

FERTILIZER MARKETING IN INDIA: A LITERATURE REVIEW

Abstract:-

Three fundamental or basic needs of humanity are food, cloth and shelter. Indian constitution provides for all these three basic need for human beings. Unfortunately after 68 years of Independence, the problem of food remains unsolved. It has created much more future demand for the food Industry. Although rapid farming and improved techniques have made possible to increase the crop yield, but has corroded the soil fertility. Use of fertilizers in this regards have been a practical solution to preserve the nutrient content in the soil and increase the increase the soil fertility. Fertilizer Industries are doing a commendable job in helping the farmers to increase the productivity at large. The present paper presents a review on the previous work done in fertilizer marketing in India and abroad.



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Review Of Research

Keywords:

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INTRODUCTION

Agriculture is the backbone of Indian economy. It has gained importance to meet the requirement of over a billion people of the country. Green revolution is an attempt to make the country self sufficient in this regards. Requirement of fertilizer thus, has been the demand of time to increase the food grain productivity. Marketers, including private, public and cooperative sectors are setting their tone to make the right products available to the right consumers at the right place and at the right time of need. The article presents a brief literature on fertilizer marketing in India and its associates.

OBJECTIVES OF STUDY

Present study aims at in-depth investigation of previous research work done on fertilizer Marketing. It provides an understanding on the market, situation, scope and status of fertilizer marketing in India, in general.

METHODOLOGY

The article involves data collected from past literature, available on fertilizer and agriculture on articles, internet etc. involving both published and unpublished sources. The researchers collection is purely based on secondary data from available sources.

REVIEW OF LITERATURE

Review of literature is an in-depth investigation of the previous work done on a topic. It provides an insight to the topic of similar concern. Considerable literatures are available on fertilizer marketing in India and overall. Mentioned below are some of the literatures available in context to the present study.

Awasthi (1997) in his seminar paper outlined the role of IFFCO in fertilizer scenario of the country. The author traced on the relationship between IFFCO and farmers of the country. The marketing setup of the company was found to be significant to meet the sales performance. IFFCO being a cooperative sector made a valuable contribution to the fertilizer marketing in India to enhance the productivity in agricultural output. [1]

Shrotriya highlighted the role of fertilizers in the present scenario of farming. Challenges in terms of promotion, coordination, service, environment, research and development were the major issues and challenges to be overcome by the fertilizer marketing companies. The marketing environment of India keeps on changing therefore there is a need to create awareness among farmers through special promotional activities. It must be organised by manufacturing company according to need of farmer like fertilisers companies agronomists share their knowledge and experience in events like haats, field days, harvest festivals, farmers conferences, crop seminars, kisan melas, agro exhibitions, dealer training programmes, village adoption programmes, crop demonstrations, soil testing, fertiliser recommendation programmes and meeting at agro service centres. The author emphasised identifying promotional needs, up gradation of fertilizer sales point, focusing low fertilizer consumption area, intensive involvement of dealers in promotional programme, strengthening soil testing laboratories, Promoting IPNS, adopting farming system approach and developing IT Infrastructure. [2]

Razzak et al. (2004) in their article outlined use the recommended fertilizer, in recommended dose and at recommended time essential for getting maximum advantages, determined difficulty faced by farmers in Pakistan in the procurement of fertilizer. The author suggested policy measures to enhance the productivity in the farm land through farmer's education, price reduction, improved storage and transportation facilities, improved administrative facilities etc. [3]

Singh (2013) in his research paper highlighted the role of Chemical fertilizers in making the country self-reliant in food grain production. Attempts have been made to study issues like demand and supply position, consumption trends, growth factor of fertilizer in India. The author mentioned that there are various determinants like price factor and non price factor (better seeds, irrigation, and credit) which influence the demand of fertilizers. The study revealed that non-price factor (better seed, irrigation, credit) play more important role in increasing demand of fertilizers as compared to price factor. [4]

Pramella et al. (2012) studied the performance of companies associated with Indian Fertilizer Industry with the help of ratio analysis, t-test and z-test. Study revealed that there is no significant difference between the performances of companies across the fertilizers Industry. The study found that all companies under fertiliser industries have performed equally well. [5]

Patel (2014) in his research article discussed that chemical fertilizers have played an important role in making the country self reliant in food grain production. The fertilizer sector is adorned with many opportunities, problems and challenges. The entire framework has been discussed in the lights of porter's five forces affecting market competition. This is a framework for industrial analysis, determines the competitive intensity and attractiveness of market. [6]

