

International Conference on
**Urban, Peri-Urban Agriculture, Employment &
 Value Chain Management**

(October 18-22, 2011)

Program of the Conference

DAY-0 (October 18, 2011, Tue)

Arrival of the guests, visit to various Departments and informal meetings

DAY-1 SESSIONS (October 19, 2011, Wed)

Registration (8-9 am)

Inaugural and Plenary Session

Chief Guest: Dr Anser Parvez, Chairman PAEC, Islamabad Chairman: Dr Iqrar Ahmad Khan, Vice Chancellor, UAF Co-Chairman: Dr Christoph Scherrer Moderator: Dr Muhammad Ashfaq		
Time	Speaker	Topic
9:30 am	Recitation	
9:35 am	Nasheed	
9:45 am	Prof Dr Iqrar Ahmad Khan Vice Chancellor, UAF	Welcome Address
10:00 am	Prof Dr Christoph Scherrer	An overview of ICDD Program in Germany
	Prof Andreas Buerkert (Germany)	An overview: Resource use efficiency
10:05 am	Prof Dr Eva Schlecht (Germany)	An overview: Peri-Urban Dairy Farming
10:10 am	Prof Mariano F Laplane (Brazil)	An overview: Value Chain Management
10:15 am	Prof Francisco J Solorio (Mexico)	An overview: Silvopastoral systems for improving productivity
10:20 am	Dr Job Kibiwot Lagat (Kenya)	An overview: of ICDD Program in Kenya
10:25 am	Dr Kevin D Gallagher	FAO Rep Pakistan
10:30 am	Ms Ursula Saarbeck	DAAD, Pakistan
10:35 am	Word of Thanks	
10:40 am	Announcements	

Tea Break (10:45- 11:00 am)

Technical Session 1 (Urban, Peri-Urban Agriculture)

Chairman: Dr Kevin D Gallagher Co-Chairman: Dr Michael Wachendorf Moderator: Dr Asif Ali		
Time	Speaker	Topic
11:00 am	Buerkert, A., M. Predotova, A. Nafiu and Z. Safi	Resource use efficiency, produce quality, plant biodiversity and externalities in UPA systems of Africa and Asia: <i>from a status quo analysis to effective policy recommendations</i>

11:30 am	Safi, Z., E. Schlecht and A. Buerkert	Nutrient cycling and economics in Urban and Peri-urban Agri of Kabul, Afghanistan
11:45 noon	Rehman, S. ur, I. A. Khan, E. Schlecht and A. Buerkert	Socioeconomic and crop diversity in Urban and Peri-Urban areas of Faisalabad
12:00 pm	Ul Allah, S., A. A. Khan and M. Wachendorf	Socioeconomic aspects and crop management in fodder production areas of Faisalabad
12:15 pm	Ata, S. and B. Shahbaz	An explorative study of datepalm marketing chain and its role in farmers livelihood: Implications for agricultural extensions in the Peri urban areas of southern Punjab
12:30 pm	Muneeb, Z. and M. Ashfaq	Hazardous effects of pesticides on vegetable pickers in the peri-urban agricultural areas of Vehari district
12:45 pm	Shahbaz, M. and A ul Hassan	Comparative effect of bioslurry and compost at variable levels of inorganic N supply on growth, yield and nitrogen use efficiency of okra

Lunch and Prayer Break (1:00-2:30 pm)

Technical Session 2 (Urban, Peri-Urban Livestock)

Chairman: Prof Dr Eva Schlecht		
Co-Chairman: Prof Dr Francisco J Solorio		
Moderator: Dr Muhammad Younas		
Time	Speaker	Topic
2:30 pm	Schlecht, E. and M. Younas	The urban dairy value chain: a promoter of development and decent jobs in Asia and Africa
3:00 pm	Solorio, S.F., A.L. Ramirez and S.B. Solorio	Intensive silvopastoral systems for improving productivity, diversification and employment generation in peri-urban and rural areas of Mexico
3:30 pm	Murtaza, Z. and A. ul Hassan	Effect of prolonged irrigated fodders on soil physical properties and agronomic water use efficiency at Livestock Farm Jugaitpeer, Bahawalpur
3:50 pm	Sadia, H. and M. Younas	A review on peri-urban dairy production systems in the Punjab, Pakistan
4:10 pm	Tariq, M., M. Younas and S. Ahmad	Manure management: a potential for recycling nutrients to save on fertilizers and to reduce environmental pollution
4:30 pm	Abd ur Rehman and M. Sarwar	Chemical composition and digestion kinetics of oat silage and urea treated wheat straw as influenced by exogenous fibrolytic enzymes

Tea Break (5 pm)

Reception Dinner (8 pm)

DAY-2 SESSIONS (October 20, 2011, Thu)

8-9 am Poster Session (Please see list attached)

Technical Session 3 (Economics, Migration & Urbanization)

Chairman: Prof Mariano F Laplane Co-Chairman: Dr Nils Teufel Moderator: Dr Muhammad Ashfaq Maann		
Time	Speaker	Topic
9:00 am	Teufel, N., M. Blummel, A. Samaddar and O Erenstein	Investigating cereal straw quality preferences through urban markets
9:30 am	Mustafa, G. and M. Ashfaq	Factors affecting profit of broiler industry in peri-urban areas of Faisalabad, Pakistan
10:00 am	Sadaf, M., I.A. Khan and M.A. Khan	Impact of international migration on women empowerment and livelihood of the families left behind: <i>a case study in district Toba Tek Singh</i>
10:30 am	Farah, N.	Socioeconomic and cultural factors affecting migration behavior in Faisalabad district

Tea break (11-11:30 am)

Technical Session 4 (Employment and Migration)

Chairman: Dr Michael Wachendorf Co-Chairman: Ms Ursula Sarrbeck Moderator: Dr Izhar A Khan		
Time	Speaker	Topic
12:00 noon	Zhoa, Xi., B. Knerr and I.A. Khan	Self-employed return migrants and rural development in China
12:30 pm	Ghaffar, I. and M. Ashfaq	A multi-level study of broiler Industry: employment generation in Lahore District
12:50 pm	Erum, N. and A.A. Maann	Migration of domestic workers in the district of Faisalabad, Pakistan
01:10 pm	Shaikh, F.M., M.M. Ahmadani and A. A.S.G. Syed	Role of small and medium enterprises in creating employment opportunities in Pakistan: <i>A case study from Sindh</i>
01:30 pm	Sabah, S. and I.A. Khan	Rural to peri-rurban labor migration and rural development in Punjab, Pakistan

Lunch and Prayer Break (2-3:00 pm)

Technical Session 5 (Value Chain Management)

Chairman: Dr Zakar Hussain Co-Chairman: Dr Andreas Buerkert Moderator: Dr Khalid Mustafa		
Time	Speaker	Topic
3:00 pm	Laplane, M.F.	Value chains and decent work in a post crises global economy

3:30 pm	Munir, A. O. Hansel, W. Scheffler and H. Hoedt	Value addition to agricultural products using solar energy
4:00 pm	Shamim, R., A.A. Khan and M.N. Cheema	Growing tomoato with urban sewage water
4:30 pm	Saima, N. and I.A. Khan	Socioeconomic conditions of female domestic workers before and after migration in Faisalabad

Tea Break (5 pm)

Dinner and Cultural Night (8 pm)

DAY-3 SESSIONS (October 21, 2011, Fri)

Concluding/Recommendation Session

Chief Guest: Mr. Muhammad Afzal Khan, Member Punjab Assembly and University Syndicate

Guest of Honour: Dr. Iftikahr Ahmad, Chairman, Pakistan Agri. Res. Council, Islamabad

Chair: Prof. Andreas Buerkert

Moderator: Dr. Asif Ali Khan

Time	Speaker	Topic
09:15 am	Dr. Asif Ali Khan	Welcome
09:25 am	Prof. Andreas Buerkert	Conclusions & Recommendations
10:15 am	Dr. Iftikhar Ahmad	Address by the Guest of Honour
10:25 am	Mr. Muhammad Afzal Khan	Address by the Chief Guest
10:50 am	Dr. Asif Ali Khan	Thanks

11:00 am Tea

12:00 to 06:00 pm Field Demonstrations in Peri-Urban Areas

09:00 pm Farewell Dinner

DAY-4 TOUR, SITE SEEING AND FIELD VISIT (October 22, 2011, Sat)

Tour # 1 City Tour

Tour # 2 Visit to Postgraduate Agriculture Research Station (PARS), UAF

Tour # 3 Visit to Lahore

Recommendation Committee

Prof Dr Andreas Buerkert	Convener
Dr Asif Ali	Member
Dr Muhammad Younas	Member
Dr Muhammad Ashfaq	Member
Dr Muhammad Ashfaq Maann	Member
Dr Izhar Ahmad Khan	Member
Dr Khalid Mustafa	Member
Mr Shoaib ur Rehman	Member
Mr Samiullah	Member
Ms Saadia Hanif	Member

Poster Session

1	Ghayoor Fatima and Iqrar Ahmad Khan	Root anatomical characteristics of date palm (<i>Phoenix dactylifera L.</i>) cultivars of diverse origin
2	M Bilal Anwar, Anwar U. Hassan and Z Murtaza	Effect of prolonged irrigated fodders (sorghum and pearl millet) on soil chemical properties and yield of fodders
3	Anisa Naeem, Asif Ali Khan and A Buerkert	Eco-Tilling for SNP analysis in the Date Palm
4	Saira Sultan and Faqir Muhammad Anjum	Double fortification of table salt with Iron and Iodine to combat Iron deficiency anemia and Iodine deficiency disorders
5	Muhammad Asad and Ashfaq Ahmad	Impact of temperature regimes on use efficiency of irrigation water and grain yield of wheat
6	Anam Ali and Iqrar A Khan	Rachis anatomical characteristics of common Date palm (<i>Phoenix dactylifera L.</i>) germplasm
7	Muhammad Asif Raza, Saeed Murtaza, M. Mazhar Ayaz and H.A. Bachaya	An abattoir based study on the frequency of <i>Toxocara vitulorum</i> in association with age and sex factors in large ruminants at Multan, Pakistan
8	Muhammad Asif Raza, M Mazhar Ayaz, Saeed Murtaza, and H.A. Bachaya	Effects of sex and age on the spatial distribution of various species of plasmodium in Multan, Pakistan
9	Sadaf Ali and Muhammad Ashfaq	Economic losses due to delayed conception of dairy animals in Pakistan
10	Muhammad Tariq, M. Younas and A Basit	An overview of the Dairy Industry in Pakistan: An ICDD perspective
11	Muhammad Sajjad and Munir Khan	Economic efficiency of milk production in Khyber Pakhtunkhwa, Pakistan
12	Muneer Ali Shah Rizvi	Urbanization in Sindh Pakistan: process, causes, problems and suggested remedies with reference to Sukkur city
13	M Adeel Ashraf and Anjum Munir	Ergonomics and occupational health in sugar industry of Pakistan
14	Asanda Benya	Women working underground in mines in South Africa
15	Asanda Benya	Employment relationships within the mining industry in South Africa
16	Faiz.M. Shaikh, Muhammad Shahzad Iqbal and Anwar Ali Shah G. Syed	Determinants of Unemployment in Pakistan
17	Nosheen Shahzadi and Ashfaq A. Maann	Causes and Effects of Rural Urban Migration: A Case Study of Rural Areas of Tehsil Sillanwali District Sargodha
18	Sameen Shahzadi, Ashfaq A. Maann and M. Ashfaq Khan	Role of women in poverty reduction through keeping livestock
19	Muhammad Asif Raza, M. Younas and E. Schlecht	Predominance of helminthiasis in pastoral sheep and goat flocks at the vicinity of Qila Drawer, Cholistan desert of Pakistan

