CHAPTER - II

REVIEW OF LITERATURE

Literature review aims to describe the critical points of current and collected knowledge on the topic under study. It seeks to describe, summarize, evaluate, clarify and integrate the content of primary reports. Moreover it forms the basis for the justification for future research in the area. As such, review of literature has become an inevitable part of any investigation. Hence, a brief review of available literature, related to the study is presented under the following heads:

2.1. Farmers’ knowledge about Sulphur application and usage
2.2. Farmers’ awareness about the effect of Sulphur on growth, yield and quality
2.3. Farmers’ preference towards Suforty-90
2.4. Market potential and market share of Suforty-90

2.1. Farmers’ Knowledge about Sulphur Application and Usage

Perera et al. (2003) investigated the role of extension communication at farmer level in relation to knowledge and adoption of farming practices by the out grower farmers of Sri Lankan sugar industry. Primary data were collected from a stratified random sample of 60 farmers consisting of equal number of non-contract and contract farmers from Pelwatte Sugar Industry (PSI) area. Contract farmers were solely dependent on their Agricultural Assistants/Field Assistants (AA/FA) for the information and services whereas non-contract farmers used other sources also. More attention had been given to marketing and input coordination activities and less attention to farmer education in the main methods of extension communication practiced namely AA/FA's field visits and farmer's office visits. The majority of contract farmers attributed high credibility to the AA/FAs as well as higher rating for AA/FA's role and for input services. The highest proportion of contract farmers had medium technical knowledge and adoption levels. These results clearly show that extension communication activities are significantly related to farmer's knowledge and adoption among the out grower farmers.
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Singh et al. (2010) carried out a research on the conservation and testing of nitrogen effect over the location specific indigenous paddy varieties in purposively selected tribals’ villages from Dindori Developmental Block of Dindori district, Madhya Pradesh. The results indicate that tribal farmers have developed location specific knowledge to identify varied micro-farming situations and accordingly they grow and conserve number of indigenous paddy varieties. Study suggested that instead of macro, the micro level of planning of research and conservation strategy would be required for sustaining the biodiversity and related socio-ecological systems.

Assis and Mohd (2011) conducted a research on knowledge, attitude and practices of farmers towards organic farming in Malaysia. The main purpose of this preliminary study was to investigate the knowledge, attitude and practices of vegetable growers towards organic farming. A survey method through face-to-face interview by using structured questionnaire was used to collect data from a total of 31 vegetable growers in Kundasang, Sabah which was selected by using simple random sampling method. The findings of the study show that the knowledge of the respondents on organic farming especially pertaining to the use of chemical insecticides, herbicides and fertilizers is still need to be improved, their attitude is also still negative, and they are still dependent on conventional practices (i.e. chemical) especially to control pests and diseases. Based on this research they concluded, it was essential to make farmers aware of the benefits of organic farming. Therefore, there was need for greater awareness especially among producers or farmers through extension programs and also training and promotional activities to become conscious of sustainable organic farming with use of those agricultural methods which do not create hazards for the environment or jeopardize the health of soil, plants, animals, humans and ecosystems.

Kumar et al. (2012) carried out a study on the knowledge of sericulturists on adoption of organic farming practices in Chickballapur district of Karnataka. The study revealed that majority (44.16%) of the sericulturists had low knowledge about organic farming practices followed by medium (35.83%) and high (20.00%) knowledge, respectively. With respect to the recommended individual organic farming practices, majority of sericulturists had correct knowledge about application of FYM (88.33%) and use of Ankush (82.50%). None of the sericulturists (100%) had correct knowledge about use of Tank silt, Seri-VAM, Seri-nematoguard, FYM Neem Cake +Marigold intercrop in mulberry and use of Nysolynx thymus to control pest. Only negligible percentage of sericulturists had correct knowledge about use of Seri-bioguard (0.83%),
Sunhemp as green manure (1.67%), Seri-mildew guard (1.67%), Seri-comporich (2.50%) and Azatabacter bio fertilizer (2.50%). Out of 11 variables studied, four variables viz., family size, land holding, area under mulberry and social participation had positive and significant relationship with knowledge of sericulturists. This necessitates on implementing the programmes on knowledge up gradation of sericulturists regarding organic farming practices.

