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Assessment on water demand change of Potato in 2050 at Pantnagar

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ABSTRACT: Water is a key driver of agricultural production and its most precious input. An experiment to study water demand of Potato with two dates of sowing i.e. October 12, 2010 & November 8, 2010 was conducted during rabi season of 2010-11. Applying the CROPWAT MODEL which was developed by FAO to several incremental climatic change scenarios under the same crop, same dates of sowing and harvesting and soil properties (as in the present study) for the year 2050 for Pantnagar. Results shows that with changing climate crop water requirement and irrigation requirement is found to increase in 2050 as per the CSIRO MODEL output (B2A), scenario.

Determining rice suitability in Kumaon region using Geospatial Technologies

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ABSTRACT: The present study was conducted at six districts of Kumaon region of Uttarakhand state namely Almora, Bageshwar, Champawat, Udham Singh Nagar, Nainital and Pithoragarh. The area is located between latitude 29.27⁰ N and 79.47⁰ E longitude. The climatic condition of Kumaon division varies greatly with lowest temperature recorded as -3.0⁰ C at Mukteshwar and highest as 43.2⁰C at Pantnagar. The research needs data on climate; therefore climatic normal data (the average of at least 30 years of weather data) for a particular station were acquired from internet, IMD periodicals and other sources. The suitability classes for rice were delineated as most suitable, suitable and unsuitable. In most suitable and suitable zones there is a high correspondence between climatic conditions of the area and the climatic requirements of rice, e.g. temperature, rainfall in these regions are similar to the Rice requirement. The zone includes parts of Nainital, Almora, Bageshwar, Udham Singh Nagar and Champawat. Unsuitable zones are considered as areas that are not suitable for rice because of non-compatibility between prevailing climatic conditions and requirement of rice. Such zone includes a small part of Pithoragarh.

Investment credit gap at the farm economy of Almora district of Kumaon hills of Uttarakhand

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ABSTRACT: With saving being negligible among the farmers, investment credit for livestock appears to be an essential support system of livelihood besides crop production. The present study was conducted in Almora district of Uttarakhand to examine the gap between requirements for and supply of investment credit based on data collected from sample farmers for the agricultural year 2009- 10. In the study area about 51.41 per cent and 48.59 per cent of total farm households were borrowers and non-borrower, respectively. About 38 per cent and 62 per cent of borrower-farmers were production credit and investment credit borrowers, respectively. Investment credit at the farm economy of the study area was used for purchase of the livestock viz; buffalo, cow, horse, mule and goat. Majority, about 43 per cent of the farmers borrowed their investment credit from Cooperative bank followed by Commercial bank. The gap between investment credit demand and supply thereof was highest for commercial bank borrower-farmers i.e. Rs 5535.72. (22.63 per cent) followed by RRB (Rs 4571.46, 18.39 per cent) and cooperative bank (Rs 2058.83, 11.48 per cent) borrower-farmers. All the gaps estimated in the study were found statistically significant. The gap between actual investment made and credit supplied was also found significant for the borrowers of all the financial institutions, which was highest to the extent of 15.23 per cent (Rs 3400) for the borrowers of Commercial bank followed by RRB and Cooperative bank borrowers. On overall basis this gap was Rs 2579.50 i.e. about 13 per cent of the actual investment made by the borrowers-farmers. From the above findings, it is established that there was investment credit gap in financing of livestock by all three financial institutions in the study area but the severity of gap was highest for Commercial bank borrower-farmers and least for Cooperative bank borrower-farmers, which attracts majority of the farmers to borrow from the Cooperative banks. This credit gap forced farmers to sacrifice with the purchase of their desired livestock. This calls for such a credit policy which may bridge the investment credit gaps at the farm economy across the financial institutions in the study area.