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Professor Dr. Iqrar Ahmad Khan

Vice Chancellor

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ORAL PRESENTATIONS

Resource use efficiency, produce quality, plant biodiversity and externalities in UPA systems of Africa and Asia: from a *status quo* analysis to effective policy recommendations

A. Buerkert¹, M. Predotova¹, A. Nafiu², Z. Safi³

¹ Organic Plant Production and Agroecosystems of the Tropics and Subtropics, University of Kassel, Witzenhausen, Germany; ² Department of Soil Science, Ahmadu Bello University, Zaria, Nigeria;

³ Department of Agronomy, College of Agriculture, Kabul University, Kabul, Afghanistan
Email: tropcrops@uni-kassel.de

Abstract

Urban and peri-urban agriculture (UPA) significantly contributes to food and income of urban dwellers in many African and Asian countries, but overuse of inputs and poor quality of irrigation water repeatedly raise concerns about food safety and negative environmental effects of this land use system. These concerns are, however, often poorly substantiated. Recent work from typical vegetable gardens in Africa indicates horizontal surpluses of up to 9,940 kg C ha⁻¹, 1,130 kg N ha⁻¹, 220 kg P ha⁻¹ and 310 kg K ha⁻¹ in high input systems as opposed to 9,580 kg C ha⁻¹, 290 kg N ha⁻¹, 120 kg P ha⁻¹ and 350 kg K ha⁻¹ in low input systems. Mean annual N emissions varied from 48-92 kg N ha⁻¹ yr⁻¹, while up to 26 t C ha⁻¹ yr⁻¹ were lost as CO₂-C. This underlines the need of continuously high application rates of organic amendments to sustain soil C levels under the often year-round irrigated soil conditions. Other studies showed that metal contaminants in irrigation water are only in specific cases large enough to cause product concentrations of cadmium, zinc, copper, or lead that in the long run threaten human health. UPA (home) gardens often host a large number of fruit and vegetable species. In contrast to popular belief, there is evidence that species richness in market-oriented gardens can be similar to that of subsistence gardens, although a few vegetable species dominate. In one study the highest species richness and diversity was found in large commercial UPA gardens of relatively wealthy, elderly gardeners with large families and a regular off-farm income. The available data indicate that UPA and related value chains will greatly benefit from being politically recognized as a very productive way of utilizing the urban space that merits a legal framework rather than been officially marginalized as 'tenure illegal'. This may include efforts towards certified management and marketing support to enhance benefits and trust levels for producers and consumers. The quality of irrigation water plays a key role in almost all UPA production systems. Public awareness should trigger political action against the often indiscriminant use and subsequent disposal of fresh water for cheap and polluting industrial processes, particularly in the dyeing, painting and metal industry.

Keywords: Agrobiodiversity; heavy metals; matter fluxes; urban agriculture.

Nutrient cycling and economics in urban and peri-urban agriculture of Kabul, Afghanistan

Z. Safi¹, E. Schlecht², A. Buerkert³

¹ Department of Agronomy, College of Agriculture, Kabul University, Kabul, Afghanistan; ² Animal Husbandry in the Tropics and Subtropics, University of Kassel and Göttingen, Witzenhausen Germany; ³ Organic Plant Production and Agroecosystems Research in the Tropics and Subtropics, University of Kassel, Witzenhausen, Germany
E-mail: safi-zikrullah@hotmail.com

Abstract

Like elsewhere also in Kabul, Afghanistan urban and peri-urban agriculture (UPA) has often been accused of being resource inefficient and unsustainable causing negatives externalities to community health and to the surroundings. These arise from the inappropriate use of agricultural inputs, including pesticides and inter-city wastes containing heavy metal residues and pathogens. To address these concerns, on-farm studies on 21 UPA gardens and 18 fields were conducted for two years (April 2008 to October 2009). These comprised an assessment of fluxes of carbon (C), nitrogen (N), phosphorus (P) and potassium (K), measurements of heavy metal and pathogen contamination of UPA produce, and an economic analysis of cereal, vegetable and grape production systems. Biennial partial (horizontal) balances in vegetable production systems were positive for N (80 kg ha⁻¹), P (75 kg ha⁻¹) and C (3,930 kg ha⁻¹) and negative for K (-205 kg ha⁻¹), whereas in cereal production systems such balances were positive for P (20 kg ha⁻¹) and C (4,900 kg ha⁻¹) and negative for N (-155 kg ha⁻¹) and K (-355 kg ha⁻¹). In vineyards corresponding values were highly positive for N (295 kg ha⁻¹), P (235 kg ha⁻¹), and C (3,360 kg ha⁻¹) and slightly positive for K (5 kg ha⁻¹). Annual leaching losses of N and P in vegetable gardens varied from 70-205 kg N ha⁻¹ and 5-10 kg P ha⁻¹. Manure and irrigation water contributed on average 12-79% to total inputs of N, P, K and 10-53% to total C inputs in the selected gardens and fields. Elevated levels of heavy metal and pathogen loads on fresh UPA vegetables likely reflected contamination from increasing traffic in the city, remnants of the past decades of war, and the effects of lacking collection and treatment of raw city wastes. A cost-revenue analysis of inputs and outputs of 42 cereal, vegetable and grape production systems over two years showed substantial differences in net UPA household income. Cereal production yielded a total bi-annual revenue of 9,630 US\$ ha⁻¹, and a gross margin and a net profit of 8,770 US\$ ha⁻¹. Vegetable farming gave an average bi-annual revenue of 27,900 US\$ ha⁻¹, a gross margin of 26,330 US\$ ha⁻¹ and a net profit of 25,530 US\$ ha⁻¹. Surprisingly, vineyards generated the lowest returns with a revenue of 5,400 US\$ ha⁻¹, and a gross margin and a net profit of each 4,480 US\$ ha⁻¹. Overall the data show the important role UPA plays for provisioning Kabul with fresh produce and often poor farmers and small trader with important income opportunities. There seems also considerable scope for enhanced nutrient use efficiency and food safety based on consumer-oriented certification standards.

Keywords: Gross margin analysis; net profits; nutrient fluxes; vegetable farming.

Socio-economy and crop diversity in urban and peri-urban areas of Faisalabad

S. ur Rehman^{1,2}, I.A. Khan², E. Schlecht³, A. Buerkert¹

¹ Organic Plant Production and Agroecosystems Research in the Tropics and Subtropics, and ³ Animal Husbandry in the Tropics and Subtropics, University of Kassel and Göttingen, Witzenhausen, Germany; ² Institute of Horticultural Sciences, University of Agriculture, Faisalabad, Pakistan
E-mail: tropcrops@uni-kassel.de

Abstract

Many parts of the city of Faisalabad comprise agricultural lands, where farmers are growing vegetables, grain crops and fodder for local consumption using canal and sewage water. To study the socioeconomic impact and resource use in these urban and peri-urban agricultural production (UPA) systems, a baseline survey was conducted during 2009-2011. A total of 140 household were selected using a stratified sampling method and interviewed with a structured questionnaire. The collected data were analyzed with SPSS and descriptive statistics. The results showed that 96% of the households depended on agriculture as their main occupation. 50% of the respondents were poor (with a daily per capita income < 1.3 US\$) and spent 46% of their revenue on food related commodities. Monthly average household income and expenses were 27,100 and 19,200 Pakistani Rupees (corresponding to 315 US\$ and 225 US\$), respectively. Less than 30% of the households own their land but either rented or sharecropped it, most (70%) were headed by a member with some primary education and 12% had finished Matric (secondary school certificate). A total of 35 species were cultivated in the UPA systems of which 65% were vegetables, 15% grain and fodder crops, and 5% medicinal plants; 69% of the households grew wheat mostly for their own use. More than 50% of the respondents grew cauliflower (*Brassica oleracea* L.) and gourds (Cucurbitaceae) in the winter and summer season, respectively. Sewage (26%), canal (23%), tube well (13%) and mixed alternative watering (38%) were the main modes of irrigation. Group marketing was uncommon and most of the farmers sold their produce on spot (46%) and on local markets (42%). Seeds and fertilizers were available from commission agents and dealers on a credit basis with the obligation to pay by harvested produce. Major problems in the UPA of Faisalabad seem the availability of high quality irrigation water, especially in the hot dry summer months, and of fertilizer and other inputs during sowing.

Keywords: Baseline survey; sewage water; socioeconomic impact; stratified sampling.

Socio-economic aspects and crop management in fodder production areas of Faisalabad

S. ul-Allah¹, A.A. Khan², M. Wachendorf¹

¹ Grassland Science and Renewable Plant Resources, Faculty of Organic Agricultural Sciences, University of Kassel, Witzenhausen, Germany; ² Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan

Email: sami_llh@yahoo.com

Abstract

A baseline survey was conducted to collect socio-economic data on fodder growing areas of Faisalabad. A total of 109 households were selected by a snowball method and interviewed with a structured questionnaire. All collected data was analyzed by SPSS software followed by a descriptive analysis. The data indicated that all households were headed by male members and more than 50% of household's heads were illiterate or had only a primary education. Less than 50% have metric or above metric education. Agriculture was the major occupation for 87% of the respondents. Average income per household was 46,470 rupees per month and expenses averaged 46460 rupees per month. About 93% respondents reported livestock farming along with crop production as main sources of income. 88% of the households had their own land and 44% worked on rented land or had rented in additional land. Major crops grown in the area were wheat (*Triticum aestivum* L.), berseem (*Trifolium alexandrinum* L.), maize (*Zea mays* L.) and sorghum (*Sorghum bicolor* Moench). Major sources of amendments were animal manure and synthetic fertilizer and canal and tube well water were recorded were used for irrigation. In some areas waste water was also used. Water availability was the main problem reported by 94% of the respondents. Other important problems were high costs of fertilizers and marketing.

Keywords: Crop management; fodder production; socio-economic status.

