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Message

I am happy to know that International Research and Development Center for Publication (IRDCP) is organizing a two days International Conference on **Agriculture, Environmental and Rural Development (AERD-2020)** to be held on 22nd -23rd July 2020. I am sure that, this conference would provide an ideal platform for the academicians, scholars and experts to present and exchange their research findings and Ideas.

I wish the conference a great success.

Praveen Kumar Rajpurohit
Fonterra Future Dairy Private
Limited, Mumbai, India

Message

I am pleased to know that the 2-days International Conference on “**International Conference on Agriculture, Environmental and Rural Development (AERD-2020)**” is being organized on 22nd -23rd July 2020 by International Research and Development Center for Publication (IRDCP). I hope this will be a unique forum for the exchange of innovative ideas, technical expertise for technological advancements, etc. in this evergreen field. It includes the keynote address from academicians and paper presentations by research scholars.

I wish AERD-2020, a grand success.

Abhishek Singh
Indian Institute of Management
Bangalore, India

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Studying the practice of electronic waste recycling in electronics and electrical repair workshops: Case of Maroua and Mokolo

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Abstract: Waste electrical and electronic equipment (WEEE) or e-waste refers to all devices that have reached the end of their life and are no longer of value to their owners. They contain both toxic substances and valuable components. The practice of recycling e-waste in repair workshops can help limit their impact on the environment and can also serve as a source of income for repairers and the local economy. It is for this reason that repairers were chosen as resource persons in the cities of Maroua (urban) and Mokolo (semi-urban). Using questionnaires, we collected data concerning the characteristics of repairers and the techniques and economics of recycling this waste. The results obtained show that the majority of repairers are educated; 86.11% in Maroua and 83.33% in Mokolo with those that have acquired secondary education being the majority in the two cities. In Maroua, the maximum workshop age is 35 years old while in Mokolo it is 15 years. Repairers are 100% men of all ages. Audio-visual, household appliances, computers and office automation are dominant in the workshops of two cities. The majority of the devices that are no longer in use are returned to the owners (58.33 - 66.67%), 8 - 11% discard, 13 - 14% stored and 5 - 19% recycled. Recycling is done by workshop owners with manual means for a single purpose of repairing. Customers can spend 0 - 14,000 francs to repair their devices. The most recycled devices are; mobile phones> fans> computers> Refrigerators> Iron. The recycling benefits of a device vary depending on the device. The most recycled parts of the devices are; power supply = coil> hard drive> microphone> motherboard = charging ports > display = amplifier. The WEEE recycling practice is a source of employment and is done by educated people, with rudimentary means and requires the help of the public authorities to make this activity more sustainable and protect the environment.

Keywords: Electronic waste, Maroua, Mokolo, Recycling, Repairer

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Gender-Differentiated Impacts of Extreme Events at Selected Households in Coastal Areas, Philippines

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Abstract: Nowadays, the unpredictable circumstances which include the occurrence of natural disasters which can be categorized as extreme events in human life is of significant importance for everybody to address since it poses great danger to all regardless of life status, age bracket and gender. The focus of the study is to determine the most recent and extreme hazard that affected the selected coastal areas and its impacts on asset /income, leisure time and intra-household health. One hundred fifty (150) households composed of three hundred (300) men and women respondents from each municipality were selected from the three study sites facing West Philippine Sea that were classified as vulnerable to coastal hazards. Said respondents were identified through stratified random sampling and structured household survey questionnaires for men and women were administered. Results revealed that typhoon was the most recent and extreme event that affected the sites wherein both typhoon and flooding brought the highest mean value level of damages to assets and income for men over women. After extreme events, men prioritize cleaning the surroundings while women spent higher number of hours on household activities over other identified activities. Further, it was recorded that men have lesser sleep time after such hazard. Intra-household health impacts include “dengue” and waterborne-diseases wherein higher expenses was computed in treating dengue patients, however; higher time spent for child care who suffered from waterborne-diseases was observed.

Keywords: coastal areas, extreme events, gender, impacts, Philippines

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Contribution to the evaluation of the physicochemical quality of raw goat milk in the steppe region of Djelfa (Algeria): what risks on public health?