Institutional production credit gap: a study of borrower - farmers of Almora district of Uttarakhand

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ABSTRACT: Agriculture production credit appears to be an essential input along with modern technology for higher productivity of crops on almost all the farms. The present study was conducted in Almora district of Uttarakhand to examine the gap between requirements for and supply of agricultural production credit for the agricultural year 2009-10. In the study area about 51.41 per cent and 48.59 per cent of total farm households were borrowers and non-borrower-farmers, respectively. About 38 per cent of borrower-farmers were production credit borrowers. The financing pattern of institutions other than Commercial bank viz; District Cooperative bank and Regional Rural Bank has been observed different from the Scale of Finance recommended by the District Level Technical committee (DLTC). The Scale of Finance recommended by DLTC did not fulfil the requirements for the adoption of

recommended package of practices. The production credit gap with the farm households between potential credit requirement and potential credit supply has been observed Rs 4827.35 (including human labour cost) and Rs 519.04 (excluding human labour cost). The gaps estimated were found statistically significant. The results suggested that there is need to build the coordination between different financial institutions to follow the scale of finance at par with the DLTC norms. The scale of finance needs to be upgraded according to cost incurred in the adoption of recommended package of practices for crop production

Agronomic weed management practices with varying levels of N in direct seeded aerobic rice

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ABSTRACT: A field experiment was conducted during the Kharif season 2010 to find out the nitrogen requirement and suitable agronomic weed management practices in direct seeded aerobic rice. Grain and straw yields of rice crop increased significantly with successive increase in Nitrogen up to 100 kg N/ha. Increased nitrogen level also increased the yield contributing characters. Among weed management practices, all the treatments were found statistically at par to each other except unweeded check, but the application of pre emergence of pendimethalin @ 1 kg /ha + brown manuring + 1 hand weeding at 60 DAS was recorded with the highest grain yield (4.12 t/ha) and lowest weed dry matter at all growth stages.

Effect of planting methods and irrigation schedules on growth, yield and nutrient content of sweet corn (*Zea mays saccharata*) in Tarai region of Uttarakhand

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ABSTRACT: Field experiment was conducted during spring season 2010 to study the influence of planting methods and irrigation schedules on growth dynamics, productivity and nutrient content of sweet corn (*Zea mays saccharata*). The experiment comprising of three planting methods (flat, flat followed by earthing up and ridge planting) and four irrigation schedules at 50, 75 and 100 mm cumulative pan evaporation (CPE) and at critical growth stages (*i.e.*, knee high, tasseling, silking and grain filling) was conducted in factorial randomized block design with three replications. The results revealed that ridge planting recorded significantly higher shoot and root growth, more cob yield and higher nutrient content. Among the irrigation schedules, 75 mm CPE was significantly superior and recorded the highest value of nutrient content, growth and yield parameters.

Effect of physical and metaphysical energy on germination and seedling vigor of Chick pea

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ABSTRACT : Seeds of chickpea (var. PG 114) were exposed to physical energy through static magnetic fields of 100 to 250 milli Tesla intensity with the intervals of 50 milli Tesla for 1-4 hour, and to metaphysical energy through BK Rajyog meditation (BKRYM, a positive thought energy based meditation) with an interval of 1 hour. Treatment of chickpea seeds through metaphysical as well as physical energy fields resulted in significantly increased root length, shoot length, seedling dry weight, seedling vigor index, dehydrogenase enzyme activity over control. Electrical conductivity of seed leachate of treated seed significantly decreased over control.

Impact of various weather parameters on population build up of insect pest of potato crop at Pantnagar

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ABSTRACT: The study was carried out to find out the effect of various weather parameters on population build up of aphid, *Myzus persicae* ; jassids, *Amrasca biguttula biguttula* and white fly, *Bemisia tabaci* on two varieties of potato viz. Kufri Ashoka and Kufri Badshah. Studies on population dynamics revealed that the period of peak population of *M. persicae*, *A. biguttula biguttula* and *B. tabaci* was 3rd week of January, 1st week of January and third week of December respectively. The data pertaining to correlation coefficient indicated a significant negative correlation between temperature and population of *Myzus persicae* whereas, non significant positive correlation was observed in case of relative humidity and rainfall. A significant negative correlation was found between population and R.H. for *B. tabaci* on both the varieties. An increase in population of white fly was positively correlated with maximum and minimum temperature too. The population of *A. biguttula biguttula* was exhibited highly significant negative correlation with temperature, whereas a positive significant correlation was found with rainfall. Sunshine and wind velocity had no significant effect on pest's population.