Quader (2009) in his research paper focused on strategic program to contribute towards growth and development of fertilizer sector in Bangladesh. He estimated the expected demand of fertiliser in Bangladesh, current production capacity and supply of fertiliser. It was found that gap between fertiliser demand and supply was continuously increasing. In order to fulfil the increasing demand of fertiliser product there was need to increase production unit and also the total installed capacity of the fertilizer

companies. He suggested the plants needed to be planned and built without loss of time, possible plant location, type of plant; total investment and implementation time are some of the crucial factors for developing the fertilizer sector in Bangladesh for sustainable agriculture. [7]

Soni and Singh (2013) in their research paper discussed about cooperative society for efficient distribution of fertilizer, to ensure that the right products are available to the farmer at the right time and at the optimum price, consistent with the provision of a reliable service. Authors analyzed key performance of Chhattisgarh MARKFED. MARKFED is now successfully handling and distributing agricultural fertilizer and pesticides. They function as a bridge between producers and consumer farmers. It was also found that Shortage of Funds, Insufficient warehouses, Lack of Transport Facilities, Malpractices, Untrained Personnel, Lack of Coordination and Supervision, Poor Management are some problem across efficient fertilizer marketing. The paper ends with effective suggestions to overcome these problems. [8]

Roy in his article stressed the importance of market research in fertilizer Industry. Market research help to understand fertilizer market, need of farmers, demand and supply of fertilizer, problem and opportunity of fertilizer market, which help to make appropriate marketing strategy and actions to make growth of fertilizer industries as well agriculture development. [9]

Gupta found that fertiliser products are distributed to village level cooperative society by manufacturer through direct supply system and the supply through federation system. Village level society get direct supply from manufacturer in U.P., Bihar and Rajasthan state but get supply through federation only in Gujarat, M.P., W.B., Tamil Nadu and H.P. Supply both through federations as well as direct supply to the societies in the states of Punjab, Haryana, Maharashtra, Orissa, A.P., Karnataka and Kerala. In direct supply system village level society get higher margin due to elimination of mediator. The author made a comparative study of both systems (direct supply system and supply through federation system) for effectiveness, financial health, efficiency of the village level cooperative fertiliser distribution system. [10]

Venkatesan and Rulraj (2014) in their research paper focused on understanding fertiliser situation in the country and expressed fertiliser consumption trends in India and fertiliser demand projections. With the help of estimated model they focused the demand of fertiliser in year 2015-16 and 2020-21. The researchers found that increase in area under irrigation, and cropping intensity will play important role to increase fertiliser consumption in the country. [11]

Rao(2011) in his article discussed policy reforms (RPS 1970-1990, reform initiatives 1992-2003, NPS regime and FMS 2003-2009, nutrient based subsidy scheme 2010) objectives and its impact on fertiliser marketing in India. He identified various challenges and opportunities of fertiliser marketing. He emphasised on identifying and understanding consumer behaviour to success in competitive market. [12]

Kaleem and Dibaba (2012) identified that the marketing system has to carry out the function of storage, transportation and sales to the farmers spread throughout the country. They discussed the need of information technology in fertiliser marketing. Information technology can play an important role in improving the efficiency and effectiveness of marketing personnel. Future applications of information technology in fertilizer marketing can bring a valuable change in the entire marketing system. [13]

Sengottaiyan and Ambika (2013) in their presented paper highlighted the fertilizer scenario in India. India is one of the largest producers and consumers of fertilizer in the world. The main objective of the fertilizer industry is to ensure the supply of primary and secondary nutrients in the required quantities in right time. They suggested adopting technologically advanced manufacturing process and innovative new-age products. [14]

Mittal and Sudhakar in their paper on "Role of Information Technology in Fertilizer Marketing" evaluated the possibilities of improving the efficiency and effectiveness of marketing operations with a well conceived information technology system. In context of fertilizer marketing I.T. can play a major and decisive role in logistics, efficient sales operations, checking the marketing costs, safeguarding market share and providing efficient customer services. [15]

Rutland and Polo revealed in Fertilizer Dealer Handbook provides useful and valuable information source for dealers which provide knowledge about the chemical and physical characteristics of the fertilizers, types of Storage Facilities, handling of Fertilizers that dealer sell. This knowledge can be used not only to benefit customers but also to help dealers do a good job of properly storing and handling their fertilizer stock. [16]