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Abstract: This research was conducted to study the key physicochemical parameters of raw goat milk samples taken from semi-intensive and extensive Sanine and Arbia breedings in the region of Djelfa as an Algerian steppe zone. Sixty three raw udder milk samples were taken from goat farms and analyzed.

The results showed that goat milk had $3.23 \pm 0.79\%$ fat (FT), $7.12 \pm 3.32\%$ non-fat dry matter (NFDM), $2.76 \pm 1.27\%$ protein (PR), $4.05 \pm 1.84\%$ lactose (LC) and a density (DS) of 1.0204 ± 0.0118 with a freezing point (FP) -0.252 ± 0.106 ° C and a pH of 6.63 ± 0.13 . Descriptive analysis of the milk temperature (TS) data revealed that its mean is 9.87 ± 1.47 ° C. In addition, these temperatures have weak correlations with the seven physicochemical parameters of raw goat milk. Six correlations are negative [pH-TS ($r = -0.3431$, $R^2 = 0.1177$); FT-TS ($r = -0.4708$, $R^2 = 0.2216$); NFDM-TS ($r = -0.3212$, $R^2 = 0.1032$); PR-TS ($r = -0.3755$, $R^2 = 0.1410$); LC-TS ($r = -0.3748$, $R^2 = 0.1405$); DS-TS ($r = -0.3528$, $R^2 = 0.1245$)] and a correlation is positive [FP-TS ($r = 0.4167$; $R^2 = 0.1736$)]. In parallel, these temperatures in the majority of cases are greatly exceeded the values recommended by Algerian standards ($+ 6$ ° C). These results reflect risks to the health of consumers. They require a control and popularization program for all stakeholders in the sector in order to improve the quality and quantity of the raw milk produced and minimize significant economic losses thereafter.

Keywords: Goat, pastoral region, raw milk, temperature.

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Evaluation of the physicochemical quality of raw milk from cattle farms in the region of Djelfa (Algeria)

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Abstract: Milk is a food of animal origin. It is an important source of nutrients in humans. For this, in order to know the physicochemical quality of raw milk from cows of local and improved breed, a study was carried out on thirty nine samples of raw milk were taken from cattle farms in the region of Djelfa in Algeria.

The results showed that cow's milk had $3.30 \pm 0.54\%$ fat (FT), $8.89 \pm 2.05\%$ non-fat dry matter (NFDR), $3.45 \pm 0.73\%$ protein (PR), $5.02 \pm 1.07\%$ lactose (LC) and a density (DS) of 1.0272 ± 0.0078 with a freezing point (FP) -0.2971 ± 0.0528 ° C and a pH of 6.57 ± 0.24 .

The study of the relationship between temperature (TS) and physicochemical indicators has shown the existence of seven weak correlations. Six correlations are negative [pH-TS ($r = -0.1258$, $R^2 = 0.0158$); NFDR-TS ($r = -0.0551$, $R^2 = 0.0030$); PR-TS ($r = -0.0273$, $R^2 = 0.0007$); LC-TS ($r = -0.0467$, $R^2 = 0.0022$); DS-TS ($r = -0.0323$, $R^2 = 0.0010$); FP-TS ($r = -0.0309$, $R^2 = 0.0010$)] and a correlation is positive [FT-TS ($r = 0.0279$, $R^2 = 0.0008$)]. In addition, the average temperature is 15.53 ± 5.80 ° C. In parallel, these temperatures in the majority of cases are greatly exceeded the values recommended by Algerian standards ($+ 6$ ° C). These results reflect risks to the health of consumers. Finally, it will be very useful to carry out a program to improve the food ration on all farms in the country; this will help improve the quality and quantity of raw milk but would also improve Algeria's independence vis-à-vis foreign countries in terms of imports of milk, thereby ultimately providing benefits for all economy of the country.

Keywords: Cow, Algeria, temperature, physicochemical indicators.