Seasonal incidence of *Helicoverpa armigera* (HUB.) on tomato at Pantnagar, Uttarakhand

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ABSTRACT: The incidence of *Helicoverpa armigera* Hub. on tomato (*Solanum lycopersicum* L.) at Pantnagar during the cropping season 2011-12 and 2012-13 revealed that the pest exhibited its incidence almost throughout the crop season marked its first appearance in 7th and 9th standard meteorological week (SMW) i.e. (February and March), attain peak population in 16th and 15th SMW (April), respectively. The pest population exhibit non significant correlation with various abiotic factors, except significant positive correlation with sunshine hours and significant negative correlation with evening relative humidity during 2012-13.

Evaluation and selection of exotic germplasm of oats (*Avena sativa* L.)

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ABSTRACT: Ninety six exotic germplasm of oats (*Avena sativa* L.) obtained from ICARDA, Syria was evaluated in an Augmented Block Design having 3 checks at Instructional Dairy Farm, Nagla of G. B. Pant University of Agriculture & Technology, Pantnagar. The variability was assessed on the basis of 19 morphological characters. It was observed that sufficient genetic diversity was present for stem weight, green fodder yield, leaf weight, number of spikelets per panicle and biological yield. Green fodder yield showed the highest, significant and positive correlation with stem weight followed by leaf weight, plant height and number of tillers. Grain yield showed the highest positive and significant correlation with panicle length followed by spikelets per panicle, number of panicles per plant and number of tillers. Plant height, leaf weight and stem weight taken for green fodder yield and panicle length, number of panicles per plant and spikelets per panicle taken for grain yield in path coefficient studies showed a high order of positive direct and indirect effect but number of tillers showed negative direct effect though it showed a positive correlation for both green fodder yield and grain yield. Ranking was done to select superior donors for various characters based on their mean performance.

Influence of storage period on the seed quality parameters in Toria (*Brassica rapa* var toria)

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ABSTRACT: Seed deterioration due to ageing is a common phenomenon in most of the crops, including Brassicas. Deterioration in seed vigour was studied for four toria varieties, viz. PT-303, PT-507, T-9 and Bhawani-stored for one, two, three and four years in cloth bags under ambient conditions. The sixteen seed lots of these varieties so created were studied for seed germination, root and shoot length, seedling dry weight and seed vigour index, following standard procedures. The results revealed that germination percentage, seedling length, dry weight and seed vigour index-I as well as II declined significantly in all the varieties with increase in storage periods. However, seeds stored for one and two years showed non-significant differences for germination percentage, seedling length and dry weight. The seeds stored for four years showed drastic reduction in all the seed quality parameters, including maximum reduction in seed vigour index-I and II. Amongst varieties studied, Bhawani emerged as the most suitable for long storage with significantly higher seed vigour index-I (894.33) as well as II (1.382). The other three varieties; PT 303, PT 507 and T 9 were at par with respect to Vigour index I. However, the varieties PT 303 and T 9 recorded lower values than the other two varieties and were at par with respect to Vigour index II.

Studies on identification of hybrids for excess soil moisture tolerance in maize (*Zea mays* L.)

