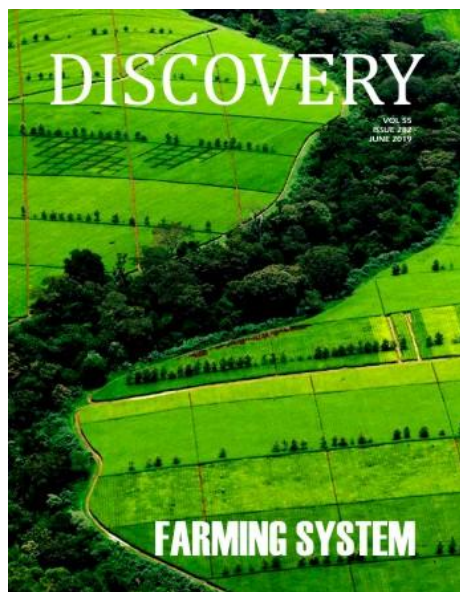


# DISCOVERY

## About the Cover



Variations in the agricultural crop production results from differences in types of farming systems, social economic situation and implication of climate variability across agro-ecological zones. Land fragmentation, lack of information to inform the best adaptation measures and realisation of opportunities characterise the farming systems in the study area. The farming systems differ among the farms depending on the available resources and constraints, location and physical condition, government policy, socio-economic, political pressures and the philosophy of the farmer. The study employed survey method that includes household questionnaire, Focus Group Discussion (FGD), Key Informant Interview (KI), and Field Observation. The collected data were analysed through content analysis for qualitative and SPSS and Excel software for the quantitative data. The study indicates that farming systems practiced by smallholder farmers are characterized by land fragmentation, lack of capital, use of poor technologies, unreliable market and inadequate information to inform farmers the best adaptation measures and opportunities for increasing agricultural crop production. Thus, the increased risk and vulnerability to crop production and livelihood, especially, within small land sizes that hinders crop diversification and mechanization to improve productivity. To a large extent of agricultural crop production in small units focused on home consumption and food security being the main concern. The study recommends the need for strengthening the capacity of smallholder farmers and institutions for identifying, assessing and addressing the challenges within different farming system through educating farmers and other relevant stakeholders on improving livelihoods, productivity and agricultural crop production (Ref: Brown Gwambene. Determinants of farming system and food crop production among small holder farmers in Rungwe District, Southern Highlands of Tanzania. *Discovery*, 2019, 55(282), 250-260).

## ARTS & HUMANITIES

---

### **A Search for the 'Darshan' of Sikh Gurus among Pahari Rulers**

Surdeep Kour

Between fluctuating Rajput and Sikh sponsorships, presence of various versions of portrayals of Sikh Gurus in Guler style, emerged due to sudden adjustments for Sikh themes, create suspicions about their real likeness. The study investigates the sources of imaginary likeness and alterations & adaptations of Rajput idioms in a series of portraits of Gurus twisted in Guler style during early nineteenth century caused by substitution of sponsorship from Rajput to Sikh aristocracy, when Guler family of painters forced to adjust the iconography of Gurus under Rajput influences. The study also attempts to seek the artists, who contributed in this series. The study is centered on data analysis and review of literature. Empirical method is applied to write the paper.

*Discovery*, 2019, 55(282), 220-234

## MANAGEMENT

---

### **A study of passenger satisfaction and service quality of selected airlines in Nigeria**

Adekunle, Emmanuel Adewale

The aim of this research is to conduct a comparative study of passenger satisfaction and service quality in Nigeria among the considered airlines (Virgin Atlantic, British airways and Med-view airline) on Lagos to London route/flights. The research was based on assessing the level of passenger satisfaction on the airline service quality attributes/dimensions. The study shows and ranked Virgin Atlantics services first, British airways services second and Med-view airline services third. The common and important services that the airlines respondents' indicated to be more important are 'safety and security, 'Appealing appearance, attitude and uniform of employees', 'flight attendant's courteousness', 'Behaviour of Staffs instils confidence in customers', and 'Staffs good communication skills'. A new National carrier should be established by the government and structures and frameworks need to be put in place to ensure good quality services were offered to passengers and services ranked as importance in this research should be giving optimum consideration for better service delivery and inturn excellent passenger satisfaction.

