. Review of literature:

A review of previous studies on agriculture is essential to get a bird’s eye view about the sector. The information gathered is useful to go in depth and to identify the unknown areas. Several authors have dealt extensively with various aspects of agriculture sector. Some of the following studies are reviewed.

1) As per available literature it is evident that, Rajaona et al. (2007) have carried out the comparative study of allometrical parameters of cashew trees in Northern Brazil. It will contribute for the improvement of cashew cultivation system in North East Brazil, in order to increase the production level.

2) Martin et al. (1997) mentioned that, recently, higher cashew prices and liberalised marketing have created favorable conditions that have encouraged farmers to tackle several of the biological constraints on production.

3) Singh (1976) explained various physical factors related to agricultural activities. He focuses on land tenure, size of operational holdings. Another scholar Amar Singh (1980) in his book “Fruit Physiology and production”, has studied the complexities of metabolic control that the plant exercises due to the changes in external environment, supply of nutrient, shift in harmonal balance etc. He only considered the fruit plants for the said study.

.7) Sawant and Gaonkar (2007) studied the production of cashew in relation with the watershed management scheme in village Morpilla of Goa.

.8) Tawade (1980) in his book Geography of Fruit Farming a Case Study of Ratnagiri District explained the importance of fruit farming in the economy of South Konkan. With the help of sample studies, he explained how the fruit crops are influenced by the geomorphologic facets, soil determinants, hydrological and climatic conditions etc.

.9) Dalvi et al. (1990) studied the economics of processing of cashewnut in Sindhudurg district of Maharashtra.
Patil (1994) studied the growth and prospects of cashewnut processing industry of Sindhudrug district.

10) Thombare (2005), in his book, Kaju Lagawad Ani Prakriya Udyog (in marathi), explained the historical, social, cultural, geographical and economical background of the cashew cultivation and cashew processing units.
11) Sontakke (1989) in his study emphasised on processing units in study region. He explained the economics of small scale units in Devgad tahsil.

12) Phule (2003) studied in detail the Geo-economics of pomegranate cultivation in Solapur district. For this study he selected the Sangola tahsil, which is drought prone area of Solapur district. The physical, social, economic aspects of pomegranate cultivation are also discussed by him. In the same year, horticultural economy of fruit crop in Maharashtra is studied by Patil (2003). Hajare (2007) also studied the fruit farming in Maharashtra plateau. Thus major research works comprising scientific techniques of production, protection of crops are carried out. Along with this production and marketing, cost estimation has been also carried out.

13) Prasad (2006), mentioned in his A comprehensive analysis of plan wise development in agriculture is explained in detail which is helpful to extract the situation of agriculture on various angles. “Role of Farm Women in Agriculture:

14) Lessons Learned” Satyavathi et al (2010) explained the extent of female workforce engaged in agricultural operations, household technology required for farm women
training needs, production resources, innovative strategies for future is explained in this article which is helpful to trace out the problem.

.15) Manabendu Chattopadhyay (1982) mentioned that, the labor the women can provide for cultivation for various crops, planting, harvesting, post harvest operations is explained. According to FAQ the benefits of modernization of agriculture have benefited the wealthy more than the poor and men more than women.

16) Kaur and Sharma (2002), mentioned that, Training of women in animal husbandry is found to be totally neglected. The level of improved household technology, too, is very unsatisfactory, more especially in backward regions where the majority of women are still working with age-old tools. Over half the respondents had no leisure time.