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ABSTRACT: The present study was undertaken on maize (*Zea mays* L.) in normal and excess soil moisture (ESM) during Kharif 2008 with the main objective of examining the tolerance of parental lines and hybrid combinations in ESM conditions. The experimental material consisted of twelve lines, four testers and their 48 single crosses planted in randomized block design with three replications. Parents, L₂, L₇, L₉, L₁₀, L₁₂ and T₁ were the best general combiners for earliness in ESM conditions. Crosses L₂T₄, L₄T₃, L₅T₂, L₇T₄, L₈T₁, L₈T₂, L₉T₁, L₁₂T₃ and L₁₂T₄ showed good GCA for ASI and L₁T₃, L₂T₄, L₄T₁, L₅T₂, L₅T₃, L₆T₂, L₆T₃, L₇T₂, L₈T₁, L₉T₂, L₁₀T₁, L₁₁T₃, L₁₁T₄, L₁₂T₃ and L₁₂T₄ were good combiners for grain yield and crosses, L₂T₂, L₄T₄, L₅T₂, L₇T₁, L₁₀T₁, L₁₀T₄, L₁₁T₃ and L₁₂T₄ were observed to be high combiners for 100-kernel weight in ESM conditions.

Effect of pinching and plant bioregulators on flowering, yield and root characteristics of marigold (*Tagetes erecta* L.) cv. Pusa Basanti Gainda under sub humid region of Rajasthan

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ABSTRACT: A field experiment on the effect of pinching and plant bioregulators on growth and yield of marigold (*Tagetes erecta* L.) cv. Pusa Basanti Gainda was conducted during the rabi season (October 2009 to March 2010) to find out the effect of pinching and eight levels of plant bioregulators (viz. four levels of each ethrel and paclobutrazol @ 100, 200, 300 and 400 ppm). The results revealed that pinching significantly decreased the plant height (64.40 cm) and increased number of primary branches (37.67), more number of flowers per plant (92.04), higher estimated flower yield per hectare (115.48 q). Paclobutrazol (100 ppm) was found best for higher estimated flower yield per hectare (145.48 q), whereas ethrel 100 ppm increased the number of primary branches (38.46) and higher estimated flower yield per hectare (119.73 q). Among the plant bioregulators Paclobutrazol (100 ppm) significantly increased more numbers of flower per plant (100.58), the maximum flower yield per plant (631.45 g), higher flower yield per plot (10.103 kg) and higher estimated flower yield per hectare (145.48 q), while, ethrel 100 ppm increased number of primary branches (38.46), fresh flower weight (7.73 g), more number of flower per plant (86.45), the maximum flower yield per plant (519.72 g), higher flower yield per plot (8.315 kg) and higher estimated flower yield per hectare (119.73 q).

Response of pre harvest spray of chemicals on shelf life and quality of mango (*Mangifera indica* L.) cv. Dashehari

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ABSTRACT: The experiment was conducted during 2011-2012 with the objective of determining suitable treatment for better shelf life and quality of mango. The experiment was conducted on 25 years old Dashehari mango trees and the number of treatments was 8 and each treatment was replicated 3 times. The pre harvest application of GA₃ @ 15 ppm + CaCl₂ @ 2.0% resulted in minimum physiological loss in weight (10.30 %) and reduced acidity (0.291%) and maximum shelf life (13.25 days), TSS (22.28 °B) and total sugars (18.76%).

In-vitro evaluation of fungicides against *Ustilaginoidea virens* (Cke.)Takahashi, the incitant of false smut of rice

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ABSTRACT: False smut, caused by *Ustilaginoidea virens* (Cke.)Takahashi has recently become a serious disease of rice and yield loss varies from 0.50 to 50%. Five systemic fungicides hexaconazole, carbendazim, propiconazole, tebuconazole and tricyclazole and five non-systemic fungicides, copper hydroxide, chlorothalonil, mancozeb, copper oxy chloride and Thiram were tested against *Ustilaginoidea virens*. Maximum inhibition of colony diameter (88.61%) was recorded propiconazole fungicides at 20 ppm. Tebuconazole was next in order of effectively against *Ustilaginoidea virens* inhibiting the colony diameter of 88.01%. In non-systemic fungicides, Maximum inhibition of colony diameter (88.61%) was recorded with chlorothalonil fungicide at 200 ppm.