An exploratory study of the date palm marketing chain and its role in farmers' livelihoods: implications for agricultural extension in the peri-urban areas of southern Punjab

S. Ata, B. Shahbaz

Department of Agricultural Extension, University of Agriculture, Faisalabad, Pakistan

Email: bsuaf@yahoo.com

Abstract

Date palm (*Phoenix dactylifera* L.) is one of the most important fruit trees in semi-arid and dry regions worldwide and is an integral part of the cultural life of local communities in these areas. The tree provides a wide range of products and services (food, fuel, shelter, handicrafts) to its users. Pakistan is one of the largest date producing countries, and the socio-economic conditions of the main date palm areas in Pakistan (South Punjab and Baluchistan) are generally poor with high incidence of food insecurity. Common features are livelihoods insecurity, meager infrastructure, limited access to livelihood assets, and fragile eco-systems. Dates are rich in carbohydrates, vitamins and sugar and thus of immense importance in improving livelihoods and reducing food insecurity of small farmers in rural and peri-urban areas. The present paper uses qualitative and quantitative methods of data collection, and explores the market chains of date palm products in the South Punjab and its role in farmers' livelihoods. More specifically, date palm usage patterns and the role of different stakeholders and institutions involved in date palm market chains are studied and training needs of date palm growers explored. Recommendations to improve the effectiveness of agricultural extension services regarding date palm cultivation and commercial utilization of date palm in Pakistan are defined to strengthen alternative employment opportunities and decent living condition of people whose livelihoods partly depend on date palm.

Keywords: Date palm; marketing chains; peri-urban livelihood systems; rural employment.

Hazardous effects of pesticides on vegetable pickers in the peri-urban agricultural areas of Vehari district

M. Zafar, M. Ashfaq

Department of Agricultural Economics, University of Agriculture, Faisalabad, Pakistan
Emails: muneebzafar986@gmail.com; ashfaq9@hotmail.com

Abstract

Vegetable growers around the globe rely heavily on the use of chemical pesticides to ensure pest control. There is evidence to suggest that intensive use of pesticides has significantly increased agricultural production. False use of chemicals causes a threat to human health and the environment, such as loss of beneficial fauna, water and air pollution and habitat damage. As far as the vegetable pickers' wellbeing is concerned, if vegetable pickers have to take sick leave due to pesticide related diseases, picking of vegetables cannot be achieved in the desired time. Consequently, the vegetable pickers' health should be of importance to policy makers. Therefore a study was carried out to determine the impact of pesticide exposure on vegetable pickers and to estimate the health costs and the factors affecting the health costs. A total of 120 vegetable pickers were interviewed and results show that the most commonly health problems mentioned were headache, eye irritation, skin infection, cough and shortness of breath. Health costs consisted of costs related to precautionary measures, medication, traveling to hospital, attending persons and productivity loss. A double log cost function was used from which it was calculated that overall health costs were significantly different from zero as indicated by the F-value (31.68). Regression analysis showed that explanatory variables included in the model substantially contributed to explaining the health costs. The average health cost was estimated at 720.42 Rupies per person. Better extension services, investment in precautionary measures, additional information on both temporary and permanent health effects caused by the exposure to pesticides and fostering the of NGOs were suggested to improve the situation.

Keywords: Health costs; pesticide use; vegetable harvest.

Comparative effect of bioslurry and compost at variable levels of inorganic nitrogen supply on growth, yield and nitrogen use efficiency of Okra

M. Shahbaz¹, A. U-Hassan¹, M.J. Akhtar¹, S.M.A. Basra²

¹Institute of Soil and Environmental Sciences, ²Department of Crop Physiology,
University of Agriculture, Faisalabad, Pakistan

Email: shehbaz1600@yahoo.com

Abstract

This study was conducted under field conditions at the Institute of Horticultural Sciences, University of Agriculture Faisalabad, Pakistan, during the year 2009-10, to observe the response of okra to bioslurry and compost combined with variable rates of inorganic nitrogen (N) fertilizer. A Randomized Complete Block Design (RCBD) with three replications was applied. Bioslurry and compost were analyzed for their chemical composition and were then applied at the rate of 600 kg ha⁻¹ in combination with 50%, 75% and 100% of the recommended doses of N for the production of okra along with recommended doses of P and K. The recommended dose of NPK alone was used for comparison. The results indicated that use of bioslurry and compost had variable effects on growth characteristics of okra at different levels of N supply. Supplying organic amendments and N increased okra fruit yield per plant, boosted plant height, number of branches per plant, number of fruits per plant and root length. Bioslurry and compost improved N uptake by different parts of the plant and fruits, resulted in an increased N pool in the rhizosphere and improved nitrogen use efficiency. Moreover, bioslurry and compost also had a positive effect on the uptake of P and K by the plant. Results suggest that applying bioslurry or compost is important for the sustainable production of okra, especially under semi-arid climatic conditions, where these measures lead to improved soil health and support the concept of sustainable agriculture.

Keywords: Nitrogen uptake; organic amendments; sustainable crop production; vegetables.

The urban dairy value chain: a promoter of development and decent jobs in Asia and Africa

E. Schlecht¹, M. Younas²

¹ Animal Husbandry in the Tropics and Subtropics, University of Kassel and Göttingen, Witzenhausen, Germany; ²

Department of Livestock Management, University of Agriculture, Faisalabad, Pakistan

E-mail: tropanimals@uni-kassel.de

Abstract

Milk production is an important component of urban and peri-urban livestock husbandry (UPL) in many African and Asian countries, providing high quality fresh milk to consumers and providing employment and income to those involved in production (milk, but also derived products as well as feed) and marketing. The direct links of UPL to input markets of concentrate feeds, veterinary services and output markets such as milk processing facilities or end-consumers favor very intensive milk production units across countries, while the size of enterprises, the species and breeds of dairy animals used, the employment of family and external labor as well as the level of market integration vary widely. Certainly such factors are partly determined by site-specificities such as climate and consumer preferences (determining, for example, whether or not milk buffalo are kept), but often they are more similar between countries and cities than between UPL enterprises within a given city. Drawing from case studies on UPL in West and East Africa, India and Pakistan, this review paper hypothesizes that (i) the major constraint to UPL is roughage availability for lactating animals, followed by costs of labor and space in the urban setting. Therefore (ii) urban and peri-urban milk producers rather benefit from exploring milk value chains and self-marketing strategies rather than from efficiencies of scale. The consequences of these constraints and opportunities for the individual producer as well as for family and external labor are discussed in view of different geographical regions and UPL farm sizes.

Keywords: Fodder shortage; labor needs; milk production; marketing strategies.

Intensive silvopastoral systems for improving productivity, diversification and employment generation in peri-urban and rural areas of Mexico

Solorio, S. F., A. L. Ramírez, S. B. Solorio
University of Yucatan, Campus of Biological and Agricultural Sciences
Carr. Merida-Xmatkuil, Mérida, Yucatán, México. CP 97100.
E-mail: ssolorio@uday.mx

Abstract

Agriculture has a central role in provide feeds as well in the rural economy, which mean that rural employment entails including both on farm self employment and wage employment. Any approach to enhancing local economic development and contributing to job creation need to prioritize agriculture and also the rural- to- urban continuum within which employment occurs. Silvopastoral is an agroforestry system that integrates trees, shrubs, grasses, herbs and animals to improve income and diversify source of employment in peri-urban and rural areas. In the present work, experiences and results on the establishment, management, animal productivity and employment generation in tropical regions of Mexico are presented. Intensive silvopastoral system (ISPS), a type of silvopastoral system with high density of *Leucaena leucocephala* shrub associated with grasses, is being adopted in several locations in the tropical regions of Mexico. In the last two years, about 2500 ha has been established, creating around 450 permanent jobs. The advantages that ISPS has for livestock includes improved diet composition and nutritional quality and better environment, which results in improvement in animal welfare and health, increasing milk production, growing rates, or weight gain. It has been found that, with the introduction of ISPS has increased about 20% milk production and an important reduction on the use of grains. Also, ISPS promoted animal weight gain in an average of 850 g/an/day without the use of grains. It is concluded that, in the tropical areas of Mexico, ISPS is becoming an important tool for poverty mitigation in the peri-urban and rural areas through improvement of farm productivity, animal welfare, and increasing diversity of products and environmental services, and reducing unemployment.

Key Words: silvopastoral systems, peri-urban, agroforestry, Mexico

Effect of prolonged irrigated fodders on soil physical properties and their agronomic water use efficiency at Livestock Farm Jugaitpeer Bhawalpur

Z. Murtaza, A. U. Hassan
Institute of Soil Science, University of Agriculture, Faisalabad
Email: zazmsail0@gmail.com

Abstract

An experiment was conducted to evaluate the effect of prolonged irrigated fodder on soil physical properties and water use efficiency. The experiment was performed under field condition at Government Livestock Farm Jugaitpeer, Bhawalpur (Cholistan). The experiment was laid-out in Randomized Complete Block design having four replications with a net plot size of 7m × 3m. Treatment consisted of two crops (Pearl millet +Sorghum) and three irrigation levels (2, 3 and 4). Soil physical parameters (bulk density, particle density, porosity and soil strength) and plant growth parameters like fresh weight, dry weight, number of plants /m², plant height and number of leaves / plant were determined. Pre-sowing and post-harvest soil sampling was done upto 0.6 m depth to study the soil physical parameters. The data obtained was analyzed statistically using Fisher's analysis of variance technique and differences among treatments' means was compared by using Least Significant Difference test (LSD) at 5% probability level.

Key Words: Soil properties, water use efficiency, LSD.

A review on peri-urban dairy production systems in the Punjab of Pakistan

S. Hanif¹, M. Younas²

¹ Animal Husbandry in the Tropics and Subtropics, University of Kassel and Göttingen, Witzenhausen, Germany; ² Department of Livestock Management, University of Agriculture, Faisalabad, Pakistan
E-mail: tropanimals@uni-kassel.de

Abstract

Like in other developing regions, urban and peri-urban farming in the Punjab of Pakistan emerged as a consequence of urbanization to fulfill the accelerating nutritional demands of the rapidly increasing urban population. Milk and milk products are highly cherished commodities among people of Punjab with a huge demand both in rural and urban areas. Due to lack of proper storage and transportation facilities, the highly perishable nature of milk and the rural population's own demand, marketing of milk from rural to urban areas is quite challenging. Therefore people in urban areas used to keep dairy animals in stables near to their houses until the 1990's when the government decided to make cities free of animals because of environmental concerns. The people involved in the dairy business moved to the outskirts of cities to continue their dairy farming activities, and peri-urban dairy farming increased tremendously. Recently incentives by the national government to promote corporate dairy farming have contributed to the evolvement of mega dairy farms in the peripheral regions of the main cities, especially in Lahore. The peri-urban production system is more commercial and intensive as compared to rural production systems. However, very little research to understand this production system has been done so far. In Pakistan, the peri-urban production system is basically defined on the basis of the characteristics of buffalo colonies in Karachi. But the results of few studies in the Punjab reveal that the peri-urban dairy farming in this region is quite different in its management as compared to buffalo colonies in Karachi. Therefore there is need for more extensive research to fully understand this production system, so as to guide government and policy makers in the development of this sector.

Keywords: Buffalo colonies; dairy farming; milk marketing; production systems.