Hadiya and Deshmukh (2014) studied psychological characters and knowledge with respect to recommended crop production technology of castor as intercrop with groundnut and measured the knowledge level of respondents about recommended practices of groundnut. They ascertained the association of knowledge with the selected characteristics of respondents. The study was conducted under ex-post facto research design. 4 talukas were randomly selected, from each selected taluka three villages were selected randomly. Thus, 12 villages were selected. Total 120 respondents, 10 respondents from each selected village, were selected by using multistage random sampling technique. Results show that majority (65.00%) of the respondents had medium level of knowledge about the recommended crop production technology of castor as intercrop with groundnut and characteristics of the respondents like education, extension participation, innovativeness, risk orientation and cropping intensity had positive and highly significant relationship with the knowledge of respondents about recommended crop production technology of castor as intercrop.

Lekei et al. (2014) studied on farmers’ knowledge, practices and injuries associated with pesticide exposure in rural farming villages and found that a high potential for pesticide exposure in the selected community in rural Tanzania, a high frequency of self-reported APP and poor recording in hospital records. Farmers’ knowledge levels appeared to be unrelated to their risk. Rather than simply focusing on knowledge-based strategies, comprehensive interventions are needed to reduce both exposure and health risks, including training, improvements in labeling, measures to reduce cost barriers to the adoption of safe behaviors, promotion of control measures other than PPE and support for Integrated Pest Management (IPM).

Magarvadiya and Patel (2014) conducted a study in Tharad, Vav and Bhabhar Talukas of Banaskantha District of Gujarat State with 120 farmers from twelve villages having more area under arid and semiarid condition. It was observed that nearly two fifth (59.17%) of the farmers had medium level of knowledge regarding bio fertilizers,
remaining 40.83 per cent of farmers had low level of knowledge. It was sad to mention that none of them had high level of knowledge. Thus, it was concluded that almost farmers had medium to low level of knowledge regarding bio fertilizers and not a single farmers possessed high level of knowledge regarding bio fertilizers. The probable reason might be due to fact that majority of the farmers had educated up to secondary level of education. Among all the farmers, more than half (59.17%) of the farmers had medium level of knowledge regarding bio fertilizers. While majority (79.17%) of the farmers possessed moderately to less favorable attitude regarding bio fertilizers. In case of constraints major constraints perceived by farmers were; lack of technical knowledge about bio fertilizers (71.66%), lack of technical skill to use bio fertilizers (60.83%), non-availability of good quality bio fertilizers (56.66%), non-availability of bio fertilizers from all dealers (54.16%) and negative attitude of neighbouring farmers (51.66%).

2.2. Farmers’ Awareness about the Effect of Sulphur on Growth, Yield and Quality

Raja et al. (2007) conducted a field experiment in sandy clay loam soils at Tamil Nadu Agricultural University, Coimbatore to study the importance of Sulphur in realizing the better yield and quality viz., crude protein and oil content and yield of sesame crop during summer season of 2005 in Randomized Block Design with three replications. Three sesame varieties (TMV 4, TMV 6 and KS 95010) were tested for the response to five levels of Sulphur (S0: 0 kg S ha-1; S15: 15 kg S ha-1; S30: 30 kg S ha-1; S45: 45 kg S ha-1 and S60: 60 kg S ha-1. The positive response between S application up to 60 kg ha-1 and growth and yield components and seed yield of sesame was noticed in this study. The plant height was superior with the application of 60 kg S ha-1 and TMV 6 recorded the maximum and the highest was in KS95010 with the application of 60 kg S ha-1. The number primary and secondary branches per plant, number of capsule in main stem, primary and secondary branch and number of seeds per capsule was found higher with the application of 45 kg S ha-1. Application of 60 and 45 kg S ha-1 recorded higher seed yield and KS 95010 was significantly superior to other varieties. The highest seed yield was obtained from KS 95010 with the application of 60 kg S ha-1. The quality parameters studied viz., crude protein content and oil content and yield was increased with increasing S level.

