seven genotypes, followed by cluster IV and V with three genotypes each. Clusters VI and VIII had two genotypes and remaining clusters were having only one genotype each. The maximum intra cluster distance was exhibited by genotypes of cluster V. The inter cluster was highest between the cluster VIII and III and lowest between cluster IV and VI. The different clusters have higher mean values for different traits; the genotypes 'Regency' from cluster II, 'Pacifica' and 'Tiger Flame' from cluster VIII, 'Priscilla' 'American Beauty' and 'Praha' from cluster IV and Acidanthera from cluster I had considerable divergence.

Effect of shoot pruning severity and plant spacing on leaf nutrient status and yield of guava cv. Pant Prabhat

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ABSTRACT

The experiment was conducted at Horticulture Research Centre, Patharchatta, Department of Horticulture, GBPUA&T, Pantnagar, India during the year 2014-15 and 2015-16. Five years old grafted, well trained guava plants planted under high density were selected for the study. The treatments consisted of two plant spacings (i.e. 2.0 m x 1.0 m and 2 m x 2 m spacing) and seven shoot pruning severity viz., One leaf pair shoot pruning (P₁,OLP); Two leaf pairs shoot pruning (P₂,TLP); Three leaf pairs shoot pruning (P₃,THLP); Thinning out of non-fruiting shoots + One leaf pair shoot pruning (P₄,TNFS+OLP); Thinning out of non-fruiting shoots + Two leaf pairs shoot pruning (P₅,TNFS+TLP); Thinning out of non-fruiting shoots + Three leaf pairs shoot pruning (P₆,TNFS+THLP); Thinning out of non-fruiting shoots (P₇,TNFS) and no pruning (P₀) as control. In this way, there were eight treatments with sixteen combinations. The maximum fruit yield was obtained with treatment P₄ (TNFS+OLP) in winter season, while, the unpruned plants (P₀) produced lowest fruit yield. The highest total annual yield (q/ha) was recorded with treatment combination, S₁P₄ (2.0 × 1.0 m plant spacing and TNFS+OLP). Leaf N, P, K contents were significantly influenced by pruning severity during July and October sample and it was lesser in pruned plants than unpruned plants. The low level of leaf nitrogen, phosphorus and potassium contents was recorded in October sample. However, pruning severity did not influence the leaf nitrogen, phosphorus and potassium contents during April sample.

Effect of various methods of crop regulation on growth, yield and fruit quality of guava (*Psidium guajava* L.) cv. Pant Prabhat

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ABSTRACT

An experiment on crop regulation was carried out during the year 2004-05 on six-years-old bearing trees of guava (*Psidium guajava* L) cv. Pant Prabhat, to investigate the effect of various crop regulation methods on yield and fruit quality. The treatments were comprised of six shoot pruning methods i.e. (T₁): One leaf pair pruning (retaining one leaf pair at the base of the shoot) (T₂): Two leaf pair pruning (retaining two leaf pairs at the base of the shoot), (T₃): One terminal leaf pair (hand removal of leaves and flowers retaining only one leaf pair at the top of shoot), (T₄): two terminal leaf pair(hand removal of leaves and flowers retaining only two leaf pairs at the top of shoot), (T₅): Flower bud thinning by hand and (T₆): Control. All the treatments were applied in the first week of May. The experiment was laid out in a Randomized Block Design (RBD) with four replications. The annual increase in tree height, tree spread and trunk diameter were affected significantly by various treatments. Maximum number of flower bud emergence was found in one leaf pair pruning. All the treatments yielded significantly more than control trees in winter season crop. Maximum number of fruits and yield (kg) per tree was found in one leaf pair shoot pruning. Maximum fruit weight and fruit size was found with the treatment flower bud thinning by hand. The quality parameters like TSS, acidity, ascorbic acid, sugars content were found higher with the treatment one leaf pair shoot pruning.