Manure management: a potential for recycling nutrients to safe on fertilizers and to reduce environmental pollution

M. Tariq, M. Younas, S. Ahmad

Department of Livestock Management, University of Agriculture, Faisalabad, Pakistan

E-mail: tariq7337@gmail.com

Abstract

The dairy industry is the major component of the livestock sector in Pakistan. The basic functions of dairy operations are to import nutrients via feed, bedding and fertilizer and to transform these nutrients and energy into exportable products such as milk, meat and bio-wastes (dung and urine) to generate economic returns for cattle keepers. Livestock are inefficient in extracting nutrients from feeds, typically 75-90% of the major nutrients fed is voided by the animal. Therefore on-farm nutrient management has for long focused on the collection, storage and field application of animal wastes. Manure production is proportional to the animal's weight and varies by animal type, and manure is a good source of plant nutrients and organic matter. Properly managed manure applications recycle nutrients to crops, improve soil quality, and protect water quality. Efficient nitrogen (N) management on dairy farms is key to profitable and environmentally sound farm operation. The separation of animal agriculture from crop production has led to accumulation of excess manure on livestock farms. Crop farms can benefit from this manure as a source of nutrients and organic matter. Requirements for manure management are unique to each farm, depending upon the natural resources available, the existing and planned facilities, and the goal of the operation. These requirements sometimes are subject to major change as animal numbers increase. Major components of the manure are NDF, ADF, ADL, cellulose and hemi-cellulose. Aerial emissions from manure include ammonia, nitrous oxide, methane, particulate matter and odor. Potential negative externalities of improper manure application may cause risks to human health and the environment. This paper exemplify the importance of manure, its utilization in integrated farming, the diversity of manure management systems, its impact on the environment and potential health risks.

Keywords: Dairy industry; emission of greenhouse gasses; manure management.

Chemical composition and digestion kinetics of oat silage and urea treated wheat straw as influenced by exogenous fibrolytic enzymes

A. Rehman, M. Sarwar

Institute of Animal Nutrition and Feed Technology, University of Agriculture, Faisalabad, Pakistan

E-mail: thenutritionist@ymail.com

Abstract

Two independent experiments were conducted to evaluate the chemical composition and digestion kinetics of oat silage and urea treated wheat straw (WS) as influenced by varying level of exogenous fibrolytic enzymes. In experiment I, fifty day old oat was ensiled with 2% molasses and 0 (E0), 1 (E1), 2 (E2) and 3 (E3) g of enzyme/kg of dry matter (DM). Oat was ensiled in 36 laboratory silos for twenty one days. Dry matter and organic matter (OM) contents remained unaltered across all treatments ($P>0.05$). Crude protein (CP), true protein (TP), neutral detergent fiber (NDF) and acid detergent fiber (ADF) contents were affected ($P<0.05$) by the enzyme treatment. A linear increase in CP and TP contents was observed in response to increasing enzyme levels, accompanied by linear decrease in NDF and ADF contents. Highest NDF and ADF contents were observed in E0, while they were lowest in silage treated with 3g of enzyme. Dry matter and OM losses remained unaffected ($P>0.05$) by enzyme level. A linear decrease in CP and TP losses was noticed in silage treated with increasing enzyme levels, whereby lowest CP and TP losses were observed in E3, which were only 34% and 23% of CP and TP losses observed in E0. Highest NDF and ADF losses were noted in E3 which were at par with E1 and E2, while in E0 NDF and ADF losses were only 37% and 36 % of those in E3. Increasing enzyme levels caused a linear decrease in pH during the 1st, 2nd and 3rd week of ensilation. Enzyme treatment did not affect ($P>0.05$) the extent of digestion and lag time of DM, CP, NDF and ADF for oat silage. Digestibility of CP, NDF and ADF and rate of DM, NDF and ADF digestion also remained unaltered across all treatments. In experiment II, WS was treated with 4% urea and 6% molasses and was ensiled with 0 (E0), 1 (E1), 2 (E2) and 3 (E3) g of enzyme/kg of dry matter (DM). The enzyme mixture was dissolved in water and the solution was sprayed on WS. After one hour of enzyme treatment, molasses and urea were dissolved in water and sprayed on the enzyme-treated WS. Wheat straw was ensiled in 36 laboratory silos for twenty one days. Application of enzymes at the time of ensilation of WS did not affect ($P>0.05$) the DM, CP, TP, NDF and ADF contents. Similarly, the ensilation process as such did not affect the concentrations of these constituents in WS ($P>0.05$). Overall pH of WS ensiled with varying enzyme level ranged from 8.42 to 8.47, whereby enzyme treatment did not affect ($P>0.05$) the pH of the ensiled WS. Lag time, digestion rate, *in-situ* digestibility and extent of digestion of DM, NDF and ADF also remained unaltered ($P>0.05$) across all treatments. On the basis of results, it can be concluded that enzyme application at the time of ensilation can reduce the nutrient losses and fiber contents of oat silage, without affecting the digestibility of the fiber fraction of the silage. That enzyme application has no effect on the chemical composition and digestion kinetics of WS may be due to the rapid production of ammonia in the silo.

Keywords: Enzyme treatments; ensilation; digestion kinetics; nutrient concentrations; fibre fractions.

Investigating cereal straw quality preferences through urban markets

N. Teufel, M. Blümmel, A. Samaddar, O. Erenstein
International Livestock Research Institute, India Offices, Delhi and Hyderabad, India
E-mail: n.teufel@cgiar.org

Abstract

With increased feeding of cereal straws, straw quality traits are being introduced into crop breeding programmes. Urban straw traders are a good source of information on quality traits and prices of cereal straws. From June 2008 to June 2009, 48 straw samples were collected monthly in three Indian cities. The traders assessed the quality of their samples according to previously determined traits and reported their price. Nutritional quality was assessed by near-infrared spectroscopy. Although traders know about quality differences between varieties, variety information is not carried along the trading chain. Thus it is not possible to estimate the effect of variety on price directly. On the other hand, results highlight the importance of post-harvest quality traits in determining overall quality. In wheat, particle length and color explained over 60% of the explained variation in perceived quality (R^2 0.66), while in rice color contributed over 45% (R^2 0.54). Supply fluctuations appear to have a considerable influence on prices (in Delhi the annual price increase of wheat straw was nearly 50%), masking other price determinants. However, where supply is stable, both quality traits and nutritional quality have significant influence on prices: In Kolkata, digestibility contributed 32% to the explained price variation of rice straw (adj R^2 0.99).

Keywords: Price determinants; quality traits; straw.

Factors affecting profitability of broiler industry in peri-urban areas of Faisalabad, Pakistan

G. Mustafa, M. Ashfaq

Department of Agricultural Economics, University of Agriculture, Faisalabad, Pakistan

Email: mustafamalik2087@gmail.com, ashfaq9@hotmail.com

Abstract

The poultry sector is a well-organized and important sector of the livestock industry in Pakistan. This sector generates employment for about 1.5 million people, its contribution to agriculture and livestock value addition is 4.8% and 9.8%, respectively, and its share in the national GDP is 1.1%. This paper attempts to investigate the main factors affecting the profitability of broiler production in Faisalabad district. Data were collected from 120 randomly selected broiler producers across the five administrative units of Faisalabad district. A profit function was developed as a decision support tool for broiler production. The effects of the purchasing price of chicks, feed costs, labor costs, mortality rate (%), feed conversion rate (FCR) and miscellaneous costs (building and machinery depreciation, electricity, heating and cooling charges, and rent) on the profit of the broiler producer were investigated. All independent variables entered in the model showed strong statistical association with the profit per kg of broiler live weight; with a 1 Rupie increase in the purchasing price of chicks the profit per kg live weight decreased by 0.181 Rupies (Rs). Similarly, a 1 Rs increase in costs of feed, labor and miscellaneous items, respectively, reduced the profit by Rs 0.70, Rs 0.53 and Rs 0.58. An increase in the mortality rate by 1% lowered the profit by Rs 1.04. Overall, 72% of the variation in the dependent variable was explained by the independent variables included in the model. Currently high feed prices, vigorous diseases, high transportation costs, delayed payments by intermediaries and an imperfect marketing system are the dominant problems faced by Pakistan's broiler producers.

Keywords: Broiler production; profit function; regression analysis.

Impact of international migration on women empowerment and livelihoods of families left behind: a case study in the Toba Tek Singh district of Pakistan

S. Mehmood, I.A. Khan, M.A. Khan

Department of Rural Sociology, University of Agriculture, Faisalabad, Pakistan

Email: sadi_sadi85@yahoo.com, izhark99@yahoo.com

Abstract

Global migration patterns usually consist in people taking up permanent or semi-permanent residence across a political boundary. People migrate with the hope of improving their living conditions, often without considering adverse effects on their families left behind. This study aims at exploring the impact of international migration on the latter. The Toba Tek Singh District of Pakistan was selected for the study in which a multi-stage sampling technique was used for data collection. A convenient sampling technique and snowball sampling were used for our sample of 120 respondents (wives of migrants). One Tehsil from Toba Tek Singh District was selected through simple random sampling and four out of 32 union councils and 30 respondents from each union council were chosen subsequently. Interview data was analyzed using descriptive and inferential statistics within SPSS. Results showed that the majority of women were empowered after the migration of their husbands. A strong relationship between migration and socio-economic protection of families left behind was found. The majority of wives and children felt mostly loneliness rather than other social problems. Migration and agricultural development were also strongly correlated. Most of the migrants invested their income in the agricultural sector, particularly the purchase of farm land, livestock and farm machinery.

Keywords: Gender empowerment; migration; socio-economic conditions.

Socio-economic and cultural factors affecting migration behavior in Faisalabad District

N. Farah

Faculty of Agricultural Economics and Rural Sociology, University of Agriculture,
Faisalabad, Pakistan

E-mail: moona_303@yahoo.com, drmizafar@hotmail.com

Abstract

Urbanization is one of the world's most abiding social issues and is one of the most significant demographic movements in world history. The rapid migration from rural areas towards cities represents the major factor contributing to today's rapid urbanization. This study examines the migration behavior of the people within their socio-economic, cultural and psychological context. It was designed to provide insights into the migration behavior of the people in the changing patterns of socio-economic and demographic structure. Faisalabad is the third largest city in Pakistan with a population of just over 2 million. The three areas selected were Peoples Colony, Samanabad and Ghulam Muhammad Abad where a total of 150 male heads of migrant families were chosen. A migrant in this study was defined as a male having a family, migrated from rural to urban area at least 3 years ago. Data collected included literacy level, family income, age, occupation and health facilities. Also asked were questions about the purpose of migration, motivation factors (push and pull forces), and the migrant's perception about the urbanization and its consequences. Data showed that for the majority of the respondents the "Pull Factors" played a major role in their migration behavior, 74% of the people went towards a city with a desire to achieve a "better life style". Among the socio-economic factors age, income and education were found to be most important. The majority of the respondents (61%) were young adults, only moderately educated and not professionals, with large families. 44% of the respondents had only low incomes. Most of them migrated for to improve their income, education, and standard of living.

Keywords: Push and pull factors; rural-urban migration.