*Discovery*, 2019, 55(282), 235-244

## ENERGY

---

### **Biodiesel production: a preliminary study from Jatropha Curcas**

Ponnuthurai Tary Amal Raajan

The world is getting modernized and industrialized day by day. As a result vehicles and engines are increasing. But energy sources used in these engines are limited and decreasing gradually. This situation leads to seek an alternative fuel for diesel engine. Biodiesel is an alternative fuel for diesel engine. In this study, crude Jatropha curcas oil was used as feedstock for biodiesel production by alkali-catalyzed methanolysis. The utilization of liquid fuels such as biodiesel produced from Jatropha oil by transesterification process represents one of the most promising options for the use of conventional fossil fuels. This paper investigates the prospect of making of biodiesel from jatropha oil. Jatropha curcas is a renewable non-edible plant. Jatropha is a wildly growing hardy plant in arid and semi-arid regions of the country on degraded soils having low fertility and moisture. The seeds of Jatropha contain 50-60% oil. Biodiesel, a promising substitute as an alternative fuel has gained significant attention due to the predicted shortness of conventional fuels and environmental concern. In this study the oil has been converted to biodiesel by the well-known transesterification process and used it to diesel engine for performance evaluation.

*Discovery*, 2019, 55(282), 245-249

## AGRICULTURE

---

### **Determinants of farming system and food crop production among small holder farmers in Rungwe District, Southern Highlands of Tanzania**

Brown Gwambene

Variations in the agricultural crop production results from differences in types of farming systems, social economic situation and implication of climate variability across agro-ecological zones. Land fragmentation, lack of information to inform the best adaptation measures and realisation of opportunities characterise the farming systems in the study area. The farming systems differ among the farms depending on the available resources and constraints, location and physical condition, government policy, socio-economic, political pressures and the philosophy of the farmer. The study employed survey method that includes household questionnaire, Focus Group Discussion (FGD), Key Informant Interview (KI), and Field Observation. The collected data were analysed through content analysis for qualitative and SPSS and Excel software for the quantitative data. The study indicates that farming systems practiced by smallholder farmers are characterized by land fragmentation, lack of capital, use of poor technologies, unreliable market and inadequate information to inform farmers the best adaptation measures and opportunities for increasing agricultural

crop production. Thus, the increased risk and vulnerability to crop production and livelihood, especially, within small land sizes that hinders crop diversification and mechanization to improve productivity. To a large extent of agricultural crop production in small units focused on home consumption and food security being the main concern. The study recommends the need for strengthening the capacity of smallholder farmers and institutions for identifying, assessing and addressing the challenges within different farming system through educating farmers and other relevant stakeholders on improving livelihoods, productivity and agricultural crop production.

*Discovery*, 2019, 55(282), 250-260

## MEDICINE

---

### **Solitary, multinodular plexiform Schwannoma of finger - a rare lesion misdiagnosed as ganglion cyst**

Ganesh Singh Dharmshaktu, Tanuja Pangtey, AlamgirJhan Dar

The solitary nodular growth in hand is often considered as ganglion cyst or other common disorder in most instances. Asymptomatic lesions leading to delayed or neglected presentation are common. Nodular and firm growths should undergo histopathological evaluation as uncommon lesions at times mimic common conditions. A rare case of plexiform Schwannoma of fourth finger diagnosed on biopsy is reported here highlighting the knowledge of rarer entities for better management of similar lesions.