Management of lentil rust using the strains of Rhizobium and plant growth promoting rhizobacteria

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ABSTRACT: A field experiment was conducted to observe the role of Rhizobium and PGPR inoculation to manage the rust of lentil. A trial comprising six strains along with two N levels and control was laid out during Rabi seasons 2007-08 and 2008-09. All the strains of PGPR were procured from different centre of AICRP on pulses. Seed treatment with Rhizobium strains LR-35-01 showed significant response with respect to disease severity, grain yield followed by LRB-1, and LRB-2. Maximum disease severity and low grain yield was observed in DL-1 treated plots. A combined application of Rhizobium + and PGPR strains PUK-171 resulted minimum disease severity and maximum grain yield followed by Rhizobium + RB-2; other strains were also effective in reducing rust severity at par with each other while Rhizobium + CRB-2 showed minimum grain yield and maximum disease severity.

***Trichoderma harzianum* induced effect on red rot disease and quantitative parameters of sugarcane cultivars**

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ABSTRACT: Application of *Trichoderma harzianum* is an eco-friendly, economical and easy approach for disease suppression, improving growth of the plant and increase the sugarcane production. So it becomes imperative to know the field performance of *T. harzianum* on red rot disease management and quantitative parameters of sugarcane. Before this, longevity test was conducted to know the viability of formulated product under proper storage condition. In this study to assess the longevity of *T. harzianum*, cfu count was observed. The population of *T. harzianum* decreased significantly (10.00×10^6 to 2.00×10^6 cfu/g) over the period of its storage (120 days). Disease management was ascertained by inoculation challenged with *Colletotrichum falcatum*. Red rot incidence showed decreasing trend with application of bio-agent *T.harzianum*. Red rot infection was considerably suppressed in all the treated plants as compare to control. *Trichoderma harzianum* was found significantly effective in improving germination, tillers counts, number of millable canes and cane yield over the control in plants cane of sugarcane cultivars CoS 8436, CoPant 90223, CoS 8432, CoJ 64, CoS 88230, CoPant 97222, CoPant 3220 and CoPant 99214. The application of treatment metabolites were found to be more efficient and significantly better than other treatments i.e. spore suspension, T.harzianum + FYM and talc based *T.harzianum*.

Genetic parameters and inter-relationship analysis in French Bean (*Phaseolus vulgaris* L.)

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ABSTRACT: In present study, 42 germplasm accessions of french bean were evaluated for eleven economically important characters. The study showed considerable variability for these characters. Heritability in broad sense was high for all the characters studied except for number of primary branches/plant. High genetic advance as percentage of mean coupled with high heritability was observed for characters namely, plant height at 60 days after seed sowing, number of pods/cluster, pod length and pod yield/plant. Number of pod/cluster, diameter of pod, pod length and number of pod cluster/plant had a significant positive association with pod yield/plant. Whereas, in genotypic level, maximum positive direct effect on number of pod clusters per plant, followed by pod length, seed yield per plant, days to 50% maturity, number of primary branches per plant, and diameter of pod. Hence selection on these traits could be improving pod yield in French bean.

Heritability, genetic advance and path analysis for pod yield and yield related traits in French bean

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ABSTRACT: Forty genotypes of French bean were used to study their performance, genetic variability, heritability, genetic advance and path analysis for pod yield and yield related characters viz., plant height at 30 days after sowing (cm), leaf length (cm), leaf width (cm), days to 50 per cent flowering, pod length (cm), pod width (mm), number of marketable pod per plant, pod yield per plant(g), number of pods per plant, weight of marketable pods per plant (g), days to 50 per cent maturity, seed length (mm), seed width (mm), number of seeds per pod, 100-seed weight (g) and green pod yield(q/ha). Significant differences were observed for all the characters in all the genotypes used in the experiment. Highest heritability 99.84% was recorded for green pod yield per hectare and pod weight (77.63%) had lowest heritability among all the characters studied and genetic advance as per cent of mean was highest for number of pods per plant (58.00%) and lowest for days to 50 per cent maturity (14.95%). A critical perusal of path-coefficient analysis, at the level of phenotypic correlation coefficient, revealed that green pod yield per plant (0.657) had the highest direct effect on pod yield per hectare.