17) Pandey (2010) posited that, rural women play a significant role in agricultural development of India. Under agricultural activities, starting from field preparation they were participated in different farm activities like sowing, weeding, manure and fertilizer application, harvesting and storage etc. It was found that maximum participation of women is in plantation (86-6%), secondly in harvesting (85-4%) storage (73-4%) women participation was found least in irrigation (13-8%) and fertilizer application. (8.2%)

18) Enriching Indian agriculture: A Vedic point of view (Special focus on farmers suicides in India) Dr. Veena Rani- Agriculture sector in Indian economy plays pivotal role for the growth and development of an economy. In India Agriculture sector at present provides livelihood to 65% to 70% of total population. The sector provides employment to 54.6% of country’s workforce and is the single largest private sector occupation. But it can be observed that its contribution in real GDP has fallen to 13.9% in 2013-14 [1] which is a matter of great serious concern. Every year various types of policies are being adopted by Government of India for the welfare of farmers but it is a matter of great concern that every year government has to waive of loans of most of the farmers as they are unable to repay the loans and hence commit suicide. Farmers’ suicide cases is a serious threat for our economy. The aim of the paper is to focus light on the ways and means from our ancient Vedic philosophy to make our Indian Agriculture prosperous one as well as to extract the farmers from the heavy burden of loans. The Researcher has searched out the knowledge about Vedic literature for the

Agriculture is the dominant sector of Madhya Pradesh economy; which determines the growth and sustainability. Organic farming essentially that is not only chemical free produce but also same or higher yield with lower input cost. Madhya Pradesh has 10.8 lack acres organic cultivation area in 2009-10. Cotton has been identified as major organic produce in the state; besides that fruits, vegetables and herbal plants also contribute a lot due to large forest cover in the state. Climate and soil of Madhya Pradesh is favorable for growing of horticultural crops. Horticulture is the fastest growing sector within agriculture. Madhya Pradesh is producing about 7.69 mMT of horticulture produce from an area of 0.75 mha and accounts for 3.20 percent of the total horticulture production of the country. The major share of horticulture produce is from vegetables (48.08 %) and fruits (43.85 %). The main objective of the study is to analyze organic farming and horticulture as new dimensions of agriculture Development in Madhya Pradesh. We also analyze area and production of main organic crops of Madhya Pradesh and area, production and productivity of major crops of horticulture in Madhya Pradesh. We use secondary data for this study.

20) PROBLEMS AND PROSPECTS OF AGRICULTURAL MARKETING IN INDIA: AN OVERVIEW A. Vadivelu1 and B.R. Kiran2


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Agriculture is different from industry and plays a significant role in the economic development of a nation. India’s prosperity depends upon the agricultural prosperity. There are many kinds of agricultural products produced in India and the marketing of all these farm products generally tends to be a complex process. Agricultural marketing involves many operations and processes through which the food and raw materials move from the cultivated farm to the final consumers. Agriculture provides goods for
consumption and exports and manufacturing sectors. The suitable marketing system should be designed so as to give proper reward or return to the efforts of the tiller of the soil. Market information is a means of increasing the efficiency of marketing system and promoting improved price formation. It is crucial to the farmers to make informed decisions about what to grow, when to harvest, to which market produce should be sent and whether or not to store it. Awareness of farmers on different components of market information and its utility was very poor (11 to 37 %) as compared to that of traders (75%). Out of the expectations of farmers on grades, quality, prices in potential markets, price projections; only real time arrivals and prices were documented and disseminated with traditional approach. Hence there is a need to create awareness among the farmers through the agricultural extension agencies like the State Department of Agriculture, Krishi Vigyan Kendras so that the marketing information on agriculture commodities are incorporated in the extension services along with production aspects to the farmers.

.21) Management of Agriculture Waste from Market yard Through Vermicomposting
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Solid waste management has become one of the major problems we are facing today. The rapid increase in the generation of huge quantity of waste is one aspect of the environmental crisis. This is accompanying with recent global development with respect to rapid urbanization and population growth which has resulted into generation of large quantity of organic solid waste. The Agriculture Produce Marketing Committees (APMC’s) are generating large quantity of organic waste from cereals, pulses, fruits, vegetables and in some markets from cattle. The farmers bring the produce to the market from farms without grading and cleaning it. Most of the produce is sold on weight basis, in order to make more profit. Hence the organic waste in the market area increases and puts pressure on the e system of agricultural solid waste collection and management. Due to these increased volume and weight, most of the waste remain uncollected and starts decaying at the site. As a result the foul odour is spread thought vicinity of towns and cities. The solid waste collection and disposal system is not efficient. The APMCs are usually located in the centres of town which creates sanitation, problems and hygiene hazards to the common people. This research paper is concentrated on handling this problem in simplest, scientific,
economical and environmental friendly way to transform waste materials into compost through vermicomposting by using an exotic species of earthworm - Eisenia Foetida and Eudrilus euginiae.