Patel et al. (2010) conducted an experiment to study the effect of levels and
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sources of Sulphur on yield and quality of green gram during the summer season of the year 2006. The results revealed that Sulphur levels significantly influenced on quality parameters, growth and yield attributes viz., plant height at 40 DAS and at harvest, number of branches plant \(-1\), seed and straw yields and protein content, as well as chemical parameters such as uptake of S showed the similar trend. Application of different Sulphur sources significantly increased the quality parameters, growth and yield attributes. These attributes were increased with increase in the application of gypsum. Chemical parameters viz., uptake of S by seeds was also increased with the application of gypsum. Application of 30 kg S ha\(^{-1}\) from gypsum (GY) to summer green gram recorded maximum seed yield and net realization.

Islam (2012) conducted a field experiments at two different locations (Barani Agricultural Research Institute Chakwal and farm field Talagang, district Chakwal) for two crop growing seasons in northern rainfed Punjab, Pakistan to assess the yield and micronutrient uptake of chickpea. The treatments were four combinations of two levels of sulfur (15 and 30 kg/ha) from two sources (gypsum and ammonium sulfate) and a no-sulfur control. Application of sulfur resulted in a significant increase in seed yield up to 17% over control. Ammonium sulfate was a more efficient source of sulfur as compared to gypsum at both the locations. Sulfur application resulted in a significant increase in micronutrient uptake by plant; however effect of Sulfur application on soil pH at the end of experiment was not significant. Availability of soil zinc and copper increased with sulfur application at the end of two year experiment. Tissue copper and iron and soil available copper and iron correlated negatively with soil pH. It was suggested Sulfur should be applied to chickpea grown under rainfed conditions in order to increase seed yield, to improve nutritional composition of product and to enhance efficiency of other fertilizers.

Surendra and Katiyar (2013) studied the influence of Sulphur and zinc on mung bean for two consecutive summer seasons i.e. 2008-09 and 2009-10. The experiment with four levels of Sulphur (0, 20, 40 and 60 Kg S ha\(^{-1}\)) and four levels of zinc (0, 5, 7.5 and 10 Kg Zn ha\(^{-1}\)) was laid down in randomized block design with three replications. The summer mung bean variety “Narendra Moong-1” was sown during both the years. The results revealed that application of 40 Kg S ha\(^{-1}\) and 10 Kg Zn ha\(^{-1}\) significantly increased the plant height, number of branches plant\(-1\), number of nodules plant\(-1\), number of pods plant\(-1\), number of seeds pod\(-1\), seed yield, protein
content (%) and test weight was non-significant. The highest seed yield (13.69 and 14.400 q ha-1) was observed in combination with 40 Kg S ha-1 and 10 Kg Zn ha-1 which was significantly superior over rest of the combinations except 60 Kg S ha-1 and 10 Kg Zn ha-1 during 2008-09 and 2009-10, respectively.

Jawahar et al. (2014) conducted a field experiment at Annamalai University Experimental Farm, Annamalai Nagar to evaluate the effect of sources and levels of Sulphur on growth and yield of rice fallow blackgram. This study showed that supplementation of Sulphur as gypsum significantly increased the growth and yield of black gram. The results showed that sources and levels of Sulphur significantly influenced on growth and yield of black gram and vividly indicated that when the crop was supplemented with 40 kg S ha-1 through the cheaper source of gypsum, the crop resulted in a sustained yield increase. Hence, he concluded that application of gypsum at 40 kg S ha-1 could be an economically viable practice that could augment the production of higher yield and return from rice fallow blackgram.

Tahir et al. (2014) carried out an experiment to find out the best variety and optimum sulfur level to get higher yield of sesame crop at University of Agriculture, Faisalabad during summer season. The experiment was laid out in randomized complete block design (RCBD) with factorial arrangement. The experiment comprised of; two varieties, (TH-6, T-89) and six sulfur levels (0, 10, 20, 30, 40 and 50 kg ha-1). It has been observed that the variety TH-6 was more responsive to the sulfur application than the variety T-89. The collected data showed that variety V1 (TH-6) gave significantly maximum number of seeds plant-1, number of capsules plant-1, 1000-seed weight, seed yield, oil content and protein content. Similarly, the sulfur level S6 (when 50 kg sulfur was applied) gave significantly maximum plant height, number of capsules per plant, number of seeds per capsules, 1000-seed weight, seed yield and oil content of sesame. For obtaining higher yield and good nutritional value, sulfur fertilizer should apply at the rate of 50 kg ha-1 and the variety TH-6 should grow under the irrigated condition of Faisalabad.