Calibration of potassium requirement for maximum and economic yields of turmeric (*Curcuma longa* L.) in a Mollisol of Uttarakhand

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ABSTRACT

Turmeric has a high demand for plant nutrients and generally responds to applied nutrients for yield & quality. Soil test values were calibrated for potassium requirements for maximum and economic yields of turmeric in an Aquic Hapludoll of Mollisol of Uttarakhand. The R^2 value of 0.687* was obtained to be significant when multiple regression of turmeric with soil test values, fertilizer doses and interaction, between soil and fertilizer doses. Adjustment equations of potassium doses for maximum and economic yields of turmeric under varying soil test value and price ratios (of nutrient input and turmeric yield) with desired return had been worked out. From the results, it was clearly demonstrated that turmeric responded to addition of potassium even under high levels of initial soil test values. Potassium dose decreased with increasing price ratio and marginal return for economic yield of turmeric.

The interplay between intellectual capital and new product development: an empirical investigation of Agricultural Research Institutes in India

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ABSTRACT

The purpose of the paper is to see the relationship of intellectual capital with new product development in agricultural research institutes in India. A questionnaire based survey was conducted and 32 agricultural research institutes were personally contacted and the responses were recorded through 5-point scale questionnaire. Structural Equation model was used for the analysis purpose and it is found that intellectual capital has a significant impact on the new product development of agri-research institutes in India.

End-Users attitude towards the aAQUA e-Agriservice: Dairy farmers perspective in Maharashtra

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ABSTRACT

End-users acceptance has been major obstacle to the success of new technology. Attitude is vital for acceptance and sustainability of new technology or knowledge interventions. The study envisaged to evaluate the attitude of dairy farmers towards aAQUA (Almost All Questions Answered) e-Agriservice. A Likert-type-scale was developed, consisted of 22-items, covered under four construct, viz., *pessimistic, utility, technical and efficacy perspectives*. Cronbach's alpha coefficient ($\alpha=0.91$) of reliability test was measured. Instrument was administered to randomly selected, 120 users of aAQUA in four districts of Maharashtra covering four zones of state during 2012-13. The results indicated that about one third (32.50%) of the users had more favourable attitude towards the aAQUA e-Agriservice followed by 24.17 per cent of the users with favourable attitude. The existing and proposed ICT based services in India would undertake this scale considering four perspectives for developing favourable attitude of end-users and for its effective utilization and sustainability. This study enhances value to the body of knowledge in evaluation and theory building through understanding the attitude about ICT based e-Agriservice from different perspective.

Diversity analysis in Fennel (*Foeniculum vulgare* Mill.) germplasm

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ABSTRACT

Principal component analysis was carried out using morphological traits in 91 germplasm accessions along with 3 checks of fennel (*Fennel vulgare* Mill.). The analysis resulted in the identification of thirteen clusters. The largest cluster had 14 accessions followed two cluster each containing 11 and 10 accessions respectively. Average distance of cluster centroids was found to be range from 1.995 to 3.330. Many of the clusters in the study comprised entries exclusively from a particular series (HF, JF and UF). The study indicate that clusters which contain accessions of three different series contain wide genetic diversity thus, opportunity exist to select the most desirable type of genotypes among them and for initiating a rational breeding programme by using the genetic diversity for further crop improvement.

Effect of delayed sowing on quality and yield attributes of different Rice (*Oryza sativa* L.) genotypes

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ABSTRACT

To examine the effect of late sowing (after 15 days of normal) on grain quality and yield, a field experiment was conducted during the kharif season of year 2011 with six rice genotypes namely, hybrids KRH-2, PA-6129, PHB-71 and inbreds AK-DHAN, NDR-359, VARADHAN. Yield parameters (number of primary and secondary branches per panicle, biological yield, economic yield and harvest index) and quality parameters (total carbohydrate and amylose) were studied under both the conditions. After critical analysis of all the parameters, it was observed that except hybrids KRH-2 and PHB-71 (6-10 per cent reduction) all the genotypes showed 17-28 per cent enhancement in biological yield under late sown conditions. However, all the rice genotypes except PA-6129 (19.9 per cent enhancement) showed decline (6-68 per cent) in economical yield under late sown condition when compared to early sown. Delayed sowing of all the genotypes also reduced total carbohydrate in the range of 15-55 per cent as well as amylose content in the range of 4-18 per cent. However, PA-6129 showed lowest reduction in amylose content and performed better in late sown condition. Study suggests that PA-6129 was comparatively less sensitive to photoperiod as compared to other hybrids and inbreds.