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Slaughter and Carcass Traits of Turkey (*Meleagris gallopavo*) under Backyard Rearing System

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Abstract: The study was conducted to study the effect backyard rearing system (all day scavenging) on slaughter and carcass quality traits of Broad Breasted Bronze and Beltsville Small White turkey (*Meleagris gallopavo*). Beltsville Small White and Broad Breasted Bronze turkeys were raised in a backyard rearing system (all day scavenging). At the end of the week 16 of age, 50 turkeys (25 Beltsville Small White and 25 Broad Breasted Bronze turkeys) were slaughtered by following standard procedures. Slaughter and carcass characteristics of Beltsville Small White and Broad Breasted Bronze turkeys were recorded and compared. Broad Breasted Bronze turkey yielded significantly ($P>0.01$) higher live weight (kg), carcass weight (kg), dressing percentage (%), feathers (%), intestines (%), and abdominal fat (%) giblets (%), feet (%), head (%), neck (%), wings (%), breast (%), back (%), thighs (%) and drumstick (%) than Beltsville Small White turkeys. Blood yield value between Beltsville Small White and Broad Breasted Bronze turkeys did not differ significantly. From these results, it is concluded that, Broad Breasted Bronze turkeys is more suitable for to obtain better slaughter and carcass traits and higher meat production under backyard rearing system as compared to Beltsville Small White turkey .

Keywords: Backyard, Beltsville Small White, Broad Breasted Bronze, Carcass, Rearing, Slaughter, Turkey.

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Meat Quality Characteristics of Beltsville Small White and Broad Breasted Bronze Turkeys (*Meleagris gallopavo*)

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Abstract: The study was conducted to compare the meat quality characteristics of Beltsville Small White and Broad Breasted Bronze Turkeys (*Meleagris gallopavo*). Beltsville Small White and Broad Breasted Bronze turkeys were raised in an intensive system of management and the birds maintained under standard management practices. At the end of the week 16 of age, 10 turkeys (05 Beltsville Small White and 05 Broad Breasted Bronze turkeys) were slaughtered by following standard procedures. The mean pH, water holding capacity, cooking loss, drip loss value and fragmentation index values were significantly ($p>0.05$) higher in Broad Breasted Bronze turkey meat as compared to Beltsville Small White turkey meat. Significantly ($p>0.05$) higher moisture and lower fat contents were observed in Broad Breasted Bronze turkey meat as compared to Beltsville Small White turkey meat. Protein contents between Beltsville Small White and Broad Breasted Bronze turkeys did not differ significantly between them with higher value in Broad Breasted Bronze turkey meat. The results of meat sensory attributes scores of this study indicate that all the sensory attributes scores of the turkey meat were significantly ($p>0.05$) higher for Broad Breasted Bronze turkey as compared to Beltsville Small White turkey. Thus, it can be concluded that, Broad Breasted Bronze turkey is more suitable for production of highly acceptable meat with better physico – chemical properties.

Keywords: Beltsville Small White, Broad Breasted Bronze, Meat, Turkey

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The impact of pesticides misuse and deforestation on population status of honey bee, *Apis mellifera* L. in Katsina State, Nigeria

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Abstract: A study was conducted between March and September, 2017 to find the impact of pesticides misuse and deforestation on population status of honey bees in Katsina State. Survey questionnaire were used to collect data from traditional beekeepers, farmers and settlers. The survey was conducted in three selected local government areas (LGAs), namely Rimi, Batsari and Mashi, due to their popularity in beekeeping activities. A descriptive statistical methods and chi-square (χ^2) were used to present and analyze the data obtained. Beekeepers in the study area were 100% males, 56.44% of them were at the age range of 61-80 years and 54.46% attained primary education and having a reasonable number of hives. Populations of honey bees were moderately decreased due to improper use of pesticides (44.50%), deforestation (28.70%), others (26.8). Therefore, application of pesticides during the flowering period should be avoided. Chemical pesticides should also be substituted with biopesticides so as to minimize the toxicity of chemicals to pollinators. Deforestation should be discourage, creation of artificial foraging site should be encouraged and environmental protection laws should be properly implemented