22) Production and Marketing of Cut flower (Rose and Gerbera) in Hosur Taluk. Dr.S.Sudhagar M.Com.,M.Phil., Ph.D., Assistant Professor, Department of Commerce, MGR College, Hosur – 635109 ABSTRACT: Floriculture is a fast emerging and highly competitive industry. With the continuous introduction of new cultivators and new crops, cultural techniques are changing and hence new products are developing. Ornamental crop culture technology is improving with the availability of equipment and there is a sea change in the trend of consumers. A new generation of growers is coming forward to employ modern technology for maximizing production and offer quality produce for consumer acceptability, thus fetching a better price. It has emerged as a lucrative profession with the much higher potential for returns compared to other agri-horticultural crops

23) Cloud Computing for Agricultural Information Management in India Jayade, K. G.1, Gaikwad, C. J. 2 1Asst. Professor in Computer Science, Dr. PDKV, College of Agriculture, Nagpur, Maharashtra, India. 2Librarian, Dr. PDKV, College of Agriculture, Nagpur, Maharashtra, India. Use of Cloud computing technology in agricultural sector has greater opportunity in the overall development of India. An effective implementation of cloud computing is encouraging in agricultural sector. Cloud Computing is emerging today as a commercial infrastructure that eliminates the need for maintaining expensive computing hardware, software, IT staff, infrastructure, resources and their maintenance. Through the use of virtualization, clouds promise to address with the same shared set of physical resources a large user base with different needs. Cloud storage enables users to remotely store their data and enjoy the on-demand high quality cloud applications without the burden of local hardware and software management. Though the benefits are clear, such a service is also relinquishing users’ physical possession of their outsourced data, which inevitably poses new security risks towards the correctness of the data in cloud. The proposed design allows users to edit the cloud storage with very lightweight communication and computation cost. The editing result not only ensures strong cloud
storage correctness guarantee, but also simultaneously achieves fast data error localization, i.e., the identification of misbehaving server.


Today the mobile phone is used and in that most are the smart phones. Android is the mobile operating system used in smart phone, most of android applications are freely available for user. The use of smart phone is increase in every sector. So in this we use Horticulture concept and Android is used for a Farmer Helping Service system that will provide the detail information of fruits, vegetables to the farmers. And this information will also provide information in audio form also. This system can provide information using android smart phone from anywhere and anytime without using internet and at free of cost. It is very useful to Maharashtra Farmer because they will get information in Marathi Language just by typing number from the mobile keypad. An illiterate person can also easily operate the system.

.25) Study of Solar PV Water Pumping System for Irrigation of Horticulture Crops. Er. P.D.Narale1, Dr. N.S.Rathore2, Dr. S.Kothari3 1Student of ABSTRACT: This paper presents design and economic analysis of efficient solar PV water pumping system for irrigation of banana. The system was designed and installed in solar farm of Jain Irrigation System Limited (JISL), at Jalgaon (Maharashtra). The study area falls at 21° 05’ N – latitude, 75° 40’E–longitude and at an altitude of 209 m above mean sea level. The PV system sizing was made in such a way that it was capable of irrigating 0.165 ha of banana plot with a daily water requirement of 9.72m3/day and total head of 26m. Also, the life cycle cost (LCC) analysis was conducted to assess the economic viability of the system. The results of the study encouraged the use of the PV systems for water pumping application to irrigate orchards.