A comparative study of potato procurement models

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ABSTRACT: Potato has earned the status of being world's fourth important food crop because of its great yield and nutritional value. Globally the area under potato cultivation stands at 19.13 million hectares, producing approximately 328.87 million tonnes of potatoes. India produces 25 million tonnes of potato, which makes it third largest producer of potatoes globally. The potato space in India is fiercely competitive due to presence of significant number of global and local players performing the roles of potato seed producer; potato processor; aggregator; retailers with outlet for fresh vegetables etc. All these players need to have a procurement section for ensuring two things (i) availability of produce to meet the demand, and (ii) to derive economies of scale. Procurement model of different companies differ based on the company specific requirements. The study resulted in identification of four models of procurement. These procurement models are named as (i) procurement from mandies; (ii) procurement from green belt area; (iii) procurement from cold stores; and (iv) procurement by contract farming. The study revealed that evaluation solely based on costs puts procurement from green belt area as well as by contract farming at same level, but decisions about selecting a particular procurement model is never based solely on 'costs'. The factors which have major influence in selection of procurement model are 'size of the demand', 'quality requirements' and 'availability of time with buyer'. The study further revealed that corporate houses in business of selling seeds potato prefer contract farming and those in business of processing potatoes prefer green belt area for procurement. The corporate houses in retail business prefer the procurement model from mandi as their daily requirement is not that high.

Carcass characteristics of Guinea fowl supplemented with *Neem* (*Azadirachta indica*) leaf powder

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ABSTRACT: This experiment was conducted to examine the effect of *Neem* (*Azadirachta Indica*) leaf powder (NLP) on meat composition and processing losses in Guinea fowl. One hundred and twenty keets were divided into four groups viz. T₀, T₁, T₂ and T₃ and supplemented with *Neem* leaf powder @ 0, 1, 2 and 3 gram per kg in the basal diet from 1st to 12th weeks of age respectively. The moisture content of drumstick and thigh muscles showed non-significant results, whereas the total ash content showed significant results with the highest value observed in the control group and lowest in the T₃. Crude protein content of drumstick, thigh and breast muscles were increased while fat content of thigh and breast muscles were reduced in all NLP supplemented group of guinea fowls. Regarding data on processing losses of the present investigation, statistically significant (P<0.05) differences were observed due to *Neem* leaf powder (NLP) supplementation. The results indicated that supplementing diets *Neem* leaf powder may be advised to increase crude protein and decrease fat levels in Guinea fowl meat.

Biometry of the heart and its vessels in kids of local non-descript goats (*Capra hircus*) of Vidarbha region

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ABSTRACT: The present biometrical study was conducted on the hearts and its vessels in six local non-descript kids of either sex of goat (*Capra hircus*) up to one year of age with similar body dimensions. Morphometric data indicated that by and large the values were higher in female kids as compared to males except for some dimensions. The average weight, maximum length, maximum width, circumferences, cranio-caudal and latero-medial diameters of the heart were greater in female kids, whereas the average diameter of left venahemiazygous was more in dimension in the male kids. The average diameters of both ascending and descending aorta were greater in the female kids. The average diameters of ascending and descending aorta, cranial venacava were greater in the female kids, while that of the average diameters of caudal venacava, left and right coronary arteries was greater in male kids. The baseline data evolved may be useful to the veterinary anatomists in accessing the morphometrical details of the heart and its major vessels with respect to sex in goats.

Study of physical parameters of Pantja goat milk under farm conditions

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ABSTRACT: Present investigation was carried out to study the physical parameters of Pantja goat's milk under farm condition of Tarai region of Uttarakhand during year 2010. In the present study not much change in the pH of pantja goats milk throughout the lactation. Electrical conductivity and specific gravity also had the same pattern throughout the lactation.