Kamlesh in his article identified that agricultural development, regional development; corporate development; capital investment and employment generation in fertilizer Industry are making important contribution in Indian economy. The author stressed to increase and improve Infrastructural requirement (port, rail, road transportation, waterways and storage means) for the growth and strengthening of Indian fertilizer sector prospects of the Industry. He also identified challenges of Fertilizer units working in India and future prospects of the country. [17]

Kavitha (2010) in her research thesis made comparative analysis of fertiliser marketing of semi-arid zone and a delta zone of Tamil Nadu. Study identified the major problems, issues and hindrance of farmers and dealers of both areas. Study revealed that farmers were not aware about authorised dealers of fertiliser brand in their area which is one of the reasons to get fertiliser products in higher price. Most of the farmers belonging from delta zone were purchasing fertiliser from cooperatives but the same was not done for semi-arid zones. The author focused to develop an efficient marketing mix model to strengthen the Fertilizer Marketing of a semi-arid zone and delta zone of Tamil Nadu. [18]

Zhou et al. (2010) in their work on "Factors affecting farmers' decisions on fertilizer use: A case study for the Chaobai watershed in Northern China" analysed the factors influencing the farmers' decisions on fertilizer use and the implications for water quality. It was suggested by study that many of these subjective factors have great significance in determining farmers' decisions. According to their study irrigation, gains in crop yield and higher learning goals are positively correlated with fertilizer use intensity, while farm size, manure application, soil fertility and the distance to fertilizer markets are negatively correlated. [19]

Sharma (2012) in his research paper discussed trends in fertilizer subsidy and the issues of distribution of fertilizer subsidies between farmers and fertilizer industry across regions and states, crops and different farm sizes. Agricultural subsidies that encourage production and productivity and are important for growth of farmers in India but on the other hand subsidy has become one of the largest spending items of the sector and overuse of subsidy create negative effect on productivity. Therefore, there is urgent need to rationalize fertilizer subsidy and at the same time induce fertilizer industry to grow in order to meet the increasing requirement of fertilizer in the country. There is a rationale for subsidizing fertilizers in case of small and marginal farmers as well as less developed regions. The author also examined the impact of recent policy changes on fertilizer prices, subsidy and consumption and Impact of NBS and proposed withdrawal of fertilizer subsidies on Farm Income. [20]

Roberts (2007) in his research article identified the role of fertilizer in producing the world's food and associated best management practices (BMPs) that help ensure production and environmental goals. Fertilizer must be used efficiently and effectively. According to him The 4Rs: right source, right rate, right time, and right place are the underpinning principles of fertilizer management and can be adapted to all cropping systems to ensure productivity is optimized. [21]

Sharma and Tyhaker (2011) in their research paper studied that chemical fertilisers have played an important role in making the country self-reliant in food grain production but there is big gap between demand and supply of fertiliser consumption. There is need to forecast future demand and also increasing additional capacity of fertiliser consumption. The authors examined various determinants of fertilizer consumption which directly or indirectly affect fertilizer consumption. The study concluded that the non price factor (better seeds, irrigation, credit) play more important role to influence demand of fertilizers compared to price factor, the government therefore should focus more on non-price factors. There is need to infrastructural requirement, focus more agriculture research and development program, increase investment in irrigation to increase productivity. [22]

Salunkhe and Deshmush (2012) in their research paper made a comparative study between developing country and developed countries in relation to subsidies of agriculture sector. It was found from the study that percentage of subsidy offered to developed countries is higher than developing countries but in case of population dependent on agriculture of developing countries is higher than developed countries. [23]

Bhatt (2006) in his research article observed that IFFCO is playing very important role to promote agriculture development and to make farmers aware on efficient and balanced use of fertiliser. Large number of program are being organised by the IFFCO to educate farmer like field programme, soil testing, farmers meeting, campaign, use of electronic and print media, training programmes for sale point personnel etc. [24]

Gadkari (2006) in his research paper "RCF in the service of farmers" portrayed company profile, overview of RCF, past trends of RCF and services offered to farmers. Initiatives undertaken by RCF in ensuring the well being and prosperity of the farming community are significant. RCF contribution towards the service of farmers' community and various other activities and programmes by which RCF is reaching to huge numbers of farmers annually. [25]

Reddy (2009) in his study "Indian Agriculture: An Overview" suggested efficient and balanced use of fertiliser should be promoted to minimize input cost and increase yield. It will help to improve agricultural development and growth of farmer's community. [26]