*Discovery*, 2019, 55(282), 261-264

## EDUCATION

---

### **Junior staff motivation and job satisfaction in Cross River University of Technology (CRUTECH), Calabar, Cross River State, Nigeria**

Okey, Stella-Maris

This study was aimed at ascertaining staff motivation and job performance among junior staff of Cross River University of Technology (CRUTECH), in Cross River State. Two research questions were posed which were later transformed into two research hypotheses, formulated to guide this study. A Staff Motivation and Job Satisfaction Questionnaire (SMJSQ) was constructed and used for data collection. This instrument, with twenty (20) items, was administered to one hundred and sixty one (161) junior staff from the three campuses that make up the university, that is, Calabar campus (105), Obubra (26) and Ogoja (30) using the stratified random sampling technique. The Pearson Product Moment Correlation Analysis was used to test the hypotheses. However, from the result of findings, it was realized that staff welfare and staff training are significantly related to job performance. Based on these findings, useful recommendations were made.

*Discovery*, 2019, 55(282), 265-270

## FOOD SCIENCE

---

### **Training need assessment of Maize growers for the production of Maize in Tehsil Sahiwal, Punjab Pakistan**

Waqas Ghafoor, Khalid Mehmood CH, Ijaz Ashraf, Muhammad Usman, Muhammad Shoab, Muhammad Muzammil Saeed

Maize occupies a distinct place in the existing cropping system of Pakistan. It provides good economic returns the average per hectare yield of maize is 2003kg/ha as against its potential yield 6173kg/ha. Our growers have potential to produce good quality and quantity of maize it is possible if farmers are properly trained in different training aspects of maize production and protection. Keeping this in view the present research study was conducted to determine the training needs of maize growers in Tehsil Sahiwal. Tehsil Sahiwal has 5 markaz out of two markaz were selected purposively on the basis of the area under maize cultivation, from each selected markaz 3 union councils were selected randomly From each selected UC 2 villages were selected randomly thus by making a total 12 villages. List of 312 maize growers of these 12 villages were obtained from Assistant Director Agriculture (Agriculture Extension wing). Growers of 12 selected villages were served as study population from this population a sample size of 144 maize growers was selected with the help of website survey system.com. A well-structured interview schedule was prepared for the data collection. The collected data were analyzed by computer software Statistical Package for Social Sciences SPSS. T Statistic showed that respondents had more training needs in all component of critical stages for irrigation flowering stages at stage of pollination and at milky stage it was noticed that all indicator of weeds and their chemical control had highly significant different in favor of required level of competencies. It means respondent had less knowledge about weeds control so they required more training needs in the field of weeds control. T value 143.5 further showed a highly significant difference between possessed and required competencies related to use of soil management kits in favor of required level of competencies. T value 6.1 indicated a highly significant difference between possessed and required competencies related to android apps in favor of required level of competencies a fair majority 84.4 % of farmers needed availability of labor when required three quarter 75.0% of respondent needed transparency in marketing system a great majority 88.2% of the respondent needed construction of local markets a clear majority 83.3% of farmers needed construction of shortage godam and great majority 92.2% of respondent needed provision of turbine run by solar system an over whelming majority 97.2% of respondent told that agriculture department must provide heavy

machinery for production of maize. A clear majority of 97.9% of the respondent reported what trained staff should arrange workshop on training regarding maize production a simple majority 68.1% of them told that staff should held more farm visit.

*Discovery*, 2019, 55(282), 271-278

## ENGINEERING

---

### **Performance study of three-phase induction motor driving a load**

Oti Stephen Ejiofor, Nwosu Cajethan Abuchi, Nnadi Damian B N, Ogbonnaya I Okoro

Induction motors are the most indispensable and widely used electric motors in industry. During start-up, loading and unloading operations, the asynchronous motor draws large currents, produce voltage dips and oscillatory torques. It is therefore important to model and study the asynchronous machine in order to predict these phenomena. Lots of work has been done on induction motor, ranging from transient and steady state responses to stability and performance studies. However, the effects of temperature variation during motor operations, variations in external rotor resistance and variable frequency drives have not received the desired attention. Hence, this work presents a step by step Matlab/Simulink implementation of a three-phase induction motor driving a load. Herein, a model of 126hp rated three-phase induction motor driving step input loads at different levels was demonstrated. Motor parameters were varied in order to study the effects of such variations on transient response and general performance of the motor. The electromechanical torque and motor speed responses of the motor were examined. Consequently, recommendations for optimal motor operation were proposed.

*Discovery*, 2019, 55(282), 279-290