

AGRICULTURAL MARKETING INTELLIGENCE STUDY ON PRICE SEASONALITY OF SELECTED RICE VARIETY IN KERALA STATE

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Abstract: Projecting the past patterns of the price behavior in the market into the future knowledge of the seasonal variations in the price of agricultural commodity helps in the prediction of the future trends. Policy makers, farmers, entrepreneurs and every market participants are the forefront figure to face the effect of price seasonality in the market. To have a meaningful and sound marketing plan any government or private organizations involved in the market transaction have to use clear market information as an input to decide on how best can be benefited out of it. Among those areas which need the intervention of market intelligence study to enable farmers and all stakeholders in the entire supply chain examining price seasonality of agricultural commodity plays key role.

With this limited scope in mind the objective of the present study was to examine the price seasonality of IR-8 rice variety, Jaya rice variety and Ponni rice variety in Kerala State based on the monthly price data availability for the past ten years (132 months). Accordingly Ratio to Moving Average method was employed to examine the price seasonality. Secondary data were collected from Agricultural Marketing Information Network (Statistical and Analytical Reports).

The data have been analyzed using Economic views (Eviews) statistical computer package. The present study found that the price seasonality of the price of IR-8 rice, Jaya rice and Ponni rice variety in Kerala state exhibited a price above average for four months, five month and six month per year and a price below average price for eight month, seven month and six month per year respectively for the past ten years (132 months). Accordingly, recommendations and policy implications have been drawn based on the findings of the present study.

Keyword: Agriculture, Farmer, Kerala, Price Seasonality, Rice, Rice price.

Introduction: Rice is one of the most important food crops of India in term of area, production and consumer preference. India is the second largest producer and consumer of rice in the world. Rice production in India crossed the mark of 100 million metric tonnes in 2011-12 accounting for 22.81% of global production in that year. The productivity of rice has increased from 1984 kg per hectare in 2004-05 to 2372 kg per hectare in 2011-12. The share of India in global rice production has been hovering in the range of 19.50% to 24.52 %.

Philippine, Bangladesh and the Chinese are the three Asian countries among the top three rice importing nations in the world with 8.8%, 2.6% and 2.3% respectively, whereas another three Asian countries (Thailand, India and Vietnam) are among the top three rice exporters countries with contribution of 27%, 22.4% and 16% respectively to the world. Similarly, China, India Indonesia and Bangladesh are the top four countries in the world in with high rice consumption with 29.4%, 23.7%, 8.1% and 7.2% respectively.

For the past ten years from the total food grain production in the Kerala state rice production in the state covered 98-99 percent whereas the share of rice production covers 39-44 percent of the total food grain production in India This indicates rice is the

most stable agricultural food grain and commodity to the state which needs the attention of researcher and stakeholders since it can affect majority of the population. The share of agriculture and allied sectors including fisheries and forestry is only 9.1 percent in the Kerala State in 2011-12. There is a delay between decisions related to the planting of crops and to the sale of the harvest, which is the greatest risk for a farmer. A farmer who makes decisions related to planting without first knowing what sale price he/she will receive six or more months later is more vulnerable to unexpected variations in prices, compared with a merchant of the same product whose decisions regarding purchasing and selling are made in much less time.

Reviving the agriculture sector to improve the income realized by the farmer, income derived out of their produce requires a quantum of interventions from different direction. This in turn requires marketing intelligence breakthrough that can boost farmers and stakeholders firm decision through the entire supply chain channel in the market as well as to enable policy maker.

Literature Review: Seasonality is the tendency for highest prices of any given years to happen at certain times of the year and the lowest price of any given year to happen at certain times of the year

(Manternach, 2009). A seasonal index can help to identify the seasonal pattern and it indicates how much the variable (price) for that particular period tends to be above or below the average price. It can be done by calculating by assembling the monthly data over a fairly long period and compute the average for each month separately. It can be calculated as the ratio of the average value in a season to the overall annual average value (shepherd, 1950). According to a study conducted by Ramon (2012), Gathering, analyzing, and disseminating market information are important tasks for correcting cascades of incorrect information about the situation of the market, and preventing a self-fulfilling price bubble. Wright (2009) emphasized the importance of sharing information about food stocks. Generating and interpreting market information correctly are needed to prevent any herding process toward a self-fulfilling crisis. Trade shocks are the outcome of decisions of market stakeholders.

A market is said to be efficient with respect to an information set if the price ‘fully reflects’ that information set (Fama, 1970), i.e. if the price would be unaffected by revealing the information set to all market participants (Malkiel, 1992).

Objective: The objective of the study was to measure the price seasonality of selected rice variety in Kerala state. This mainly because examining the price

seasonality of agricultural commodity will help farmers, marketer, and also policy maker to take right decision specially which commodity and when to sale to best benefit the farmers and stakeholders out of the market transaction.

Materials and Methods: Ratio to moving Average method was employed to examine the price Seasonality of selected rice in Kerala state market. A total of ten years (132 monthly data) secondary data regarding the price of rice in Kerala state were collected for three types of rice varieties from Agricultural Marketing Information Network (Statistical and Analytical Reports). The selected rice varieties considered in the present study were IR-8 rice variety, Jaya rice variety and Ponni rice variety based on the monthly price data availability throughout the past one decade. The data have been analyzed using Economic views (Eviews) statistical computer package.

Results and Discussion

Price Seasonality of IR-8 Rice, Jaya Rice and Ponni Rice Variety in Kerala State: Ratio to moving average model was employed to calculate price seasonality between time variation for a total of 132 months from January 2003 to December 2013 for the price of the three rice variety viz., IR-8 price, Jaya rice and Ponni rice in Kerala state.