Self-employed returned migrants and rural development in China

X. Zhao¹, B. Knerr¹, I.A. Khan²

¹ Development Economics, Migration and Agricultural Policy, Faculty of Organic Agricultural Sciences, University of Kassel, Witzenhausen, Germany; and ² Institute of Horticultural Sciences, University of Agriculture, Faisalabad, Pakistan
Email: dongxi1982@hotmail.com

Abstract

Since the start of China's economic reforms in the 1970s, migrant labor from the countryside has poured into the fast growing urban centers. This altogether has been one of the biggest human movements in the history of mankind and has decisively influenced China's economic and spatial development. However, with the implementation of a series of national policies and the impact of the global economic crisis in the late 2007, a large number of these workers returned to their home towns and villages, responding to the call of the Chinese Communist Party, which encourages people to go to the rural areas and take part in the construction of a new countryside. This new trend poses great challenges and opportunities to the development of rural China. How to improve the employment of these returnees and how to promote their positive role in the rural development in China has become a serious issue to which the Chinese government as well as the academic world is paying great attention. According to the OECD the form of employment, and in particular the share of self-employed persons in the total labor force, is one of the important indices for a growing rural economy. It is therefore interesting to observe how returnees influence China's rural development by their form of employment and under special policy frameworks. Under the guidelines of the national policy for construction of a new countryside, different rural regions shape and implement their local policies in different ways, taking special care of the returned migrants. Through analysis of the survey data by the China National Research Center for Development in 28 provinces of China, we outline the profile of returned migrants who started their own business and illustrated their positive role on rural economic development. On the one hand, their income has increased a lot and is much higher than others. On the other hand, they have created a lot of employment opportunities in rural regions, which has greatly improved the rural economic structure and accelerated the urbanization process in rural China. The field survey we conducted in 2011 in Hunan Province represents a case study to show how special local policies support returnees to run their own business. This study will also help to explain the fast economic growth of China in recent years.

Keywords: Returned migrants; rural development; self-employment.

A multi-level study of the broiler industry: employment generation in Lahore District

I. Ghaffar, M. Ashfaq

Department of Agricultural Economics, University of Agriculture, Faisalabad, Pakistan

Email: ashfaq9@hotmail.com

Abstract

The poultry sector is one of the most organized segments of the agriculture sector of Pakistan and provides employment to about 1.5 million people in the country. The contribution of poultry meat to agricultural growth is 4.8% compared to livestock with 9.8%. It contributes 23.8% to total meat production in the country. The purpose of this paper is to analyze employment generated by the value-adding activities of the poultry sector, to assess the effects of operational changes on the employment level, and to estimate the net marketing margin for each value-adding activity. Our data were collected from different stakeholders involved in the marketing of broiler/ poultry meat in District Lahore. Regression analysis was employed to estimate the level of employment generation and the marketing margins generated in the poultry sector. We concluded that the value adding activities have a positive effect on employment. The marketing cost, net marketing margin and per kg profit of producers were Rs. 3663/mound, Rs 298/ mound and Rs. 7.5/mound. At the wholesale level it amounted to Rs. 124/mound, Rs. 290/mound and Rs. 6.9/mound while at the retail level it was Rs. 310/mound, Rs. 465/mound and Rs. 11/mound. For retailers the profit per kg of poultry meat was higher than for the producer and wholesaler. The study suggests that poultry production can probably be increased by enhancing the profitability for the producer and by decreasing the prices at the retail level.

Keywords: Broiler industry, employment generation, marketing.

Migration of domestic workers in the district of Faisalabad, Pakistan

E. Naz., A.A. Maann

Department of Rural Sociology, University of Agriculture, Faisalabad, Pakistan
Email: erumnaz435@hotmail.com

Abstract

Migration has become a very common global phenomenon, also affecting Pakistani people. Migration theorists suggest that this is just another market relationship, replying to the so-called 'supply and demand' balance, which has been used as explanation for migration movements for a very long time. Domestic workers who move from rural to urban areas in Pakistan to earn their livelihood face several problems. A domestic worker is mostly a female person who works within the employer's household and may perform a variety of household services, from providing care for children and elderly dependents to cleaning and household maintenance. The objective of this study was to characterize the migration of domestic workers and their problems in Faisalabad, Pakistan. From the four major city districts of Faisalabad (Jinnah Town, Iqbal Town, Lyallpur, Madina Town), Lyallpur town was selected, and one union council residing in this part city district was selected randomly. Interviews were conducted with 150 respondents who were selected through convenient sampling technique. More than half (52.7%) of the respondents were aged from 20 to 25 years, and age was found to be strongly associated with migration. More than two thirds (68.0%) of the workers faced difficulties at their working place, primarily due to lack of respect from their employers. Hereby, problems were encountered more frequently by younger workers. Education was also found to be related to the frequency of problems encountered by migrant domestic workers, Furthermore, there was a highly significant association between the marital status of the respondents and facing problems at work while the relationship between monthly income and facing of problems at work was negative.

Keywords: Female labor; household workers; Lyallpur town, social problems.

Role of small and medium enterprises in creating employment opportunities in Pakistan: A case study from Sindh

F.M. Shaikh, M.M. Ahmadani, A. A, S.G. Syed

Department of Business Administration, Dadu Campus, University of Sindh, Jamshoro, Pakistan

Email: faizanmy2000@hotmail.com

Abstract

This paper investigates the role of small and medium enterprises (SMEs) in creating employment opportunities with reference to Sindh. Data were collected from 100 randomly selected respondents representing 30 organizations, using a structural questionnaire. Data were analyzed by using SPSS-18 version. The results revealed that SMEs are the major source of foreign exchange earnings and have a major contribution to Pakistan's GDP. SMEs maintain poverty alleviation activities through creating employment, and assist in fostering a self-help and entrepreneurial culture. SMEs boost up an entrepreneurial strength which puts forward flexibility in the economy, and SMEs are more capable in resource allocation as compared to large scale industries. Moreover, SMEs in general consider employees as their most important resources and are pioneer in developing new products and services. Finally SMEs are in general very quality minded in the products and services they provide.

Keywords: Entrepreneurship; flexibility; job opportunities; small and medium enterprises.

Rural to peri-urban labour migration and rural development in Punjab Province, Pakistan

S. Salim, I.A. Khan

Department of Rural Sociology, University of Agriculture, Faisalabad, Pakistan

E-mail: saba_salim@yahoo.com

Abstract

Migration research assumes that the individual is the unit of migration and focuses on the labor effects of migration; the functions of remittances in smoothing family consumption and financing household investments, including the loss-of-labor effect and the selectivity of migration. Labor migration of surplus rural laborers to the urban sector has negative effects on total farm production in the rural area. Rural out-migration reduces the local supply of labor and shifts wages upwards. Therefore excessive rural-to-urban migration in response to expected higher urban income has dual negative effects on urban unemployment and rural farm production. Labor migration not only reduces quantity but it also lowers the quality of the labor force in the rural areas. The departure of the young (male) and educated people reduces the overall attractiveness of the rural economy and hence induces further rounds of migration. The family is left behind, therefore spending on living alone in city will be more and savings will be less. If potential migrants would work in the agriculture sector at their village they could earn more, save more, and enjoy a trustworthy social network. The present study collected data on the impact of migration on rural development with focus on agricultural productivity, human, financial and social capital. Key constraints faced by the rural farming community in managing their farms were identified and analyzed, and training needs were formulated to overcome constraints faced by people living in rural areas. Based on the empirical results, gender specific and pro-poor policies are suggested to ensure decent living in the rural and peri-urban areas.

Keywords: Education; labour shortage; regional migration, rural development.

Value addition to agricultural products using solar energy

A. Munir¹, O. Hensel², W. Scheffler³, H. Hoedt³

¹Department of Farm Machinery and Power, University of Agriculture, Faisalabad, Pakistan;

²Department of Agricultural Engineering, University of Kassel, Witzenhausen, Germany;

³Solar Bruecke, Aislingen, Germany

Email: anjum223@yahoo.com

Abstract

Value can be added to agricultural products by processing such as drying, distilling, fermenting, baking and pasteurization. In addition seasonal and delicate products such as fruits, vegetables, meat, medical herbs, milk may thus increase their shelf life and be sold on urban markets. Food processing can therefore enable small scale farmers even in rural areas to increase their income and create new possibilities to employ family members and extra-family workers. All food processing is restricted to the availability of energy which is a major problem in remote areas all over the world. The promotion of agro-based industries by using solar energy can open new avenues for rural development especially in tropical countries. Processing of medicinal and aromatic plants by distillation is one important agro-based industries. Essential oils extracted from these plant materials have been used throughout the world in foods, fragrances, perfumery, cosmetics, and medicines and these oils are very expensive. In the study reported here we developed a decentralized solar distillation system for the processing of medicinal and aromatic plants. The solar distillation system was installed at solar campus, University of Kassel, Witzenhausen, Germany to avail the fresh supply of medicinal and aromatic plants. The system comprises a primary reflector (8 m² surface area), a secondary reflector, a distillation still, a condenser and Florentine flasks. A Scheffler fixed-focus concentrator (8 m² surface area) was used for solar distillation. This reflector rotates along an axis parallel to the polar axis of earth with an angular velocity of one revolution per day to capture the changing position of sun. The solar distillation system was equipped with thermocouples and a pyranometer to evaluate the performance of the system during processing. Within the beam radiation range of 700-800 W m⁻², focus temperatures reached 300-400°C. The average power and system efficiency were found to be 1.548 kW and 33.21%, respectively during a sunny day in Germany (51°N). We concluded that different medicinal and aromatic plants such as Melissa, Peppermint, Oregano, Silver Fir, Lavender, Fennel, Rosemary, Cumin, Basil and Cloves, Lavender could be processed successfully by using a solar distillation system. The results show that solar energy can be successfully used to add value to different agricultural products to improve rural development.

Keywords: Essential oils; medicinal plants; secondary reflector; solar concentrator; solar distillation; value addition.

Growing tomato with urban sewage water

S. Raja, A.A. Khan, M.N. Cheema

Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan

E-mail: asifalipbg@uaf.edu.pk

Abstract

As the world is facing severe water shortage there is need to utilize alternative water sources. Among the alternatives waste water is a potential source of irrigation water particularly for peri-urban agriculture. This study was conducted to assess the impacts of urban waste water irrigation on soils, crops, underground water and to determine farmers' perception of social constraints in waste water irrigation. In addition, the issue of heavy metals uptake and accumulation by different genotypes of tomato was analyzed. The data were collected from vegetable gardens in the peri-urban Chakera area of Faisalabad. Farmers there are irrigating with waste water since 40 to 45 years and 80% of them prefer waste water because they do not have an alternative, and because it contains more organic matter and nutrients than well water. Most (99%) farmers claim that waste water irrigation positively affects earliness of harvest and yields but suspect negative effects on quality. 50% of the farmers argue that waste water irrigation causes different diseases such as typhoid fever, tuberculosis, and hepatitis, while the other 50% do not see a relationship between wastewater irrigation and health. Tomato is one of the most important vegetables in the world, and tomato varieties vary widely in yields and heavy metals uptake and accumulation. In Pakistan it was observed that the variety PB-3 has the highest yield and PB-65 has the lowest yield. Among 67 accessions PB-24 was highly tolerant whereas HT-9076-08 was highly susceptible towards heavy metal accumulation in fruits, and similar variation in heavy metals accumulation exists for roots, shoots and leaves.