Keywords: biopesticides, deforestation, honey bee, misuse, pesticides, population,

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***Dermestes maculatus* DEGEER, 1774 (Coleoptera: Dermestidae): A Threat to Fish Preservation (Review)**

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Abstract: *Fish is one of the cheap and fairly accessible animal protein and poly-saturated fatty acids sources, it composed of essential amino acids, which are relatively deficient in other animals protein. It is a good source of vitamins A, B, D, E, K and respectable amount of minerals such as phosphorus, calcium, iron, iodine, fluorine and magnesium. In addition fish is a source of income generation, poverty alleviation, foreign exchange earnings and provision of raw materials for the animal feed industry. Despite its nutritional and economic importance, fishes are being infested by various pests, especially Dermestes maculatus, during harvest, transport and or storage. This accounts for about 71.5% of dried fish infestation and a substantial loss in dry weights of about 43-62.7% in most of the producing areas in Nigeria, causing qualitative and quantitative damages. The realization of the serious limitations offered by the use of conventional pesticides, in prevention and control of the infestation, ignite the interests in the use of plant-derived pesticides. These botanicals were reported to be effective and have no any known health or environmental risks and therefore, a promising technology for preservation of smoked dried fishes.*

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The effect of cement as lime on rosette disease and cercospora leaf spot on groundnut grain yield

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Abstract: Groundnut (*Arachis hypogaea* L.) is one of the world's major food legume crops that is seriously affected by early leaf spot and groundnut rosette disease in Sierra Leone. The recent decline in yields of groundnut in Sierra Leone has also been associated with the low calcium application. Therefore, a study was conducted to assess the potential of cement as lime in ameliorating rosette disease problem and low yield of groundnut in Sierra Leone. This experiment was conducted under field conditions at Njala, Kori chiefdom. The experimental design was a randomized complete block with five (5) treatment of cement application (0, 50, 100, 200 & 400 kg/ha). Disease severity for the rosette leaf spot was assessed based on a 1-3 scale while cercospora leaf spot was 1-9 scale for 39 high yielding groundnut lines. The grain yields were harvested by hand. Contrary to what has often been assumed, the application of cement at 0, 50, 100, 200, & 400 kg/ha did not have any significant influence on the incidence and severity of rosette or cercospora diseases. However, the improved lines ICGV 1954, ICGV 7445, ICGV UGA 2, ICGV 10900, ICGV 6284, ICGV 7437, and ICGV 9407 produced significantly higher yields and good resistance to cercospora leaf spot and groundnut rosette disease and were selected as potential candidates for release and future breeding programs. This study showed that cement does not affect both cercospora leaf spot and groundnut rosette disease. Therefore, further studies are required to determine the decline in groundnut as a result of diseases and poor soil conditions in Sierra Leone.

Keywords: Groundnut, Cement, Lime, Cercospora Leaf Spot, Groundnut Rosette

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Gender and Agricultural Entrepreneurship in the Domain Markets of Pointe-Noire in Congo

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Abstract: This study aims to contribute to a better understanding of the gender issue in agricultural entrepreneurship in the state markets. The study involved a survey of a sample of 360 traders and resource people. Quantitative and qualitative approaches were used for data collection and analysis. The results show that the trade in agricultural products mobilizes men and women, with a strong representation of women. The average time spent on trade is almost the same depending on gender. However, there are significant differences between traders living in single-parent and two-parent families. The survey shows the existence of traditional specialized products according to gender and mixed products. The sale of processed agricultural products remains a female exclusive. High value-added agricultural products are sold by men and women; hence the importance of an in-depth study on the determinants of the choice of products sold. The study also shows a low representativeness of the weak in market management. However, their participation remains high in the social market economy, through tontines and mutuals. Capacity building for stakeholders is necessary for better professionalization.

Keywords : gender, entrepreneurship, commerce, informal, Congo.