Strategies for establishing cool chain infrastructure, IQF & concentrate plant in Kumaon division of Uttarakhand

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ABSTRACT

Uttarakhand is blessed with varied agro climatic regions (temperate as well as tropical), which gets further strengthened by its differing geographical and topographical conditions. These attributes make Uttarakhand most acquiescent destination for production of a good number and variety of Horticulture (Fruits & Vegetables) and Agricultural crops (though horticulture is a subset of agriculture, but same has been separately mentioned for laying emphasis). The additional advantage that Uttarakhand enjoys over other hill states viz., Himachal Pradesh, Jammu & Kashmir etc, is that here temperate fruits mature three weeks earlier than the states mentioned. Still the farmers of Uttarakhand, despite of growing various commercial fruits and vegetables, have not succeeded in getting good or deserving prices for their produce. Only 30 per cent of the price paid by end consumer is being received by the farmer. The reasons, identified by the study, as responsible for such situation are the existing gap between required level of infrastructure and the present level of same; indirect access to market (i.e., excessive dependence on middle men); less than requisite awareness about, crop specific post harvest, measures to be followed to reduce wastage and preserving quality of produce etc. The government realizing this fact has initiated several policy measures to boost the establishment of food processing industries in Uttarakhand. The present study focuses on the strategies required for setting up or creating cool chain infrastructures, individual quick freezing (IQF) and concentrate plant so that the farmers could get better access to market as well as price. While at the same time entrepreneurs investing their fortune should also have a continued access to quality raw material. The location identified for establishment of cool chain infrastructure as a resultant of study, in Kumaoun are Haldwani (Golapaar), Rudrapur, Kaladungi, and Chafi. All these locations are within 30 Kms radius from Haldwani Mandi, the largest mandi of fruits and vegetable is Kumaon division.

Testing Assumptions in Linear Regression Models: A Case Study

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ABSTRACT

Assumptions testing techniques in linear regression are not simply abundant, but are also severely confusing in many occasions. To shed light on such ambiguous scenario *through a real life example*, in this paper, two popular assumptions testing tools: regression diagnostic and statistical test of hypothesis are mentioned in detail. Accordingly the degree of clarity in the subject matter is met by testing every single assumption through both of these mentioned approaches. In this, the statistical test of hypothesis is the objective complement to its subjective counterpart regression diagnostic for testing assumptions. As such this paper will apparently help suffice assumption testing in linear regression analysis.

Supplementation effect of kadipatta leaf powder on blood parameters in white leghorn layer

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ABSTRACT

Kadipatta (*Murraya Koeingii*) is used in Ayurvedic medicine for ailment of various diseases. In order to study effect of its inclusion on blood –biochemical parameters in poultry, a twelve week feeding trial was conducted on 120 White leghorn layers. The experimental birds were randomly divided into six treatment groups viz., T₁, Control; T₂, 0.5% Kadipatta leaf powder; T₃, 0.5% *Neem* leaf powder; T₄, 0.5% Kadipatta and *Neem* leaf powder (50:50); T₅, 0.5% Kadipatta and *Neem* leaf powder (25:75); T₆, 0.5% Kadipatta and *Neem* leaf powder (75:25 ratio)and fed accordingly. Production performance was studied in 3 different phases viz., Phase I (22-25 weeks), phase II (26-29 weeks) and phase III during post treatment period (30-33 weeks). In mid of the experiment, blood samples were collected from six experimental birds of each group for studying haemato-biochemical parameters. Feed conversion efficiency improved significantly ($P \leq 0.01$) due to supplementation of *Neem* and /or Kadipatta leaf powder@ 0.5%. Blood PCV and serum globulin also increased significantly ($P \leq 0.05$). Higher values of HDL cholesterol while lower values of LDL cholesterol and triglyceride were noted. Kadipatta can be used as feed additive in poultry.