2.3. Farmers’ Preference

Denford and Edward (2007) studied the level of brand awareness and factors underlying brand preference of dairy brands in Chitungwiza and Harare urban markets in Zimbabwe. A total of 90 respondents who included individual and institutional
consumers were selected using judgmental and simple random sampling respectively. Primary data was collected using structured interview schedules developed for each category of consumers. Consumer product awareness indices, cluster analysis and factor analysis were the main tools used in the analysis. The findings of the study showed that 52% of the respondent consumers were aware of ARDA dairy brands despite having come across few ARDA advertisements. Four factors were identified as key determinants of dairy product choice namely promotion, price and availability of product, attractive packaging and product quality. There is need for agricultural marketers to incorporate these findings in the formulation of responsive marketing strategies.

Shanthini and Kathirvel (2013) studied farmers brand preference on the consumption of fertilizer in Tripura district, Tamil Nadu. The studied was conducted in eight leading fertilizer manufacturing concern to know which was more popular, preferred and purchased by the farmers. The factors influencing the farmers for purchasing branded fertilizer like quality, price, availability and advertisement where studied Farmers have specific preference or choice and they analyze the price, quality, packaging aspects etc. before they buy the product. Hence, fertilizers manufacturers have to concentrate on those aspects and workout better strategy to attract more farmers for their brands. They should plan their production and distribution activities as per the needs and convenience of the farmers.

Anandh and Shyama Sundar (2014) carried out studied on the factors affecting consumers’ brand preference of small cars in Chennai. The majority of consumers prefer Maruti Suzuki brand of small car. The value, comfortability, efficiency, accessibility, ambition and need are the factors affecting consumer’s brand preference of small cars. The regression analysis shows that value, comfortability, efficiency and need are positively influencing the consumer’s overall satisfaction about small cars at one per cent level of significance, while accessibility is also positively influencing the consumer’s overall satisfaction about small cars at five per cent level of significance.

Danso-Abbeam et al. (2014) conducted a study to find out the determinants of consumer preference for domestically processed rice and identified some of the constraints inhibiting the consumption of local rice in the Tamale metropolis. Logistic regression model and Kendell’s coefficient of concordance were used to analyze the determinants of consumer preference for domestic rice and some of the factors
inhibiting the patronage of local rice respectively. The key variables influencing consumers preference for local rice includes; age, household size, monthly expenditure on food and taste. The results also indicated that about 65 percent of the respondents agreed that poor packaging of local rice is the number one factor inhibiting the patronage of local rice. There is therefore an urgent need to invest into the development and deployment of rice varieties to improve its taste. Local rice processors should also worked at improving the packaging to make it competitive in the market.

Geeta (2015) studied the brand loyalty of customers towards packed milk and factors that influenced the brand loyalty for packaged milk in Rohtak. The sample size of 100 respondents was selected with the help of convenient sampling method. The primary data was properly collected with the help of the questionnaire and tabulated by using the simple percentage method. The study revealed that the maximum numbers of respondents are loyal towards their brand and are not willing to change their brand.

Ramya and Janani (2015) studied the customer’s preference and satisfaction towards big bazaar with reference to Coimbatore city. The main objective of the study is to analyze why the customers prefers the organized retail shop for their purchase instead of an unorganized retail shops and their satisfaction level. For the purpose of the study a questionnaire was constructed a survey taken from a 120 respondents as consider them as sample where the total population was infinite in nature. The collected data were analyzed and interpreted with the help of suitable statistical tools and accordingly the finding and suggestion were constructed. The result of the study reveals the brand preference of Big Bazaar. The customers’ have good opinion on the factors such as price, supply, quality and brand image.

Sivathanu (2015) conducted a study to find out the Factors Affecting Consumer Preference towards the Organic Food Purchases in Maharashtra. Multiple linear regression technique was used to find the determinants which could explain the preference among consumers to buy the organic food products. Descriptive statistics was used to understand the demographic information. The study sawn that the consumers prefer to buy organic food products, there were various factors impacting the preference including demographic characteristics of the consumers, females have more preference for organic food products as compared to male respondents, more number of educated respondents prefers to buy organic food products, age group of 29-39 prefers to buy organic food as compared to other age groups, people of higher
income group prefer to buy organic food. Consumers prefer to buy organic food products because of their perception that the organic food products are healthy and safe, nutritious and environment friendly.