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Evaluation of antioxidant activity, total phenolic compounds and Flavonoid contents in marjoram (*Origanum majorana* L.) extract

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Abstract: *Origanum majorana* L. also called Marjoram is a species of perennial plant in the *Lamiaceae* family, indigenous from the Mediterranean, and cultivated as a condiment for its aromatic leaves for culinary purposes or used as a medicinal plant for various diseases. In this study, extracts were obtained by maceration in absolute ethanol at a ratio of 1/5 (w/v) for 24h at room temperature. Total phenolic compounds were determined by using the Folin–Ciocalteu method while Flavonoid Contents was estimated using the aluminum chloride colorimetric method. The antioxidant activity of the marjoram extract was determined using the 2, 2–diphenyl–1–picrylhydrazyl–hydrate (DPPH) free radical scavenging method. The extraction yield was 8.41 ± 0.76 % (w/w). The results showed that the investigated extract contained a higher amount of phenols: 164.96 ± 4.61 mg GAE/g of dry plant, lower flavonoids value: 44.61 ± 2.08 mg QE/g of dry plant, and exhibited a strong antioxidant activity (IC₅₀ value: 40.09 µg/ml) similar to those of the used standard products, namely ascorbic acid and butylated hydroxytoluene (BHT). Based on the obtained results, marjoram has a potential application as natural antioxidants that could be used in the pharmaceutical and food industries.

Keywords: Antioxidant activity, DPPH, ethanolic extract, flavonoid contents, marjoram, total phenolic compounds.

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The transformations in agriculture in Valley of Açu, Brazil

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Abstract: The work is the result of an investigation carried out on agricultural transformations in the Açu Valley, focusing on the region where the Baixo-Açu Project was implemented and its area of influence. The transformations in agriculture, in the aforementioned region, are mainly due to the great transformations that took place there, mainly due to the implementation of the Baixo-Açu project, which is configured in a federal government work carried out by the Ministry of Interior, through the DNOCS, between 1979 and 1984, a period in which profound changes occurred in the region of Vale do Açu, whose municipalities most affected were Açu, Ipanguaçu, Carnaubais, Jucurutu, São Rafael and Pendências. It is noteworthy, although one of the characteristic features of the region is the latifundium, which has as one of its marks, the existence of extensive livestock based on the large latifundium, on the one hand - whose function is to serve as a basis for the political power of the traditional agrarian oligarchies - and, on the other hand, a significant number of small peasant properties, whose population lives in a state of absolute misery. The main sources and techniques used in the research were the following: a bibliographic research was done on the agrarian issue related, more specifically, to changes in agriculture, to technical transformations; documents were also collected - books, training books, newsletters, pamphlets, newspapers, minutes of meetings, reports, INCRA, SAR, ITERN, SEAPAC sources; another essential resource was the possibility of contacting directly in the areas where the irrigation projects were implemented, displacing export fruit producers to the region.

Keywords: Agriculture, peasants, landowners, wage labor, latifundium

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Effects of nitrogen applications on macro and micro element nutrition of sweet pepper (*Capsicum annuum* L., cv. Demre) under different soil water regimes in field conditions

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Abstract: Water and nitrogen are critical factors affecting pepper cultivation. This study aimed to determine the effects of different nitrogen doses on the macro and micro nutrient contents of sweet pepper (*Capsicum annuum* L., cv. Demre) leaves in field conditions under different soil water regimes in Ankara which is located in the Continental Region of Turkey. Experiments were carried out in a factorial experiment based on randomized complete blocks design with three replicates using surface drip (DI) and sub-surface (SDI) drip irrigation during the years 2015 and 2016. Experiments included three different soil water regimes (100%FC (field capacity), 75%FC and 50%FC) and four different nitrogen (N) doses (N_0 : unfertilized, N_{70} : 70 kg N ha⁻¹, N_{140} : 140 kg N ha⁻¹, N_{210} : 210 kg N ha⁻¹). Fertigation was started at the first irrigation cycle and continued through the plants' first harvest. One-third of the nitrogen was applied at sowing in all treatments. The rest was applied through fertigation (2 times in the flowering period, 2 times fruit set and 1 time after the first harvest). Irrigation interval was set as four days based on evaporations from Class A pan. Seasonal irrigation water quantities varied between 354-624 mm and 337-615 mm in the DI and SDI systems in 2015 and also varied between 318-568 mm and 299-554 mm in 2016, respectively. The 5th and 6th most recent mature leaves from the plant growing point were sampled for macro and micro nutrient analyses. The plants were harvested from each application at 124 days after transplanting (DAT) in 2015 and 126 DAT in 2016. The results of the study showed that N, P and K concentrations of the pepper leaves under the water stress increased significantly compared to control. Fe, Mn, Zn and Cu concentrations of the leaves under the water stress decreased significantly according to the control treatment. The effect of the soil water regimes on Ca and Mg concentrations of the leaves were not found to be significant. However, the N applications in both irrigation systems generally had a positive effect on the nutrient content of the pepper leaves under the different soil water regimes in field conditions.