Tiwari in his research paper on "Reassessing the role of fertilisers in maintaining food, nutrition and environmental security" identified that fertiliser is one of the main agriculture input for increasing food grain production. It strengthens the soil and enhances its fertility. Balanced fertilization improves nutrient use efficiency (NUE), Improves water quality and water use efficiency, reduces the risks of bad weather, and brings benefits to the nation. [27]

Taya (2011) in his report on "Competition assessment of fertiliser sector: India" made an overview and present status of the fertilisers industries, fertiliser regulation (in India), the author added study of the sector under the ambit of porters five force model followed by challenges and problem in fertiliser sector. According to him the growth of Indian fertilizer has been largely determined by the policies pursued by the government which mainly confine to controls on the pricing, distribution and movement of fertilizers. [28]

Gupta (1995) highlighted that credit facilities is one of the important factor which influence fertiliser use. There are many agencies which have enabled farmers to obtain credit at affordable interest rates for purchase of all agricultural inputs. The author emphasised that procedure of obtaining credit facilities should be simplified and made easy to accessible. [29]

IFFCO Publication (2007-08) identified that majority of the farmers are unaware of recommended dose, time of application and method of application of the fertilizers. The publication shows

that agro scientist have developed location specific crop production technologies to increase their productivity. This technology need to be demonstrated on farmers' field for its adoption on a wider scale with the participation of scientist, extension workers and farmers. Through various promotional and farmers educational programme awareness among farmers are brought in by IFFCO to adopt these technologies for enhancing crop productivity. [30]

Awasthi (2010-11) suggested to setup soil testing laboratories in the field to monitor the soil health at national level. He stressed on the need of agricultural regulatory authority to monitor the use of fertiliser in enhancing agriculture productivity. [31]

Gopalswamy (2013) in his book on "Rural marketing" discussed profitability of farming, availability of irrigation facilities, introduction of new technology, introduction of genetically modified seeds, availability of fertilisers and price of fertilisers are various factors affecting fertilizer consumption in India. He indicated marketing mix (product, price, place, and promotion) is very dynamic, intricate and complex function. Thus fertiliser companies should make appropriate marketing strategies to cope with change. The author also mentioned SWOT analysis of fertiliser market. [32]

Jaga and Patel (2012) in their research paper on "An Overview of Fertilizers Consumption in India: Determinants and Outlook for 2020-A Review" discussed that there is a need for increasing the food grain production by 2020 AD to feed the growing population. Fertilizer is the only alternative to achieve a quick increase in productivity and production revealed that non-price factors such as irrigation, high yielding varieties play more important role than price factor in influencing demand of fertilizer. The paper suggested that in order to ensure self-sufficiency in agricultural production in the country, availability of fertilizers at affordable prices should be prioritized over higher output prices. Conducive and stable policy environment availability of raw materials capital resources and price incentives will be important to fulfill the fertilizer requirement India. [33]

Pragya publication Private Limited SLM on a review entitled "Rural Marketing" mentioned that fertiliser consumption depends upon several factors like Profitability of farming, availability of irrigation facilities, introduction of new technology availability of fertilisers and price of fertilisers. The publication focused on changing scenario in fertiliser marketing in India. [34]

Nagraj in his research article developed a framework for the analysis of factors affecting fertilizer use in Indian agriculture. With the help of regression and correlation analysis the author explained the variations in fertilizer use [over regions, over time] in terms of a set of physical/technological factors and of relative price. The work concluded that irrigation is uniformly a dominant influence. [35]

Kale and Bhandari traced the importance of fertiliser control in India for growth and development of agriculture and farmers. They identified various reason or problems which are responsible for bad quality fertiliser in India. This paper analyses the weaknesses in the current fertilizer quality control mechanism. Suggestions and recommendations following policy (larger role for the private sector, judicious penalties, adequate and efficient laboratory facilities, checking deliberate manipulation of test results, transparent system of re-testing, pragmatic tolerance limits under the FCO, making distinction between fraud and negligence, adequate number of full time fertilizer inspectors, sufficient attendance in training programmes, addressing flawed sampling pattern, making specifications sharp, popularizing the rapid testing kit) to overcome all problem related to fertilizer quality control in India. [36]

Tandon et al. in their study discussed progress in the field of soil fertility and fertilizer use during 1955-80s. The author discussed promotion, distribution and credit of Fertilizer Prices and Economics, Fertilizer Legislation and Quality Control have also been highlighted in the study. [37]