26) AGRICULTURAL MARKETING SERVICES IN INDIA
SHAKEEL-UL-REHMAN* *Ph.D., Research Scholar, Anna University of Technology, Department of Management Studies, Sona College of Technology, Coimbatore, Salem - 636005, Tamil Nadu, India.
Indian agriculture has successfully moved towards commercialization. Directly or indirectly agriculture in India has continued to be the source of livelihood to majority of the population. Indian agriculture has seen a lot of changes in structure from time to time when needed. India has successfully achieved the targets in agricultural production. Government of India has put agricultural development as its prime responsibility as the producer/farmer must get a maximum share in the consumer Rupee. The present paper highlights some of the organizations and institutions that provide direct and indirect agricultural marketing and allied services for the ease and accessibility to the producer/farmer on one side and the consumer on the other. The paper also highlights some alternative services available in agricultural marketing in India that could provide additional value in the agricultural development. In the end the paper provide some suggestions that could help to make agricultural marketing services better, more valuable and economical for the producer/farmer, the consumer and the country as whole.

27) VARIETAL WEALTH OF BANANA IN MAHARASHTRA: AN OVERVIEW
Patil S.D.* Patil M.R.** and Badgujar C.D.* *Department of Horticulture, College of Agriculture, Dhule-424 004 (M.S.) India. ** Department of Statistics, College of Agriculture, Dhule-424 004 (M.S.) India.

ABSTRACT
Banana “Dwarf Cavendish” from the basis of commercial banana industry of the state, while its sub-clones viz. Ardhapuri, Menagaon, Shrimanti, Padalse and other cultivars viz. Safed velchi, Mutheli, Sandhurni, Rajeli, Harichal and Red banana have location specific preferences. Recently in the last decade the Grand Naine was introduced in Jalgaon area and within minimum period get popularized due to its earliness, high yield, better finger quality, better responsive to fertilizers other management aspects and ratooning ability observed in present study.

28) Statistical Analysis Software for Agricultural Research Data Analysis
Jayade K. G.*, Deshmukh P. D. Khot P. G. Asst. Professor in Computer Science, Asst. Professor in Statistics Professor Dr. PDKV, College of Agriculture, Dr. PDKV, College of Agriculture Dept. of Statistics, RTM Nagpur Nagpur, Maharashtra, India Nagpur, Maharashtra, India University Nagpur, Maharashtra, - Agriculture is the backbone of India and agriculture research is required for sustainable and modern agriculture. India
is the agricultural country and the rural India is depends on the agriculture. In India, many organisations are working for research and development in agriculture. For sustainable agriculture, statistical analysis on the research data is most important. With the use of computer in agriculture sector, statistical analysis becomes easier. These software are very easy, gives fast result and are reliable. Statistical analysis is used for analysis of agricultural research data. Many softwares have been used since the use of computer in agriculture. This research paper is the study of statistical software used by the agricultural scientists in agriculture research for analysis of data.

29) Small Farmers in India: Challenges and Opportunities S.Mahendra Dev Indira Gandhi Institute of Development Research (IGIDR) General Arun Kumar Vaidya Marg Goregaon (E), Mumbai- 400065, INDIA
This paper examines the roles and challenges of small holding agriculture in India. It covers trends in agricultural growth, cultivation patterns, participation of small holding agriculture, productivity performance of small holders, linking small holders with markets including value chains, role of small holders in enhancing food security and employment generation, differential policies and institutional support for small holders and, challenges and future options for small holding agriculture including information needs. It also provides lessons from the experience of India on small holding agriculture for other countries.