Keywords: Fertigation, macro and micro nutrients, nitrogen, sweet pepper (*Capsicum annuum* L., cv. Demre), soil water regimes

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The persistence of genetically modified (GM) canola in the environment: The experience of genetically modified organism (GMO) trials in Tasmania, Australia

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Abstract: Australia's island state of Tasmania is marketed as 'clean and green', and sometimes as 'clean and green and smart'. These sentiments underpin the positioning of the state as both a tourist destination and as a premium food producer. Tasmania has maintained a GM Moratorium since 2001, and has excluded genetically modified organisms (GMOs) from the state since then. Australia accounts for 0.4% of the world's GMO agriculture hectares (Fig.1). Tasmania's GMO Moratorium is consistent with Australian consumer sentiment that GMOs are not safe, and international consumer sentiment that GMOs are to be avoided. In the late 1990s, and before Tasmania's GM Moratorium was in place, there were Monsanto and Bayer field trial sites (n=57) of herbicide-resistant GM canola across the state. For the two decades since those GM trials finished, and while the GM Moratorium has been in place, the trial sites have been monitored by the state government because of "the likely persistence of GM canola seeds in the soil". Audit reports have been conducted annually by the Tasmanian Government. A timeline of the audit outcomes reveals that despite the efforts to exterminate the trial crops, GM canola has persisted in the environment, and, even after the passage of two decades, some trial sites still report the presence of volunteer (rogue) canola plants (Fig.2). The conclusion is that any jurisdiction considering allowing GM crops, needs to consider GM crops as an invasive species and to put in place appropriate biosecurity mechanisms. Reversal of introduced GMOs can be expected to be difficult, and perhaps even impossible. A strategic plan of how a GMO introduction may be reversed needs to go hand in hand with any GMO approval and subsequent environmental release. To reinstate a GM-free environment, unless a strategic plan with a clearly formulated recall pathway, including a clear endpoint and assurances, is in place, a jurisdiction is left with ongoing auditing and/or extermination challenges.

Keywords: Bayer, extermination, GMO Moratorium, GM-free. invasive species, Monsanto.

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Utilization of Garamycin for the control of bacterial disease: flacherrie in the larval instars of silkworm, *Bombyx mori* (L)(Race: Double Crossed).