Jain (2007) in his doctoral thesis entitled "Market strategies of fertilizer manufacturing companies: study of selected units" studied the attitude of wholesaler and retailer of NFL and IFFCO toward the urea sales. This thesis Objective was to find out trend and market portion of NFL and IFFCO in Punjab and Gujarat and also to find out marketing strategies of competitor of NFL and IFFCO in the state of Punjab and Gujarat and to recommend renovating the marketing strategy. It was suggested that NFL should improve quality of urea powder to granulation, more promotional programme should be organised to create awareness among farmers and also introduce the policy of 'sell on credit'. He also suggested IFFCO should focus on training program for sales person, also motivate by monetary and non monetary rewards to their sales force, to adopt modern media techniques to give best performance in organization. [38]

Ramesh (2008) in his research paper "Fertilizer market in Karnataka: A micro level study of components and influencing variables" stated that fellow farmers are main source of information for use of fertilizer, second important source is dealers followed by TV radio, field demonstration companies, sales representative of company and cooperative. Pricing of fertilizer is main important factor followed by easy availability of brands, easy to apply, better quality of the products, soil fertility, brands. The problems of farmers to obtain fertilizers is lack of credit facilities and lengthy procedures to get the credit, not availability of balanced fertilizer in right time and most of the farmers don't have knowledge about balanced fertilizers and their recommended dose. Awareness through various promotional activities should be inculcated to educate the farmers. [39]

CONCLUSION

Fertilizer Marketing is an important ingredient in matching the requirements of farmer class. Marketers need to design suitable policies to enhance customers' goodwill to which builds loyalty.

Problems do persists in probing the likely future demand of fertilizer products. Basic problems of farmers are the key variables taken into consideration before designing key marketing policies by the marketers. A brief survey of available literature thus helps the policy makers in designing efficient and effective tools aimed to provide optimum value and satisfaction to the farmer class. The article helps in understanding the overall fertilizer marketing scenario. Its scope is extended to marketers, academicians and the farmer class.