Production traits of Pantja goat under farm conditions

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ABSTRACT: Pantja are the local goats of Tarai region of Uttarakhand. The present investigation was carried out on Pantja goats to study their some production trait. The experiment was carried out on a total of 20 primiparous local Pantja goats at goat unit. The investigated production traits of Pantja goats were age at first kidding, lactation length, average daily milk yield, peak milk yield, days to attain peak milk yield and lactation milk yield. The respective traits were noted as 569.6 ± 15.3 , 156.1 ± 6.075 days, 0.808 ± 0.09 kg, 1.39 ± 0.078 kg, 43.71 ± 3.35 days and 113.89 ± 8.92 kg, respectively.

Standardization of fish farming technologies suitable for uplands of Uttarakhand

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ABSTRACT : Trials were conducted on three fish farming technologies namely composite carp farming, fish-duck and fish-poultry integrated farming during February 2006 to December 2009 in mid hills (1200-1800 m asl) of Champawat district of Uttarakhand to standardize them for micro agro-ecological conditions of midhills in order to achieve maximum production. In composite carp farming, farmers were stocking higher density (700 no/100 m²) of small size fish seed (2-2.5 cm size), which has resulted fish production of only 35 kg/100 m² with 36.71% survival rate. Maximum fish production (72 kg/100 m²) was registered in pond stocked with 300 no/100 m² fishes of 10-12 cm size with 55% survival rate. However, maximum survival rate of fishes (78%) was noticed in the pond stocked with lower density of fishes (100 no/100 m²). Fish production of 56-62 kg/100 m² was obtained in fish-duck integrated farming. Ducks were reared for two consecutive years with the same ponds. In second year (2009), ducks egg production was higher i.e. 353 no. (5 ducks) and 695 no. (10 ducks) due to longer laying period as compared to 180 and 342 eggs in first year (2008). Farmers also got 10 and 19 kg duck meat in the second year. Fish production ranges between 60-69 kg/100 m² in fish-poultry farming system with 21 and 53 kg poultry meat and 450 and 1400 eggs at densities of 10 and 25 birds (croiler), respectively, in one crop per year (2007), while 37 kg and 92 kg meat was obtained in two crops of 10 and 25 birds (croiler) during 2008. In the year 2009, 89 kg (croiler) and 80 kg (guinea faul) meat was produced in two crops of 25 birds/100 m² of each variety.

Effect of mordants on colour strength of polyester dyed with natural dyes

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ABSTRACT: The use of synthetic raw materials in the textile sector has become essential to meet the present day needs of different sectors. Their use could not be stopped as such due to the vast demand of products and non- availability of safe alternatives. Among synthetic fibres, polyester is most versatile fibre owing to its properties and can be used in apparels, furnishings and even in technical textiles. The use of polyester is increasing in various fields at very rapid pace. As a result, it has been termed as 'fibre of 21st century'. Presently its consumption is second only to cellulosic fibres. Growing eco consciousness all over the world has prompted textile industry to search for less polluting options for textile coloration particularly for synthetic textile fibres. Since antiquity natural dyes were used on natural fibres only. Recently, efforts are on to identify the natural dyes that have affinity for synthetic fibres. This paper, therefore, includes results of study involving dyeing of polyester with natural dyes using optimized dyeing conditions with different metallic mordants and K/S values of the dyed fabrics. The maximum colour strength was observed in the case of turmeric dye, followed by pine and onion dyes. The colour strength of the dyes on polyester increased on application of all the mordants as indicated by higher K/S values of the mordanted samples than that of control (unmordanted) sample. The mordant that resulted in best K/S values with each dye varied from dye to dye. Thus the application of natural dyes on polyester is an eco alternative to use of synthetic dyes in textile coloration sector.