Keywords: Genetic variation; heavy metals accumulation; waste water irrigation; peri urban agriculture.

Socio-economic conditions of female domestic workers before and after migration in Faisalabad

S. Nazir, I. A. Khan
Dept of Rural Sociology, University of Agriculture, Faisalabad
E-mail: izhark99@yahoo.com

Abstract

Domestic workers are hired to work in a private household. Majority of them are women whose work is always unrecognized. These domestic workers often migrate from one area to another particularly from rural to urban areas and sometimes urban to some well developed urban areas to upgrade their socio-economic conditions. The young married women who migrate from distant places with higher number of children and low wages of other family members give preference to domestic work to support their families. A large number of these migrant women are often illiterate or lack of other technical skills, so they find no alternative of domestic work for earning. Higher number of unemployed adult family members and higher expenditure upon medical and other needs sometimes compel them to work more than one house. Majority of FDWs are disadvantaged from overtime pay, local holiday, and well-timed payment of salaries. This study aimed to investigate the working conditions, wage structure, impact of internal migration upon their lives and various other dimensions of this neglected segment of society. Out of four towns of Faisalabad one town namely Lyallpur town was selected purposely. From Lyallpur town out of 38 Union Councils one UC # 185 was selected purposely for this study. From UC # 185 out of about 16 localities four localities were selected randomly. In this study for the purpose of data collection and selection of 120 respondent (FDWs) convenient random sampling technique was used. The objectives of the research were displayed through comprehensive interview schedule. The data were analyzed under the descriptive and inferential statistical technique using the statistical package for social sciences (SPSS). Results indicate that majority of FDWs work more than eight hours within one house but they are exploited and deprived from their proper wages. However a strong linkage between internal migration and higher social, economic status, better living conditions and children education was found.

Key Words: female domestic workers, internal migration, socio-economic conditions.

POSTER PRESENTATIONS

Root anatomical characteristics of date palm (*Phoenix dactylifera* L.) cultivars of diverse origin

G. Fatima, I.A. Khan, M.J. Jaskani, M. Hameed
Institute of Horticultural Sciences, University of Agriculture, Faisalabad, Pakistan
Email: ghayoor.fatima@gmail.com

Abstract

Worldwide, Pakistan ranks among the five leading producers of date palm (*Phoenix dactylifera* L.) and date palm is economically the country's third major fruit crop after citrus and mango. Within the country Balochistan is the largest date producing province followed by Sindh, Punjab and Khyber Pakhtunkhwa. In this study 34 four date palm cultivars were compared for their root anatomy and ecological significance of root anatomy in identifying the ecological adaptation of these cultivars to key agroecological site factors. The size of epidermis cells, size and shape of outer cortical region, presence of sclerification in the outer cortex, sclerenchyma bundles in cortical region and presence of aerenchyma varied widely in the cultivars studied. Similarly endodermal layer thickness, thickness of outer tangential wall of endodermis, shape and size of phloem region, size and arrangement of metaxylem vessels and sclerification in the pith region were very different.

Keywords: Anatomical characteristics; micromorphology; site adaptation.

Effect of prolonged irrigated fodders (sorghum and pearl millet) on soil chemical properties and yield of fodders

M. B. Anwar, A. U. Hassan, Z. Murtaza
Institute of Soil and Environmental Sciences, University of Agriculture, Faisalabad.
Email: bilalses@yahoo.com

Abstract

An experiment was conducted to evaluate the effect of prolonged irrigated fodder on soil chemical properties. The experiment was performed under field condition at Government Livestock Farm Jugait-Peer Bhawalpur (Cholistan). The experiment was laid-out in Randomized Complete Block design having four replications with a net plot size of 7m × 3m. Treatments consisted of two crops (Pearl millet and Sorghum) and three irrigation levels (2, 3 and 4). Soil chemical parameters, i.e. EC, TSS, pH, CO₃, HCO₃, Cl¹⁻, SO₄²⁻, Ca+Mg, Na, SAR and organic matter was determined. Presowing and post harvest soil sampling was done upto 0.6 m depth to study the soil chemical parameters. Water being used for irrigation was also analysed. The data obtained was analyzed statistically by using Fisher's Analysis of Variance technique and differences among treatments' means was compared by using Least Significant Difference test (LSD) at 5% probability level.

Key Words: Irrigated fodders, soil chemical parameters, yield.

Eco-tilling for SNP analysis in the date palm

A. Naeem, A.A. Khan

Department of Plant Breeding and Genetics, University of Agriculture, Faisalabad, Pakistan

Email: saad_naeemsn@yahoo.com

Abstract

The usefulness of DNA markers for the characterization of germplasm depends mainly on their efficiency to identify allelic variants. The most abundant DNA sequence variations present in the genome of any organism are the single nucleotide polymorphisms (SNPs). SNPs provide an important source of molecular markers that are useful in genetic mapping and for germplasm/sequence characterization. Different techniques have been developed to identify SNPs but many are limited in application because they are organism-specific or expensive. We have adapted the mismatch discovery method known as “Eco-tilling” as the most efficient and cost effective SNPs discovery tool to examine DNA variation in the date palm (*Phoenix dactylifera* L.). We extracted DNA from 34 cultivars of date palm. To discover nucleotide changes within a particular gene, PCR will be performed with gene-specific primers. After PCR, samples will be denatured and annealed to form heteroduplexes between polymorphic DNA strands. Mismatched base pairs in these heteroduplexes will be cleaved by digestion with a single-strand specific nuclease. The resulting products will be size-fractionated using gel electrophoresis and visualized by fluorescence detection. Secondly, we will use barcoding, an emerging tool for species identification. It is a taxonomic method that uses a short genetic marker in an organism’s DNA to identify it as belonging to a particular species. DNA barcoding can reliably assign unknown specimens to known species or assess whether species should be combined or separated. For terrestrial plants, matK and rbcL genes have been identified to distinguish between the majorities of plant species. DNA sequences of these genes differ among plant species, but are nearly identical in plants of the same species. In this way, DNA sequence data will be helpful for species identification and recognition of date palm varieties.

Keywords: Barcoding; heteroduplexes; genetic diversity; PCR.

Double fortification of table salt with iron and iodine to combat iron deficiency anemia and iodine deficiency disorders

S. Sultan, F.M. Anjum, H.A.R. Suleria

National Institute of Food Science and Technology, University of Agriculture, Faisalabad, Pakistan
Email: saira.sultan@hotmail.com

Abstract

Iron deficiency anemia (IDA) and iodine deficiency disorder (IDD) are major public health concerns worldwide. In this context, Pakistan is facing deficiencies of vitamin A, zinc, iron and iodine. Food fortification is one of the best strategies to address health related challenges and to prevent and control micronutrient deficiencies. For this purpose, dual fortification of salt with iron and iodine might be a sustainable remedy to fight IDA and IDD, but owing to low stability and poor bioavailability of fortificants, dual fortification is a challenge to the researchers. Accordingly, the present project was designed to analyze the storage stability and bioavailability of iron and iodine fortificants in double fortified salt (DFS). DFS was formulated with two iron compounds, namely sodium iron ethylene diamine tetra acetate (NaFe EDTA) and ferrous sulphate (FeSO_4) along with iodine compound (KIO_3) at two different levels. DFS was analyzed for variation in moisture, color, pH and iron and iodine contents during a storage study of three months. Bioavailability of iron and iodine fortificants was analyzed by feeding albino rats with diet containing fortified salt at 3.5%. In an efficacy study urinary iodine, hemoglobin, serum ferritin, zinc protoporphyrin, serum transferrin and serum thyroxin were evaluated. Analysis of variance for moisture, pH and color of fortified salt showed significant differences over 90 day storage period. Moisture of fortified salt increased significantly while pH was found to be highly acidic at initiation but decreased later on. It was also observed that all treatments developed color and lost almost 30% of iodine and 20% bioavailability of iron during storage due to interactive reaction between iron and iodine compounds. Moreover, from the biological assay it was concluded that hemoglobin, serum ferritin, urinary iodine and serum thyroid hormone (T_3) increased whilst zinc protoporphyrin, serum transferrin and serum thyroxin (T_4) decreased after feeding rats with iron and iodine diet. Overall, the present investigation revealed that double fortification of salt with iron and iodine along with a suitable stabilizer may be an effective tool in controlling major micronutrient deficiencies of iron and iodine along with various physiological syndromes.

Keywords: Anemia, bioavailability, fortification, micronutrient deficiencies.

Impact of temperature regimes on use efficiency of irrigation water and grain yield of wheat

M. Asad, A. Ahmad

Department of Agronomy, University of Agriculture, Faisalabad Pakistan

E-mail: asadagronomist@gmail.com

Abstract

An experiment was conducted to evaluate the impact of increasing temperature on use efficiency of irrigation water and grain yield of wheat (*Triticum aestivum* L.). The field experiment was laid out as Randomized Complete Block Design (RCBD), an experiment under controlled conditions was set up as a Completely Randomized Design (CRD). The treatments comprised three irrigation levels: I_1 = 4 irrigations at tillering, stem elongation, grain development and dough stage of grain and, I_2 = 3 irrigations at tillering, stem elongation and grain development and I_3 = 2 irrigations at tillering and grain development. Data on seedling emergence, crop stand, allometry and yield were recorded following standard procedures. The results showed that under increased temperature (controlled condition) I_2 statistically reduced yield compared to I_1 although the treatment was at par with I_1 in number of grains per spike under increased temperature. The number of days to shooting was statistically similar under I_1 and I_2 whereas these were different under field conditions. I_2 and I_3 irrigation frequencies yielded different results in terms of days to heading and anthesis under field conditions and the controlled environment. It was concluded that temperature increases due to climate change will impact on wheat performance.

Keywords: Climate change; irrigation; crop yield; wheat.

Rachis anatomical characteristics of common date palm (*Phoenix dactylifera* L.) germplasm

A. Ali, I.A. Khan

Institute of Horticultural Sciences, University of Agriculture, Faisalabad, Pakistan
E-mail: anam.ali1785@gmail.com

Abstract

The anatomy of 34 date palm cultivars available at the Date Palm Research Station Jhang in Punjab Province, Pakistan, was compared to investigate the anatomy of the rachis. The study was designed to test the significance of rachis for (i) anatomical characteristics and identification and (ii) the adaptive ecology of different date palm cultivars. Rachis anatomy showed a high magnitude of diversity among all the cultivars studied. Cultivars Peeli Sundar, Jansohar, Zardo, Shamran, Khudarwi II, Saib and Karbalaen showed a thick epidermal layer with large cells that are capable of minimizing water loss through the leaf surface, and therefore are the best varieties for environments presenting high osmotic stresses. Large cortical cells are capable of storing additional water. On the basis of large cortical cells, the cultivar Saib was the better choice, not only for arid and semi-arid environments but also for salt-affected areas, as large cortical cells with large vacuoles can also dump off toxins. The phloem area was largest in the variety Zeerin, and this trait can be beneficial for the efficient translocation of assimilates and ultimately the yield improvement in this cultivar. Metaxylem vessels are the main conducting tissue in the vascular bundles, and this may enable cultivar Jansohar to efficiently transport water and nutrients, a key trait under conditions of limited water availability. Multivariate (cluster) analysis showed distinct clusters for quantitative and qualitative morphological characteristics and anatomical characteristics of leaf rachis. The three cultivars Peeli Sundar, Zardoo and Chohara, showed no relation to the other cultivars regarding the petiole morphological characteristics.