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Abstract: The bacterial disease: flacherrie is the most significant parameter associated with the loss of silk yield. The loss of appetite; discharge watery feces and vomiting are the common symptoms of infection of bacteria to the larval instars of silkworm, *Bombyx mori* (L). The present attempt is dealing with utilization of antibiotic compound for the control of bacterial disease: flacherrie in the larval instars of silkworm, *Bombyx mori* (L) (Race: Bivoltine Double Hybrid). For the bacterial pathogens, the diseased black thorax septicemia infected larvae of silkworm, *Bombyx mori* (L) were crushed through the use of using mortar and pestle; the solution was filtered; the filtrate was centrifuged (at 4000-5000 rpm) for ten minutes; the precipitate (in the form of pellet) was used for bacterial inoculum. The bacterial sample (inoculum) was streaked in Luria Agar under aseptic conditions and processed for incubation (at 37°C overnight). After 24 hours, the growth of bacteria was noticed, and it was further processed for sub culture. A bacterial sample was taken through the use of loop; centrifuged for 15 minutes at 4000 rpm and the precipitate (in the form of pellet) was dissolved in distilled water. Soon after the second moult, larval instars were divided into four groups (Untreated control group; Water treated group; Bacterial inoculum treated (infected) group and the group treated with *Garamycin antibiotics*, each with hundred individuals. The larvae of bacterial inoculum treated (infected) group and the group of larvae for antibiotics treatment were infected (treated) with the aqueous solution of bacterial inoculum. This treatment was carried out through smearing the solution bacterial solution onto the surface of leaves of mulberry, *Morus alba* (L) (M.5 Variety) leaf surface. The treated leaves were allowed for draining. The treated leaves were fed four times to the third instar larvae on the first day (100 grams of leaves for the group of hundred larvae for each time). For the second day and third day, the larvae were fed with normal untreated mulberry leaves. The water treated group of larvae was fed with mulberry leaves smeared with distilled water. The larvae of untreated control and antibiotics treated group were fed with normal untreated leaves for the days: first, second and third. The antibiotics treatment was followed on the fourth day of the third instar. Hundred grams of mulberry leaves were immersed in four hundred milliliter aqueous solution of Garamycin (40 microgam/ml distilled water) for half an hour. The leaves were drained completely. The Garamycin treated leaves were used for the feeding on the fourth day (four feedings at the rate of 100 grams of leaves for the group of hundred larvae for each time). Thereafter, the larvae were fed with untreated mulberry leaves to all the groups of

larvae of third, fourth and fifth instars. The haemolymph from the larvae (ten larvae from each group) was collected on the fifth day of the fifth instar and processed for electrophoresis. The hundred percent effective rate of rearing (ERR) were reported for the Garamycin treated group. Single female cocoon weight: 1.564 (± 0.429) units with the shell ratio: 24.744 units and single male cocoon weight: 1.193 (± 0.055) with the shell ratio: 22.967 units were reported for the Garamycin treated group. The variation was detected in the pattern of banding of the protein with significant polymorphism (88.3 percent) with two bands of monomorphic nature; twelve bands of polymorphic nature and three bands of “unique” nature.

Keywords: Antibiotics, Bacterial Flacherie, *Bombyx mori*, Garamycin

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Forecasting of Agricultural Food Grain Production in Nigeria using Time Series Modelling

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Abstract: In this paper, an attempt has been made to forecast agricultural food grain production in Nigeria using time series modelling” using an autoregressive integrated moving average (ARIMA) model. The stationarity of the data have been tested through Augmented Dickey Fuller (ADF) test which showed the data is not stationary. For making it stationary, first order differencing has been done. the best fitted model as per minimum value of AIC, SBIC, HQ and statistical significance of parameters is ARIMA (1, 1, 1) and has been used to forecast for next ten years Nigerian food grain production. The ARIMA (1, 1, 1) model projected increase in the food grain production for coming years from 2018 to 2027.

Keywords: ARIMA, Food Grains, Nigeria, Production, Time series.

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A Survey of Buddhists' Perspectives on Problems and Impacts of Forest and Land Fires in Central Kalimantan

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Abstract: This article raises the problem and nature of forest and land fires, which are a significant environmental problem in the country in general and especially in Central Kalimantan. The impact of the problem of forest and land fires is the loss of various eco-system benefits from forests and other potentials. Two factors cause forest and land fires are natural and human fires. The problem of forest and land fires is a fundamental issue in Central Kalimantan. This study aims to find out how understanding, attitude, and role of Buddhists in terms of forest and land fires in Central Kalimantan was constructed. A survey method was used in this study to capture participants' perspectives. Data collection techniques in this study were questionnaires. Samples were distributed to Buddhists in three regions totaling 45 people. The results of the study concluded that Buddhists have a sufficient understanding of the problem of forest and land fires in Central Kalimantan. The role of the community in the case of forest and land fires in Central Kalimantan cannot be realized if they do not have a good understanding and attitude. Buddhists are taught how to respect and protect natural conditions so that disasters such as forest and land fires do not have a detrimental impact on human life. However, there is still a small proportion that does not have understanding, attitude, and role, and there are also those whose understanding, attitude, and role are contrary to expectations of forest fires and land.