30) Socio-Economic Factors for Cashew Production and Implicative Strategies : An Overview R. Venkattakumar Senior Scientist (Ag.Ext.), Directorate of Oilseeds Research, Rajendranagar, Hyderabad An ex-post facto research study was initiated by NRCC, Puttur during 2004-05 to assess the socio-economic impact of cashew cultivation in Kerala, Maharashtra, Andhra Pradesh and Tamil Nadu, with the aim of suggesting implicative strategies to improve the cashew cultivation scenario. The respondents of the study included two categories viz, farmers with gardens of seedling origin (FSG) and farmers with gardens of graft origin (FGG). In Kerala, Maharashtra and Tamil Nadu, each 30 FSG and FGG respondents were selected through multi-stage random sampling procedure, whereas in Andhra Pradesh each 60 FSG and FGG respondents were selected through accidental followed by snowball sampling technique. The knowledge, adoption level and technology gap of majority FSG and FGG were medium in nature in all four states. The average adoption gap of all the respondents was
54\%, whereas it was 57, 60, 65 and 35\% in Maharashtra, Kerala, Andhra Pradesh and Tamil Nadu, respectively. Damage due to major cashew pests was the first ranked constraint and training need in all four states. State-wise opportunities and threats for cashew development were assessed and an action model depicting implicative strategies for cashew production scenario was suggested.

31) Determinants of Rural-Urban Migration in Konkan Region of Maharashtra\textsuperscript{§} V.A. Thorat*, J.S. Dhekale, H.K. Patil and S.N. Tilekar Department of Agricultural Economics, Dr. Balasheb Sawant Konkan Krishi Vidyapeeth, Dapoli, Dist. Ratnagiri-415 712, Maharashtra

The study has identified the factors responsible for rural-urban migration based on 120 sample respondents each of migrants and non-migrants spread over two districts, viz. Ratnagiri and Sindhudurg of Konkan region of Maharashtra by employing the logit model. The study has highlighted the importance of rural development programs like MGNREGA that are being implemented by the government with a view to provide employment and income to the rural population in the country. It has also shown that for both migrant and non-migrant households, agriculture was the major source of income, and their consumption expenditure was more than the production expenditure. It has also been observed that migration has a positive impact on income, expenditure and net savings of migrant sample households. The regression analysis has shown that one unit increase in the age of household-head increases the probability of migration of family members by 0.81 per cent. The probability of migration of family member decreases by 0.003 per cent with one unit increase in before-migration income of a household. The odds ratio for familysize has indicated that with one unit increase in family-size, the probability of migration of family members increases by 8.7 per cent. There is a negative relationship between migration of family members and income from agriculture. As off-farm income of a household increases, the probability of migration of its family member decreases. The odds ratio for off-farm income implies that with one unit increase in off-farm income of a household, the probability of migration decreases by 0.018 per cent.

32) A Study of Marketing of Mangoes in India Shreya Vinay Patil Assist. Prof. Balwant College, Vita, Sangli, Maharashtra, India India's diverse climate ensures availability of all varieties of fresh fruits & vegetables. It ranks second in fruits and vegetables

production in the world, after China. As per National Horticulture Database 2012 published by National Horticulture Board, during 2011-12 India produced 76.424 million metric tonnes of fruits and 156.33 million metric tonnes of vegetables. The area under cultivation of fruits stood at 6.704 million hectares while vegetables were cultivated at 8.99 million hectares. India ranks first in production of Bananas (27.85%), Papayas (35.31%), Mangoes (including mangosteens and guavas) (39.04%). The vast production base offers India tremendous opportunities for export. During 2012-13, India exported fruits and vegetables worth Rs. 5730.85 crores which comprised of fruits worth Rs. 2467.40 crores and vegetables worth Rs. 3263.45 crores. Mangoes, Walnuts, Grapes, Bananas, Pomegranates account for larger portion of fruits exported from the country. The major destinations for Indian fruits and vegetables are USA, Bangladesh, Malaysia, UK, Netherland, Pakistan, Saudi Arabia, Sri Lanka and Nepal. The present paper attempts to study the area, production & productivity of mangoes in India, the export of mangoes to the various foreign countries in the world, Issues to be tackled to increase export of Mangoes & Challenges in production of Mangoes.