Keywords: Anatomical characteristics; date palm; habitats; morphological characteristics.

An abattoir-based study on the frequency of *Toxocara vitulorum* in association with age and sex factors in large ruminants at Multan (Pakistan)

M.A. Raza¹, M.M. Ayaz², S. Murtaza³, H.A. Bachaya⁴

¹ Animal Husbandry in Tropics and Subtropics, University of Kassel and Göttingen, Witzenhausen, Germany; ² Department of Pathobiology, Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan, Pakistan; ³ Department of Clinical Sciences, Bahauddin Zakariya University, Multan, Pakistan; ⁴ Livestock and Dairy Development Department, Punjab, Pakistan

E-mail: asifrazarana@yahoo.com

Abstract

Toxocara vitulorum is an intestinal nematode of Bubalus and Bos species which is widespread in tropical and subtropical climates worldwide. The present study was conducted from January 2007 to March 2007 at the Multan abattoir to determine the effect of species, age and sex on the prevalence of *T. vitulorum* in buffaloes and cattle. Of 282 buffaloes examined 63.8% were found positive for *T. vitulorum* while of 144 intestines of cattle examined 37.5% contained the nematode. Chi-square tests showed a significant difference ($P < 0.01$) between buffaloes and cattle. Cattle and buffaloes were divided into three different age groups whereby in group A, cattle and buffaloes were ≥ 1 year, in group B between 1-5 years, and in group C ≤ 5 years. Prevalence of *T. vitulorum* was 72.1% (186/258) in group A, 18.2% (12/66) in group B, and 35.3% (36/102) in group C. The results demonstrate the effects of age on nematode prevalence. The data also showed that 39.5% (90/228) of the infected animals were male and 72.7% (144/198) female. This difference was highly significant ($X^2 = 15.78$, $P < 0.01$) indicating that prevalence *T. vitulorum* is also sex dependent.

Keywords: Buffalo; cattle disease; nematodes.

Effects of sex and age on the spatial distribution of various species of plasmodium in Multan, Pakistan

M.A. Raza¹, M.M. Ayaz², S. Murtaza³, H.A. Bachaya⁴

¹ Animal Husbandry in Tropics and Subtropics, University of Kassel and Göttingen, Witzenhausen, Germany; ² Department of Pathobiology, Faculty of Veterinary Sciences, Bahauddin Zakariya University, Multan, Pakistan; ³ Department of Clinical Sciences, Bahauddin Zakariya University, Multan, Pakistan; ⁴ Livestock and Dairy Development Department, Punjab, Pakistan

E-mail: asifrazarana@yahoo.com

Abstract

The present spatial pilot survey was conducted from October 2008 to June 2009 whereby blood samples were collected from 600 patients visiting the pathology laboratory in Nishtar Hospital, Multan. The overall prevalence of *P. vivax* was 1.5 % and of *P. falciparum* 8.3 %. *P. vivax* was present in 1.1 % of blood samples from male patients and in 1.7 % of the samples from female patients while respective values for *P. falciparum* were 6.1 % in male and 10.1% in female blood. With 2.5% *P. vivax* occurred most frequently in the age group of 21 to 30 years while *P. falciparum* was with 20% most abundant in the age group of 21 to 30 years and absent in the age group of 31 to 40 year old patients.

Keywords: Age group; blood samples; malaria occurrence.

Economic losses due to delayed conception of dairy animals in Pakistan

S. Ali, M. Ashfaq

Department of Agricultural Economics, University of Agriculture, Faisalabad, Pakistan
E-mails: sdfali220@gmail.com, ashfaq9@hotmail.com

Abstract

Little data is available on the economic losses due to delayed conception in dairy animals of small farmers in Pakistan. This paper attempts to calculate the losses associated with delayed conception. In Pakistan, due to poor reproductive performance of dairy animals caused by delayed conception, small farmers are facing severe reductions in their incomes associated with extra costs related to feeding, breeding, veterinary care, and labor. These factors not only result in reduced milk production at the farm level but also shorten duration of milk production and animals produce less calves. The study was conducted in the District Gujranwala of the Punjab. Reproductive data from 80 farmers were analyzed to assess the number of delayed heifers and lactating animals, services per conception, number of days delayed, extra costs associated with delayed conception, milk and calf loss due to days open, per day loss suffered by the farmer in case of heifer and lactating animal and per day loss per dairy animal. Results show that loss of one day delay in conception for heifers and lactating animals was Rs. 212 (2.5 US\$) and Rs. 2612 (3.0 US\$). Mean delay days were 199 and 214 in heifers and lactating animals, respectively. Services per conception averaged 3.8 in heifers and 5.25 in lactating animals.

Keywords: Dairy animals; delayed conception; economic evaluation.

Economic efficiency of milk production in Khyber Pakhtunkhwa, Pakistan

M. Sajjad, M. Khan

Department of Agricultural Economics, KPK Agricultural University, Peshawar, Pakistan

E-mail: munirkhan@aup.edu.pk

Abstract

This study was carried out in three districts of Khyber Pakhtunkhwa, namely Peshawar, DI Khan, and Mansehra, during the year 2010 with the basic objective to determine the economic efficiency of milk production in mentioned area. Data from 300 livestock farmers (100 from each district) were collected by using multi-stage sampling technique. Descriptive statistics, stochastic frontier production function and cost function were used for determination of technical and allocative efficiency. Major determinants of efficiency were herd size, use of dry fodder, green fodder, use of concentrate/oil seed cake, hired labor, permanent labor, medicine and vaccination costs, and fees for the veterinary assistant. The results of the descriptive statistics showed that the average yield per day in case of buffalo, cow and goat were 6.71, 6.02 and 1.16 liters of milk, respectively. The average cost of buffalo, cow and goat milk production across all three districts was Rs. 20017.80, 16092.27 and 1321.80 per annum. The annual revenue obtained by an average milk producer per buffalo, cow and goat was Rs. 12467.25, 10874.96 and 415.35. The results further revealed that 70% of the total variation in milk production of an average farmer was related to farm-specific technical efficiency, and the remaining differences were due to random error (uncontrolled variation between observed and predicted value). In terms of allocative efficiency the results showed that approximately 67% of the variation among farmers in the total cost of production was due to the presence of allocative inefficiency. A higher age of the milk producing farmer leads to a decline in the efficiency of dairy production; it is therefore recommends that government policy should focus on ways to attract and encourage young people who are agile and aggressive in dairy business. The study further showed that buffaloes are more efficient in producing milk than cows in Khyber Pakhtunkhwa, both economically and environmentally, therefore they should be given their right place in the strategies to promote milk production and income of people in this province. Finally more focus should be given to education because a high level of education positively affected the technical efficiency. Therefore Government should implement policies to enhance the education level of livestock farmers by providing incentives for education.

Keywords: Allocative efficiency; buffalo; cattle; education; milk production; technical efficiency.

Urbanization in Sindh-Pakistan: process, causes, problems and suggested remedies with reference to Sukkur City

M.A.S. Rizvi

Faculty of Management Sciences and Information, Greenwich University, Karachi, Pakistan

E-mail: ashfaq9@hotmail.com

Abstract

This study investigated the urbanization in Sindh-Pakistan along with the process and reasons of migration and the related problems that could occur due to rural-urban migration and the possible remedies that can minimize the problem, with special reference to Sukkur city. No authenticated data on intra-urban mobility of population was available in Pakistan; therefore, the entire data for this study were collected by field survey by questionnaire method. An attempt was made to highlight the significant problems and their consequences. The role government and private agencies in generating intra-urban residential mobility by undertaking new housing projects has been looked into. Frequency, distance and direction of movement through push and pull theory were also studied and possible measures and suggestions were made.

Keywords: Economic constraints; education; migration; push and pull; standard maintenance; urbanization.

Ergonomics and occupational health in the sugar industry of Pakistan

M.A. Ashraf, A. Munir

Department of Farm Machinery and Power, Faculty of Agricultural Engineering and Technology, University of Agriculture, Faisalabad, Pakistan

E-mail: anjum223@yahoo.com

Abstract

Ergonomics is the science of designing user interaction with equipment and workplaces to fit the user. The introduction of hazardous technologies in industry and agriculture has resulted in high accident rates, occupational diseases, and unhealthy working environments. Proper ergonomic design is necessary to prevent repetitive strain injuries, which can develop over time and may lead to long-term disability. The present research was conducted in the sugar industry of Pakistan to analyze the ergonomics and occupational health status of the workers. The sugar industry is one of the major agro-based industries in Pakistan, and despite frequent reports of injuries and accidents in the sugar industry little work had been done on ergonomics and occupational health of the workers. For this purpose, questionnaires were prepared and surveys of different sugar industries were conducted to gather both qualitative and quantitative data. The data covered all the sections of the sugar mills, namely the cane handling unit, cane preparatory unit, mill house, boiler house, process house, power house and workshop. Instruments like sound meter, pH meter, hardness test kit, CO and O₂ detector were employed to collect data regarding ergonomics and occupational health. The results showed that in the sugar industries of Pakistan very poor working conditions exist for the workers. In the sugar mills old technology and machines are used for cane crushing which not only reduces the capacity of mills but also causes injuries of workers. A safe working environment and safety measures were not provided to the workers at their work stations. The practical concern of this study was to improve the design of the workstation and foster the workers' safe manipulation of tools and equipment as well as control of machinery.

Keywords: Ergonomics; hazardous technology; safety measures; strain injuries; working conditions.

Women working underground in mines in South Africa

A. Benya

Department of Sociology, University of the Witwatersrand, Johannesburg, South Africa
Email: asanda.benya@students.wits.ac.za

Abstract

Women working underground in mines are a new phenomenon in South Africa. Until recently, women were completely forbidden and excluded from such jobs. Their exclusion has been attributed to a number of factors; including culture, history of the mining industry in South Africa, superstitions, and the technological advancement of the South African mining industry. Their recent incorporation into underground mining challenges the mining occupational culture and the way underground work was previously organized along masculine identities. The aim of the paper is to look at the challenges experienced by women workers and the changes their introduction has brought about for the workers in the industry as a whole. The paper will bring to the fore the type of jobs that women perform underground and how they cope with challenges (physiological and physical) linked to working underground. Data indicate that the incorporation of women in mining, the legislation and quotas put in place have not transformed the mining industry, it remains male and women continue to be seen as the “others” and not workers in their own right. This shows that one cannot begin to talk about decent work without first addressing, thoroughly, gender prejudice against women especially in workplaces that have been dominated by men. Addressing this discrimination, the paper goes beyond written legislation, focusing on attitudes of workers. The paper also underlines the need to not only understand decent work in terms of measurable factors but also those that are not tangible, such as acceptance of women in previously male only workplaces and women being seen and treated as equal partners in the sphere of production. The paper thereby challenges the masculine way in which decent work has been widely understood and the lack of centralizing gender issues in its core mandate. Gender equality in all facets at work is central to a truly decent work agenda.

