



# Agricultural Economics and Extension



**DETERMINANTS OF HOUSEHOLD FOOD SECURITY IN  
ANURADHAPURA DISTRICT, SRI LANKA**

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There are lack of studies undertaken to examine the food security status at the household level in the dry zone of Sri Lanka, where food insecurity is relatively strive. The purpose of this study was to assess the determinants of the food security of Anuradhapura district of dry zone. Data on Household Income and Expenditure Survey, 2016 conducted by Department of Census and Statistics were used with a sample of 793 households. Descriptive statistics, Food Security Index (FSI) and the logistic regression model were applied for the data analysis. The FSI was calculated using the ratio of the recommended daily per capita calorie requirements to the daily per capita calorie intake of the household to capture the access dimension of the food security. Results revealed that 42% of the households were food insecure in the study area with inadequate daily calorie requirement. The log likelihood value of the model was -463.234 ( $p < 0.05$ ) showing that the variables included in the model were major determinants of the food security. Accordingly, gender, age, marital status of the household head, monthly total income, indebtedness and the size of the household were significant in determining the food security of the area. Male headed households ( $p < 0.05$ ), and monthly household income ( $p < 0.1$ ) were positively related with the food security and household size ( $p < 0.05$ ), age of the household head ( $p < 0.05$ ), single parent households ( $p < 0.1$ ) and indebtedness ( $p < 0.1$ ) were negatively related with the household food security. The study concluded high incidence of food insecurity at household level in *Anuradhapura* district. Special attention should be placed on female headed households, large households, single parent households and households with older aged heads in formulating food security policies in order to ensure household food security of *Anuradhapura* district.

**Keywords:** Determinants, Food Security, Food Security Index,  
Logistics regression

## **EFFECTS OF GLYPHOSATE BANNING AND ADAPTIONS OF MAIZE FARMERS IN DRY ZONE, SRI LANKA**

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Maize is an important course grain grown in the dry zone of Sri Lanka. Glyphosate was the most popular and effective weed killer used in maize cultivation until it was banned in 2015. People argue that banning of glyphosate negatively affect the maize cultivation because no substitute was introduced for maize as a weed killer. Hence, the objectives of this study were to identify the effects of glyphosate banning and adaptions methods used by maize farmers. A field survey was conducted using purposively selected 60 farmers from *Kahatagasdigiliya*, *Horowpathana* and *Galenbindunuwewa* Agricultural Instructor (AI) divisions in *Anuradhapura* district. Time series data from 2000 to 2017 on maize production, cultivation extent, cost of production (COP) and monthly rainfall were collected from Hector Kobbekaduwa Agrarian Research and Training Institute, Provincial Agricultural Department of North Central Province and Department of Meteorology. The effect of glyphosate banning on cultivation extent, maize production and cost of production were analyzed by fitting general linear models. The categorical variable, adequacy of rainfall was used to remove the effect of rainfall. The results revealed that banning of glyphosate has not significantly affected the cultivation extent and yield ( $p > 0.05$ ), while it significantly affected the COP ( $p < 0.05$ ). The average COP per acre has increased from Rs. 47,701 to Rs. 57,254 with banning of glyphosate. About 39% of respondents use herbicides and 28% of respondents use Monosodium glutamate, while 23% of respondents use kerosene oil with other chemicals as alternatives for glyphosate. The study concludes that banning of glyphosate has significantly increased the COP, hence the cost-effective alternative weed control methods should be introduced for the sustainability of maize cultivation.