33) Probable Agricultural Biodiversity Heritage Sites in India: XX. The Konkan Region
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The Konkan region – consisting of the narrow strip of India’s northwestern Western Ghats and the coastal plains – is a region with rich agriculture heritage, where most of the people are involved in agriculture. The region is credited with the use of unique agricultural systems, such as the Gavkari joint land management system. Agriculture has been practiced in the region from ancient times; the contacts it had with the Africans, Arabs, Turks, Romans, etc., enabled the trade of agricultural produce such as spices, textiles, perfumes, etc., much before the advent of Western European culture. The trading continued during the medieval period, and played an important role in the introduction and adaptation of several exotic crops into India, revolutionizing Indian agrobiodiversity. At the same time, it facilitated the dispersal of Indian crops such as rice, spices, coconut to other parts of the world, enriching global agrobiodiversity. Cultivation of enriched agrobiodiversity under diverse high-rainfall microclimatic conditions led to the development of unique tropical mixed cropping systems, generation and conservation of rich genetic diversity in most crops, and the creation of new avenues for farmers’ livelihood support. For these
contributions, the region is being proposed as another National Agricultural Biodiversity Heritage Site in India, based on the indices illustrated for identification of an agricultural biodiversity heritage site. The paper discusses some of these contributions in brief.

.34) Government Intervention in Horticulture Development in Maharashtra: A Study of Alphonso Mango Cultivation in Ratnagiri Sangeeta Shroff

Agriculture in Maharashtra is mainly rainfed, facing scanty and erratic rainfall. Barely 18 per cent of gross cropped area is irrigated. Consequently, low value coarse cereals dominate the cropping pattern. The Government has made concerted efforts to improve the productivity of land by promoting horticulture and implementing the Horticulture Development Programme linked to Employment Guarantee Scheme. Subsidies were given to farmers to cultivate fruit and medicinal crops. A field survey of this scheme with respect to mango crop in Ratnagiri taluka revealed that in the first year of the fruit bearing stage itself, the beneficiaries earned a positive return which was augmented with the subsidy component. By providing subsidy to small and marginal farmers, the scheme also helped to improve their socio-economic status. The fruit crop has tremendous export potential which can be tapped with opening up of the economy

35) Estimation of Area and Production of Fruits and Vegetables in Maharashtra State

Tauqueer Ahmad, H.V.L. Bathla, Anil Rai and Prachi Misra Sahoo

Production of fruits and vegetables has attained significant importance in the recent past. Fruits and vegetables account for nearly ninety percent of total horticulture production in the country. One of the basic requirements for proper planning for increasing the production of these crops in the country is the availability of reliable statistics about their area and production at various levels. At present, the estimates of area and production of important fruits and vegetables are being obtained under the scheme “Crop Estimation Survey on Fruits and Vegetables (CES-F&V)” only for eleven states. Ahmad et al. (2011) developed an alternative methodology for estimation of area and production of different horticultural crops. In this paper, the estimates of area, production and productivity of important fruits and vegetables have been obtained for Maharashtra State using the alternative methodology.
Rhinoceros beetle, Red palm weevil, Black headed caterpillar and Eriophyid mite are major pests infesting coconut in Konkan region of Maharashtra. The roving survey was carried out in major coconut growing districts of Konkan region of Maharashtra viz., Ratnagiri, Raigad, Sindhudurg and Thane districts during the year 2013. Data collected from this survey revealed that the infestation by rhinoceros beetle in all the four districts was in the range of 12.67 to 16.80 per cent. High spindle damage was observed in Sindhudurg district (5.08 per cent). The red palm weevil incidence was in the range of 13.27 to 15.12 per cent. Maximum mortality of palm was observed in Sindhudurg district (4.10 per cent). The black headed caterpillar was noticed in all the districts but maximum incidence reported from Thane district up to the extent of 39.90 per cent. The eriophyid mite infestation was in the range of 43.95 to 48.47 per cent in all coconut growing districts but Intensity of mite was mild to medium in all the districts. Palghar tahsil in Thane district and Talsande tahsil in Kolhapur district were identified as hot spot areas for black headed caterpillar and sufficient number of parasitoids were supplied to coconut growers from Regional Coconut Research Station, Bhatye, Ratnagiri for the effective management of the pest.