Key Words: Decent work agenda; mining industry; women.

Employment relationships within the mining industry in South Africa

A. Benya

Department of Sociology, University of the Witwatersrand, Johannesburg, South Africa
Email: asanda.benya@students.wits.ac.za

Abstract

This paper analyses changes in employment relationships within the South African mining industry. There is a recent trend in the South African platinum mining industry towards informal hiring of workers. Contracts are increasingly established through labor brokers and are thus not part of the formal employment relations (where there is one employer and employees) with mines. An analysis of the conditions of employment between the two categories, the formal and informal workers, helps to distinguish the differences that exist in workplaces between these workers. While mines are claiming to be observing labour laws and obeying health and safety standards, this paper shows what really happens when the employment of workers is externalized to a third party – the labour broker. We explore conditions of employment in the mining sector, focusing mainly on both subcontracted and formal workers and show how triangular employment relationships and the resulting processes of informalisation operate in practice. This informal hiring of workers has implications for decent work and often contributes to the decent work deficit currently experienced in South Africa. The presence of informal workers within a formalized industry challenges the notion that the informal economy is separate from the formal economy. The paper shows that there is no clear-cut separation between formal and informal, in fact the two spheres are interlinked, and often thrive on each other. Finally, we propose ways in which the National Union of mineworkers can organize informal workers and protect them against their exploitation while holding on to the material gains they have made. To continue being relevant in the current economic age unions have to find new organizational structures to include informal and disguised workers. The paper shows that there is a need to organize people not only based on their employment status but on the basis of being exploited as a class. This necessitates revisiting of the social movement unionism whereby organizing is not limited to workers in the Marxist sense but includes all who are subjected to unfair labour practices whether they are defined as workers or not. This will advance the struggle for decent work.

Keywords: Employment relationships; informal workers; mining.

Economy, ecology and the quest for a decent life

D. Pillay

University of the Witwatersrand, Johannesburg, South Africa

Email: Devan.pillay@wits.ac.za

Abstract

This paper argues that the global economic crisis cannot be understood separately from the global ecological crisis, even if the two may at times have different rhythms and historical origins. Industrial capitalism is characterized by accumulation for the sake of accumulation (and the creation of incessant wants to drive increasing consumerism). As such it rests on the intensified exploitation of both labour and nature - finite, non-renewable fossil energy sources and the expansion of pollution and waste. The financial crisis has had a direct impact on the real economy, with low consumer demand leading to a crisis in manufacturing, and millions of job losses throughout the world. This has compounded the already dire state of unemployment throughout the world, and the intensification of informalisation of labor, or indecent work, which has risen rapidly since the neo-liberal revolution that started in the late 1970s. This crisis rapidly displaced the ecological crisis gripping the world a few months previously (particularly when oil prices began to approach the \$200 a barrel level). The run-up to, and aftermath of, the December 2009 Copenhagen conference on climate change temporarily put the natural limits to growth back on the global agenda. However, with relatively low oil prices (around \$70 a barrel), the minds of the world's governments were insufficiently focused to produce a binding commitment to lowering carbon emissions and move decisively towards a non-nuclear, renewable energy regime. Expectations of further progress in the December 2011 COP12 conference in Durban, South Africa, are low – despite oil prices moving above the \$100 level after the North African/Middle East uprisings in 2011. The call for “decent work” occurs within this context of increased global inequality, informalisation, dispossession and environmental degradation. The key question is whether “decent work” as experienced by a small section of the world's workforce – based mainly in Northern Europe and North America – is possible under capitalism? Indeed, should the focus be on “decent work” – which conjures up the image of formal workplaces and waged labour – or should the focus be on a “decent life” – which opens up a range of possibilities of earning an abundant life?

Keywords: Climate change COP; economic crisis; formal work; informal job opportunities; oil prices.

Causes and Effects of Rural Urban Migration: A Case Study of Rural Areas of Tehsil Sillanwali District Sargodha

N. Shahzadi, A. A. Maann
Dept of Rural Sociology, University of Agriculture, Faisalabad
E-mail: laiba_awan2001@yahoo.com

Abstract

Human occupancy and activities are reflection of complex set of social, cultural, economic and psychological factors. Same is a case with migration of people from rural to sub-urban and urban areas. The present study was planned to investigate the extent of these factors involved in migration of people from rural to urban area. The study was conducted in the rural Areas of Tehsil Sillanwali, District Sargodha. Multistage sampling technique was applied for sample selection. At the first stage out of five tehsils of district Sargodha, one Tehsil which cover rural areas (Tehsil Sillanwali) was selected conveniently. At the second stage four Union Councils (UC # 93, 94, 96 & 97) were selected randomly. At the third stage twelve villages (Chak 137/SB, 138/SB & 133/Sb from UC # 93, Chak No. 129/NB, 128/NB and 124/NB from UC # 94, Chak No. 131/SB, 133/SB & 135/SB from UC # 96 and Chak No. 167/168SB, 169/SB two from each UC # 97) were selected randomly. At the forth stage 120 females (10 from each village) were selected purposively and interview schedule was used for data collection. The analysis showed that a majority i.e., 61.7 percent of them had Rs.15001-30000 monthly income before migration, while a huge majority, i.e., 80.0 percent, of them had above Rs. 30000 monthly income from all sources after migration. It was found the first reason of migration was better economic opportunity, second education and third was the health facilities. It was also found that large majority of the respondents reported that they got "high status in the society" after migration. A highly significant and positive association was found between age & education of the immigrants with the causes of migration, while a highly significant and negative association between income of the immigrants before migration and the causes of migration. It was suggested that the Government should provided basic facilities like better education, health, water, and infrastructure in villages to reduce the trend of migration.

Keywords: migration, education, age, socio-cultural factors, silanwali, Sargodha

Role of women in poverty reduction through keeping livestock

S. Shahzadi, A. A. Maann, M.A. Khan
Dept of Rural Sociology, University of Agriculture, Faisalabad
E-mail: dua.awaan@yahoo.com

Abstract

Livestock and agriculture is a key element of sustainable development and is essential to the future well-being of the people. Sustainable agriculture needs to be economically viable, environmentally sound and socially acceptable. Women of rural area in Pakistan are extensively involved in sustainable development, production of major crops, livestock management, poultry farming and home management. Food processing and storage is an area where women participation is higher than that of men. Poverty is the main problem in the developing countries like Pakistan. Women are playing an important role to reduce poverty through keeping livestock in rural communities. Pakistan is an agricultural country and 30-35 million people are involved in livestock sector. Therefore, government as well as private sector are giving empowerment by giving micro credit for keeping livestock as a business to improve their living standards as well as to reduce poverty rate. This study was designed to explore poverty reduction through Women participation in Livestock Care and Management. The Universe of the present study was Sargodha District. Multistage sampling technique was applied for sample selection and data collection. At the first stage out of five tehsils of district Sargodha, one Tehsil which cover rural areas (Tehsil Sillanwali) was selected conveniently. At the second stage two Union Councils (UC # 93 & UC # 94) were selected randomly. At the third stage four villages two from each UC (Chak No. 136, 138/SB from UC # 93 and Chak No. 129/NB & 124/NB from UC # 94)) were selected randomly. At the fourth stage, 120 females (30 from each village) were selected purposively. A questionnaire was developed keeping in view the objectives of the study for conducting interviews. The data were analyzed and results show that about half i.e., 50.8 percent of the respondents' think that the income received from livestock fulfill to great extent their domestic needs. A majority of the women had participation in farm cleaning, milking, poultry farming, fodder cutting, lasi making, bathing of animals, caring of sick animals, milk storage, shifting of animals and fodder offering, about one-third i.e. 33.3 percent of them worked 9-10 hours daily. A majority i.e. 56.7 percent of the respondents faced problem to great extent in looking after children. Another majority i.e. 61.7 percent of the respondents faced problem to great extent in house work due to their work in agriculture and livestock. A vast majority i.e. 90.0 percent of the respondents were satisfied with their work. A highly significant ($P = .000$) association was found between marital status of the respondents and their thinking that their were income were increased due to livestock. A highly significant ($P = .000$) association was found between monthly income from all sources of the respondents and their thinking that their income were increased due to livestock. A highly significant ($P = 0.000$) association was found between respondents' participation in livestock management activities and their thinking that their income was increased due to livestock. It was suggested that the Govt. should promote the role of women in livestock through education. It is dire need of the time that awareness among masses must be created regarding the role of women in society. Govt. has already started gender reforms action plan but it is needed that effectiveness of this program must reach at rural level.

Keywords: Livestock, gender role, poverty, Sillanwali, Sargodha

Predominance of helminthiasis in pastoral sheep and goat flocks at the vicinity of Qila Drawer, Cholistan desert of Pakistan

M.A. Raza¹, M. Younas², E. Schlecht¹

¹Animal Husbandry Group, University of Kassel & Göttingen, Germany

²University of Agriculture, Faisalabad, Pakistan

Email: asifrazarana@yahoo.com

Abstract

Gastro-intestinal helminthiasis is one of the most important animal diseases that constitute an immense problem for pastoral livestock keepers in Pakistan, since chronic infestation leads to distinct losses in livestock productivity and growth. The present study was carried out in April 2011, to assess the predominance of intestinal helminthiasis in sheep and goat flocks in and around the Qila Darawar of Cholistan desert which is one of the backward areas of the Pakistan. The study area is rich in livestock population and the main economy is based on pasturing and livestock husbandry. In the sheep and goat herds of 20 pastoral households, a systematic collection of 100 faecal samples of each sheep and goat was carried out in zipper polythene bags. By using floatation technique, faeces sample were examined and helminth eggs/larvae were identified by using standard techniques. The results revealed that overall helminthes predominance recorded was 85% (170/200) in small ruminants. In goats the predominance of helminthiasis was 81% (81/100). The highest predominance (39/100; 39%) was recorded for nematodes followed by trematodes (06/100; 6%), cestodes (05/100; 5%) and mixed helminth infections (31/100; 31%). While overall predominance in sheep was 89% (89/100), 27% (27/100) of nematode followed by trematodes (07/100; 7%), cestodes (03/100; 3%) and mixed helminth infections (52/100; 52%). The results on sex-wise in goats showed that 82.75% in males (24/29) and 80.28% in females (57/71); and in sheep, 86.36% in males (19/22) and 89.74% in females (70/78) were found infected. On the other hand, age-wise results in goat revealed that 85.71% suckling (12/14), 82.75% young (35/42) and 77.27% adults (34/44) were positive; and in sheep, 100% suckling (10/10), 86.21% young (25/29) and 88.52% adults (54/61) were found infected. Based on the result of this study, it may be recommended that de-worming of the small ruminants be done and helminthes species predominating in the area should be screened for the development of resistance against commonly used anthelmintics.

Key Words: Infestation, Sheep, Goat, Flocks, Qila Drawer.