Keywords: problem, impact, forest fire, land.

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The Effect of Palm Oil Mill Liquid Waste against Soil Microbes

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Abstract: The oil palm processing industry produces a number of wastes, namely empty fruit bunch (EFB), mesocarp fiber (mesocarp fiber / MF), palm kernel shell (PKS), palm kernel meal (PKM), and palm oil mill effluent (POME). Some of these wastes still have economic value because they can be used as alternative energy sources, fertilizers, chemicals and biological materials. This research was conducted at PT. Mulia Sawit Agro Lestari (PT. MSAL) Gunung Mas Regency, Central Kalimantan Province for three months starting in January 2019 to March 2019. The purpose of this study is to identify the effect of palm oil mill effluents on soil microbes. The results of this study indicate that the total amount of soil microbial colonies in the land is not applied to palm oil waste water in the rorak and inter-rorak with a total soil microbial colony of 1.13×10^6 cfu (colony forming unit) in the rorak and 1.0×10^6 cfu in inter-rorak. The research findings obtained that soil microorganisms is greatly influenced by the environment in the form of availability of energy sources such as organic matter and soil nutrients, temperatures, air and humidity.

Keywords: liquid waste, oil palm, microbes, soil.

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Yield and morphological feature of high yielding *aus* rice varieties at Khagrachari hill tract

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Abstract: Rice is the extensively cultivated cereal crop of Bangladesh. Aus, aman and boro are three rice growing seasons here. Aus is the least cultivated rice due to drought and confined irrigation in kharif season. Mostly produced aus rice are modern varieties (MV) and a few are local cultivars. This experiment assessed yield and phenological features of six high yielding modern aus rice varieties (Binadhan-19, Binadhan-14, BRRI dhan43, BRRI dhan48, BRRI dhan55 and BRRI dhan65) to compare the yield, duration and growth attributes. Experiment was setup at farmers field of satvayapara under Khagrachari sadar upazila followed RCB design. Seedlings were transplanted at 25 DAS. Results showed that, shortest and longest plant height was observed with BRRI dhan65 (91.80 cm) and BRRI dhan43 (105.70 cm), maximum and minimum total number of tillers in Binadhan-19 (17.00) and BRRI dhan43 (8.20), maximal numbers of non-effective tiller/hill was found with BRRI dhan55 (1.43) and minimal with Binadhan-19 (0.377), highest and lowest panicle weight from BRRI dhan48 (25.33 g) and Binadhan-19 (12.47 g), most and least number of grains/panicle were recorded with BRRI dhan55 (261.85) and BRRI dhan43 (145.54), greater grain sterility(%) was noticed in Binadhan-14 (32.46) and lesser in BRRI dhan43 (24.57), thousand grain weight (TGW) was higher in BRRI dhan43 (27.01 g) and lower in Binadhan-19 (19.46 g). BRRI dhan55 (4.49 t/ha) and BRRI dhan48 (4.48 t/ha) yielded statistically identical production with lowest grain yield by BRRI dhan65 (3.06 t/ha). BRRI dhan48 gave maximal straw yield of 9.20 t/ha; contrary minimal yield of straw was obtained from BRRI dhan65 (4.12 t/ha). Days to maturity was earlier in Binadhan-19 (99.33 days), BRRI dhan65 (99.67 days) and Binadhan-14 (101.00 days) than BRRI dhan48 (113.67 days), BRRI dhan55 (106.67 days). Most of the farmers preferred Binadhan-19 and Binadhan-14 over BRRI dhan43 and BRRI dhan48 for their earliness, long, slender and premium grain outlook. Binadhan-19 may be a potential modern aus variety in the Khagrachari hill tracts for gaining optimum yield within a short time. Therefore, further observation trials are needed in

jhum cultivation with local hill cultivars for wider equivalence and acceptability to the rice producers.

Keywords: aus rice, khagrachari hill tract, modern variety, morpho physical, yield attributes.

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