REFERENCES

1. Awasthi (1997). ICAO seminar on Agricultural Inputs. 17-18 September. Geneva.
2. Shrotriya. Fertilizer promotion strategy under changing marketing environment. (Unpublished sources).
3. Razzaq A. Khan T.M. Farooq, U and Ali. Z. (2004). An Assessment of Availability and Use of Chemical Fertilizers for Farming Community in Tehsil Phalia, District Mandi Bahauddin: Pakistan. *International Journal of Agriculture and Biology*. 6(2). 407-409.
4. Singh. J. (2013). Demand Projection of Chemical Fertilizer Consumption in India: Determinants and Outlook for 2020. *International Journal of Transformation in Business Management (IJTBM)*. 2(3):62-75.
5. Prameela. S. And Devaj. K. (2012). Performance of fertilizer Industry in India. *Excel International Journal of Multidisciplinary Management Studies*. 2(3) :233-249. <http://zenithresearch.org.in/>
6. Patel (2014). An analysis of Indian Fertilizer Industry. *Global Journal of Multidisciplinary Studies*. 3(3):212-219.
7. Quader A. (2009). Strategy for developing the Fertilizer Sector in Bangladesh for Sustainable Agriculture. *Chemical Engineering Research Bulletin*. Issue: 13. P: 39-46.
8. Soni. A.K. and Singh D. (2013). A study on Cooperative Marketing with Reference of Chhattisgarh MARKFED Limited. *International Journal of Sales & Marketing Management Research and Development (IJSMMRD)*. 3(1), 35-44
9. Roy. A.K. Importance of Market Research in Fertilizer Industry.
10. Gupta R.C. (1997). Direct Supply of fertilizers to Pace Vis-a-vis State level Cooperative Marketing Federation: A critical Analysis.
11. Venkatesan S. And Rulraj. A. (2014). Fertilizer Market in India: An Insight on Demand Determinants. 3(1): 37-38.
12. Rao. S.N. (2011) Challenges and Opportunity in Fertilizer Industries. KRIBHCO Publication. 1-36.
13. Kaleem M.K. and Dibaba W. (2012). Role of Information Technology in Fertilizer Marketing. *International Journal of Scientific and Engineering Research*. 3(6):1-5.
14. Sengottaiyan. A. and Ambika T. (2013) Fertilizer Industry (rising to challenge). Facts for you. (http://www.efymag.com/admin/issuepdf/Fertiliser%20Industry_FFY%20March-13.pdf)
15. Mittal S.C and Sudhakar T . Role of Information Technology in Fertilizer Marketing. [http://www.ipni.net/ppiweb/filelib.nsf/0/0cf0bbb0821961fb062573060057f0c1/\\$file/tiwarifai07.pdf](http://www.ipni.net/ppiweb/filelib.nsf/0/0cf0bbb0821961fb062573060057f0c1/$file/tiwarifai07.pdf)
16. Rutland D and Polo J . Fertilizer Dealer Handbook Products, Storage and Handling. IFDC: An International Center for Soil Fertility and Agricultural Development. IFDC publications. IFDC-G-1; ISBN (13:978-0-88090-154-3).
17. Kamlesh and Dave. S. A Bird view of fertilizer Industry of India. (<http://www.preservearticles.com/2012082733259/a-bird-view-of-fertilizer-industry-of-india.html>)
18. Kavitha. M. (2010). Comparative analysis of fertilizer marketing of semi-arid zone and delta zone of Tamil Nadu. PhD. Thesis. Bharathi Dasan University.
19. Zhou. Y., Yang. H., Mosle. H., Jand Abbaspour K.C. (2010). Factors affecting farmers' decisions on fertilizer use: A case study for the Chaobai watershed in Northern China. *Consilience: The Journal of Sustainable Development*. 4(1). 80-102.
20. Sharma. V.P. (2012). Dismantling Fertilizer Subsidies in India: Some Issues and Concerns for Farm Sector Growth. Working Paper no. 2012-09-01.
21. Roberts. T. L. (2009). The Role of Fertilizer in growing the world's food. *Better Crops*. 93(2):12-15.
22. Sharma. V.P. and Thaker. H. (2011). Demand for Fertilizer in India: Determinants and Outlook for 2020, Working paper no. 2011-04-01.
23. Salunkhe and Deshmush B.B. (2012). The overview of Government subsidies to Agriculture sector in India, *IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)*. 1(5). 43-47.
24. Bhatt. D.K. (2006) IFFCO in the Service of Farmers. *Indian Journal of Fertilizers*. 2 (1), 11-20.
25. Gadkari. A.L. (2006) .RCF in the service of farmers. *Indian Journal of Fertilizers*. 2 (1). 37-43.
26. Reddy T.K (2009). *Indian Agriculture-An Overview*. Journal of Rural Development, Hyderabad. 28 (3) 327-341.
27. Tiwari. K.M. Reassessing the Role of Fertilizers in Maintaining Food, Nutrition and Environmental Security.
28. Taya. S. (2011). Competition assessment of fertiliser sector in India. (<http://cci.gov.in/images/media/ResearchReports/ShaliniIntComp170811.pdf>).
29. Gupta. A.R.G. (1995). Fertilizer Marketing Strategies.
30. IFFCO (2007-08). The Publication of Agricultural Services and Promotional Activity.
31. Awasthi. U.S. (2011). A Regulation for the Fertilizer Sector: A FARM regulatory body is a better option. *IFFCO News*. 42 (1-3).

32. Gopalaswamy T.P. (2013) SLM Published. Dr. C.V. Raman University. Vikas Publishing House Pvt. Ltd.
33. Jaga. P. K. and Patel. Y. (2012). An Overview of Fertilizers Consumption in India: Determinants and Outlook for 2020: A Review. *International Journal of Scientific Engineering and Technology*. 1(6): 285-291.
34. Pragya Publication Pvt. Ltd. Rural Marketing. SLM Published. Dr. C.V. Raman University.
35. Nagaraj.R. (1983). Determinants of Fertilizer Use in Indian Agriculture. *Economic and Political Weekly (Review of Agriculture)*. 18(13): A2-A15.
36. Kale. S. and Bhandari. L. Fertilizer Quality Control in India: The Need for a Systematic Change. A Fisme-Indicus Analytics Report. Federation of Indian Micro, Small and Medium Enterprises.
37. Tandon. H. L. Kumar. S., Meelu. O.P. Tiwari. V. Pasad. K.N. Pui. D.N. Rhaws. N.A. Sekhon. G.S. and Singh. R. (1981) Quarter Century of Agronomic Research in India. (1955-80). Silver Jubilee Publication. Indian Society of Agronomy, New Delhi. 9-25.
38. Jain. V. (2007). Market Strategies of Fertilizer Manufacturing Companies: Study of Selected Units. PhD. Thesis. H.N.V. Garhwal University, Srinagar.
39. Ramesh. H.D. (2008). Fertilizer Market in Karnataka: A Micro level Study of Components and Influencing Variables. PhD. Thesis. Badhur Institute of Management Science. University of Mysore.