Optimization of tine spacing, tine length and toolbar spacing for sowing of various crops in rice-wheat combine harvested field

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ABSTRACT

Rice straw in its loose form, left after harvesting by combine harvesters, results into frequent choking of furrow openers of no-till drill during drilling of wheat, which is one of the major barriers and make adverse situation for extensive use of no-till seed-cum-ferti drill. The residue handling capability of no-till drills could be enhanced probably by increasing the spacing of tines on toolbar, tine length as well as keeping more than two numbers of toolbars at optimum spacing. Keeping this in view, a study was conducted to evaluate the machine performance parameters based on straw accumulation (kg/ha) in between tine or around the tine. Tines were fitted in V-shape arrangement on three toolbars. Effect of furrow opener spacing, tine length and toolbar spacing on residue accumulation and residue flow indicated that, in general, with the increase in all these parameters, residue accumulation decreased. Minimum residue accumulation was found as 14.46 g/m/tine in wheat crop residue and 18.57 g/m/tine in rice crop residue for 65 cm tine length, 30 cm furrow opener spacing and 70 cm inter toolbar spacing

Value addition of *Dhaincha* fibres through dyeing for product development

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ABSTRACT

The growing ecological consciousness and limited land availability for cultivation of fibre yielding crops have pressed researchers to explore under-utilized and new natural resources that could be used in place of conventional textile fibres for numerous end uses both technical and aesthetic. *Dhaincha* is a green manure crop used prior to paddy cultivation in Uttarakhand and is also one of the valuable medicinal herbs. Botanically, this plant is called *Sesbania aculeata* and also known by common names as *danchi*, *dhaincha*, *dunchi* and *danicha*. This plant belongs to leguminacea family that yields harsh, coarse and shiny fibres having potential of application in the different sectors. The present study was, therefore, planned to explore the use of *dhaincha* fibre in home textiles. Value addition of *dhaincha* fibres was done through dyeing. Non woven fabric was prepared by needle punching method and products were developed. Finally the assessment of prepared product was done on the various parameters by their prospective consumers i.e., women in the age group of 20-27 years. The result of the study revealed that the *dhaincha* fibres could be dyed effectively with direct, azoic and reactive classes of synthetic dyes. The dyed fibres could be used for non- woven production by needle punching technique. The articles prepared included hand fan, magazine holder and table mat. The articles were acceptable amongst all the consumers. It was noted that the hand fan was most preferred article prepared from *dhaincha* fibres.

Effect of anionic and cationic softener on the property of *Kydia calycina* fibres

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ABSTRACT

Softening is beneficial process to reduce the flexural rigidity of *Kydia calycina* fibres and make it suitable for preparation of yarn. The *Kydia calycina* fibres were extracted from the young shoots of *Kydia calycina* plant through water retting. The extracted fibres were scoured with pectinase enzyme and bleached with TAED activated sodium perborate. In the present study, appropriate softening method was selected among one anionic and two cationic softening methods on the basis of physical properties. Effect of softening variables i.e. concentration of rossari softener, time, temperature and material liquor ratio were studied with the help of *Duncun post hoc* statistical test. The results indicated that the cationic softening method i.e. rossari softener gave better properties as compared to other two methods. At 1 % concentration of rossari softener, 1:30 material liquor ratio, 30^o C temperature and 30 min time of selected method, the tenacity, elongation, fineness and flexural rigidity of *Kydia calycina* fibres were obtained as 4.24±0.08 g/d, 2.95±0.05 %, 23.68±0.43 denier and 1234.19±23.31 mg/mm².

Perceived stress among parents of mentally challenged children: analysis across their educational status

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ABSTRACT

The present study assessed and compared the type and level of stress perceived by the parents of 150 mentally challenged children from 3 RCI (Rehabilitation Council of India) recognized special schools of Delhi across their education level. Sample was randomly drawn in equal proportions from three levels of mental challenge i.e. mild, moderate and severe from both low and middle income groups. The levels of stress perceived by parents were assessed using Family Interview for Stress and Coping in Mental Retardation, Part I developed by NIMHANS. From the present study, it was observed that mothers having low education had more marital problems, inter personal problems and financial implications. It was probably because of having different level of thinking as a result of their low education level; mothers were blamed more by the family for the child's condition and due to the direct association between low education level and financial strain. As mothers having low level of education were found to be more stressed, likewise less educated fathers were also more stressed.

Weed control in dry-seeded rice with penoxsulam

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*Note: This is a short communication and as such, does not have an ABSTRACT.
For details, see the print journal or contact the authors at above address.*