Table 1: Price Seasonality of IR-8 Rice variety in Kerala state (2003-2013)

Scaling Factors	Sample:2003M01- 2013M12 Included observations: 132 Ratio to Moving Average method Original Series: IR-8 Price Rice variety in Kerala State Adjusted Series: IR-8 Price Rice variety in Kerala State
January	1.004594
February	0.995045
March	0.997454
April	0.973053
May	0.991839
June	1.014359
July	1.023451
August	0.988624
September	0.992470
October	0.976497
November	0.997312
December	1.047580

The result from the ratio to moving average model (table 1) indicated that, the price of IR-8 Rice for the past ten years (January, 2003 to December, 2013) lays below the average price for eight months particularly; February, March, April, May, August, September, October and November from the total sample size of

132 months while the rest of for four months per year (January, June, July and December) laid above the average price in the market. Therefore, from this it can be derived that, farmers who are producing IR-8 price are experiencing below the average price in the market for the majority of the months per year in the state.

Scaling Factors	Sample: 2003M01 to 2013M12 Included observations: 132 Ratio to Moving Average method Original Series: Price of Jaya Rice variety in Kerala State Adjusted Series: Price of Jaya Rice variety in Kerala State
January	1.009016
February	1.006633
March	1.042129
April	1.034594
May	1.020723
June	0.990456
July	0.971893
August	0.964138
September	0.979284
October	0.986117
November	0.998608
December	0.999554

The price of Jaya Rice for the past ten years (January, 2003 to December, 2013) recorded above average price having continuity for five consecutive months from the month January to the month May. This price behavior indicates that the market is experiencing shortage in supply of Jaya rice variety which might contributed to increase in the price of the rice for consecutive five month (January to May). However, from the month June to December the price of Jaya Rice fall below the average price, which indicated that the market is experiencing excess supply of Jaya

rice for consecutive seven months out of twelve months per year from a total sample of 132 months. From this it is clear that farmers of Jaya rice variety are realizing a price below average for majority of the moth in the market.

The seasonality of the price of Ponni Rice variety in Kerala state (Table 3) for the past one decade is almost similar with the price seasonality of Jaya rice variety in the same state with the exception of the month September.

Scaling Factors	Sample: 2003M 01 to 2013 M12 Included observations: 132 Ratio to Moving Average method Original Series: Price of Ponni Rice variety in Kerala State Adjusted Series: Price of Ponni Rice variety in Kerala State
January	1.047769
February	1.032810
March	1.014511
April	1.026865
May	1.011223
June	0.990487
July	0.976984
August	0.964884
September	1.000433
October	0.958805
November	0.990456
December	0.988854

Ponni rice variety recorded a price above average for six months per year viz., January, February, March, April, May and September. While, for the month

June, July, August, October, November and December the price of Ponni rice variety experienced a price below average.

Among the three varieties the price seasonality of Jaya rice needs considerable attention. This is mainly because, the time interval between a price above average and a price below average have a gap of almost six month which indicates that, a farmer is expected to wait for a maximum of six month to best drive the maximum market benefit out of his or her own produce. Whereas, the other rice variety like IR-8 rice variety producer can use the option to sell his produce in three seasons in a year with above average price, the beginning of the year (January), the middle of the year (June and July) and end of the year(December). Similarly, Ponni rice variety producer (farmer) can best drive the maximum benefit out of the market in their produce by selling their product on the consecutive five month of the first and second quarter of the year (January, February, March, April, May) or on the month September which is in the end month of third quarter of the year with above average price.

Conclusion and Recommendation: Price seasonality of agricultural commodity creates uncertainty and undermines investor confidence in the sector and farmers in particular; led the food and agriculture sector to face the long-term challenge of production to meet the rising food demand. Accordingly, it is suggestible to those farmers in Kerala state who are producing those rice varieties (IR-8 price, Jaya rice and Ponni) is good to adopt the practice of modern agricultural practices particularly in the post harvest stage of the produce, farmer should adopt ware house receipt facility provided by the government to hedge the price shock existed in the market for majority of the month in each year. However, this might produce shortage in supply of the commodity in the market and might adversely affect consumers' especially low income agricultural laborer. Therefore alternative policy option might be necessary that can address the concern of all participants in the market.

References:

1. Agricultural Marketing Information Network, Government of India. 2014. State level monthly price of rice in India.
2. Fama, E. F. 1970. Efficient capital markets: A review of theory and empirical work, *The Journal of Finance* 25(2), 383-417.
3. Malkiel, B. 1992. Efficient market hypothesis, in P. Newman, M. Milgate and J. Eatwell (eds.), *New Palgrave Dictionary of Money and Finance*, Macmillan, London. *World Bank Policy Research Working Paper Series*. No. 5028. Washington, DC: World Bank.
4. Manternach, Dan. 2009. A Keeper Focus on Seasonal Price Patterns Doane's Agricultural Report, 72 (32-5) August 7, 2009.
5. Ramon L. Clarete. 2012. Enhancing ASEAN's Resiliency to Extreme Rice Price Volatility, *Asian Development Bank Sustainable Development Working Paper Series* No. 23.
6. Shepherd G.C. 1950. *Agricultural Price analysis*. The Iowa state college press; 284 p.
7. Wright, B. 2009. *International Grain Reserves and Other Instruments to Address Volatility in Grain*. Policy Research Working Paper 5028. The World Bank Europe and Central Asia Region, Agricultural and Rural Development Unit Development Research Group, Trade and Integration Team United Nations, Food and Agriculture Organization.

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