2.4. Market Potential and Market Share

Alok et al. (2008) presented an article which deals with the measures to be adopted for global promotion of Indian herbal products. The scenario and perceptions of herbal medicine were discussed. They concluded that India is sitting on a gold mine of well-recorded and well-practiced knowledge of traditional herbal medicine. The basic requirements for gaining entry into developed countries include well-documented traditional use, Single-plant medicines, Medicinal plants free from pesticides, heavy metals etc., Standardization based on chemical and activity profile and Safety and stability. Herbal drug development is possible only through the development of standardized herbal products. The health care systems are going to become more and more expensive therefore, we have to develop technologies to essentially introduce and integrate herbal medicine system in our health care. There is an enormous scope for India also to emerge as a major player in the global herbal product based medicine. Let us hope that drug manufactured in accordance with principles of Ayurveda, Siddha and Unani will reach new horizons and make them the best in the world if the quality of the herbal drugs was maintained, efficacy would it self be maintained and then there was nothing to stop them from competing with the modern medicine with added advantages of fewer side effects and lower costs.

Rafiuddin and Badiuddn (2011) studied on understanding the potential of rural marketing in India and examined that fast pace of technology advanced every sphere of social, economic, political cultural life, produce, reduce costs, distribute, and expect higher profits. The focus was on tapping the rural markets. Urban markets have saturated lied to look rural markets. This study presented a review of rural markets environment, problems and strategies in India. Rural marketing has become the latest mantra of most corporate even MNCs are eyeing rural markets to capture the large Indian market. There is a high potential in rural India but exists major differences between the existing and the desirable levels of rural marketing.

Mahalakshmi and Sudha (2012) studied on market potential for Mangalam News paper to find out the factor, which determine current market situation. Mangalam
can be increased only by introducing more and more attractive features and improve the paper quality. The sample size used in this study was 100. The sampling technique used in this study was convenient sampling. In case of data collection, the primary and secondary data’s were used. Questionnaire was used for collecting primary data. Secondary data were collected from past records and other library reference available with the area of study. The simple percentage analysis was used for this study. The Mangalam newspaper has got very response from its readers. Most of the readers prefer the newspaper for its cost. If Mangalam publication can follow the suggestions given by the respondents to increase the sales, improve quality and add the more features news then it will reach the No.2 position with recent years.

Head and Mayer (2013) observed the Market Potential and the Location of Japanese Firms in the European Union. This paper develops a theoretical model of location choice under imperfect competition to formalize the notion that firms prefer to locate “where the markets are.” The profitability of a location depends on a term that weights demand in all locations by accessibility. Using a sample of Japanese firms’ choices of regions within European countries, they compare the theoretically derived measure of market potential with the standard form used by geographers. The results show that market potential matters for location choice but cannot account entirely for the tendency of firms in the same industry to agglomerate.

Kyle et al. (2014) studied that during wine production, approximately 25% of the grape weight results in by-product/waste (termed ‘pomace’ which is comprised of skins and seeds). Currently, most pomace is being composted to be reintroduced into the vineyards to complete the carbon cycle. Due to the increasing consumer demand for the use of natural over synthetic compounds, and because of increased attention to sustainability of agricultural practices (Fontana, Antoniolli, & Bottini, 2013), there was a vast array of applications for grape pomace bioactives including: functional foods (dietary fiber + polyphenols), food processing (biosurfactants), cosmetics (grape seed oil + antioxidants), pharmaceutical/biomedical (pullulan) and supplements (grape pomace powder). To date, there has been no assessment as to the market potential for value-added usage of grape pomace. This paper seeks to address this gap. The annual production of grape pomace along with its multitude of applications, create an opportunity to discover an unexploited market with great commercial potential.
Mundy and Bullen (2016) gave the method for calculation of market potential. According to the study, the steps involved in measuring market potential were: define the market segment, define the geographic boundaries of the market, define the competition, define the market size, estimate the market share, determine the average annual consumption and estimate and average selling price.