Physico- chemical characterization of effluent of dyeing and printing units

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ABSTRACT: Colour is considered as one of the elements of nature that made human beings more aesthetic and fascinating in the world. Dyeing and printing are two most common techniques of colouring the textile materials that consume huge amount of water, chemicals, different types of dyes and auxiliaries. The pre treatment, colouring and post treatment processes carried out even in tiny scale unit generate waste stream which on accumulation in community disposal system is causing pollution in the areas nearby the units. In the present study, the liquid waste (effluent) collected from community disposal channel of three different types of units namely, dyeing unit only, printing unit only and dyeing and printing unit (composite unit) of Jaspur area were tested to know the physico-chemical characteristics [temperature, pH, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), Total Solids (TS), Total Dissolved Solids (TDS) and Total Suspended Solids (TSS)] of effluent samples. The overall mean of the physico-chemical characteristics of effluents collected from different types of units were beyond the permissible limits in term of all the parameters when compared with the standards given by CPCB (1995) indicating highly polluting nature of the dyeing and printing units located at Jaspur. The mean values of physicochemical characteristics of the effluent collected from dyeing units were lower than the mean values of all the parameters of the effluents collected from printing units as well as combined dyeing and printing units. Thus the dyeing units were causing less pollution as compared to other two types of units. The higher pollution load may be due to the presence of thickening agent and dye content in the effluent stream. The results revealed that the parameters such as temperature, pH, DO, BOD, COD were non-significant while TS, TDS and TSS were significant on basis of one way ANOVA.

Swot Analysis: a core step to invigorate long term sustainability of self help groups

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ABSTRACT: The SWOT analysis of Self Help Groups is very helpful in identifying positive tangible and intangible attributes which are under its control. It also explores the areas needing improvement, existing opportunities and various risks. An awareness of external attractive factors that represent the reasons for SHG to exist and develop propels others also to follow the same. Clear identification of external factors, beyond the control of SHGs, which could place the SHGs mission or operation at risk, is beneficial for having contingency plans to address them and maintain the long term sustainability of SHGs. There were total 8 SHGs associated With College of Home Science, G.B. Pant University of Agriculture & Technology Pantnagar, Uttarakhand with the strength of 90 members working there in. A purposive sampling technique was used with combination of deliberate random sampling for the selection of total sample. The data was collected personally through interview technique with the help of pre structured questionnaire. The study brought out the holistic view of SHGs in empowering women. The strengths, weaknesses, opportunities and threats explored through the research work are helpful for development personals in government /non government organizations and policy makers to formulate suitable policies that better guarantee the rural women empowerment. The SWOT analysis is also helpful for upcoming SHGs to develop beneficial linkages with other organizations and trace the guidelines for their long term sustainability.

Nutritional Profile of Adolescent Girls of District Udham Singh Nagar

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ABSTRACT: Adolescence is a period of transition when the individual changes take place physically and psychologically from a child to adult. The cross-sectional study was undertaken with objective to assess nutritional status of 1152 adolescent girls of Uttarakhand. Anthropometric measurements were made on height, weight, waist circumference and hip circumference of adolescent girls as per standard methods. Nutritional status has been assessed using BMI Z scores. It was observed that 53.47 per cent adolescent girls were normal. Prevalence of moderate under-nutrition was found to be 28.03 per cent and severe under-nutrition was 7.72 per cent. Prevalence of overweight was recorded to be 10.76 per cent. Mean BMI was 18.76 ± 2.76 kg/m². An increasing trend has been recorded with rising age from 14 to 17 years. BMI was positively correlated with waist circumference, hip circumference and waist hip ratio at 5 per cent level ($p < 0.05$) of significance. Mean waist hip ratio was found to be 0.80 ± 0.05 . It is concluded that there is a high prevalence of under nutrition among adolescent girls. Nutrition and health education could be imparted to raise awareness among adolescent girls.

SDS-PAGE analysis of indigenous maize (*Zea mays* L.) varieties of Uttarakhand under PPV&FR Act

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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.

Large-seeded rice bean accession from Garhwal region of Uttarakhand, India

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Response of IBA concentrations and application dates on the performance of air layering in litchi cultivars

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