**Keywords:** Adaption measures, Cost of Production, Glyphosate, Maize

## **PRICE AND INCOME ELASTICITIES OF DEMAND FOR SELECTED VEGETABLES IN SRI LANKA**

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Vegetables play an important role in Sri Lankan diet; hence it provides micro nutrient for a healthier life. Thus, it may reduce the risk of non-communicable diseases and cancers. However, in today's context, the daily intake of vegetable is far less than the recommended amount by WHO. Hence this study investigates the price and income elasticities and the effect of demographic factors for the consumption of selected low country vegetable in Sri Lanka by utilizing the secondary data of Household Income and Expenditure Survey (HIES) 2016, of Department of Census and Statistics. The sample size was 21,756 housing units representing the all three sectors (Urban, Rural, Estate) in Sri Lanka. Data were collected by 12 months survey. The data were analyzed by using double log demand function. The own price has negatively significant for all vegetables and positively significant for income at ( $p < 0.05$ ). Own price elasticity and income elasticity were, Okra (-0.48, 0.01), Bitter gourd (-0.37, 0.02), Long bean (-0.53, 0.04), Snake gourd (-0.40, 0.01), Ridge gourd (-0.47, 0.04), Pumpkin (-0.50, 0.03), Tomato (-0.54, 0.02), Wing bean (-0.36, 0.01), Drumstick (-0.39, 0.03), *Kekiri* (-0.52, 0.02), Eggplant (-0.42, 0.03), *Thibbatu* (-0.43, 0.03). Among the demographic factors, education was negatively significant ( $p \leq 0.05$ ) for all selected vegetables except Wing bean, Eggplant and *Thibbatu*. Age of the household head and family size were not significant. However sector wise has a minor impact on consumption of vegetables. This inelastic price demand conclude that vegetables have limited substitutes and as a result choice remain the same. Based on results high vegetable prices adversely affect for the consumption. Therefore affordable vegetables prices are important to promote the consumption. Income has shown a positive impact on vegetable consumption. Further, due to the positive impact of income and hence the market opportunity producers are recommended to cultivate low country vegetables.

**Keywords:** Double log demand function, Income elasticity, Low country Vegetables, Price elasticity

## **EXCHANGE RATE ON TRADING OF COIR PRODUCTS OF SRI LANKA**

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Coconut is an export-oriented industry, which secured Rs 94,773 million export earnings in 2018. Among many versatile coconut-based products exported, coir fiber and coir fiber finished products contribute significantly for foreign exchange earnings and it was as high as 32% in the last year. Even though, this contribution is substantial, Sri Lanka has lost its place as the world largest coir fiber exporter in the international market. To be competitive in the global coir trade, where new producers are emerging, identification of factors affecting coir trade is imperative. This study applied Gravity model of trade to estimate empirically the factors affecting exports of coir fiber and coir fiber finished products with special reference to the impact of exchange rate. In the model, the quantity of coir exports was used as the dependent variable. The independent variables included in the model consists of traditional gravity variables, i.e. Gross Domestic Product, population, geographical distance, and country specific variables such as exchange rate, presence of regional trading agreements, colonial relationships, and common language. Data extracted from Sri Lanka and its major exporting destinations accounting for 10 countries in total, for the period 2008-2017 were used for the analysis. The results of the Gravity model estimation showed that coefficients of common gravity variables bear expected signs and statistically significant. Results indicate that exchange rate is not a significant determinant of coir fiber exports of Sri Lanka. One of the reasons behind this phenomenon may be the perennial nature of the coconut where changes in supply response is not possible in the short-run.

***Keywords:*** Exchange rate, Coir products, Gravity model, Exports

## **PRICE BEHAVIOUR OF VEGETABLES AT DAMBULLA DEDICATED ECONOMIC CENTRE: AN ECONOMETRIC ANALYSIS**

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Vegetable is the second most important agricultural commodity next to rice. Price fluctuation is one of the major problems faced by the vegetable farmers around the country. This study aimed to identify the price behavior of major vegetables in *Dambulla* Dedicated Economic Centre which is the main trade centre for vegetables in Sri Lanka. Data of monthly nominal prices of vegetables from January 1996 to November 2018 were obtained from Hector Kobbekaduwa Agrarian Research and Training Institute. Based on the coefficient of variation, five highly price fluctuated vegetables were selected namely Snake gourd, Brinjal, Pumpkin, Tomato, and Cucumber. The nominal prices were converted to real prices using Colombo Consumer Price Index. According to analysis of trend, real prices of the vegetables have been increasing over time. The increased percentage of real price values for Snake gourd, Brinjal, Pumpkin, Tomato and Cucumber were 6.54%, 7.28%, 4.6%, 8.44%, and 3.54% respectively. Increased real prices over the years reveal that vegetable prices have increased above the inflation rate leading to inadequate supply to meet the annual demand. The prices obtained from the seasonal analysis were high during November-January and April-June. The highest price increase compared to the lowest values was reported for Snake gourd (122%) followed by tomato (106%). According to this study it reveals that the real prices of vegetables increase with the time and also there is a huge prices fluctuation within the year. In order to minimize the effects of high price fluctuation, it is recommended to make farmers aware of seasonal price variation so that farmers having water supply can cultivate vegetables during the off season. Market-led production planning should also be implemented. Increased vegetable supply is necessary to control the real prices to make prices affordable to the consumer.

**Keywords:** Price fluctuation, Price trend, Real price, Seasonal analysis, Vegetables